

9 – HOW TO WORK WITH TOOLBOX

9.1 Introduction

U200ToolBox is a software suit, intended to work with UNIFLOW-200 flow computer.

This document describes the main features of the software suit and explains the basics of operation.

U200ToolBox includes 3 separate functions (programs):

UNISetup – to setup the configuration for UNIFLOW-200

UNIArchive – to read archive files from UNIFLOW-200

UNIUpdate – to update the firmware in UNIFLOW-200

9.2 Installation

By default, ToolBox propose installation path as follows:

C:\Users\UserName\Documents\U200-Toolbox\

Any other path can also be browsed during the installation process.

The only precondition is that the User must have permission to write into the directory where the ToolBox is installed. During the operation ToolBox will write files into the installation directory.

When you install new version of ToolBox, it is recommended to install it into the same directory where the previous version was installed. In this case the settings of the previous version (Uniflow-200 list with IP address, recent project list, size of windows) retained.

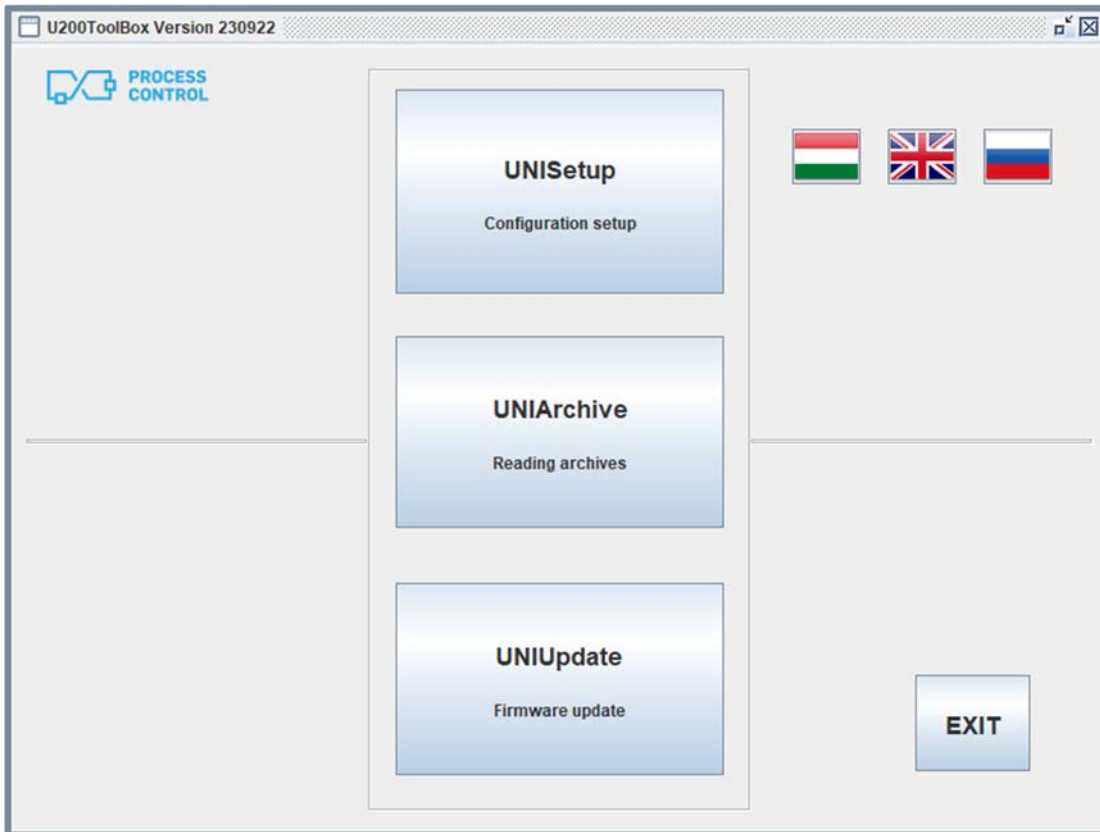
If you install it into a new location the settings shall be recreated.

Icon on the desktop is created in the installation process.



After the installation successfully finished click the UF200-Toolbox icon created on the desktop.

U200ToolBox window will appear.



Select the language desired and click the button of the program to be started.

9.3 UNISetup

The set of parameters determining the operation of UNIFLOW-200 in a particular application (e. g. input signal scaling, error curve correction, calculation method, standard for fluid properties, for flow meter, etc.) we call parameter project.

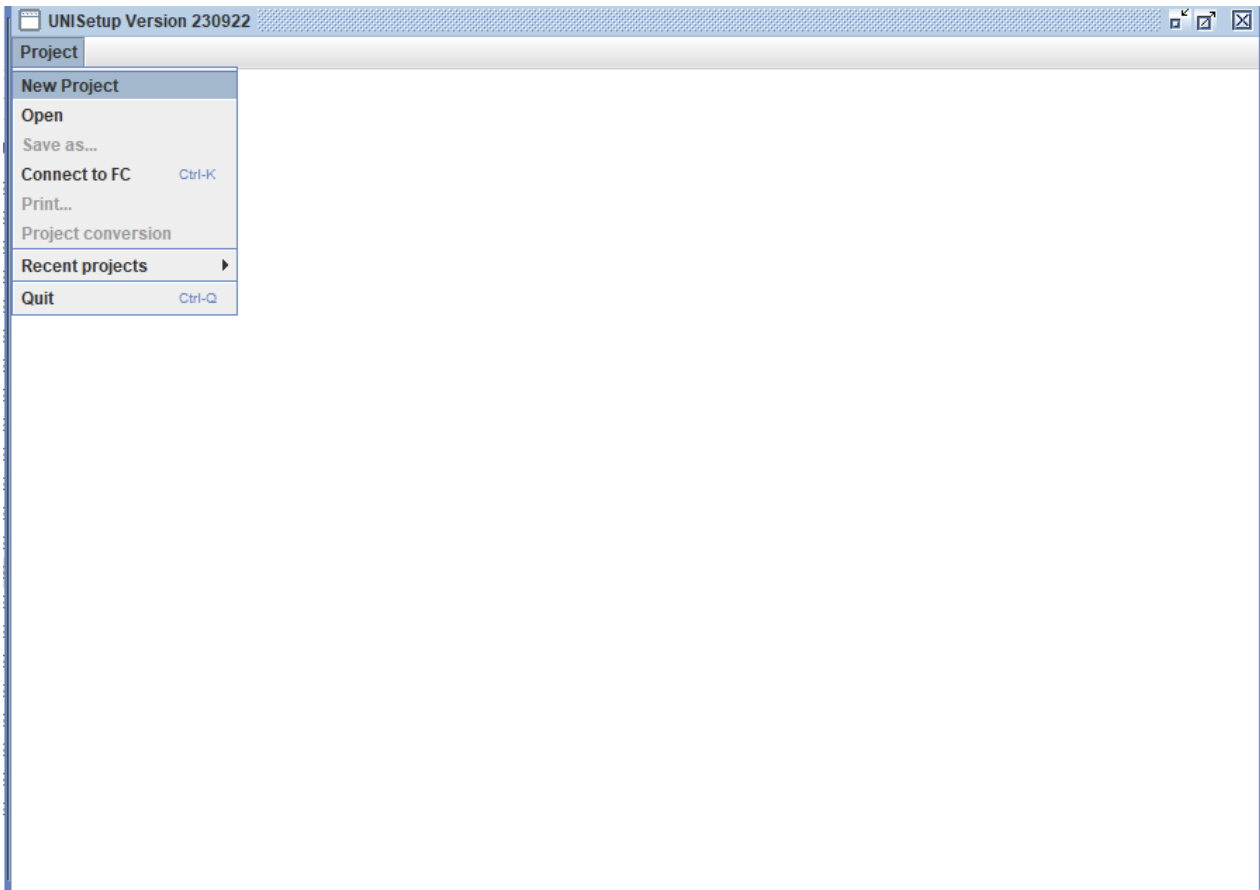
Parameters in UNIFLOW-200 can be setup via display and keypad. See the UNIFLOW-200 Instruction Manual to learn the setup in this way.

