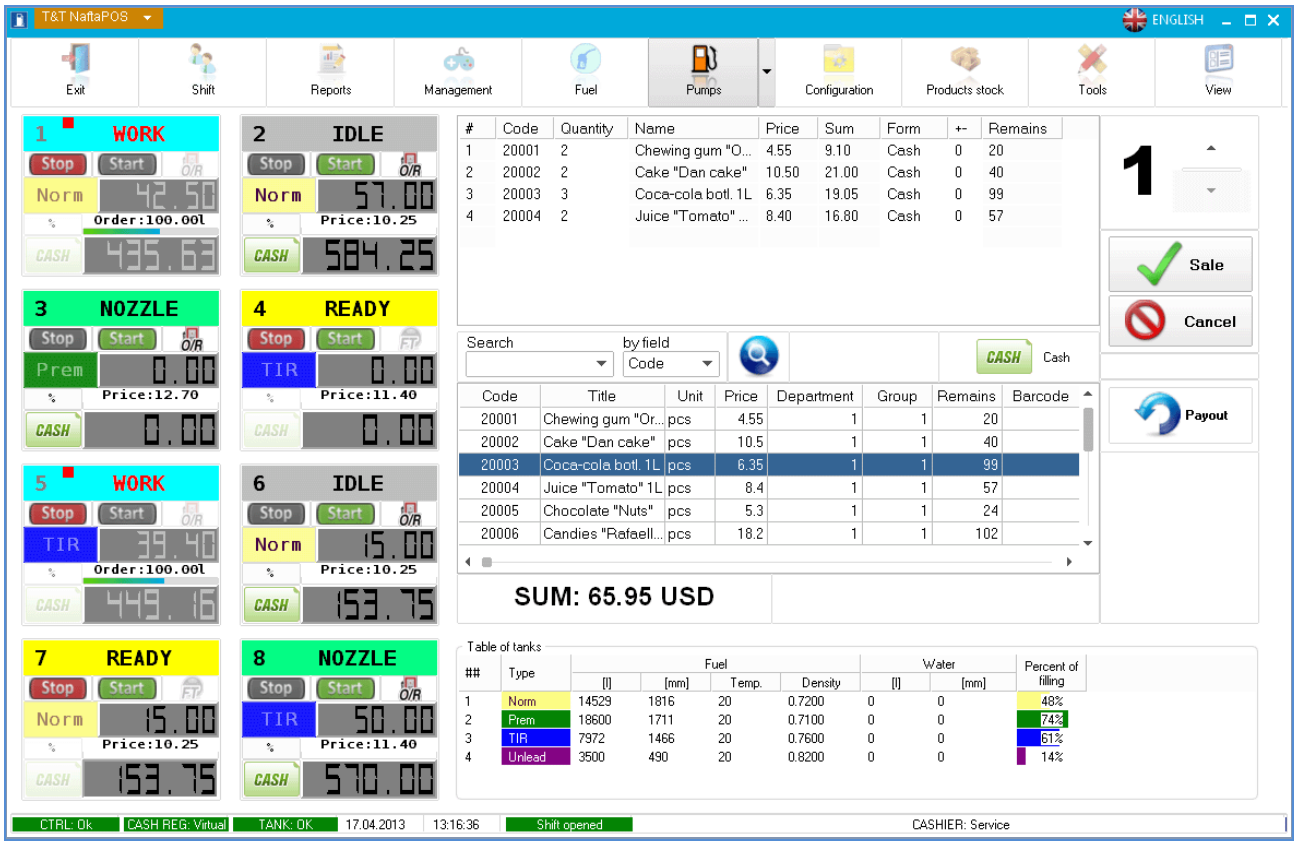
NaftaPOS software

POS system software for petrol stations



USER MANUAL

Review date: 14 June, 2018

TECHNOTRADE LTD

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Revisions history

REV	DATE	BY	DESCRIPTION
R08	2018.06.14	Evgeniy Vasyliev	Updated PosSet, operation with automatic vehicles identification system, operation with bank terminals, TT Shell, barcodes scanner, configuration flags, database structure, other minor changes
R07	2015.06.21	Evgeniy Vasyliev	New release of NaftaPOS 6.7 system built under a new version of compiler with UTF-8 characters encoding and new reporting
R06	2014.07.14	Evgeniy Vasyliev	Updated version of the PTS controller configuration utility
R05	2013.01.11	Evgeniy Vasyliev	Added Cash Windows printer (extended)
R04	2013.07.29	Evgeniy Vasyliev	Delayed sales of fuel section added Some sections in POSSet updated
R03	2013.04.22	Eugene Vasylyev	NaftaPOS version with updated graphical interface and enriched functionality
R02	2012.08.21	Eugene Vasylyev	Drivers of fuel dispensers and ATG systems updated
R01	2010.08.10	Eugene Vasylyev	First release of NaftaPOS multi language release version

Purpose of the document

This User Manual is intended for studying of NaftaPOS software operation and all its basic operations. It contains information regarding installation, configuration and application of the software. Information regarding special customized plug-ins for the software can be found in documentation supplied together with such plug-ins.

Information regarding connection to specific peripheral equipment and correspondent configuration of NaftaPOS software can be received upon request to TECHNOTRADE LTD company.

Due to a reason that NaftaPOS software is constantly being developed in direction of improvement of its possibilities, changes are possible in final version, which are not described in given User Manual.

During the system development process given User Manual is also expanded and updated and new chapters are added. Latest version of this User Manual can be downloaded from the NaftaPOS software web-page: http://www.technotrade.ua/petrol-station-software.html.

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In case if you find any mistakes, omissions in this document or have any suggestions on improvements to this document, please feel free to e-mail them to our support mailbox: support_1a@technotrade.ua. We will be grateful to you for this valuable information.

All technical questions regarding the NaftaPOS software are welcome to be asked on support mailbox: support_1a@technotrade.ua. Our support team will be glad to help you.

Also you can call to us or visit us on:

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List of terms and abbreviations used in text

ATG – automatic tank gauge system, refers to systems for automatic measurement of fuel parameters in tanks (fuel and water level, volume and temperature, fuel density, pressure, others)

CPU – central processing unit

FD – fuel dispenser or also called pump (under a fuel dispenser it is understood a whole dispenser if it has only 1 side or a fueling place of a dispenser if the dispenser has 2 sides)

Fueling place - fuel dispenser side in case if a fuel dispenser has 2 sides or a fuel dispenser in whole if a fuel dispenser has 1 side (same as pump)

FM – fiscal module

HDD – hard disk drive

OEM – original equipment manufacturer (manufactures products or components that are purchased by a company and retailed under that purchasing company's brand name)

OPT – outdoor payment terminal

OS – operation system

PC – personal computer

Pump – fuel dispenser side in case if a fuel dispenser has 2 sides or a fuel dispenser in whole if a fuel dispenser has 1 side (same as fueling place)

POS system - point of sale system, refers to a POS terminal or more generally to the hardware and software used for checkouts, the equivalent of an electronic cash register. NaftaPOS system relates to software of a POS system

RAM – random access memory

RDMS – relational database management system

RFID – radio frequency identification

Purpose, characteristics and area of application of NaftaPOS system

POS system software NaftaPOS is complex software for petrol stations intended for:

- provision of control over technological processes and forecourt equipment (fuel dispensers, ATG systems, price boards, car washes, others)
- automated measurement and commercial account at petroleum products
- provision of sales of retails products using various payment forms
- automated reporting over petrol station operation history during a selected period of time
- provision and account of personnel operation of petrol station
- provision of discount-bonus loyalty card system for customers
- automated identification of vehicles
- remote monitoring over petrol station operation (optional)
- remote reporting over operation of a petrol station network (optional)

Main purposes of NaftaPOS software are:

- make petrol station work efficiently and bring maximum profit to its owner
- reduce the cost of management over the petrol station
- make activity of cashiers and fuel attendants transparent in order to avoid stealing and frauds by personnel of petrol station
- make reporting over petrol station operation easy and convenient
- provide control over fuel dispensers and ATG systems of various brands and models
- provide multiple payment methods and attract more customers with discount-bonus loyalty programs (optional)
- make the owner of petrol station concretely master all operations and transactions by remote monitoring of petrol station activity and sales (optional)

Main characteristics of NaftaPOS software are:

- Convenient operation without any professional training because of intuitive, explicit and clear user interface and operations procedures
- Visualization and monitoring of petrol station activity real-time (locally and remotely)
- Flexible adjustment of the way of petrol station operation
- Possibility to customize user interface with selection of a skin, position and size of windows and elements, their details
- Possibility to flexibly create and configure templates for printed receipts
- Easy-to-read reporting and graphic statistic
- Easy localization to any international language
- Remote data gathering from a petrol station provides a possibility for petrol station owner to supervise petrol station activity everywhere and every moment (optional)

Area of application – petrol stations for dispensing of petroleum products, diesel fuel, liquified petroleum gas (LPG), compressed natural gas (CNG), multiproduct fuel petrol stations, petroleum storage depots.

NaftaPOS system is developed with account of all modern requirements to systems for automation of petrol stations, at this it is oriented as on small petrol stations, so as on big petrol complexes with organization of several working places of cashiers, administrator (Back-Office) of a petrol station, central Head-Office for management and planning and provision of loyalty card system for customers.

NaftaPOS system supports:

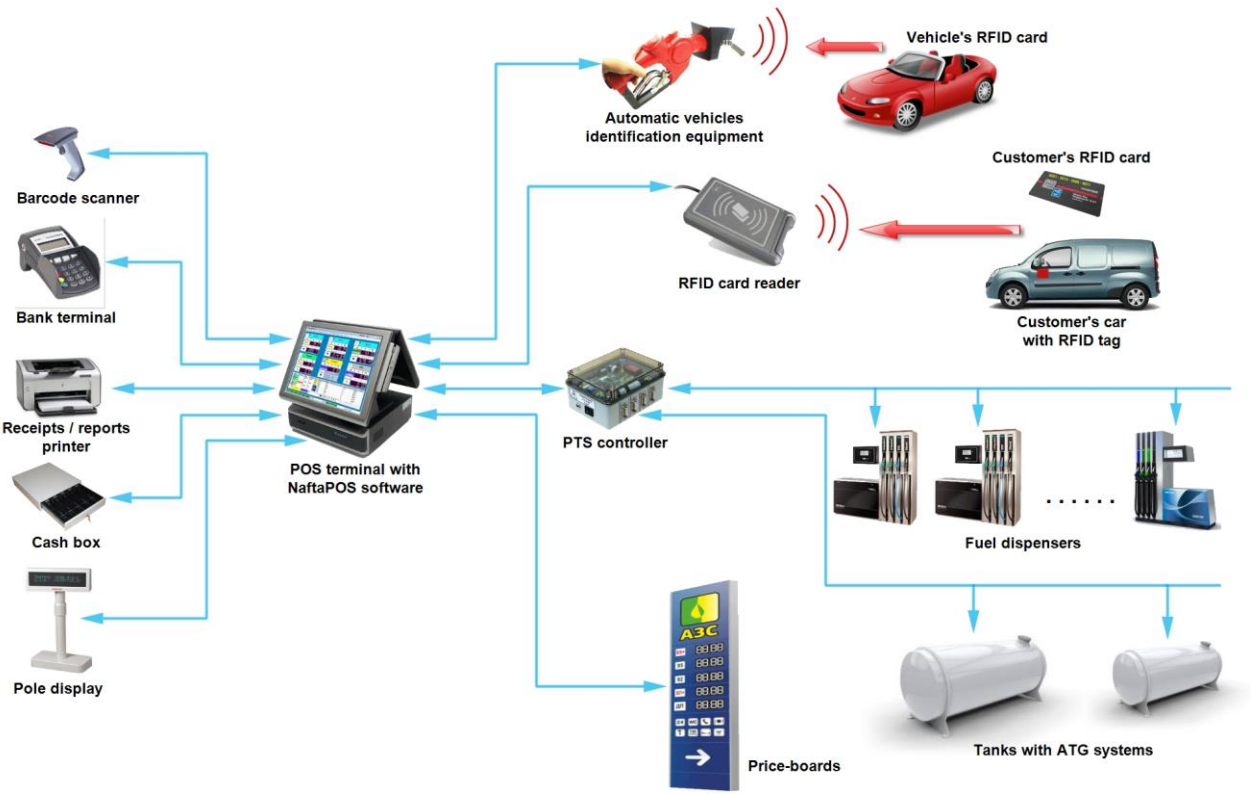
- various forms of payment
- various modes of control over fuel dispensers (Preset, Full tank, Manual (monitoring))
- control over up to 32 fuel dispensers
- database for up to 100 000 products and services.

