



Exail Multilogger

User Guide

Revision History

Edition	Date	Release	Comments
A	02/2018	3.00	Creation
B	11/2018	3.02	Section 2.1 updated. Appendix added.
C	10/2023	3.40	In chapter “How to configure the flow?”, the system name field has been added.

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Abbreviations and Acronyms

ASCII	American Standard Code for Information Interchange
INS	Inertial Navigation System
IP	Internet Protocol
MMI	Man Machine Interface
NMEA	National Marine Electronics Association / Normalized ASCII format for marine data exchanged
PC	Personal Computer
TCP	Transfer Control Protocol
UDP	User Datagram Packet
XML	eXtended Markup Language

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1 General Overview

1.1 Introduction

The secured datalogger tool allows you to efficiently record Exail product output flows and to guarantee the integrity of the recorded data.

This document describes how to use the Exail Multilogger. It has been designed to:

- > Log up to 10 flows simultaneously from multiple inertial units in Ethernet or Serial
- > Manage file segmentation and frames decimation
- > Decode PHINS STANDARD and OCTANS STANDARD stream like the Web MMI datalogger
- > Check for flow errors in the stream (Postprocessing, PHINS STANDARD, OCTANS STANDARD, NMEA, ASCII)
- > Get system configuration using repeater port or a configuration file
- > Save/load configuration to/from XML file
- > Run multiple instances of the Exail Multilogger on the same computer
- > Manage report file

Do not hesitate to contact Exail technical support for further information: support@exail.com

Each log file name is build as follows:

- > SessionName
- > Port (A to E) if configuration retrieved from the system
- > Protocol name if used
- > TimeStamp if configured
- > File number if segmentation used

1.2 Exail Multilogger User Interface

The User Interface is shown as follows:



General setup area allows you to setup the configuration of the flows. Flow area shows all the flow parameter icons and the status of each flow.

1.3 General setup icons

The following icons are displayed on the top of the main screen:

	General configuration of the Exail Multilogger
	View flow status
	Start datalogging
	Stop datalogging
	Get system configuration
	Save the Exail Multilogger configuration
	Load the Exail Multilogger configuration
	Reset the Exail Multilogger configuration
	Exail Multilogger version

1.4 Flow icons

The following icons are displayed on the left of the main screen:



Flow configuration when the flow is not configured yet



Flow configuration when the flow is already configured



Flow connected



Flow disconnected

The following icons are displayed on the right of the main screen:



Control the flow



View the flow status



Configure the flow



Remove the flow



Insert the flow before or after



Acknowledge the flow error(s)



Reset the flow configuration

1.5 System requirements

Hardware The minimum recommended workstation characteristics are:

- > Pentium IV – 2 GHz
- > 1 Gigabyte of Random Access Memory (RAM)
- > 2-button mouse
- > 1 standard keyboard

Software > Microsoft Windows XP SP3, Windows Vista or Windows 7 / Windows 8, Windows 10, Windows 11

1.6 How to launch the Exail Multilogger?

To launch the Exail Multilogger, just double-click on the `ixbluemultiloggersetup_X_X_X.exe` file. This file will install the Exail Multilogger on your computer.

The whole Exail Multilogger configuration is saved on the computer register base and is reloaded at each startup.

At the end of the installation, double-click on the Exail Multilogger shortcut on the computer desktop. The following window is then displayed:



To get more information about the Exail Multilogger `iiuser` interface, refer to section 1.2.

Exail Multilogger can be also used in command mode with the following command:

- > `-c` is used to import tool (.xml) configuration file
- > `-d` is used to set log folder
- > `-s` is used to set session name
- > `-v` is used to set Multilogger tool visible
- > `-a` used to automatically start log process
- > `-f` to limit activated flow(s)
- > `-x` used to automatically close tool when a timeout or connection issue is rised

Examples :

```
exail_MultiLogger.exe -v
=> simply open multilogger interface
```

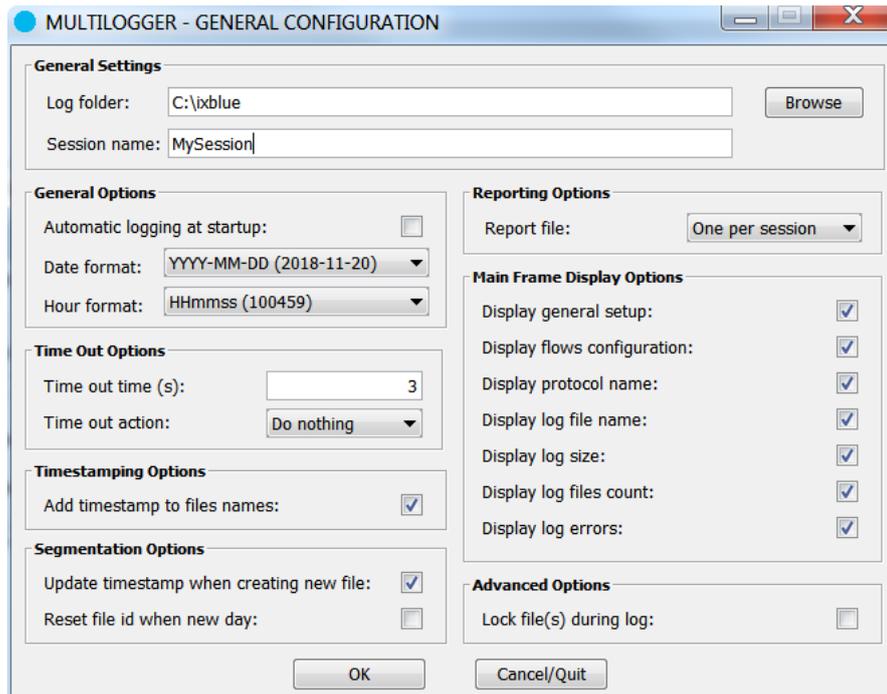
```
exail_MultiLogger.exe -c configfile.xml -a -f1 -x
=> open log tool in invisible mode, start log on flow1 and close if issue detected.
```

2 Configuration

2.1 How to set up the configuration?

Step Action

1. In the Exail Multilogger, click on the  icon. The General Configuration window is then displayed:



2. In **General Settings**:
 - > Click on the **Browse** button to select the log folder where to store the log and report files.
 - > Enter the name of the session in the Session name field. This name is used to build the log file names.