Another method to setup parameters is generating or editing parameter project in UNISetup. This method is described in this document.

Start the UNISetup from the starting window of the ToolBox.

An empty window will appear with one menu item on the menu bar: *Project*.

Click on the *Project*, a drop-down menu will appear.



Select the action you want to perform from the list.

New Project (Create a new project)

Open (Open an existing project)

Save As... (Save the project under different name, active only if project is open)

Connect to FC (Connect to flow computer)

Print (Print project, active only if project is open)

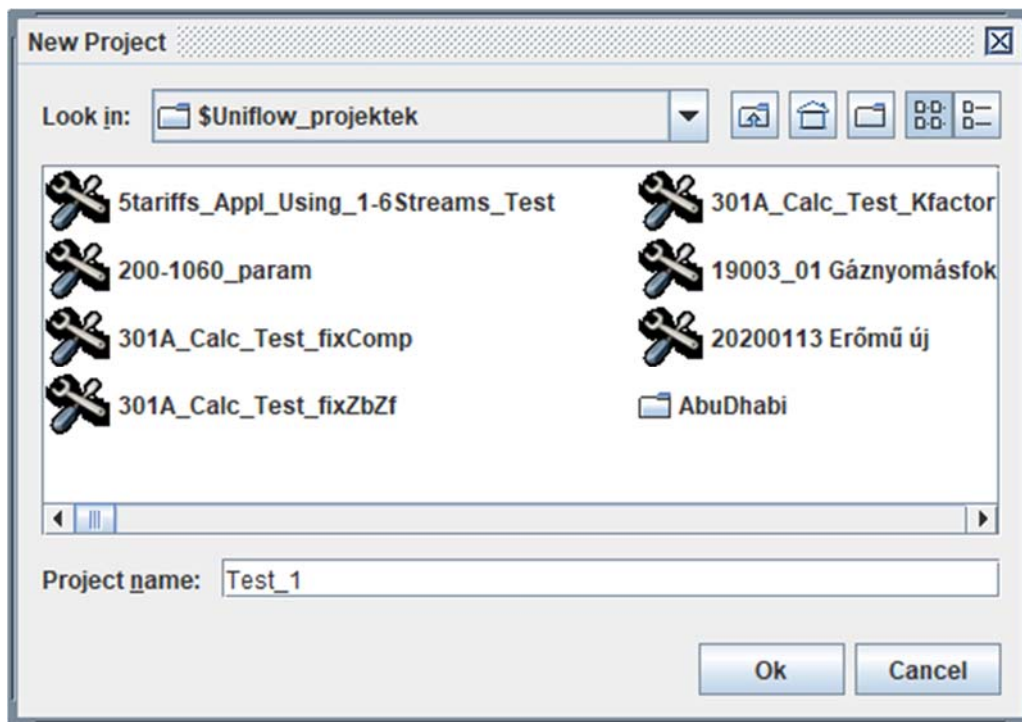
Project conversion (Convert the project into newer format, see document
Uniflow200_2_how_to_convert_paramater_project)

Recent projects (Shows the list of the last opened 15 projects for quick access)

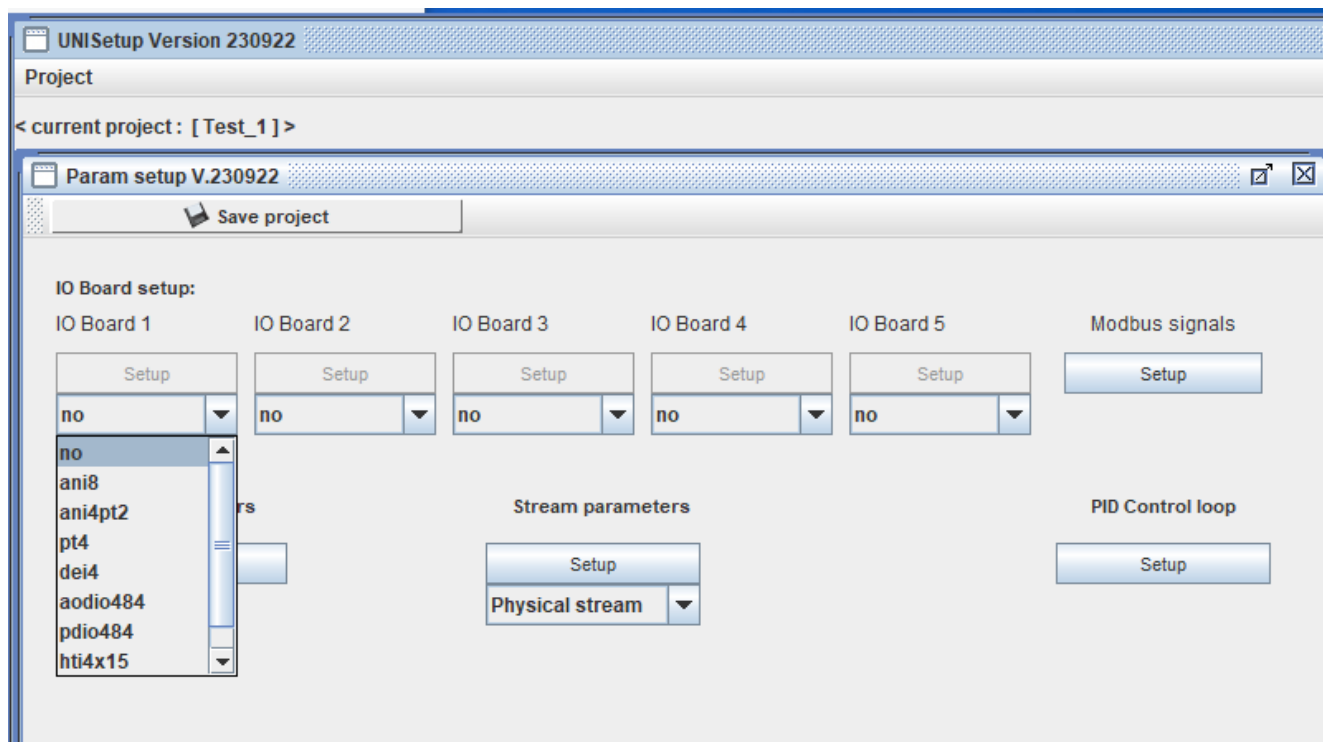
Quit (Close UNISetup)

9.3.1 New Project

Clicking the New Project item, it will open file browser. Navigate to the directory where you want to store your project and enter the project name (e. g. Test_1 on the example below)



After you confirm you want to create this project the project window appears.