NaftaPOS software uses MySQL open source relational database management system for storing of all data. Database structure of NaftaPOS software is open and its description can be found section "*NaftaPOS database structure*" in the end of this User Manual.

Connected equipment

NaftaPOS software allows connection with the following equipment:

- *forecourt controllers and interface converters* – for connection and provision of control over fuel dispensers, ATG systems, price and sign boards, car washes, etc;
- *ATG fuel measurement systems and probes* – for automatic measurement of fuel parameters in tanks (fuel and water level, volume and temperature, fuel density and pressure, others);
- *price-boards and sign-boards* – for indication of current price for fuel and products;
- *cash registers and receipts printers* – for printing-out of fiscal (non-fiscal) receipts in accordance with local legislation requirements;
- *automatic vehicle identification (AVI) equipment* – for identification of vehicles;
- *modems* – for data transmission to remote Head-Office software;
- *bank payment terminals* – for cashless payment using bank cards;
- *card readers* – for reading information from cards, used in discount/bonus loyalty card systems;
- *barcode scanners* – for automatic reading of products barcodes;
- *printers* – for print-out of report documents;
- *cash boxes* – for cash money storage;
- *pole displays* – for indication of sale information o customers;
- *other equipment*



Connected equipment to NaftaPOS software

Requirements to POS terminal for NaftaPOS system installation

NaftaPOS software is to be installed on a POS terminal (or a standard PC) with Microsoft Windows operation system. Supported versions of OS Windows:

- Windows 2000
- Windows XP
- Windows Embedded POSReady
- Windows Vista
- Windows 7
- Windows 8
- Windows 8.1
- Windows Server
- Windows 10

Minimal requirements to a POS terminal (or a standard PC) include the following:

- 2 GHz CPU
- 8 GB RAM
- 200 GB HDD

At using NaftaPOS you should in Windows Control Panel in configuration of regional parameters on tabs "*Numbers*" and "*Currency unit*" as a "*Separator of integer and fractional parts*" set '.' (point, dot).

Control over pumps and ATG systems in NaftaPOS is made through a PTS controller over fuel dispensers and ATG systems (http://www.technotrade.ua/fuel-pump-controller.html), which is connected to a POS terminal via the RS-232 interface (COM-port) or any of possible interface converters to RS-232 interface (USB-to-COM, Ethernet-to-COM, PCI-to-COM, etc).

NaftaPOS system installation

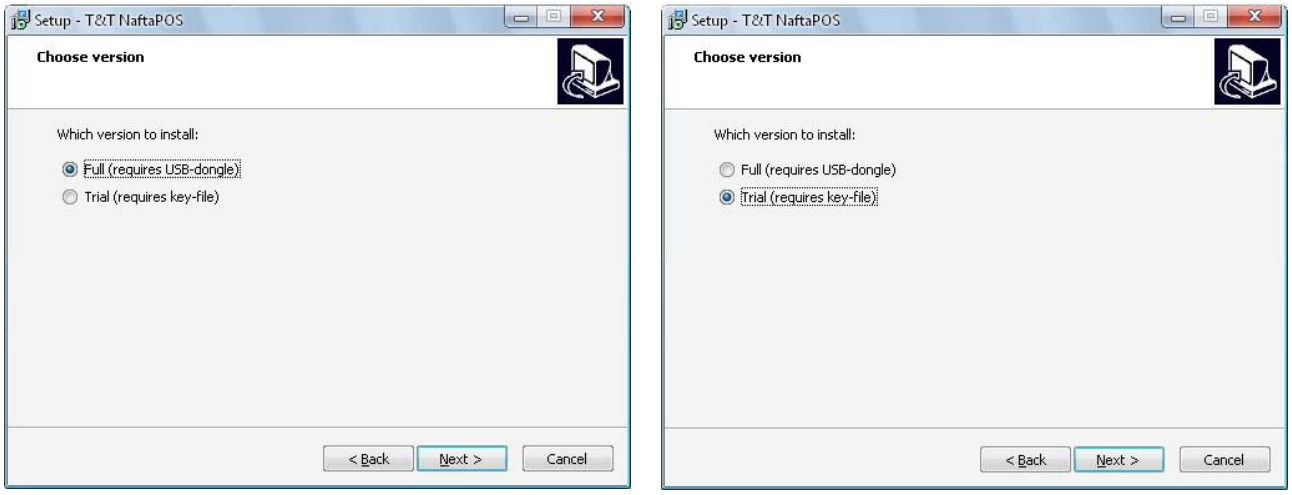
NaftaPOS installation files is used for both 32-bit and 64-bit systems.

Installation of NaftaPOS software is made by running an installation file and following instructions, specified in installation wizard:

NaftaPOS installation configuration – step 1

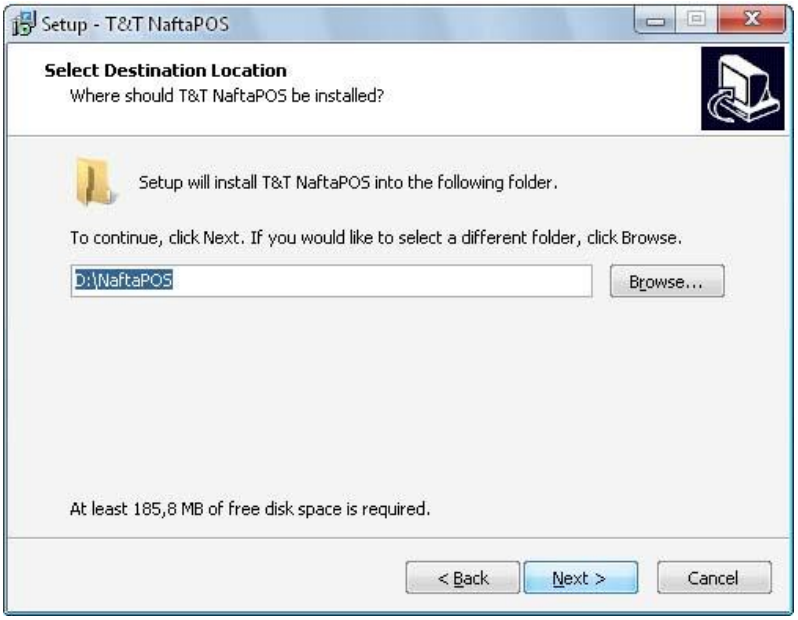
On second step it is necessary to select a type of system installed:

- full version
- trial version

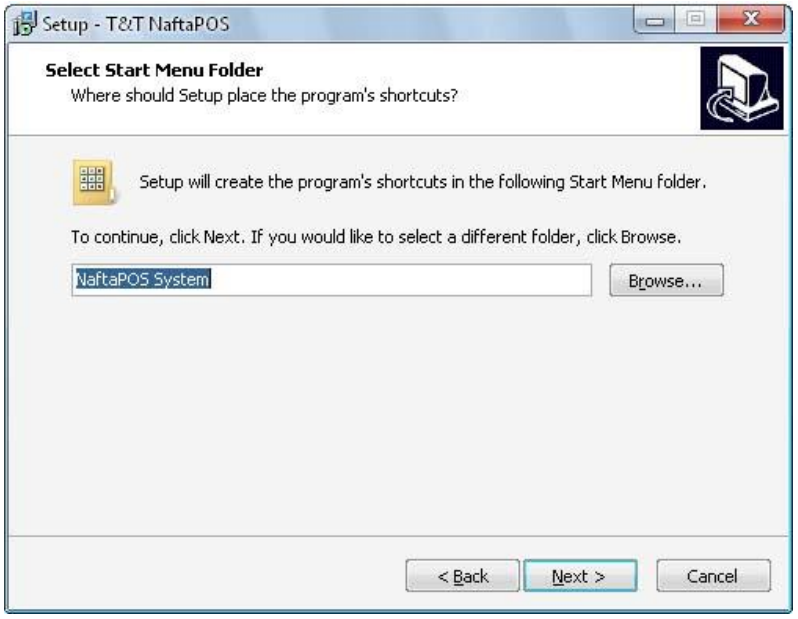


NaftaPOS installation configuration – step 1

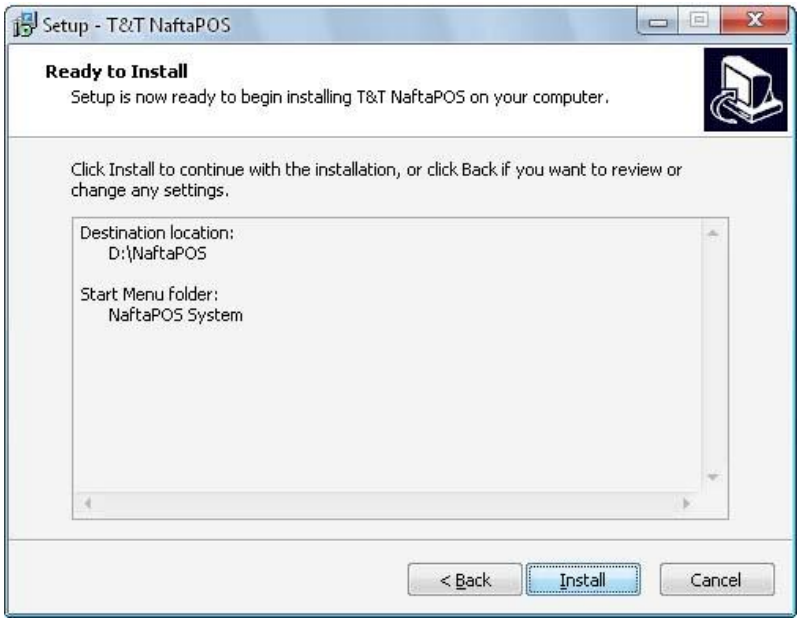
Third step asks for the place on drive, where the system is to be installed. The system should be installed in folder NaftaPOS on any of the local drives:



NaftaPOS installation configuration – step 3

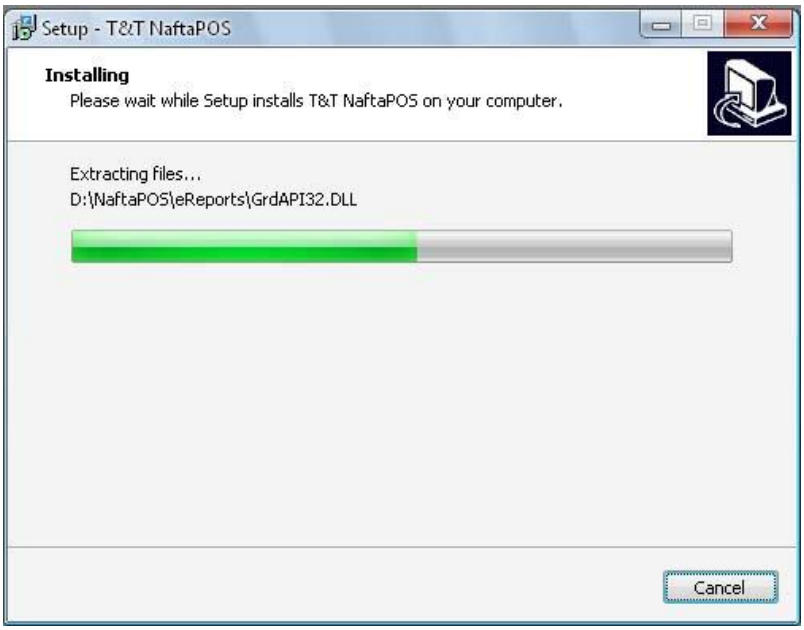


NaftaPOS installation configuration – step 4



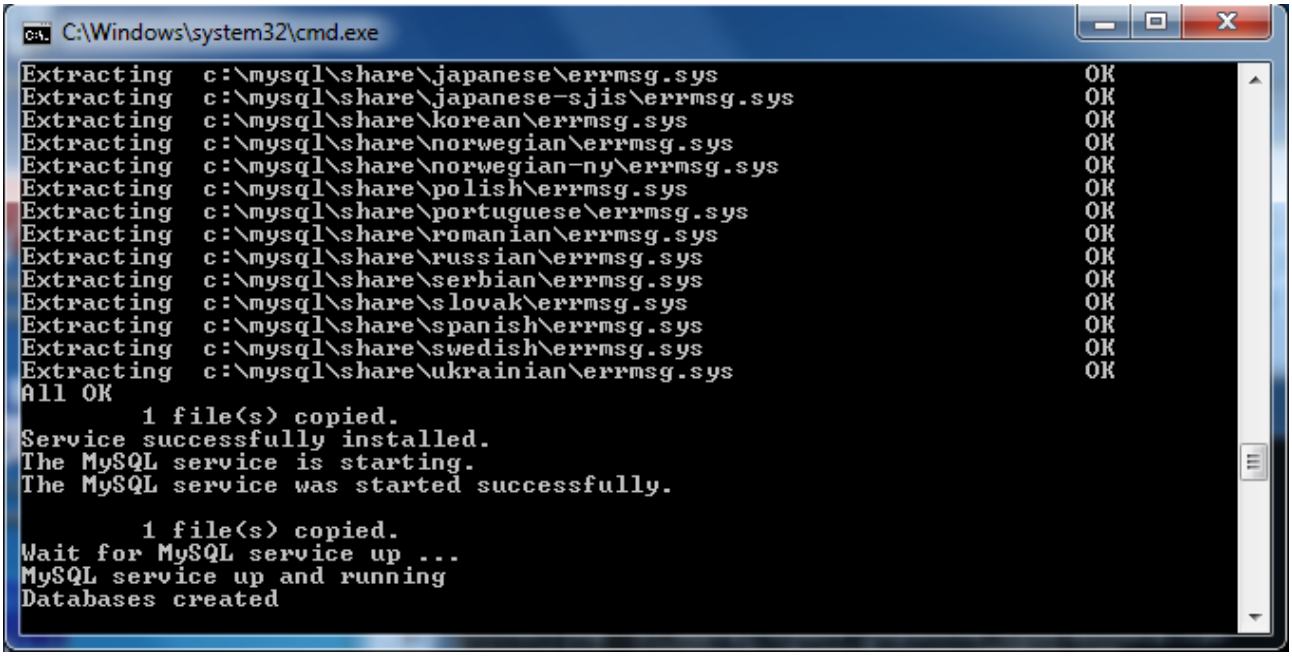
NaftaPOS installation configuration – step 5

After this the installation process is started:



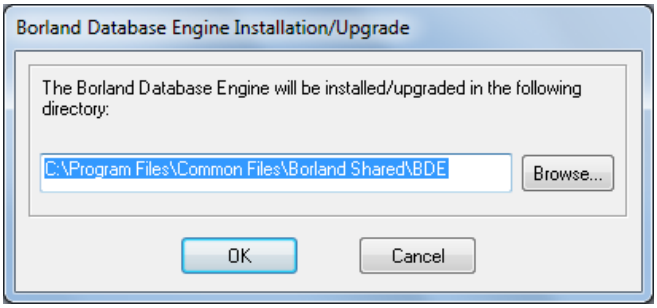
NaftaPOS installation process

During installation process MySQL RDMS will be installed to C:\mysql\ folder and MySQL service starts:



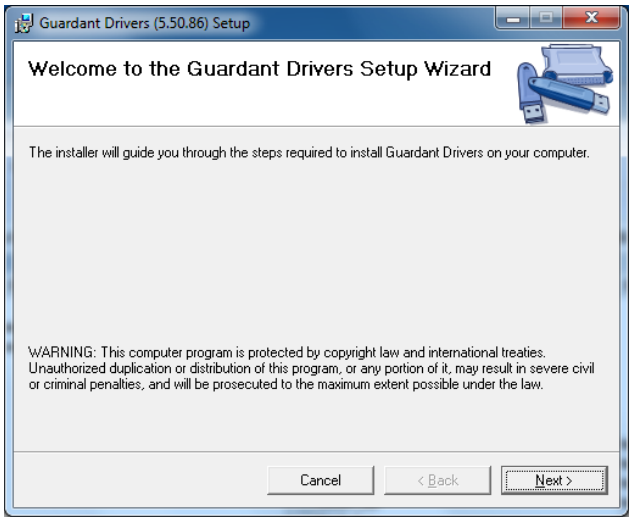
NaftaPOS installation process – MySQL DBMS installation

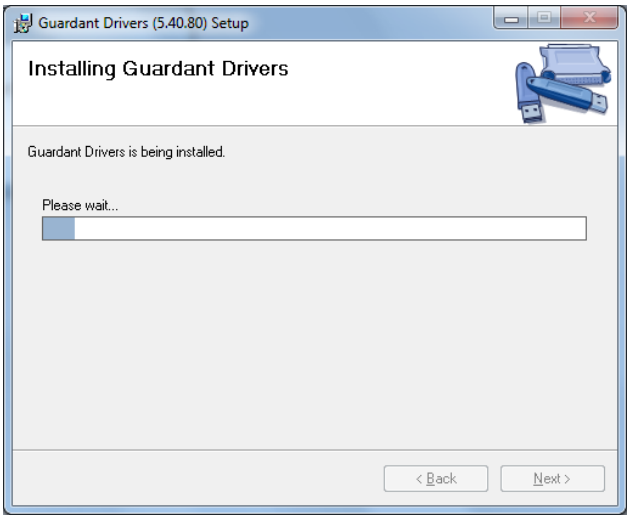
Borland Database Engine will be installed during NaftaPOS software installation process, so it is important to agree with a request on its installation:



NaftaPOS installation process – Borland Database Engine installation

Guardant dongle drivers are installed during NaftaPOS software installation process, so it is important to agree with a request on its installation:

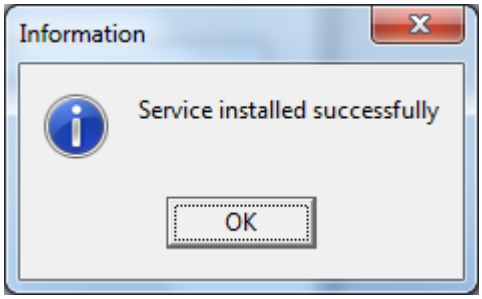




Installation process – Guardant dongle drivers installation

During installation the following NaftaPOS services will be installed:

- T&T database server
- T&T Scheduler



NaftaPOS installation process – service installation

After installation of NaftaPOS software a logical drive, on which the system is installed, will contain a directory "*NaftaPOS*" with all files of NaftaPOS software and NaftaPOS system files that track its operation (log-files):

- main_logfile.txt
- controller.txt
- CashErr.txt
- others

Others log files may be created automatically during the system operation. By content of these log-files it is possible to track reasons of possible errors and misoperations arisen during software operation and lead a log of actions performed by cashier of the petrol station. This information is written in logs that at necessity can be sent to TECHNOTRADE LTD company for defining of found errors and their initial reasons with subsequent fixing of these errors.

Electronic protection dongle Guardant

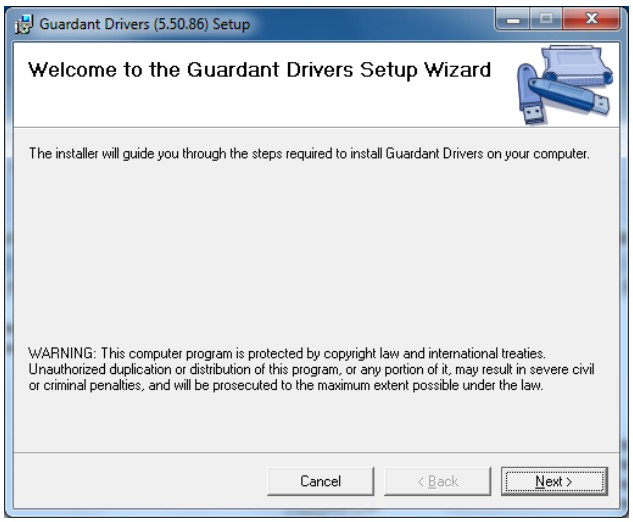
Appointment of Guardant dongle

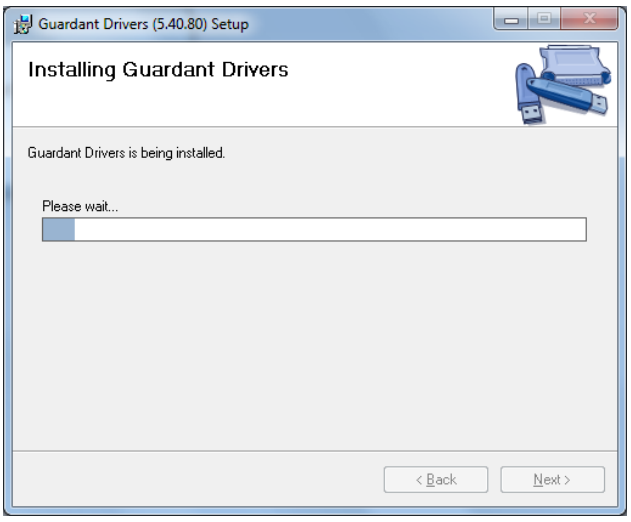
For protection of NaftaPOS software from unauthorized copying and illegal distribution electronic protection dongle Guardant is applied.

Electronic protection dongle Guardant – is a device that is connected to USB port (or a parallel port LPT in older versions), located on a panel of a POS terminal (PC) motherboard. Electronic protection dongle Guardant is necessary for protection of NaftaPOS software from unauthorized copying and illegal distribution. Scope of protection is that the dongle contains part of the code of NaftaPOS software. At launching NaftaPOS the system verifies contents of dongle's memory and in case if the dongle is absent or it contains data that does not correspond to data demanded by the system, NaftaPOS throws an error of protection system and stops operation.

USB Electronic protection dongle Guardant

Guardant USB dongle drivers are installed during NaftaPOS software installation process or can be installed/updated any time later:

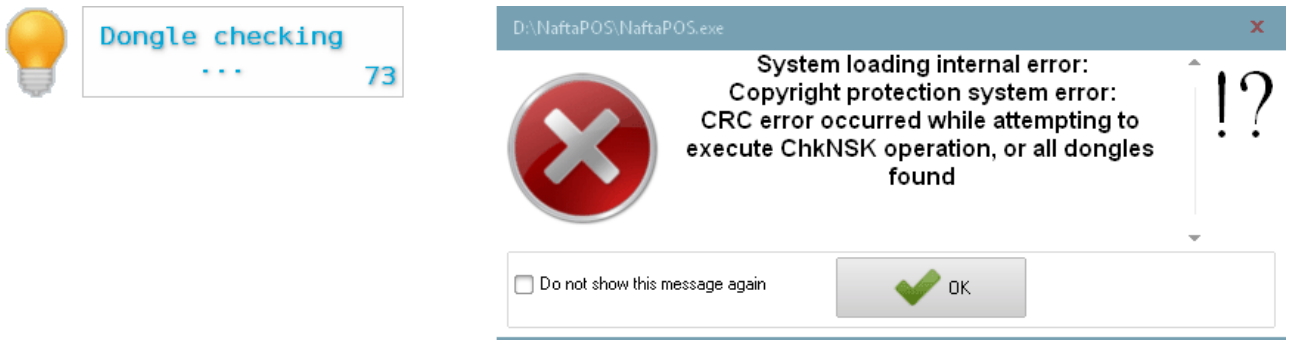




Guardant dongle drivers installation

In case if Guardant dongle is removed during operation of NaftaPOS system – NaftaPOS will be switched to Demonstration mode of operation, which has limitations on sales of fuel and products.