3. In **General Options**:
 - > Tick the **Automatic logging at startup** option in order to automatically start the log when running the Multilogger tool.
 - > Select the **date and hour format** in the available lists: these formats will be used in the file names, the history event date and report file name.

4. In **Time Out Options**:
 - > Enter the value of **Time out time (s)**: 0=no timeout
 - > Select the **Time out action** in the list: Do nothing, Restart single flow, Restart All flows, Stop single flow, Stop all flows.

Step Action

Note: we recommend to set the TimeOut option to **Restart all flows** so that the tool automatically reconnects to the INS if it is restarted. Thus there is no requirement to restart the flows if the INS is restarted.

5. In Timestamping Options:

- > Tick on the **Add timestamp to files names** option to use timestamp when creating log file name.

6. In Segmentation general Options (available when Timestamping option is ticked):

- > Tick on the **Update timestamp when creating log file name** option. If used, the next file uses new timestamp. In both cases (set or not), a number is added to file name to use timestamp when creating log file name.
- > Tick on the **Reset file id when new day** option to reset the file identifier in case of new day (available only if the Update timestamp when creating log file name option is ticked).

7. In Reporting Options:

- > Select the type of **Report file** in the available list: None, One per session, One for all sessions. The report file will be created in the log folder.

8. In Main Frame Display Options:

- > Tick the Display General Setup option in order to display the general setup on the main window of the Multilogger tool:



- > Tick the other options in order to configure the flow display status: **Display flows configuration, Display protocol name, Display log file name, Display log size, Display log files count, Display log errors.**

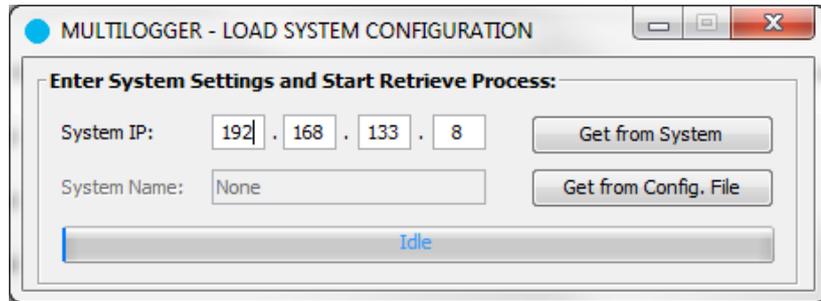
9. In Advanced Options:

- > Tick the **Lock file(s) during log** option to lock the logged files to avoid any mistake during log of the files, or to keep logged files unlocked to allow file inspection/ manipulation during logging.

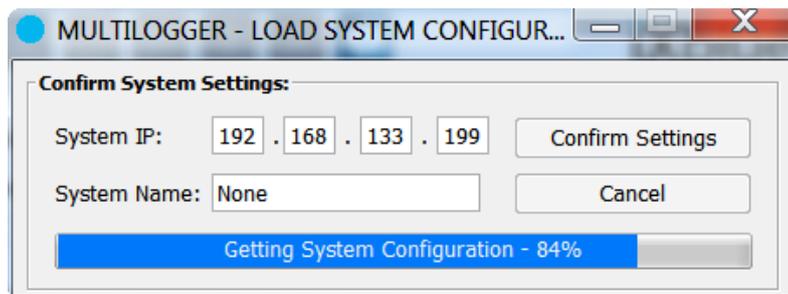
2.2 How to get the configuration from the system?

Step Action

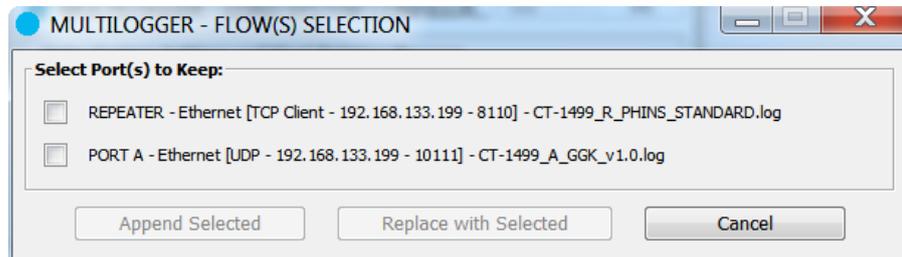
1. In the Exail Multilogger , click on the  icon. The following window is then displayed:



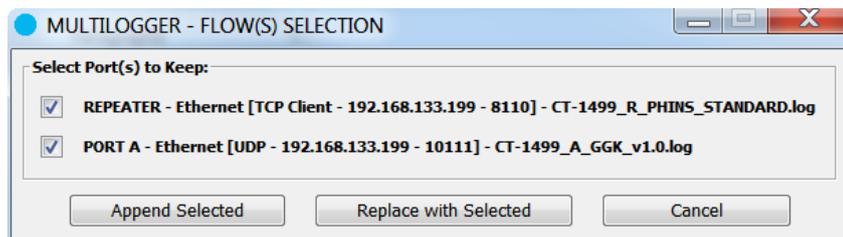
2. Enter the System IP address in the **System IP** field to connect the system.
3. Click on **Get from System** button to retrieve the configuration from the system using Ethernet connection on the repeater port.