9.3.1.1 I/O signals

First the I/O signal setup must be completed.

Click the dropdown menu for each I/O board slot and select the type of the I/O board installed in that slot.

Once the I/O board type is selected I/O signal setup window appears.

An analog input channel setup page can be seen on the picture below.

Enter the parameters required and don't forget to set the signal status to "Active" before you leave the page.

Do the same for all boards and all channel being used in the project.

Click the Save parameters button before closing the signal setup window for any board.

UNISetup Version 230922

Project

< current project : [Test_1] >

1. IO Board - ani8

Save parameters

ANI8 signal parameters

Channel: Channel 1

Signal name:

Signal type: Diff. pressure

Unit: mbar

LO_current: 4.00000000 mA

HI_current: 20.00000000 mA

LO_scale: 0.00000000 mbar

HI_scale: 0.00000000 mbar

LO_limit: 0.00000000 mbar

HI_limit: 0.00000000 mbar

LOLO_limit: 0.00000000 mbar

HIHI_limit: 0.00000000 mbar

Event at: lsc hsc lo hi lolo hihi

Log: ☒ ☒ ☐ ☐ ☐ ☐

Eventing: ☒ ☒ ☐ ☐ ☐ ☐

Signal status: ☐ Active ☒ Inactive

9.3.1.2 Stream parameters

After the I/O signal setup has completed the metering streams parameters shall be entered.

Click on the Setup button below the Stream parameter label.

UNISetup Version 230922

Project

< current project : [Test_1] >

Param setup V.230922

Save project

IO Board setup:

IO Board 1 IO Board 2 IO Board 3 IO Board 4 IO Board 5 Modbus signals

Setup Setup Setup Setup Setup Setup

ani8 pitc4641 aodio484 no no

General parameters

Stream parameters

PID Control loop

Setup Setup Setup

Physical stream

Select the stream to be setup on the parameter pane appearing and click Next button.

UNISetup Version 230922

Project

< current project : [Test_1] >

Stream parameters

Save parameters

Stream : Physical stream

Stream number : 1

Stream name : ASZK1

Str. cloning : no

metric units

Next

You will see 5 tabs on the page appearing.

UNISetup Version 230922

Project

< current project : [Test_1] >

1 Stream parameters - ASZK1

Save parameters

Fluid Flow meter Stream setup Premium limits Limits

Fluid selection :

- None
- Fuel gases
- Pure gases
- Water steam
- Water
- Liquid
- None
- Electric power

Go one by one through the tabs and setup the parameters required on each tab.

Select the fluid to be measured on the Fluid tabs. Select the calculation methods, standards used to calculate the fluid properties. An example below shows the fluid setup page for fuel gases.

UNISetup Version 230922

Project

< current project : [Test_1] >

1 Stream parameters -ASZK1

Save parameters

Fluid Flow meter Stream setup Premium limits Limits

Fluid selection : Fuel gases Natural gas

Natural gas

Base temperature : 15 °C

Base pressure : 1.01325 bar

Combustion ref. temp. : 15 °C

Chromat. polling : no

Gas composition : detailed

Comp. downl. timeout : 30 min.

Compr.fact.mode : AGA8/92DC

Line density mode : PTZ

Base density mode : Calc.from rel.

Rel. density mode : ISO6976:1995

Inf.cal.val. mode : ISO6976:1995

Sup.cal.val. mode : ISO6976:1995

Dynamic visc.mode : GOST 30319.1-96

Isentr. exp. mode : ISO 20765-1

J-T coefficient mode : ISO 20765-1

Velocity of sound : ISO 20765-1

Eventing gas comp. : no

Energy calc.from : inf.cal.value

Detailed gas composition

Composition selection

Keypad values

Plausibility limits

Natural gas composition selection

Components selection : identical

Selected from : keypad value

Detailed explanation of each item see, in the Uniflow-200 Instruction Manual.

After the fluid has been selected select the flow meter used in the metering stream on the Flow meter tab. As an example, differential pressure device parameters can be seen on the page below.

UNISetup Version 230922

Project

< current project : [Test_1] >

1 Stream parameters -ASZK1

Save parameters

Fluid Flow meter Stream setup Premium limits Limits

Flow meter selection : Diff.press.device Orifice plate

Orifice plate

dP tapings :	Flange	
Standard :	ISO5167:2003	
Pipe diameter :	200.000000	mm
Orifice bore diamet :	100.000000	mm
Pipe th. expansion :	1.100000e-05	1/°C
Orifice th. expans :	1.600000e-05	1/°C
Temperature tapings :	upstream	
Pipe diam.press.corr. :	no	
P transmitter level corr.	0	mm

After the fluid and the flow meter have been selected you can setup the stream on the Stream setup tab.

UNISetup Version 230922

Project

< current project : [Test_1] >

1 Stream parameters -ASZK1

Save parameters

Fluid Flow meter **Stream setup** Premium limits Limits

Fluid selected : natural gas

Units :	Total	Flowrate
Volume :	m3	m3/h
Mass :	kg	kg/h
Energy :	GJ	GJ/h

Flow meter : orifice plate

Flow signal : measured

No of dP transmitters : 1

dP1 : 0 IO 0 ch.

dP cut off : 0.100000 %

eventing : no

Pressure : measured

Signal : 0 IO 0 ch.

Temperature : measured

Signal : 0 IO 0 ch.

Ambient temperature : keypad value

Keypad value : 15.000000 °C

Stream disabling : no

Batch : no

Meter serial test : disabled

Transmitter calibration : no

On the stream setup page, you can select the unit of measurement for volume, mass and energy.

Then you should assign the particular I/O channel to the parameter required for the selected fluid and flow meter.

E. g. in the example above it shall be specified that which I/O board and which channel within the I/O board will supply the differential pressure, pressure and temperature information for the calculation.

There are also some other parameters (stream disabling, batch, meter serial test, transmitter calibration) to be setup for the stream. Their detailed explanation see in the Uniflow-200 Instruction Manual.

After the stream setup has completed set the premium limits and the limits

9.3.1.3 General parameters

After the I/O signals and the stream parameters setup finished, the general parameters must be setup.

Click the Setup button under the General parameters label. General parameters window opens with 9 tabs. Set the appropriate parameters on each tab as follows.