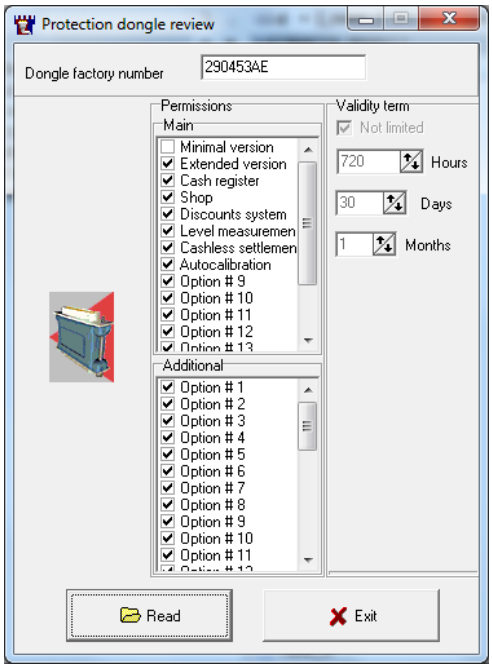
At system start it checks presence of USB dongle. In case if dongle is not connected – an error will be generated:



Error of protection system – Guardant dongle not found

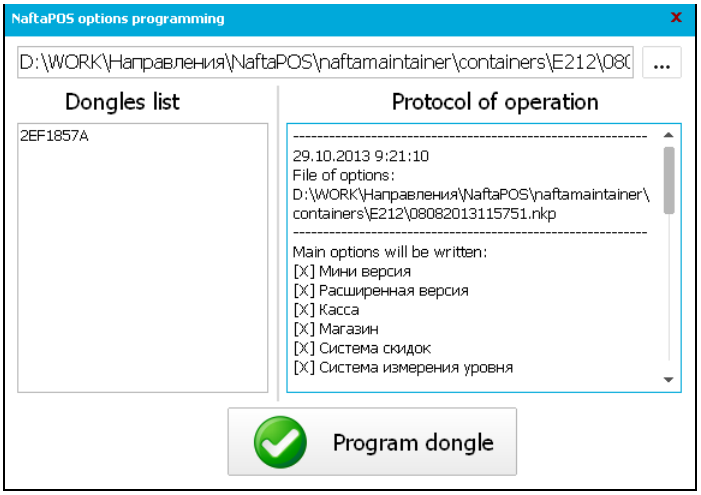
Reading and updating of Guardant dongle permissions

List of permissions programmed in Guardant dongle can be viewed using a *stealth_view.exe* tool (location: *NaftaPOS\stealth_view.exe*):



Stealth_view – tool for viewing of Guardant dongle permissions

For updating of Guardant dongle programmed permissions *stwrite.exe* tool is used (location: *NaftaPOS\stwrite.exe*):



Stwrite – tool for updating of Guardant dongle permissions

Configuration of NaftaPOS system

For configuration of NaftaPOS software it is necessary to have administrator rights in NaftaPOS system (these rights are set in NaftaPOS configuration, person without rights can not configure NaftaPOS).

Configuration of NaftaPOS software is made in configuration utility POSSet.exe (location: *NaftaPOS\POSSet.exe*), which can also be run from NaftaPOS software by selecting an item from main menu '*Configuration*'. In case if the configuration utility was started from inside the NaftaPOS software – then for the made adjustments to enter into force it is necessary to restart NaftaPOS system.

At entering the configuration tool a user is requested to authenticate in order to prove his permission to make configurations of the system:

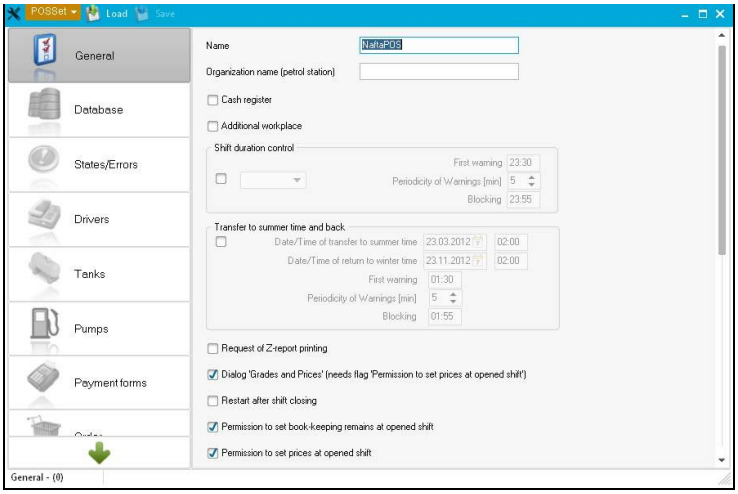
Authentication window

By defaults after installation there is only 1 user present with the following credentials:

- *login*: Service
- *password*:

To avoid system unauthorized access to NaftaPOS system using default login and password it is recommended to change them at once on tab "*Users*" at once after the system start.

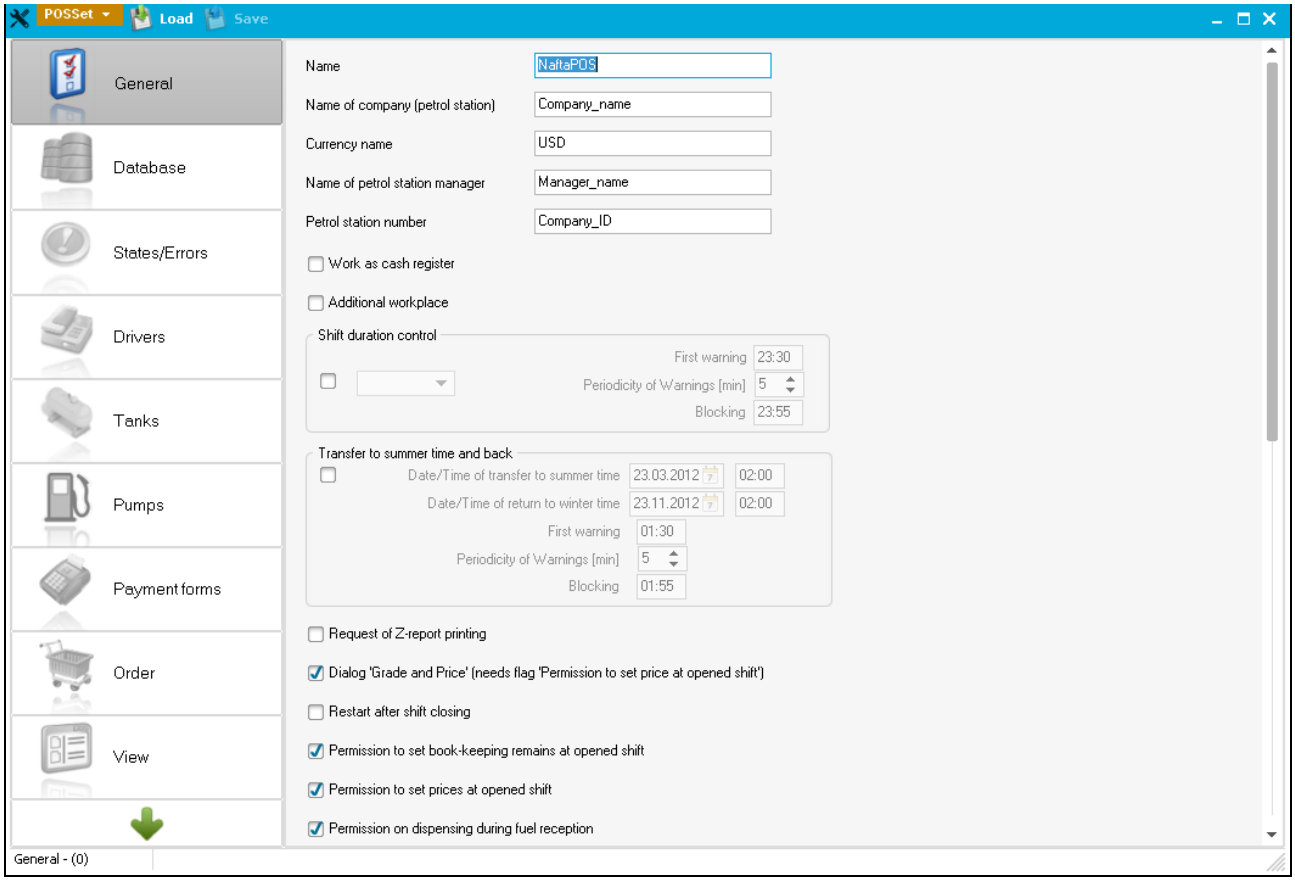
After logging inside the configuration utility the following window is shown, where on the left side – there is a selector of tabs to be configured, and on the right side – configurable parameters of the selected tab.

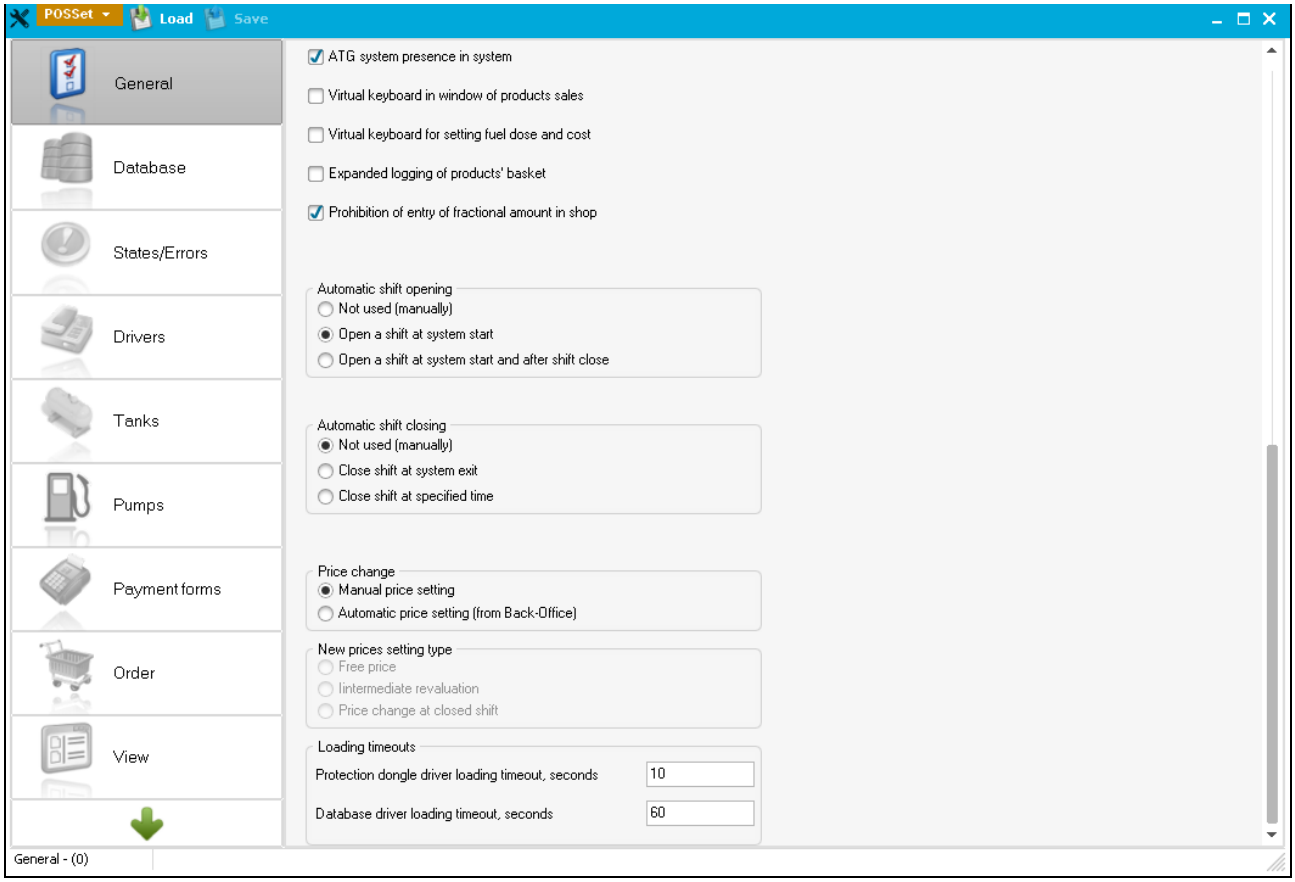


POSSet.exe – main view of NaftaPOS configuration tool

Configuration tab "General"

Tab "*General*" serves for general configuration of NaftaPOS software. Main view of the "*General*" tab with settings set by default after the system installation is shown below:





NaftaPOS configuration tool – "General" tab

Appointment of the fields shown on tab "*General*" is the following:

Field "*Name*": name of POS system software, which is displayed in top left corner during system operation.
Field "*Name of company (petrol station)*": name of a petrol station, which is displayed in reports
Field "*Currency name*": currency name to be used in system and reports
Field "*Name of petrol station manager*": name of petrol station manager to be used in system ad reports
Field "*Petrol station number*": number of petrol station to be used in system ad reports

Checkbox "*Work as cash register*": used for specifying whether system works as a fiscal cash register (checkbox is checked) or not (checkbox not checked). If this checkbox is checked – it means that NaftaPOS software works on a specialized POS terminal, connected with a fiscal receipts printer, which works in accordance with local fiscal legislation. At this NaftaPOS will operate as the only one software, which can be run on the POS terminal, window of NaftaPOS will not be possible to minimize or hide and in order to access standard Windows operation system possibilities a user should know the administrator password in NaftaPOS system. When NaftaPOS is configured to work with non-fiscal receipts printer driver (configured on tab *"Drivers"* for Cash registers) – then this checkbox will not be checked.