4. At the end of the downloading, the system name is displayed. Click on **Confirm Settings**. The following window is then displayed:



5. Select the flows to use:



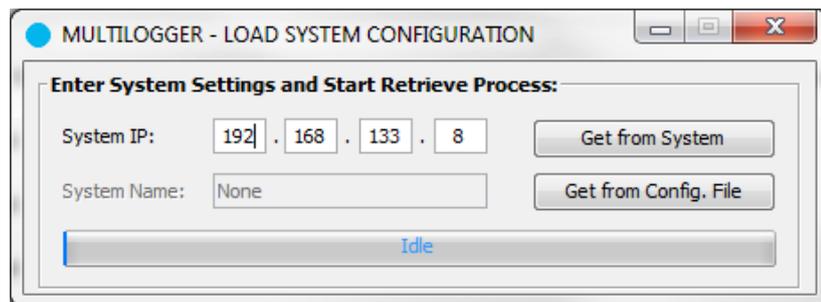
Step Action

- > Click on **Replace with Selected** button: current tool configuration will be replaced by the system configuration.
- > Click on **Append Selected** button: the system configuration appends to the current tool configuration (it enables multiples system configuration load).

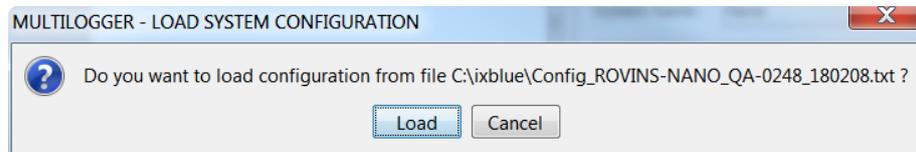
2.3 How to get the configuration from the Configuration file?

Step Action

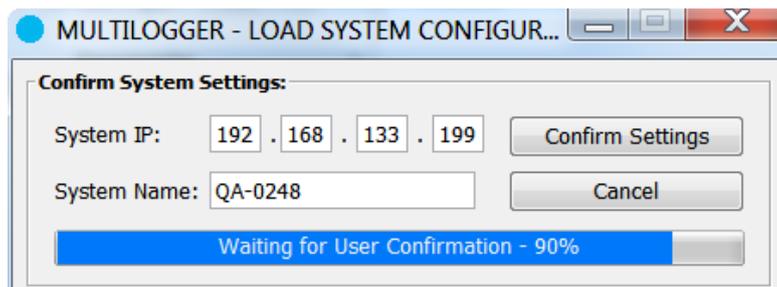
1. In the Exail Multilogger , click on the  icon. The following window is then displayed:



2. Click on **Get from Config. File** button to load system configuration file (configuration file from the Web-based User Interface).
3. Select the configuration file on your computer then the following window is displayed with the configuration file name:

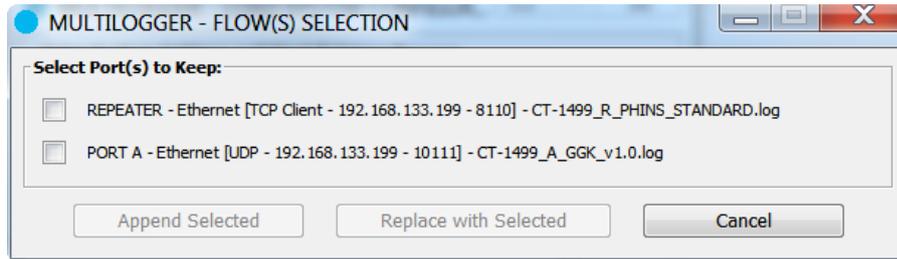


4. Click on the **Load** button. The next window is displayed:

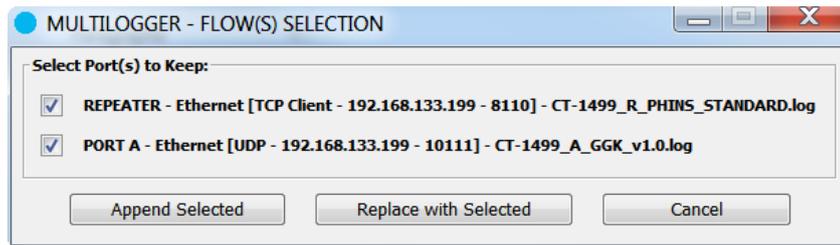


5. Click on **Confirm Settings**. The following window is then displayed:

Step Action



6. Select the flows to use:



- > Click on **Replace with Selected** button: the tool configuration will be replaced by the system configuration.
- > Click on **Append Selected** button: the system configuration appends to the current tool configuration (it enables multiples system configuration load).

2.4 How to save the tool configuration?

Step Action

1. In the Exail Multilogger , click on the  icon.
2. Enter the **name of the file** to be saved then click on **Save** button. The file created is in xml format. Then a message is displayed to inform that the file is created.

2.5 How to load the tool configuration?

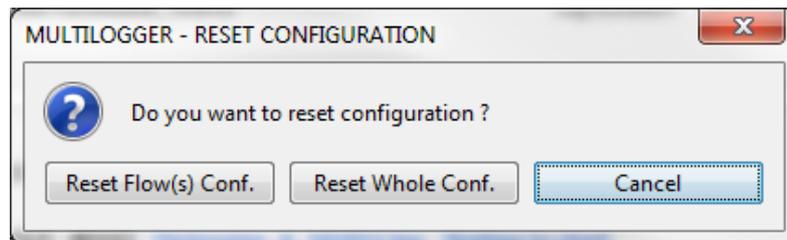
Step Action

1. In the Exail Multilogger , click on the  icon.
2. Enter the **name of the file** to be loaded then click on **Load** button. The file created is in xml format. At the end of the downloading, a message is displayed.