UNISetup Version 230922

Project

< current project : [200-1048_param_mod] >

General parameters

Save parameters

Com Ethernet Period settings User def. display User data Password General stream Batch User Modbus

Interface : Com1

Type : RS485

Baud rate : 9600

Data bit : 8

Stop bit : 1

Parity : no

Function : other

Micromotion master

Mass flow reg. addr. : 2700

Line density reg. address : 4000

Temperature reg. address : 4002

Pressure reg. address : 4004

Mode : RTU

Modbus dev. addr. : 1

Com

Set the parameters for the serial communication ports. Some additional information see in the document Uniflow200_8_how_to_setup_serial_ports.

Ethernet

Set the parameters for the Ethernet communication ports.

Period settings

Set the parameters related to the shift, day, multiday and month time periods.

User defined display

Three user defined display can be defined for each stream.

In addition, 2 extra summary display can be defined, where data from different streams can be grouped together.

Content of the user reports can be edited in this point also.

User data

Company name and address can be entered here. They will appear in the header of the reports.

Password

Password for Engineer and Operator level can be set here.

Remember the password you entered. If you forget your password you will have to ask the assistance of the manufacturer or must return the unit to the manufacturer.

General stream

Setup the general parameters valid for all streams.

Batch

Setup the data you want to see on the Bath measurement display.

User Modbus

Setup the parameters related to User Modbus communication. See Annex C in the Instruction Manual.

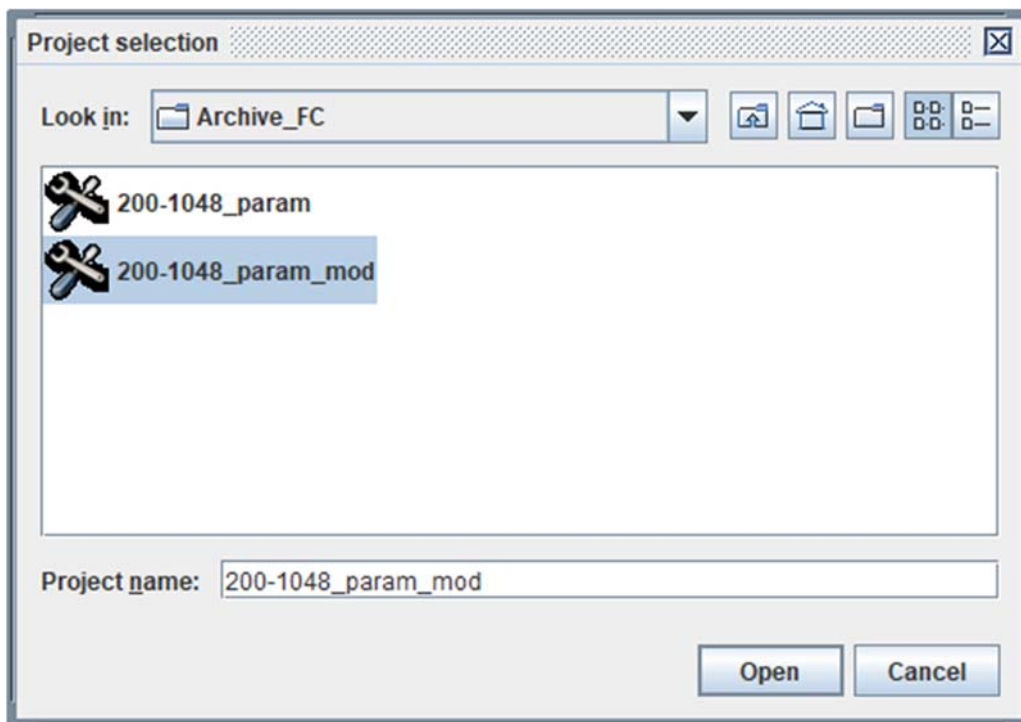
9.3.1.4 PID

Click the Setup button under the PID Control loop label if you utilize the PID control capabilities of Uniflow-200.

See details in par. 9.2.7 in the Instruction Manual.

9.3.2 Open

Open an existing project. Clicking the menu item file browser window appears.



Navigate to the directory where the project is stored, select the project name, and click Open button.

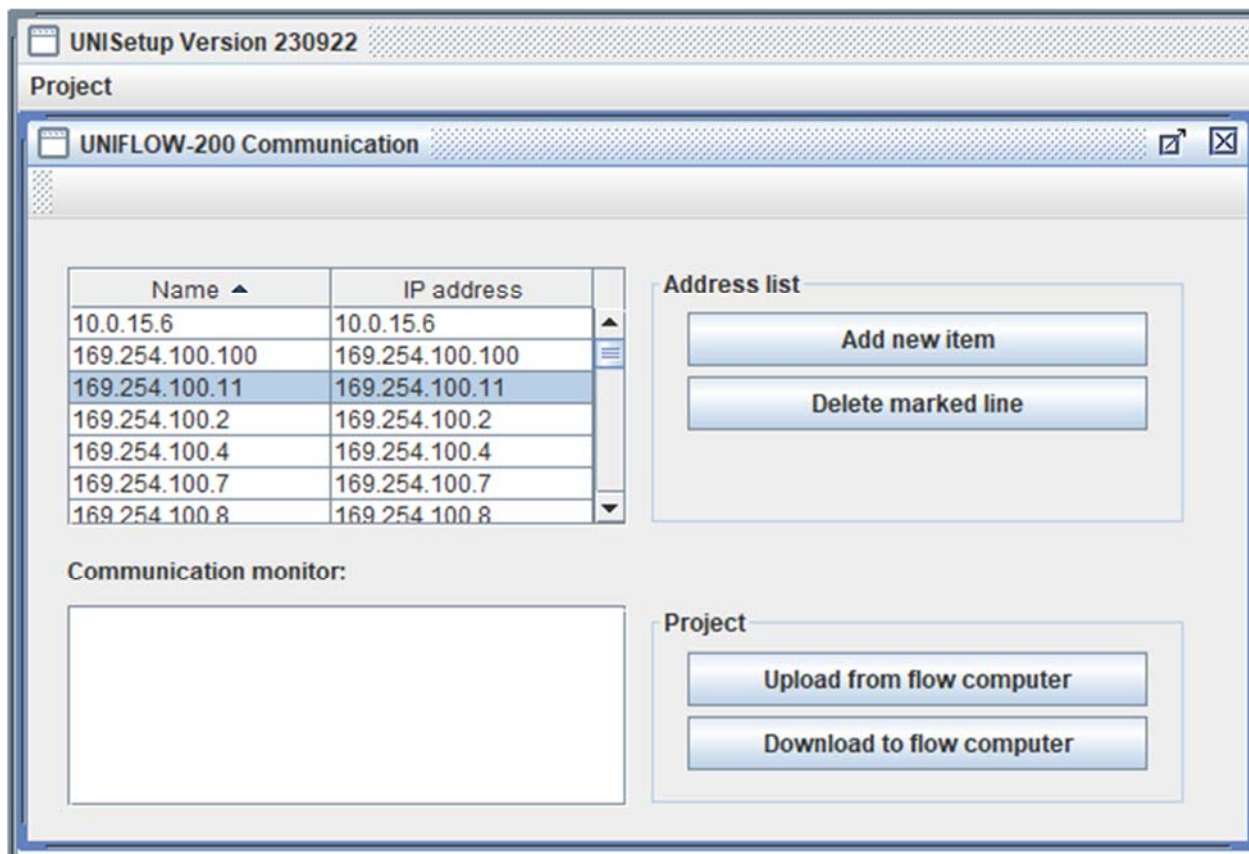
Modify the project editing the required items as described in the 9.3.1. New project section.