Checkbox "*Additional workplace*": used for specifying whether system works standalone and leads its own database (checkbox not checked) or it works together with other systems and uses their databases (checkbox is checked).

Checkbox "*Shift duration control*": used for specifying whether blocking of system operation is required in case of shift duration is exceeded. It allows to set blocking of NaftaPOS system operation in case of shift duration control is required. At blocking NaftaPOS software will not allow any sales to be made. There are 2 possible options of shift duration control:

- Till 23:59 – NaftaPOS software will block its operation every day at 23:59
- 24 hours – NaftaPOS software will block its operation every time when shift duration exceeds 24 hours

After blocking is set it is necessary to close a current shift and start a new one.

Checkbox "*Transfer to summer time and back*": if checked – used for specifying whether automatic transfer to summertime and back should be made in system. It allows automatic transfer to summer and winter time on specified date and time.

Checkbox "*Request of Z-report printing*": when system is used together with a fiscal printer - this option is used for specifying whether Z-report should be printed automatically at shift closing.

Checkbox "*Dialog 'Grades and Prices' (needs flag 'Permission to set prices at opened shift')*": if checked together with a checkbox '*Permission to set prices at opened shift*' – allows changing of prices within an opened shift on fuel grades and change fuel grades names.

Checkbox "*Restart after shift closing*": if checked – leads to restart of NaftaPOS software after closing of a shift.

Checkbox "*Permission to set book-keeping remains at opened shift*": if checked – allows setting of book-keeping remains on fuel in tanks within an opened shift.

Checkbox "*Permission to set prices at opened shift*": if checked – allows to change prices on fuel grades and products within an opened shift.

Checkbox "*Permission on fuel dispensing during fuel reception*": if checked – allows to dispense fuel from the tank, to which fuel is being received.

Checkbox "*ATG system presence in system*": if checked – then indications of fuel level in tanks and its parameters will be taken from connected ATG system, which driver and parameters are configured on tab

"Drivers" → *"Tanks"*. If the checkbox is unchecked – all values on fuel remains in tanks will be entered manually (assumed that meter stock is used for fuel level measurement),

Checkbox "*Virtual keyboard in window of products sales*": if checked – then virtual keyboard will be indicated in the window of products sale and it will be possible to use NaftaPOS software on POS terminals having a touchscreen to provide sales of products.

Checkbox "*Virtual keyboard for setting fuel dose and cost*": if checked – then virtual keyboard will be indicated in pump windows for setting of fuel dose and cost and it will be possible to use NaftaPOS software on POS terminals having a touchscreen to provide control over fuel dispensers.

In case if any of the checkboxes "*Virtual keyboard in form of products sale*" and "*Virtual keyboard for setting fuel dose and cost*" is checked – then a virtual keyboard will be shown for every other window in NaftaPOS system in every field, where information can be inputted.

Checkbox "*Expanded logging of products' basket*": if checked – then NaftaPOS will write more extended log "*main_logfile.txt*", where extended information on products sales is specified.

Checkbox "*Prohibition of entry of fractional amount in shop*": if checked – then NaftaPOS will not allow sales of fractional amount of products through sales window (sales will be allowed only on integer amount value).

Field "*Automatic shift opening*": is used to specify whether a working shift should be opened automatically or not. It is required in those cases when there is no need to lead working shifts in system. But as NaftaPOS software is built to work in shifts and reports in NaftaPOS software are generated in accordance with working shifts – then automatic opening of shift is foreseen. Possible options:

- Not used (manually)
- Open a shift at system start
- Open a shift at system start and after shift close

Field "*Automatic shift closing*": is used to specify whether a working shift should be closed automatically or not. It is required in those cases when there is no need to lead working shifts in system. But as NaftaPOS software is built to work in shifts and reports in NaftaPOS software are generated in accordance with working shifts – then automatic closing of shift is foreseen. Possible options:

- Not used (manually)
- Close shift at system exit
- Close shift at specified time

Radiobutton list "*Price change*": allows to specify the source of changing prices in the NaftaPOS system:

- Manual price setting (from NaftaPOS)
- Automatic price setting (from Back-Office software)

In case if option "*Automatic price setting (from Back-Office)*" is selected – then it is possible to select a type of price setting in a radiobutton list "*New prices setting type*", which has the following options:

- Free price
- Intermediate revaluation
- Price change at closed shift

Field "*Dongle driver loading timeout, seconds*": specifies a period for keeping checking the Guardant dongle presence in system at starting of NaftaPOS software. If during the specified period dongle is not found in the system – then an error of protection system is thrown.

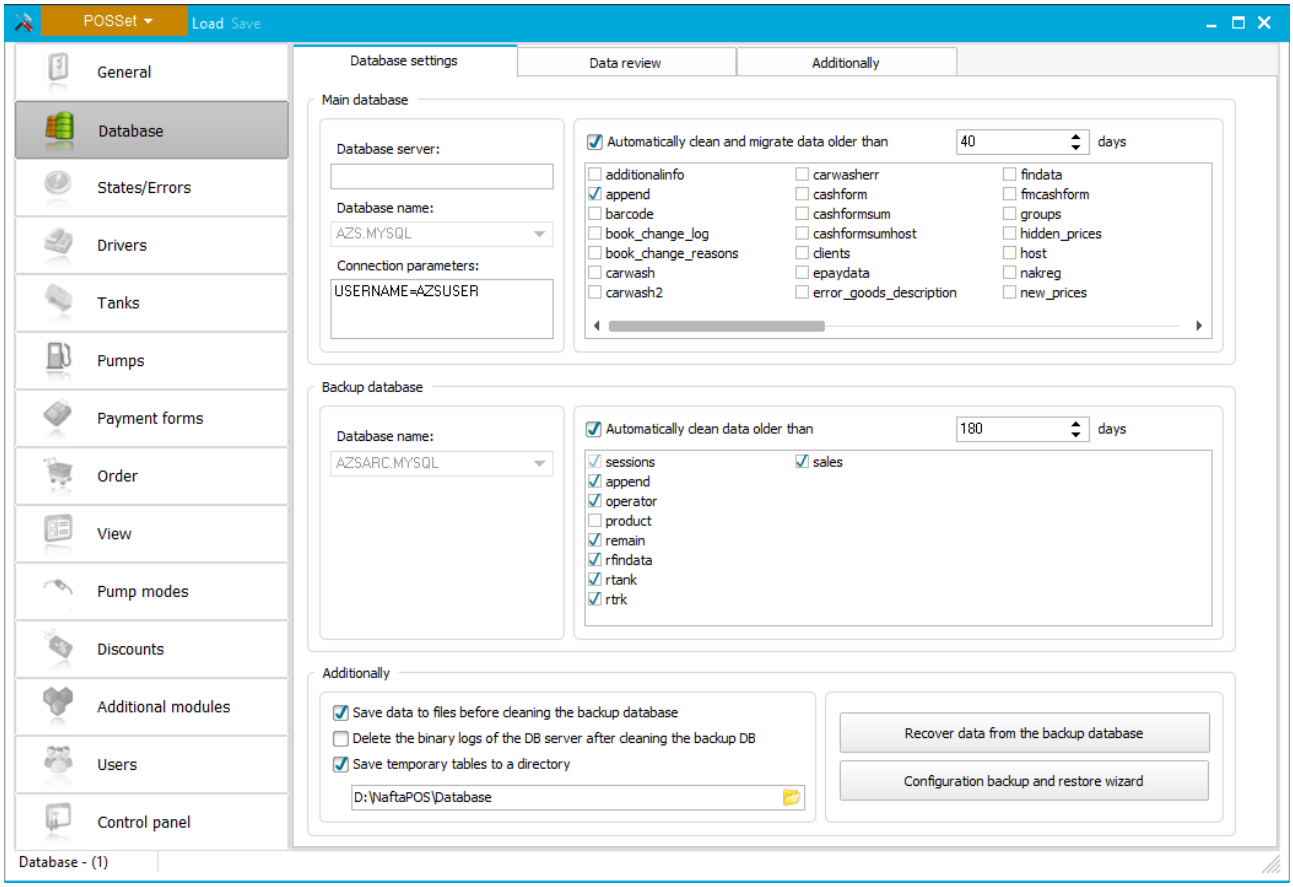
Field "*DB driver loading timeout, seconds*": specifies a period for keeping checking the database driver in system at starting of NaftaPOS software. If during the specified period system is unable to use database drive (for example due to a reason that MySQL service is stopped or gone away) – then a corresponding error is thrown.

Configuration tab "Database"

Tab "*Database*" serves for operations related with database of NaftaPOS system: its editing and archiving. This tab contains 3 subtabs:

- Database settings
- Data review
- Additionally

Subtab "*Database settings*" contains the following adjustments:



NaftaPOS configuration tool – "Database" tab: "Database settings" subtab

Appointment of the fields shown on subtab "*Database settings*" is the following:

"*Main database*" area:

- **Field "*Database server*"**: is used for specification of IP-address of the database server, where remote database of NaftaPOS is lead in case if NaftaPOS uses remote database (checkbox "*Additional workplace*" is set on tab "*General*"), incase if local database is used – this can be left empty.
- **Dropdown list "*Database name*"**: is used for selection of the local main database of NaftaPOS (by defaults "*AZS.MYSQL*").
- **Field "Connection *parameters*"**: is used for specification of the access credentials to main database (username, password, etc).
- **Checkbox "*Automatically clean and migrate dataolder than … days*"**: if checked – provides automatic cleaning of main NaftaPOS database content, which is older than quantity of days specified herein, and storing them to backup NaftaPOS database. User can select list of database tables to perform this operation.