2.6 How to reset the tool configuration?

Step	Action
------	--------

1. In the Exail Multilogger , click on the  icon. The following window is then displayed:



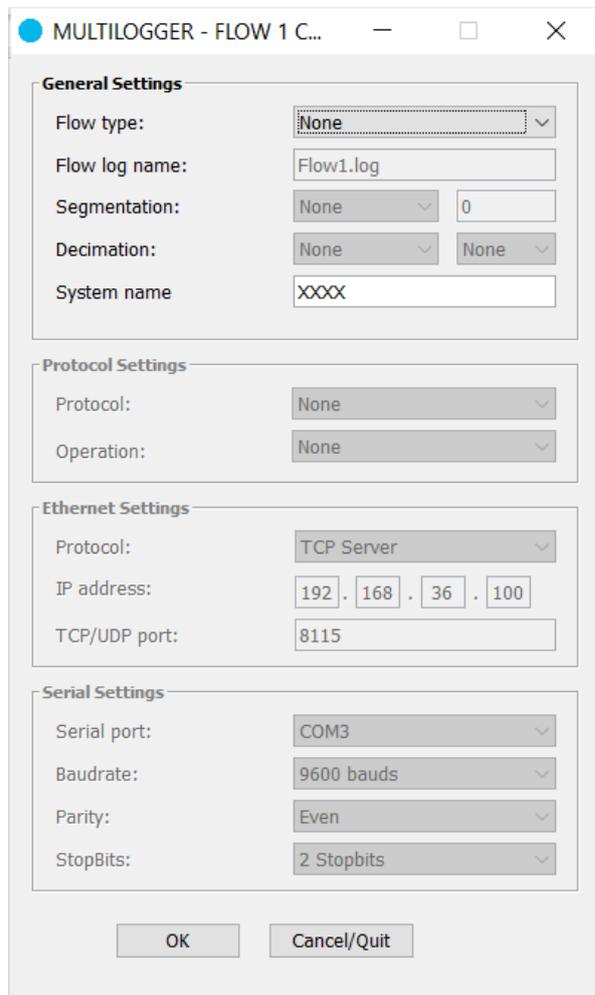
2. Click on **Reset Whole Conf.** to reset the whole configuration: flow configuration and general configuration.
3. Click on **Reset Flow(s) Conf.** to reset all the flows configuration.

3 Flow management

3.1 How to configure the flow?

Step	Action
------	--------

- In the Flow Status area, click on the  icon at the left or click on  icon at the right of the area. The Flow Configuration window is then displayed with the number of the flow in the window title:

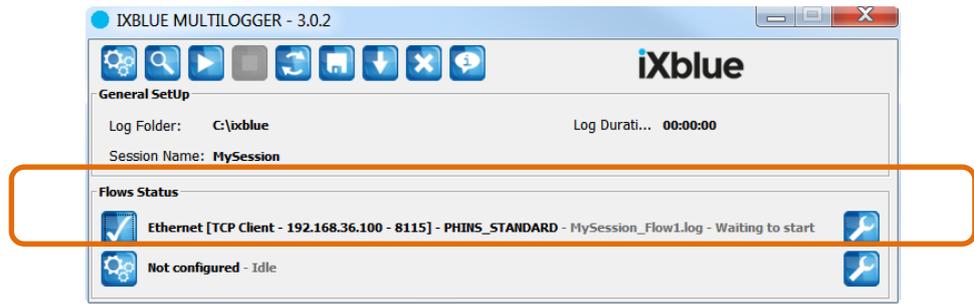


- In **General Settings**:

- > Select the **Flow type** from the list: Ethernet, Serial or None.
- > Enter the **Flow log name**.
- > Select the **Segmentation** of the file. For **size**, parameter is Mo. For **Time**, parameter is Hours.
- > Select the **Decimation** (available only for Ethernet flow or if known protocol):

Step	Action
	<ul style="list-style-type: none"> • Frequency: data frame are logged in the given frequency even if input frequency is higher. • Decimation: keep 1 frame for N frames received.
3.	Enter the System name .
4.	<p>In Protocols Settings:</p> <ul style="list-style-type: none"> > Select the Protocol from the list: <ul style="list-style-type: none"> • PHINS STANDARD, OCTANS STANDARD: the tool can check format and decode • PostProcessing: the tool can check format • NMEA: the tool can check. • ASCII: the tool can check format • None: no check or decode feature: the tool can just log > Select the Operation after selecting the protocol to permit operations following the selected protocol: <ul style="list-style-type: none"> • Check consistency: available for all the protocols. For NMEA protocol, the tool checks the NMEA format ('\$' header, checksum and <CR><LF> termination. If one of these is missing or invalid, an error is raised For Processing protocol, the tool checks the protocol frame format (header, size, checksum) and the frame counter of the IMU frames to detect missing IMU packets. If one of these items is not correct, the tool raises an error. In this mode, the tool monitors the navigation packets of the POST-PROCESSING protocol to check that alignment is still in progress at the beginning of the file and that initial speed is less than 0.5m/s which indicates a static alignment. If this is not the case, the tool generates a warning. • Decode and check: available only for PHINS STANDARD and OCTANS STANDARD protocols.
5.	<p>In Ethernet Settings when the flow type is Ethernet:</p> <ul style="list-style-type: none"> > Select the Protocol from the list: TCP Client, TCP Server, UDP or UDP multicast. > Enter the IP address: not available for the TCP Server. > Enter the TCP/UDP port.
6.	<p>In Serial Settings when the flow type is Serial:</p> <ul style="list-style-type: none"> > Select the Serial port, the baudrate, the parity and the Stopbits from the lists.