9.3.3 Save As ...

Save the project under different name.

9.3.4 Connect to FC

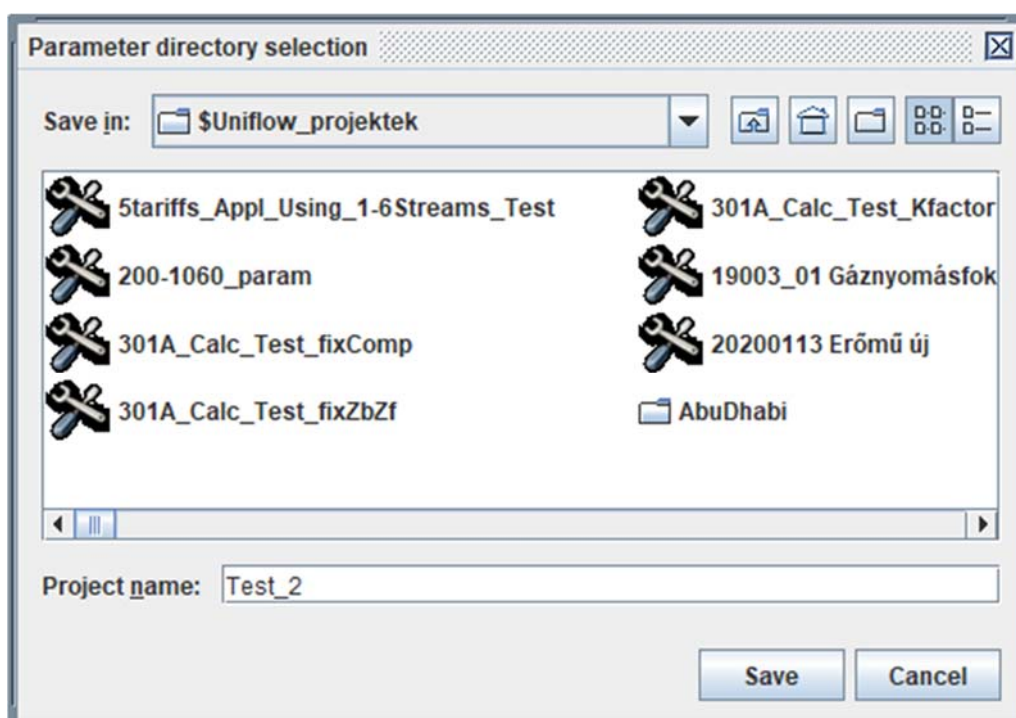
Selecting this menu item communication pane opens.



Select the Name/IP address of the flow computer you want to communicate with. If the list is empty or the name/IP address of Uniflow-200 is not listed click Add new item button and enter the name and the IP address of the flow computer.

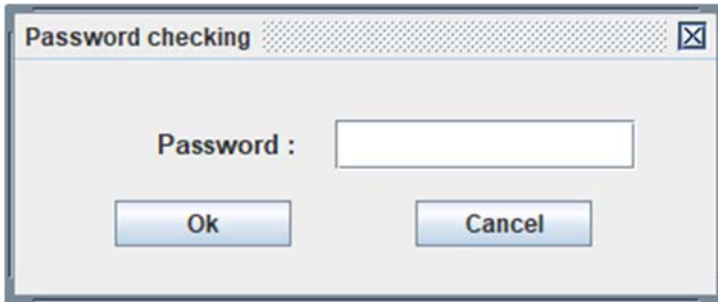
9.3.4.1 Upload project

Click the Upload from flow computer button if you want to read parameter project from the flow computer. File browsing window appears.



Navigate to the directory where you want to save the parameter project and enter the project name and click Save.

After you confirm you want to create that directory for the project, you will be asked to enter the password.



Enter the engineering level password. Progress bar will be displayed for few seconds then the message box about the successful upload.

You can now go and open the uploaded project.

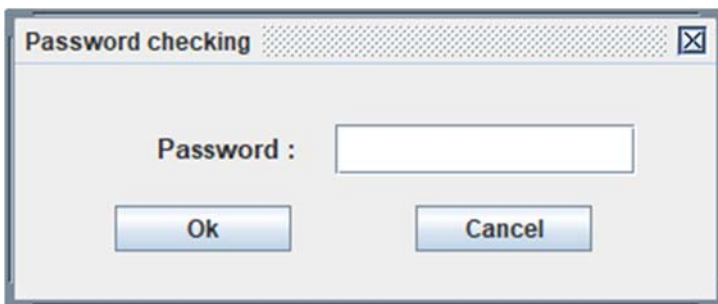
9.3.4.2 Download project

Click the Download to flow computer button if you want to download parameter project into the flow computer.

If you have a parameter project open, UNISetup will download the open project.

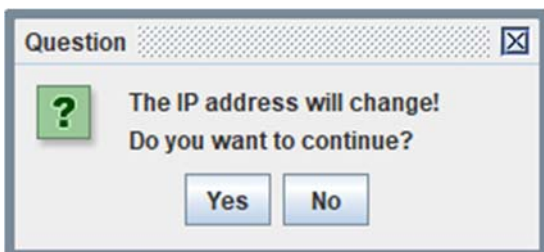
If no parameter project is open, then file browsing window appears. Navigate to the directory where the project to be downloaded is stored. Select the name of the project and click OK.

You will be asked to enter the password.



Enter the engineering level password.

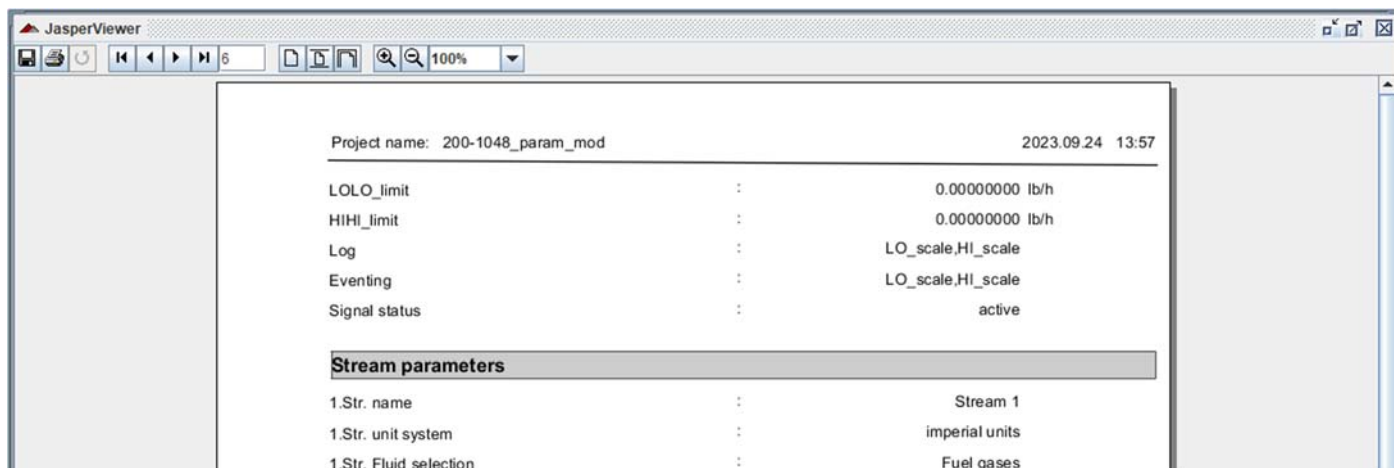
The program will check if the IP address of the Uniflow-200 and the IP address in the project intended to download are identical or not? If not identical, it will warn you about the difference and ask to confirm if you want to continue.