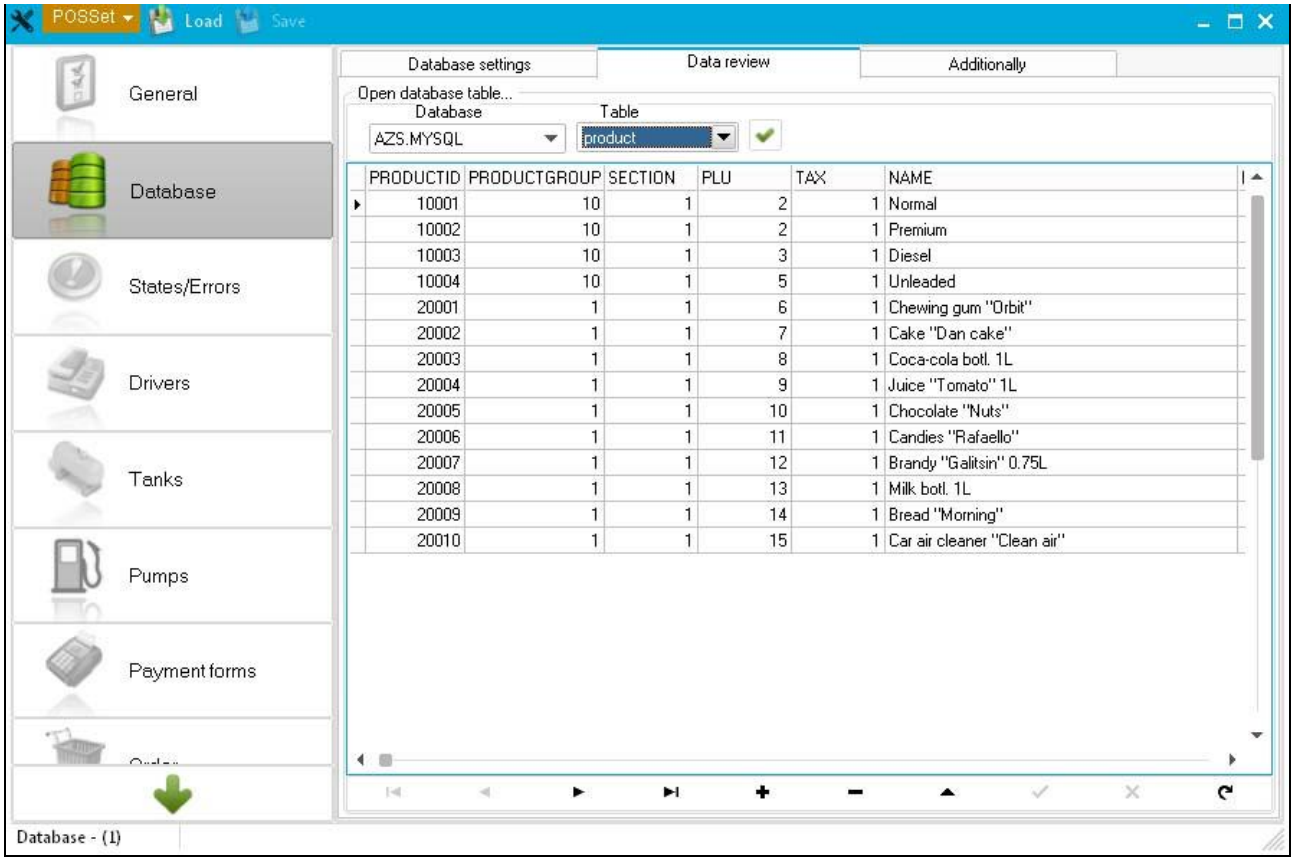
"*Backup database*" area:

- **Dropdown list "*Database name*":** is used for selection of the backup copy of NaftaPOS main database (by defaults "*AZSARC.MYSQL*").
- **Checkbox "*Automatically clean data older than*"**: if checked – provides automatic cleaning of selected list of tables in backup NaftaPOS database content, which is older than quantity of days specified herein.

"*Additionally*" area:

- **Checkbox "*Save data to files before cleaning the backup database*":** sets whether old data to be cleaned should be saved to file as SQL query.
- **Checkbox "*Delete the binary logs of the DB server after cleaning the backup DB*":** sets whether old database logs should be cleaned together with cleaning the old data from backup database.
- **Checkbox "*Save temporary tables to a directory*":** sets whether temporary tables should be saved to a directory in a view of SQL queries, if they should be saved – it is needed to specify path to this directory.
- **Button "*Recover data from the backup database*"**: is used for launching a wizard for restoring data from backup database.
- **Button "Configuration b*ackup and restore wizard*"**: is used to launching Backup/Restore utility for backing up of data when making update of NaftaPOS software and restoring of the data back after the update was installed. See more information in section "*Backup and restore of configuration and database of NaftaPOS system*" on given User Manual.

Subtab "*Data review*" contains the following elements:



NaftaPOS configuration tool – "Database" tab: "Data review" subtab

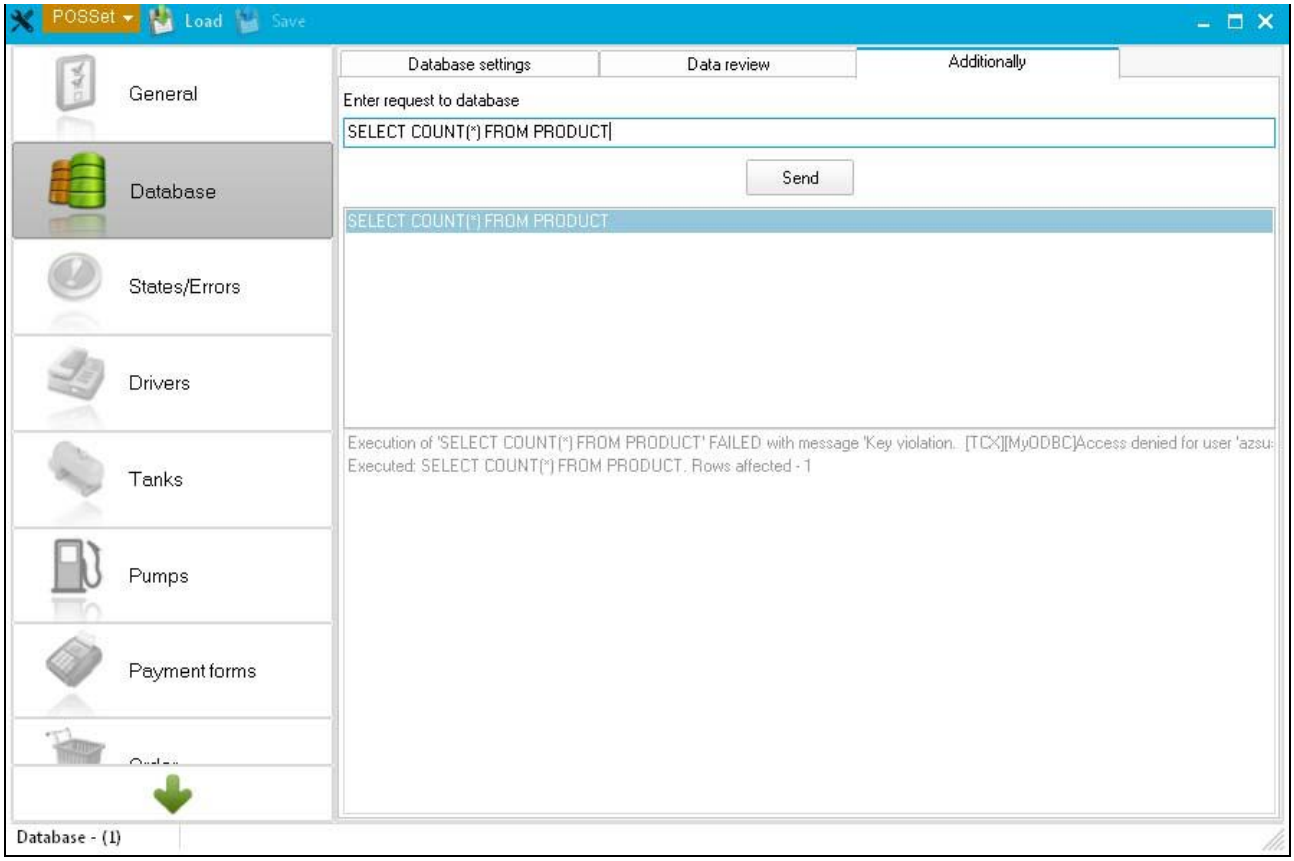
"*Open database table*" area:

- **Dropdown list "*Database*"** allows to select a database from a list.
- **Dropdown list "*Table*"** allows to select a table in a database, selected using a dropdown list "*Database*".

When database and its table is selected – it is possible to view, edit, insert and delete records in it using buttons in the bottom of the "*Open database table*" area.

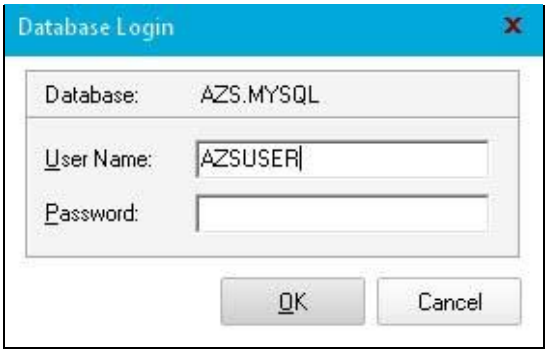
Database structure of NaftaPOS software is open and its description can be found in the end of this User Manual in section "*NaftaPOS system database structure*".

Subtab "*Additionally*" allows calling of requests to NaftaPOS database with indication of results.



NaftaPOS configuration tool – "Database" tab: "Additionally" subtab

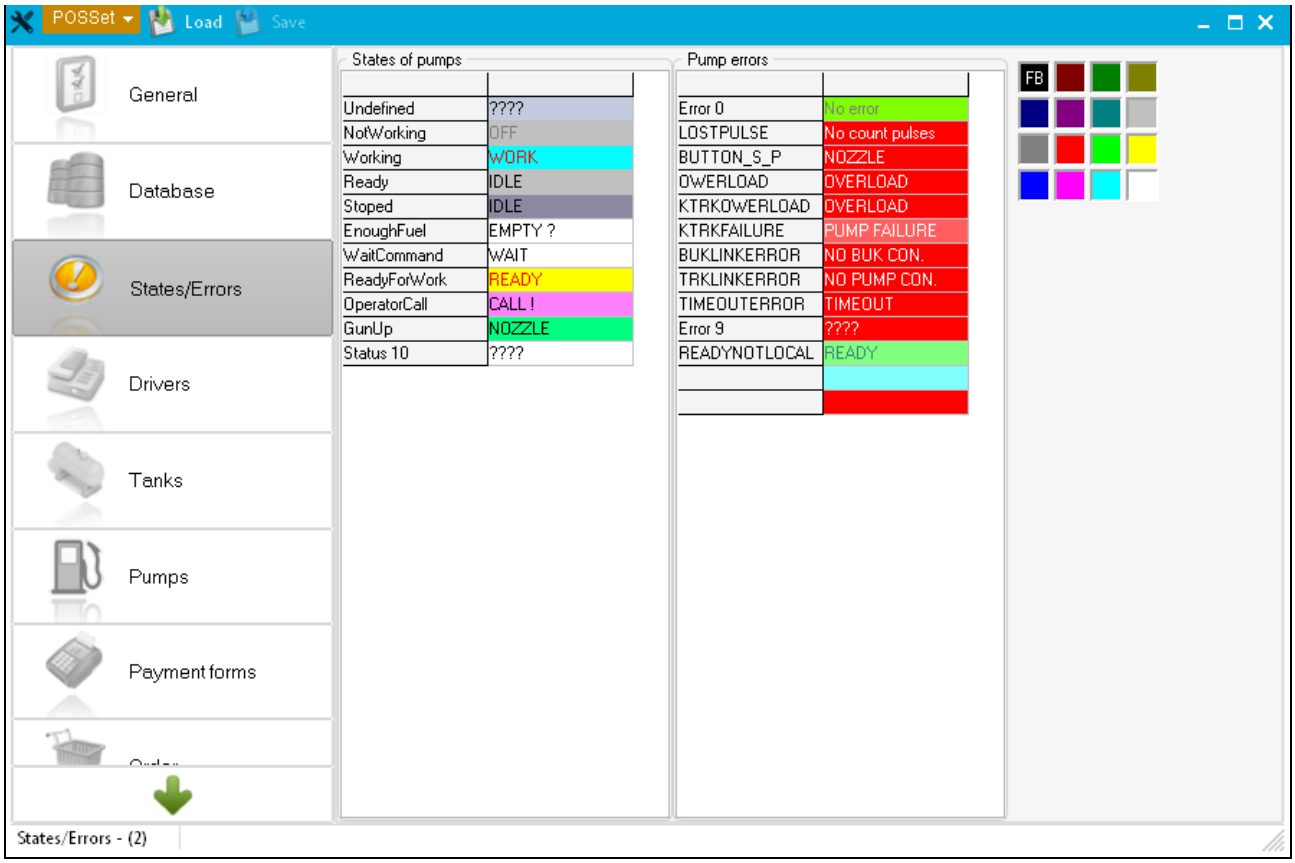
At sending of a request NaftaPOS will ask for login and password to connect to database:



NaftaPOS configuration tool – login to database on "Database" tab: "Additionally" subtab

Configuration tab "States/Errors"

Tab "*States/Errors*" serves for settings of colors of pump windows and displayed pump errors. It is possible to adjust a foreground color and background color for each of the pump state and error. Main view of the "*States/Errors*" tab is shown below:



NaftaPOS configuration tool – "States/Errors" tab: settings of colors of pump states and errors

Having pressed a right mouse button on the color in color panel leads to setting this color as a foreground for the selected pump state/error, which is indicated with inscription "*FG*" in color panel.

Having pressed a left mouse button on the color in color panel leads to setting this color as a background for the selected pump state/error, which is indicated with inscription "*BG*" in color panel.