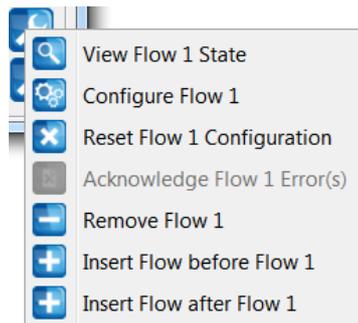
- Click on the **OK** button. The configuration flow is displayed on the main window:



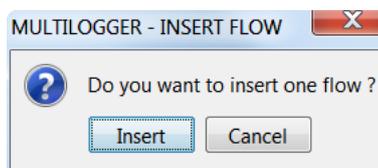
3.2 How to add flows?

Step	Action
------	--------

- In the Flow Status area, click on the text of the flow or click on  icon of the flow. The following window is superimposed:



- Click on  button to insert flow in the list. Choose the place where flow is inserted by selecting **Insert Flow before** or **Insert Flow after**. The following window is displayed:



- Click on **Insert** button. The flow is added in the list on the main window:



Step Action

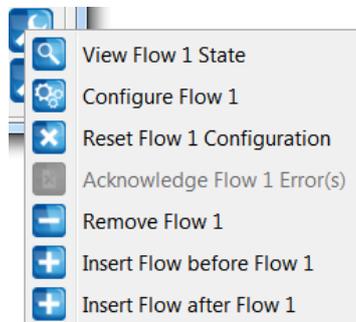
The flow is not configured. Refer to previous chapter to configure it.

4. Repeat the steps 1, 2 & 3 to add several flows. Up to 10 flows can be added.

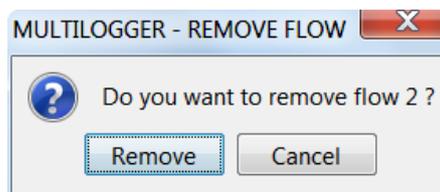
3.3 How to delete flows?

Step Action

1. In the Flow Status area, click on the text of the flow or click on  icon of the flow. The following window is superimposed:



2. Click on  button to delete the flow from the list. The following window is displayed:

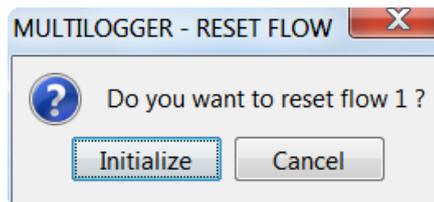


3. Click on **Remove** button. The flow is deleted from the list on the main window:
4. Repeat the steps 1, 2 & 3 to delete several flows.

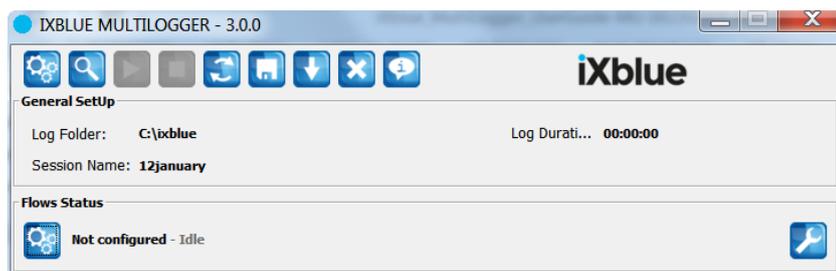
3.4 How to reset the flow configuration?

Step Action

1. In the Flow Status area, click on the text of the flow or click on  icon of the flow to be reset. Then click on  icon. The following window is displayed:



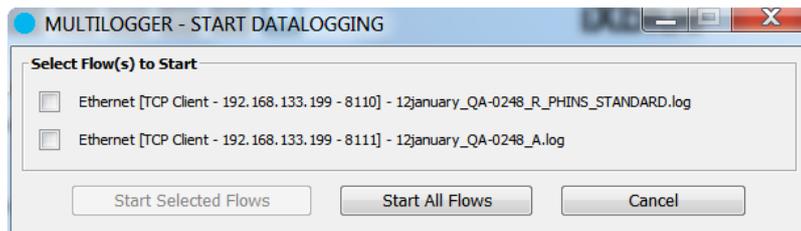
2. Click on **Initialize** button to reset the flow configuration. The main window is then displayed with the flow not configured:



3.5 How to start the log process?

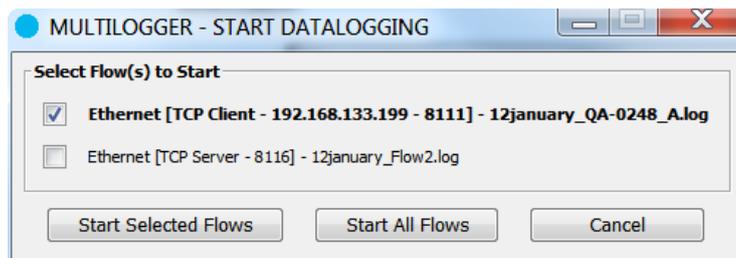
Step	Action
------	--------

1. In the Exail Multilogger , click on the  icon. The Start datalogging window is displayed with all the flows:



Note that the flow not configured cannot be selected.