If you select Yes download starts. Progress bar will be displayed for few seconds then the message box about the successful download.

9.3.5 Print

Clicking the Print menu opens the report viewer window.



Click the Printer icon if you want to print the report on the printer connected to the PC.

Click the Save icon and select the file format (e.g. .pdf) if you want to save the report.

9.3.6 Project conversion

Convert the project into newer format, see document Uniflow200_2_how_to_convert_paramater_project.

9.3.7 Recent projects

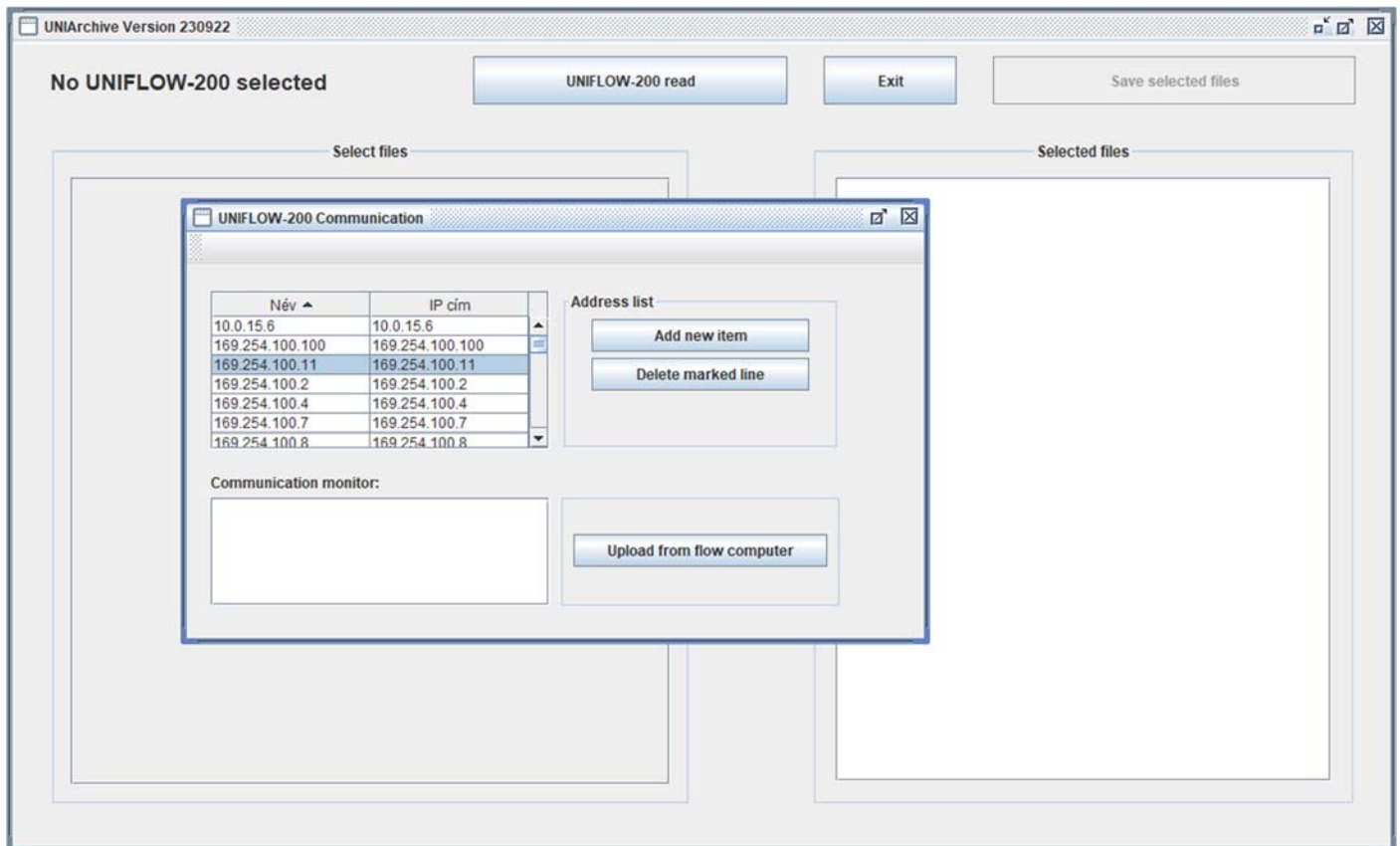
Shows the list of the last opened 15 projects for quick access. Click the project name in the list to reopen it.

9.4 UNIArchive

UNIArchive allows you to read all the archive reports from Uniflow-200 and store them on the drive of your PC for long term archiving and further processing.