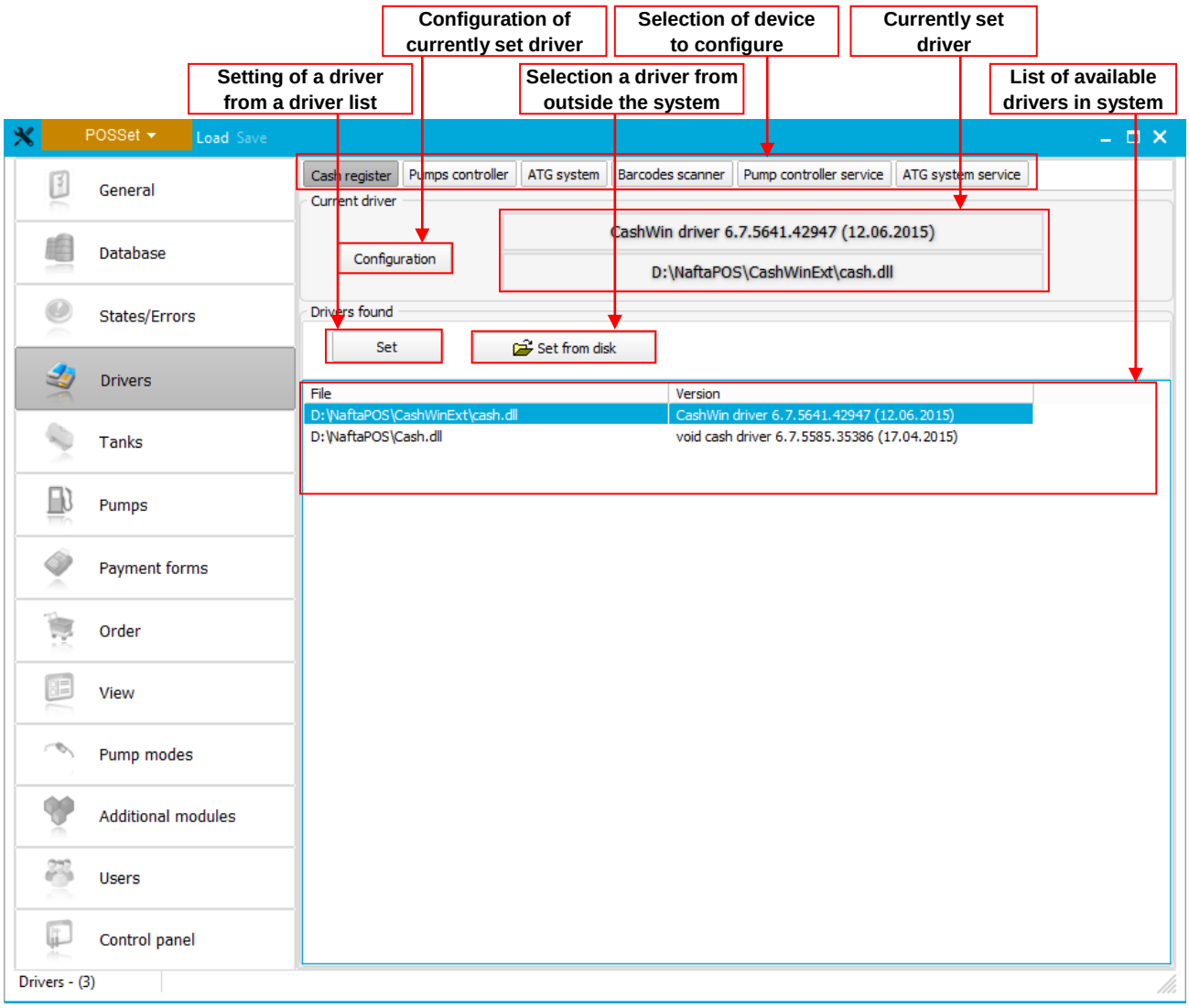
If both foreground and background colors match – this is indicated by an inscription "*FB*" in color panel.

Configuration tab "Drivers"

Tab "*Drivers*" serves for configuration of drivers of connected equipment to NaftaPOS software, namely:

- Cash register (receipt printers) (subtab "*Cash register*")
- Pumps controller (subtab "*Pumps controller*")
- ATG system (subtab "*ATG system*")
- Barcode scanner (subtab "*Barcode scanner*")
- Other POS systems for sharing the same pumps controller (subtab "*Pumps controller service*")
- Other POS systems for sharing the same ATG system (subtab "*ATG system service*")

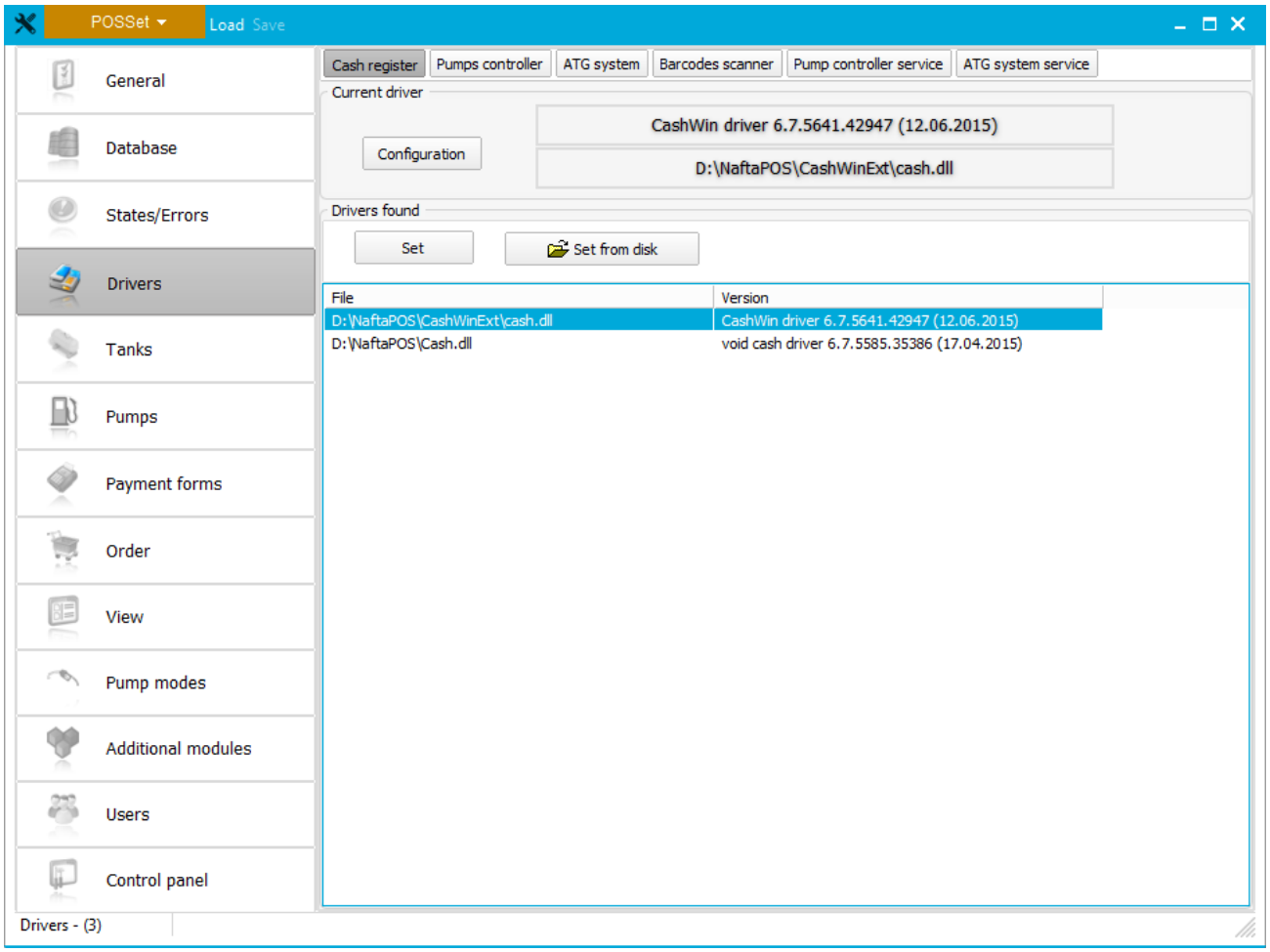
Driver for each type of the connected equipment is configured on its own subtab.



NaftaPOS configuration tool – "Drivers" tab

Configuration of cash registers drivers

Main view of subtab "*Cash registers*" is shown below:



NaftaPOS configuration tool – "Drivers" tab: "Cash register" subtab

List of drivers for cash register includes the following:

- *CashWin driver*– driver for printing of receipts on a standard printer set in Windows operation system
- *Void cash register driver* – simulator of a cash register presence in system, receipts are not printed or displayed
- other specific drivers can be added optionally upon request

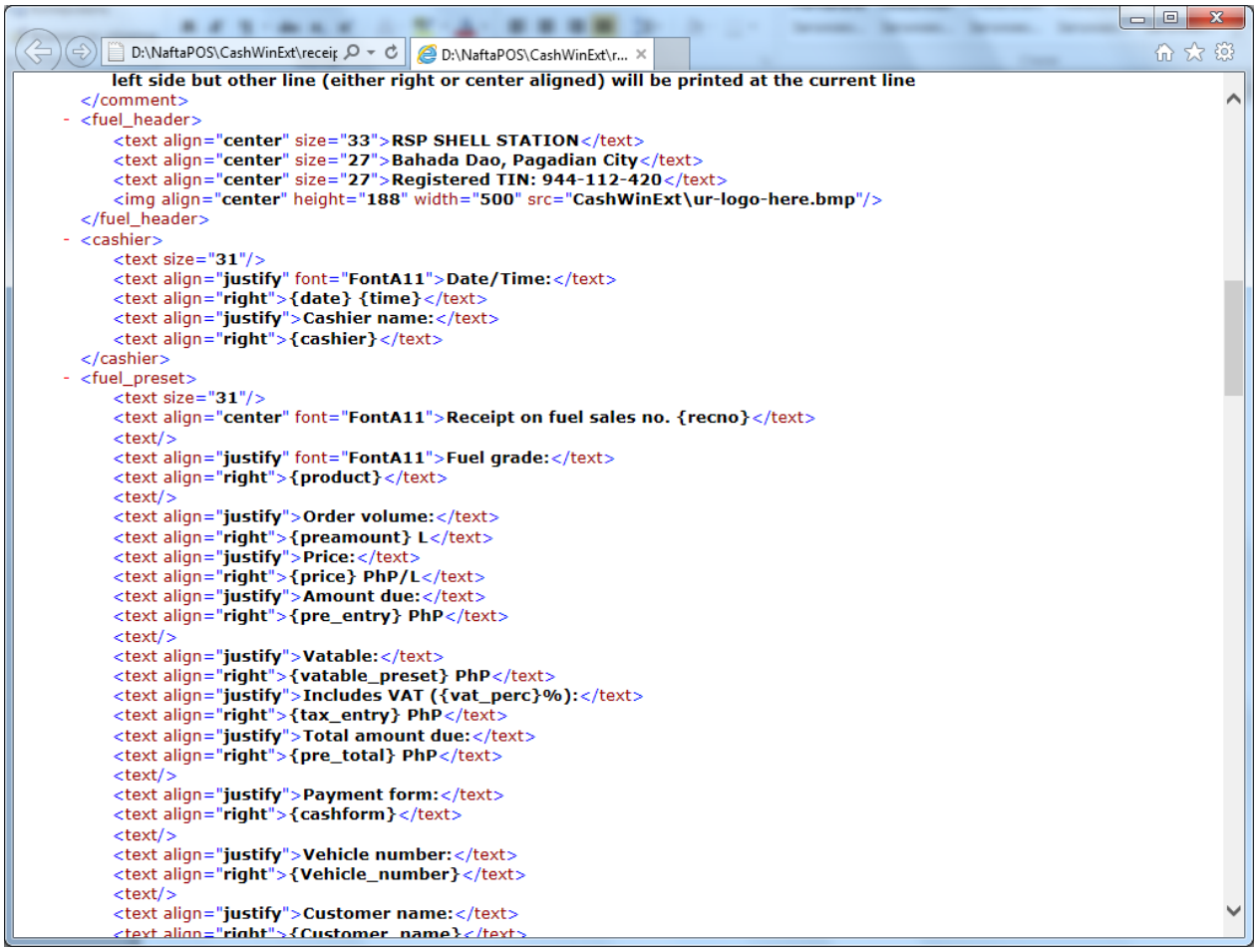
In order to set a cash register driver in NaftaPOS it is necessary to focus the required driver and press a button "*Set*". In case if cash register driver is in a view of external file (dynamic library file with name "*Cash.dll*") and is not present in the list – it is possible to select it using a button "*Set from disk*".