2. Select one or several flows to be logged.

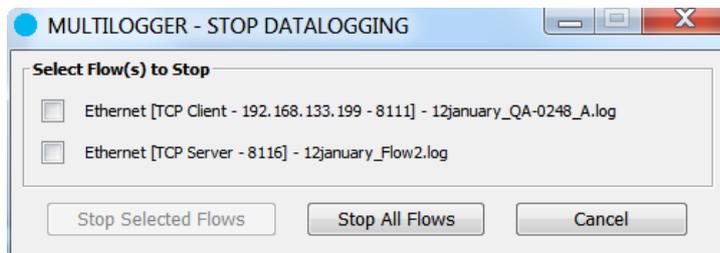


3. Click on **Start Selected Flows** button to start logging the selected flow(s). A window is displayed. Confirm the action by clicking on the **Start** button.
4. Click on **Start All Flows** button to start logging all the flows. A window is displayed. Confirm the action by clicking on the **Start** button.

3.6 How to stop the log process?

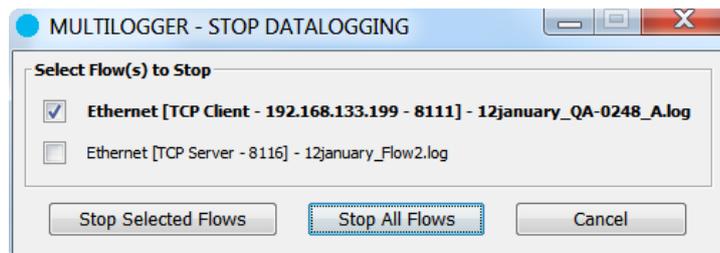
Step	Action
------	--------

- In the Exail Multilogger ,. The Stop datalogging window is displayed with all the flows:



click on the  icon

- Select one or several flows to be stopped.

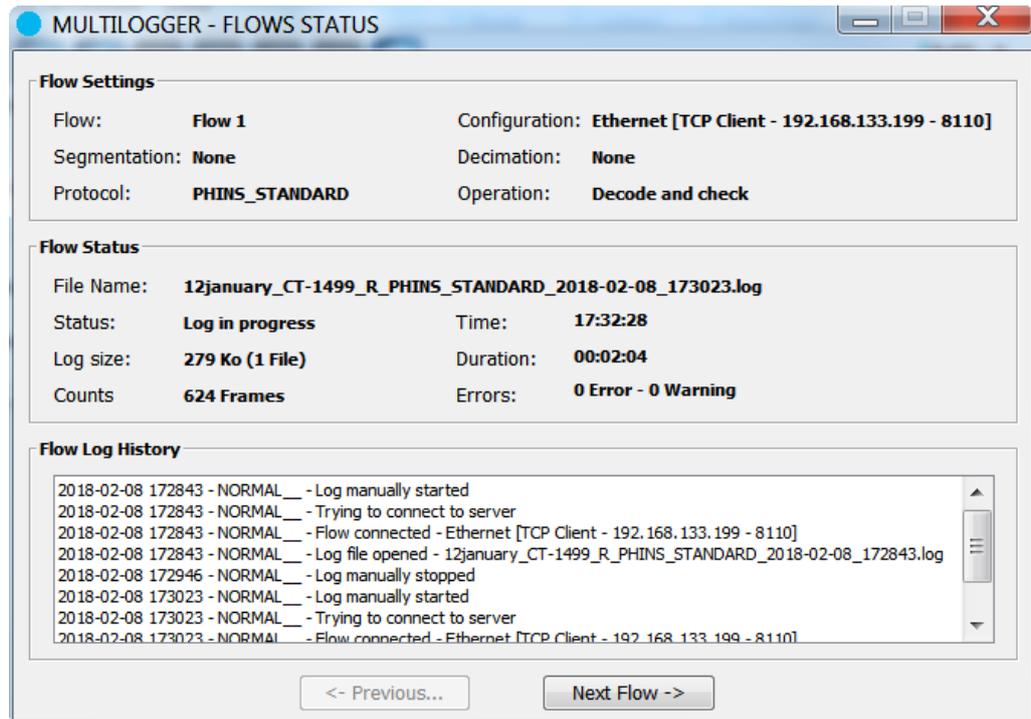


- Click on **Stop Selected Flows** button to stop logging the selected flow(s). A window is displayed. Confirm the action by clicking on the **Stop** button.
- Click on **Stop All Flows** button to stop logging all the flows. A window is displayed. Confirm the action by clicking on the **Stop** button.

3.7 How to view the flow status?

Step Action

1. In the main window, click on  icon or click on the flow then select  icon. The following window is then displayed:

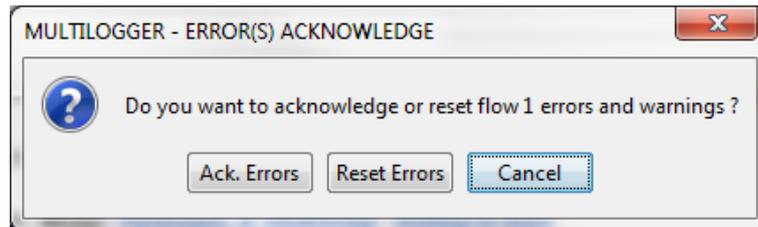


2. The data displayed are :
 - > **Flow Settings summary**
 - > **Flow Status**
 - Current file name
 - Log status
 - Log total size and duration
 - Frames count (only when one protocol is selected)
 - Errors number or warning
 - > **Flow Log History:** log events (Normal, Warning and Errors)
3. Click on **Next flow** or **Previous** buttons to navigate from one flow to next or previous flow.
4. To close the window, click on .

3.8 How to acknowledge the errors of the flow?

Step	Action
------	--------

1. In the Flow Status area, click on the text of the flow or click on  icon of the flow. Then click on  icon. The following window is displayed:



2. Click on **Ack. Errors** button to remain errors but the errors status will disappear.
3. Click on **Reset Errors** button to erase the error counter.
4. To close the window, click on .