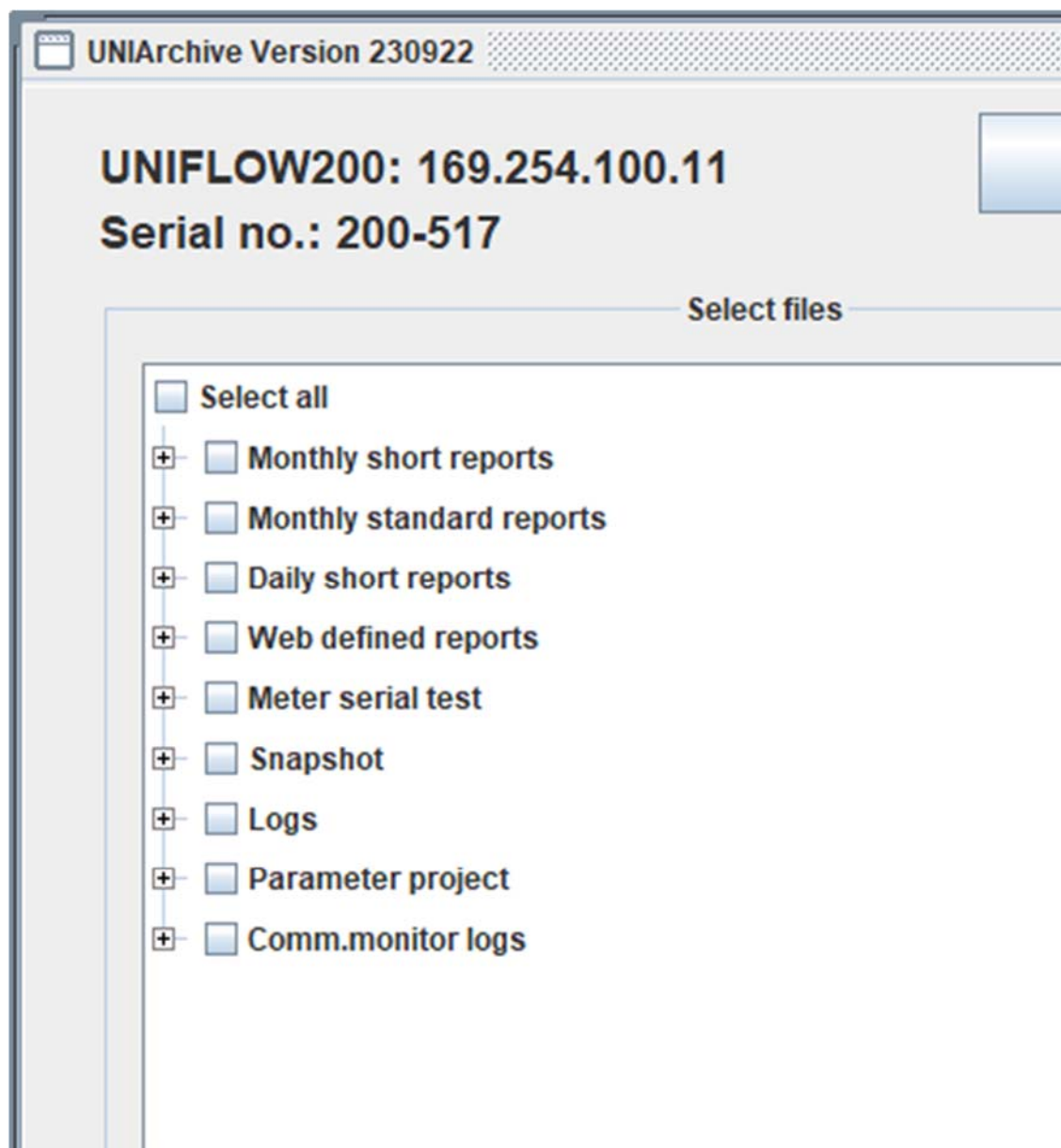
Click the UNIArchive button on the ToolBox starting page.

Click the UNIFLOW-200 read button on the top of the UNIArchive window.

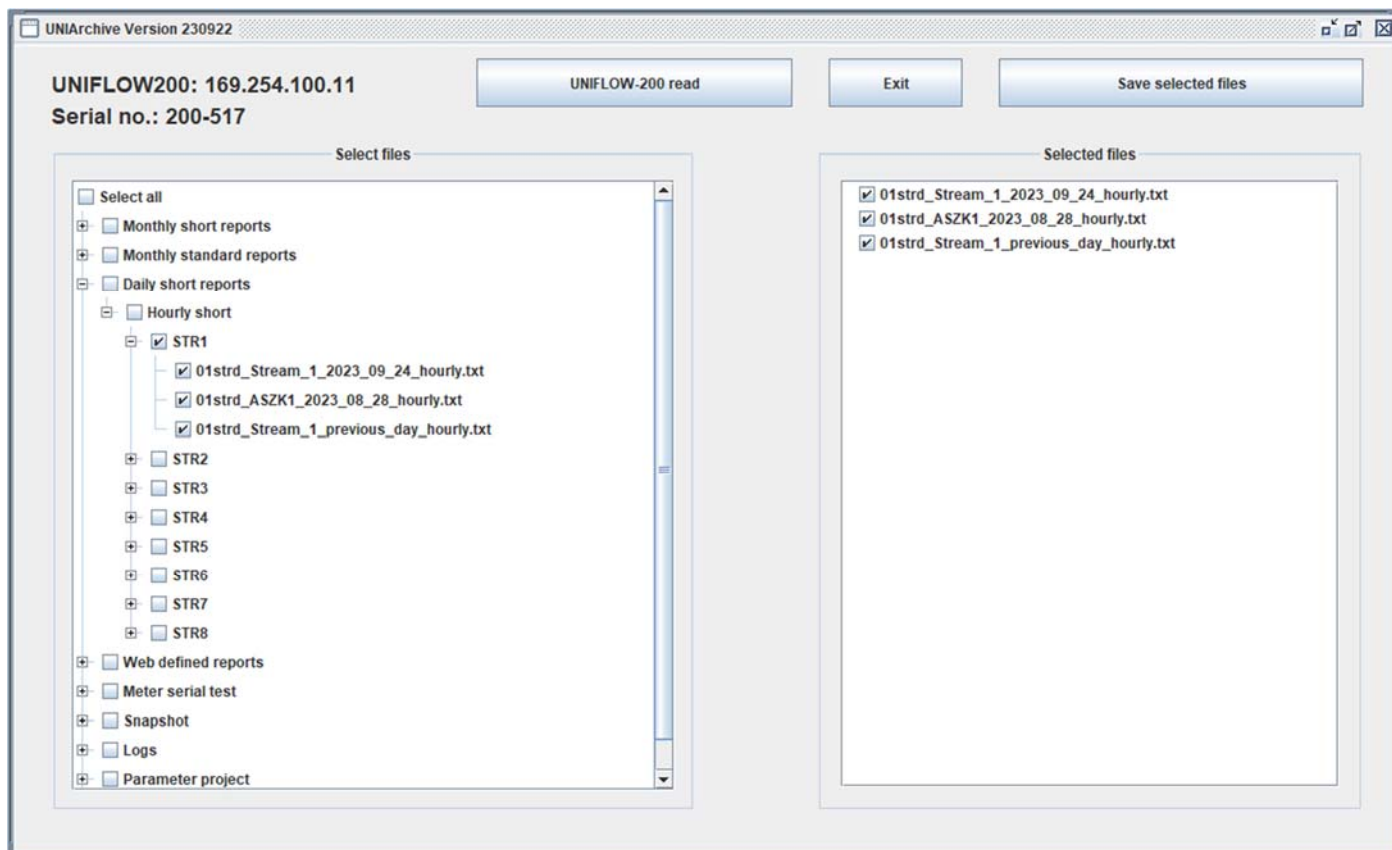


Select the name/IP address of the Uniflow-200 you want to read and click the Upload from flow computer button.

After you click OK on the Upload successful message box you will see a tree like report structure on the left-hand pane of the window.



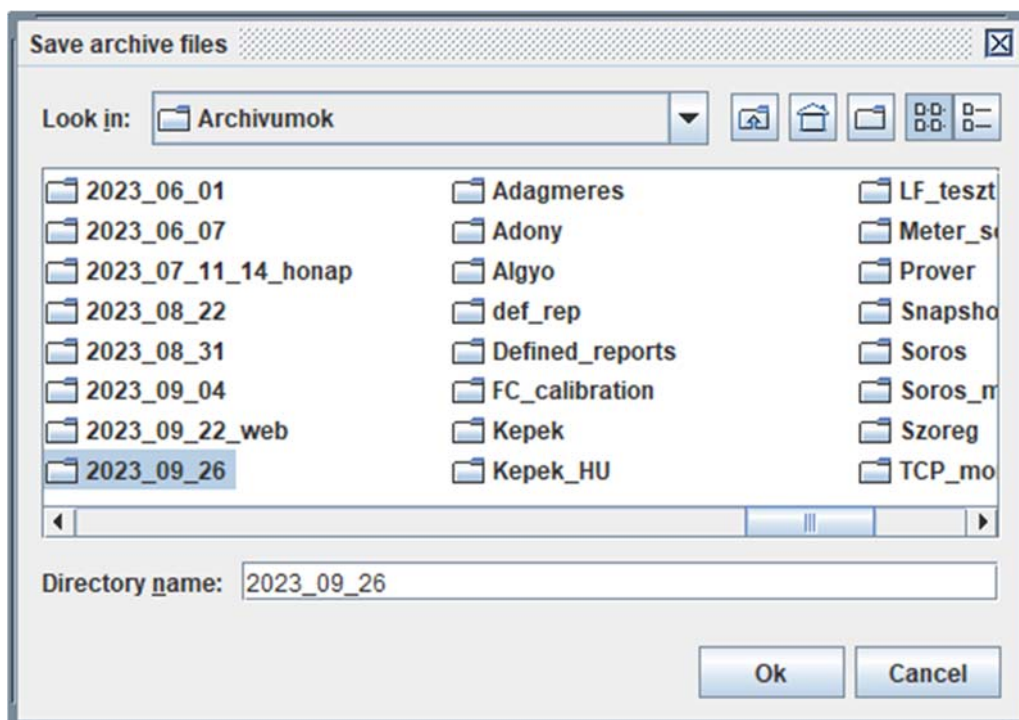
Open the report structure by clicking the + sign until you get to the report name you want to upload. Click on the checkbox in front of the report name. Or, click the check box in front of the report group name if you want to read all the reports in that group.



The name of the selected reports appears on the right-hand pane of the window.

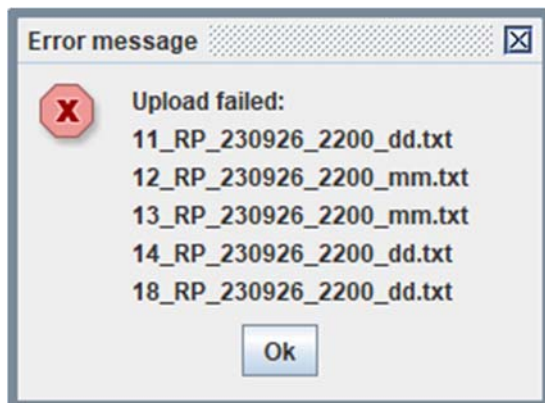
After all the required files selected click the Save selected files button.

File browser window opens. Navigate to the directory where you want to save the files and click OK.

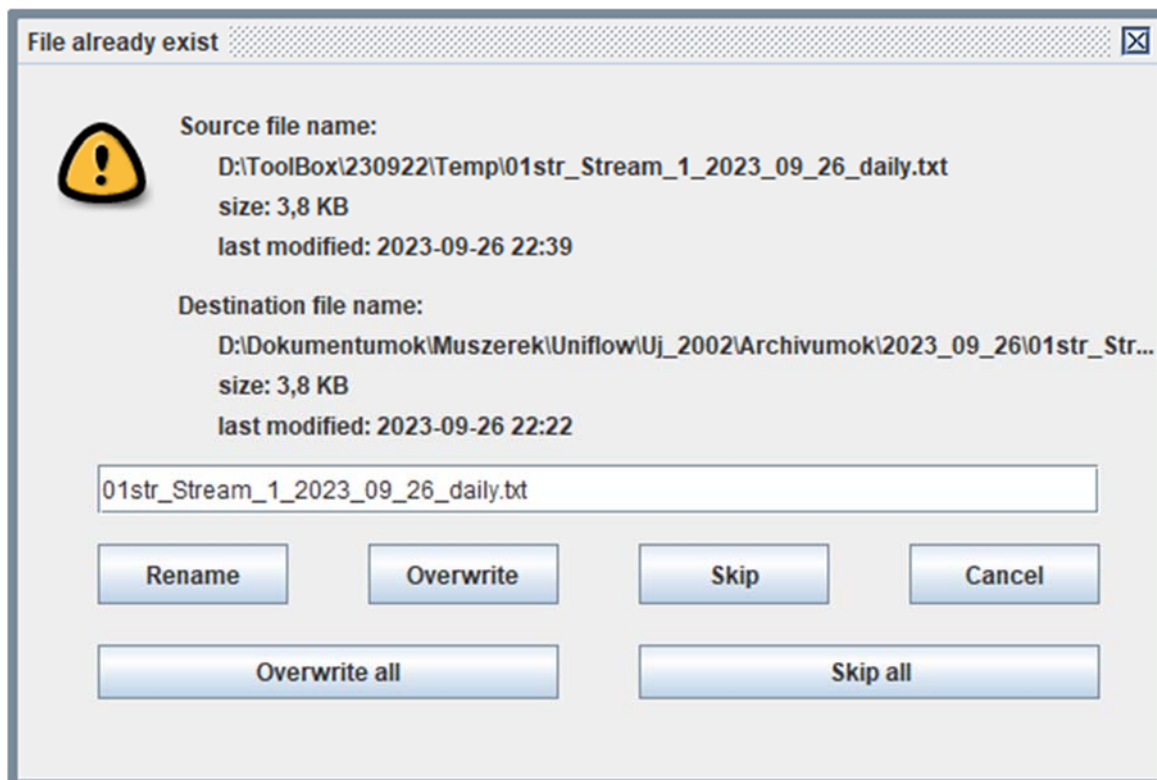


Do not enter the directory only select its name. Directory name shall display in the "Directory name" entry field.

In very rare case it might happen that some of the files cannot be uploaded. E. g. if you start the upload just before the end of hour. In this case the program reads the name of the reports valid before the end of hour. However when it reads the files after the end of hour, the name of the hourly files have already been modified by Uniflow-200 to include the new hour. At the end of the upload you get error message like this:

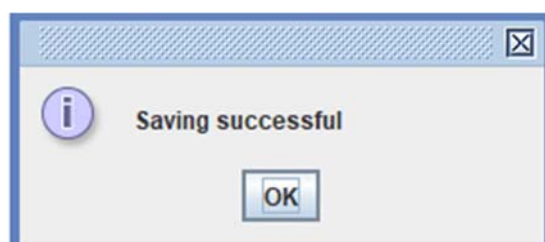


In such a case repeat the procedure. In the repeated upload program will ask you what to do with the files already exists in the directory?



Select the Overwrite all option.

After the saving of the reports succeeded click OK on the message box.



9.5 UNIUpdate

UNIUpdate allows you update the firmware in Uniflow-200.

See details in the document [Uniflow200_1_how_to_update_firmware](#).