3.9 How to view the report file?

The report file is created in the log folder if it is configured in the General Configuration window.

Report name format is `SessionName_Report_Date.txt`

It contains all tool and flows events.

Here is an example:

```

-----
*** EXAIL MULTILOGGER - Revision 3.0.0 - Report file ***
-----
2017-01-13 163058 - General - NORMAL__ - New session started at 2017-01-13 163058
2017-01-13 163058 - General - NORMAL__ - Log folder set to
"C:\Users\fap\Desktop\MULTILOGGER_TESTS"
2017-01-13 163058 - General - NORMAL__ - Log session set to "MySession"
2017-01-13 163058 - General - NORMAL__ - Log timeout set to 3s and action set to "Do
Nothing"
2017-01-13 163058 - Flow_01 - NORMAL__ - Log automatically started
2017-01-13 163058 - Flow_02 - NORMAL__ - Log automatically started
2017-01-13 163058 - Flow_03 - NORMAL__ - Log automatically started
2017-01-13 163058 - Flow_04 - NORMAL__ - Log automatically started
2017-01-13 163058 - Flow_01 - NORMAL__ - Flow connected - Ethernet [TCP Client -
192.168.133.5 - 8110]
2017-01-13 163058 - Flow_01 - NORMAL__ - Log file opened - MySession_R_PHINS_STANDARD_2017-
01-13_163058_part1.log
2017-01-13 163058 - Flow_03 - NORMAL__ - Flow connected - Ethernet [TCP Client -
192.168.133.5 - 8112]
2017-01-13 163058 - Flow_02 - NORMAL__ - Flow connected - Ethernet [TCP Client -
192.168.133.5 - 8111]
2017-01-13 163058 - Flow_02 - NORMAL__ - Log file opened - MySession_A_SIGRS1_2017-01-
13_163058.log
2017-01-13 163058 - Flow_03 - NORMAL__ - Log file opened - MySession_B_SIGRS4_2017-01-
13_163058.log
2017-01-13 163058 - Flow_04 - NORMAL__ - Flow connected - Ethernet [TCP Client -
192.168.133.5 - 8114]
2017-01-13 163058 - Flow_04 - NORMAL__ - Log file opened - MySession_D_AIPOV_2017-01-
13_163058.log
2017-01-13 163106 - Flow_04 - CRITICAL - Timeout detected
2017-01-13 163107 - Flow_01 - CRITICAL - Timeout detected
2017-01-13 163107 - Flow_02 - CRITICAL - Timeout detected
2017-01-13 163107 - Flow_03 - CRITICAL - Timeout detected
2017-01-13 163110 - Flow_01 - NORMAL__ - Log manually stopped
2017-01-13 163110 - Flow_02 - NORMAL__ - Log manually stopped
2017-01-13 163110 - Flow_03 - NORMAL__ - Log manually stopped
2017-01-13 163110 - Flow_04 - NORMAL__ - Log manually stopped
    
```

4 Troubleshooting

Error events are :

- > Flow read error (low level)
- > Unused characters when checking flow format
- > Format error when checking flow format
- > Checksum error when checking format
- > PostProcessing : IMU ID or Timestamp error

Warning events are:

- > Timeout issue
- > Postprocessing : Log without alignment step
- > Postprocessing : speed during alignment

When an error is raised:

- > Flow error counter is updated
- > Flow status is in error : Main status line blinking in red
- > Flow event history is updated

When a warning is raised:

- > Flow warning counter is updated
- > Flow status is in warning : Main status in orange
- > Flow event history is updated

5 Example: Data logging with Postprocessing Protocol

This example shows you how to log data between the INS and PC with the POSTPROCESSING protocol through an ETHERNET connection.

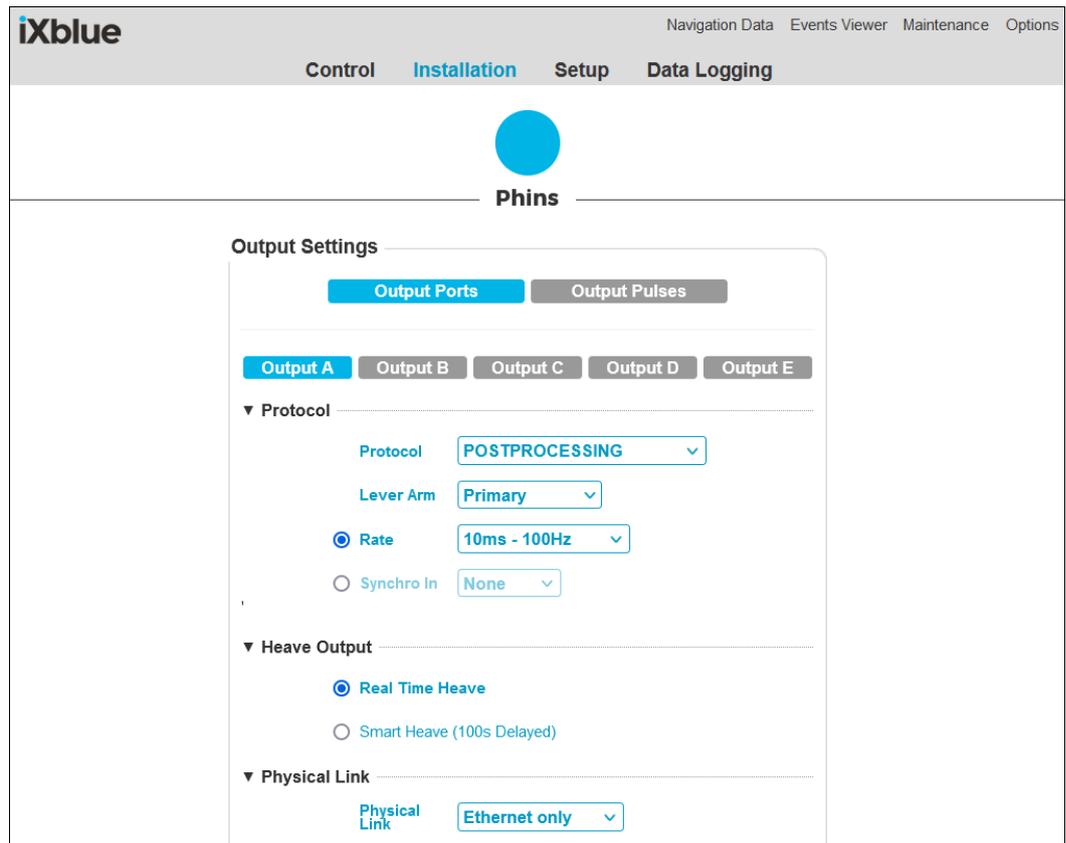
The parameters to be set are the following:

- > INS IP: 192.168.36.199
- > PC IP (where Exail Multilogger is installed): 192.168.36.200
- > Port: 8444
- > Protocol: POSTPROCESSING
- > Frequency: 100 Hz

Step	Action
------	--------

1. Launch the Web-Based User Interface from the web browser hosted on the workstation by typing the INS address: 192.168.36.199.
-
2. In the Web-Based User Interface, click on the **INSTALLATION** menu then select **Output** option.
-
3. Select the following parameters for the unused output port:
 - > Protocol: **POSTPROCESSING**
 - > Protocol Rate: **100 Hz**
 - > Ethernet Transport layer: **TCP Server**
 - > Ethernet Port: **8444**
-

Step Action



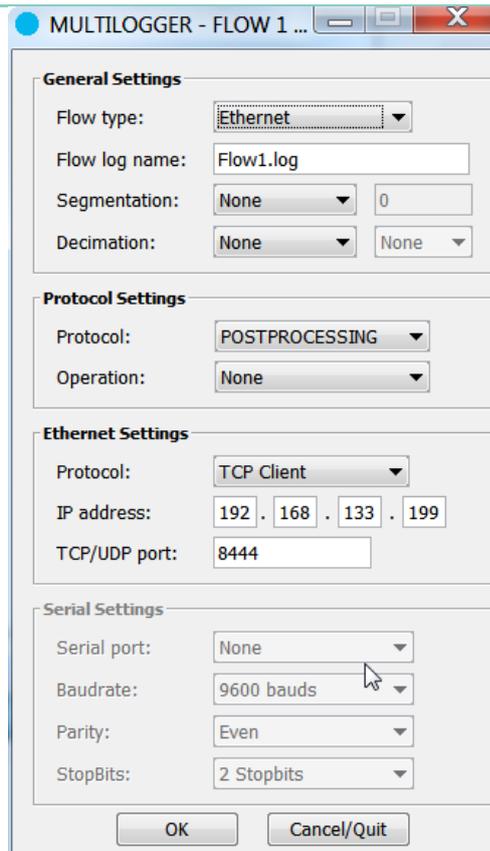
4. Launch the Exail Multilogger .

5. In the Flow Status area, click on the  icon at the left or click on  icon at the right of the area.

6. Configure the flow with these parameters:

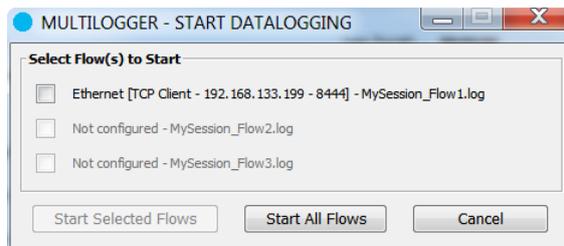
- > General Settings - Flow type: **Ethernet**
- > Protocol Settings - Protocol: **POSTPROCESSING**
- > Ethernet Settings - Protocol: **TCP Client** (as the INS is configured as TCP Server)
- > Ethernet Settings - IP address: **192.168.36.199**
- > Ethernet Settings - Port: **8444**

Step Action



7. Click on the **OK** button.

8. In the Exail Multilogger main window, click on the  icon. The following window is then displayed:

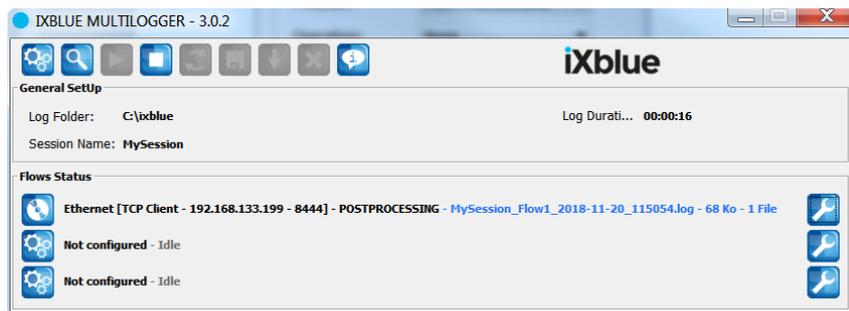


9. Select the **Ethernet [TCP Client – 192.168.133.199 – 8444] – mySession_Flow1.log** flow.

10. Click on **Start Selected Flows**.

11. Click on the **Start** button, the data logging starts.

Step Action



12. To stop the data logging, click on the  icon.
13. The logging files are available in the log folder configured in the Exail Multilogger General Settings. Refer to section 2.1.

Exail CONTACT – SUPPORT

For non-URGENT support:

- > by email: support@exail.com
- > using the form on the iXblue web site: www.ixblue.com

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