Configuration of the set driver is made using a button "*Configuration*".

Cash register driver “CashWin driver”

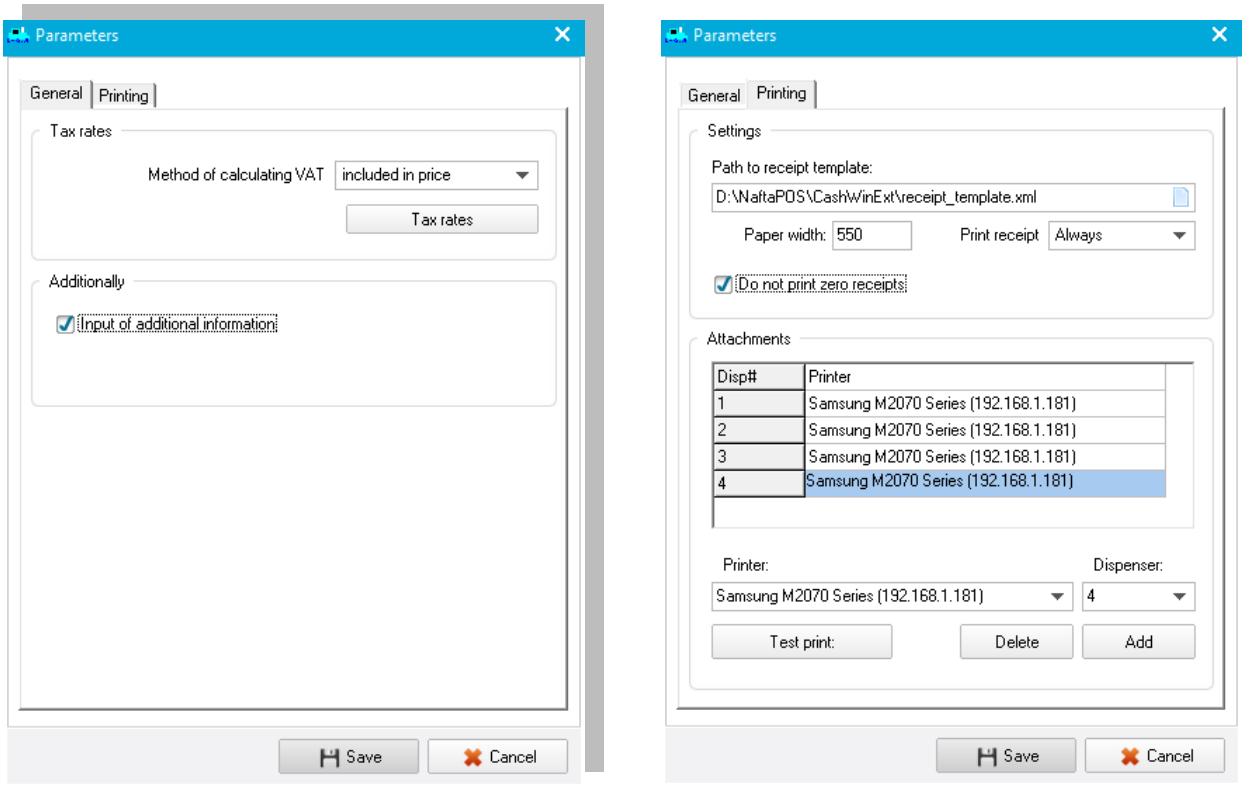
Driver “*CashWinExt driver*” is used to print receipts on a standard receipts printer, which driver is installed in Windows OS and this printer is set as a default printer and also to print additional fields in the receipt and save them to the database with usage of formulas in the receipt template. Please read about it in section “*Formation of receipt from template*” below in this User Manual for more information. In such a way to print receipts it possible to use any model of printer, which has a driver for Windows OS. Also you can configure the driver to use a separate printer for each pump (group of pumps), so you can install a printer on each pump and configure NaftaPOS to print receipts for given pump on its own printer.

Driver has a template of the receipt to be printed, which is in XML format and allows modification of its appearance and printed information. It is possible to specify in the template what text and images should be printed in the receipt. By defaults template of the receipt is located in *NaftaPOS\CashWinExt\receipt_template.xml* file. Receipt template includes rich comments on how the text can be formatted. See section “*Formation of receipt from template*” below in this User Manual for more information.



Template of the receipt in XML format for “Cash printer Windows driver”

Configuration of the driver includes the following:



Configuration of "Cash printer Windows driver"

List "*Method of calculating VAT*" sets whether VAT is included into price or not.

Button "*Tax rate*" opens a new window "*Tax groups*" for management over tax groups specifies a tax rate (in percents) for VAT to be calculated in the receipt.

Checkbox "*Input of additional information*" sets whether additional information fields should be shown for adding these fields in receipt or not.

Field "*Path to receipt template*" allows selection of a path to a receipt template file on the PC.

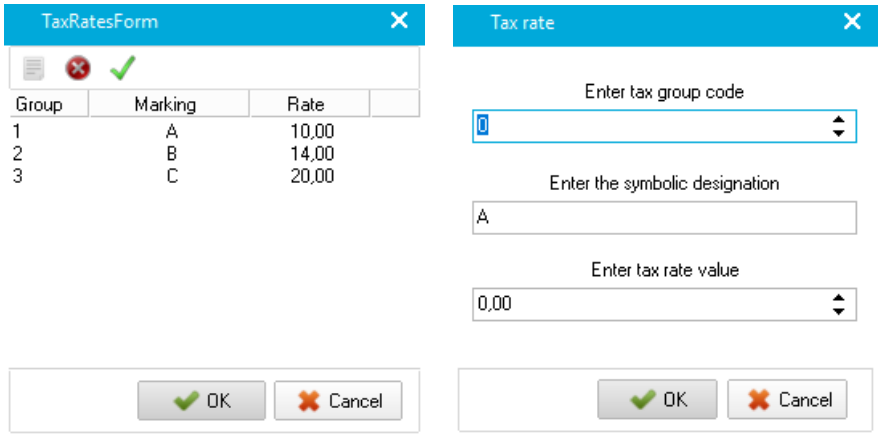
List "*Print receipt*" sets whether it is necessary to request receipt printing each time after the sale is performed.

Field "*Paper width*" sets width of used paper for printing a receipt (generally in conventional units of the receipts printer), however this field can be overlapped by printer configurations, so each time at configuration of a new printer should be tested individually.

Checkbox "*Do not print zero receipts*" sets whether receipts with zero amount should be printed or not.

Field "*Attachments*" is used for linking specific pumps to printers.

In "*Tax groups*" window it is possible to view, add, edit and delete tax groups. In configuration of each tax group it is necessary to set a tax group number, tax group name and tax rate.



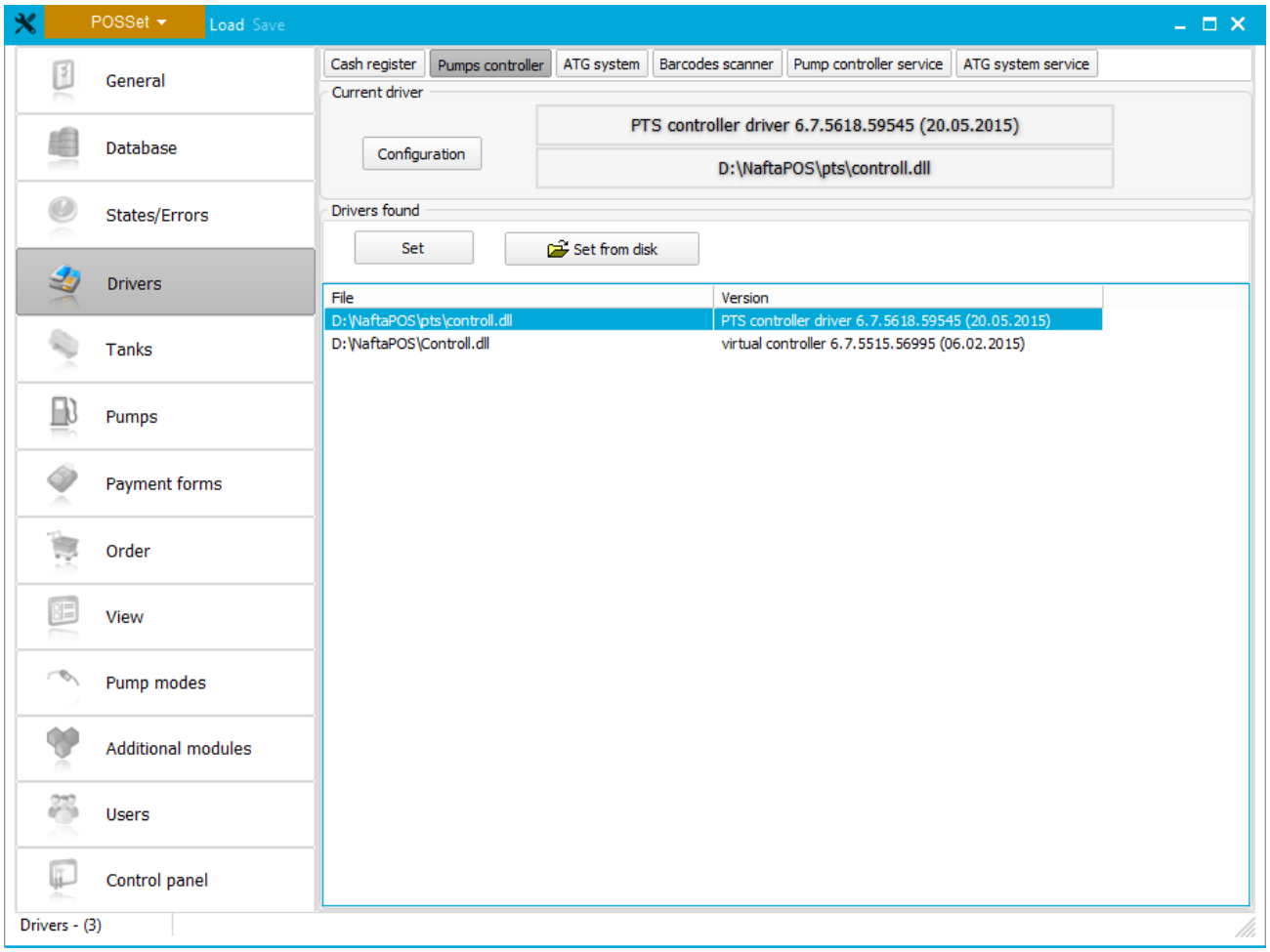
Configuration of tax groups in "Cash printer Windows driver"

Cash register driver “Void cash register driver”

Driver “*Void cash register driver*” is used when there is no printer connected to NaftaPOS and there is no necessity to print receipts. Application of this driver is required, when NaftaPOS is used to testing or works in a monitoring mode – silently tracks operation of all dispensers and stores information on every performed transaction in its database.

Configuration of pumps controller drivers

Main view of subtab "*Pumps controller*" is shown below:



NaftaPOS configuration tool – "Drivers" tab: "Pumps controller" subtab

List of drivers for controller includes the following:

- *PTS controller driver* – is used for controlling fuel dispensers connected through the PTS controller over fuel dispensers and ATG systems for petrol stations (read more on http://www.technotrade.ua/fuel-pump-controller.html)
- *Virtual controller* – is used for simulation of fuel dispensers
- other specific drivers can be added optionally upon request

In order to set a controller driver in NaftaPOS it is necessary to focus the required driver and press a button "*Set*". In case if controller driver is in a view of external file (dynamic library Controll.dll file) and is not present in the list – it is possible to select it using a button "*Set from disk*".

Configuration of the set driver is made using a button "*Configuration*".

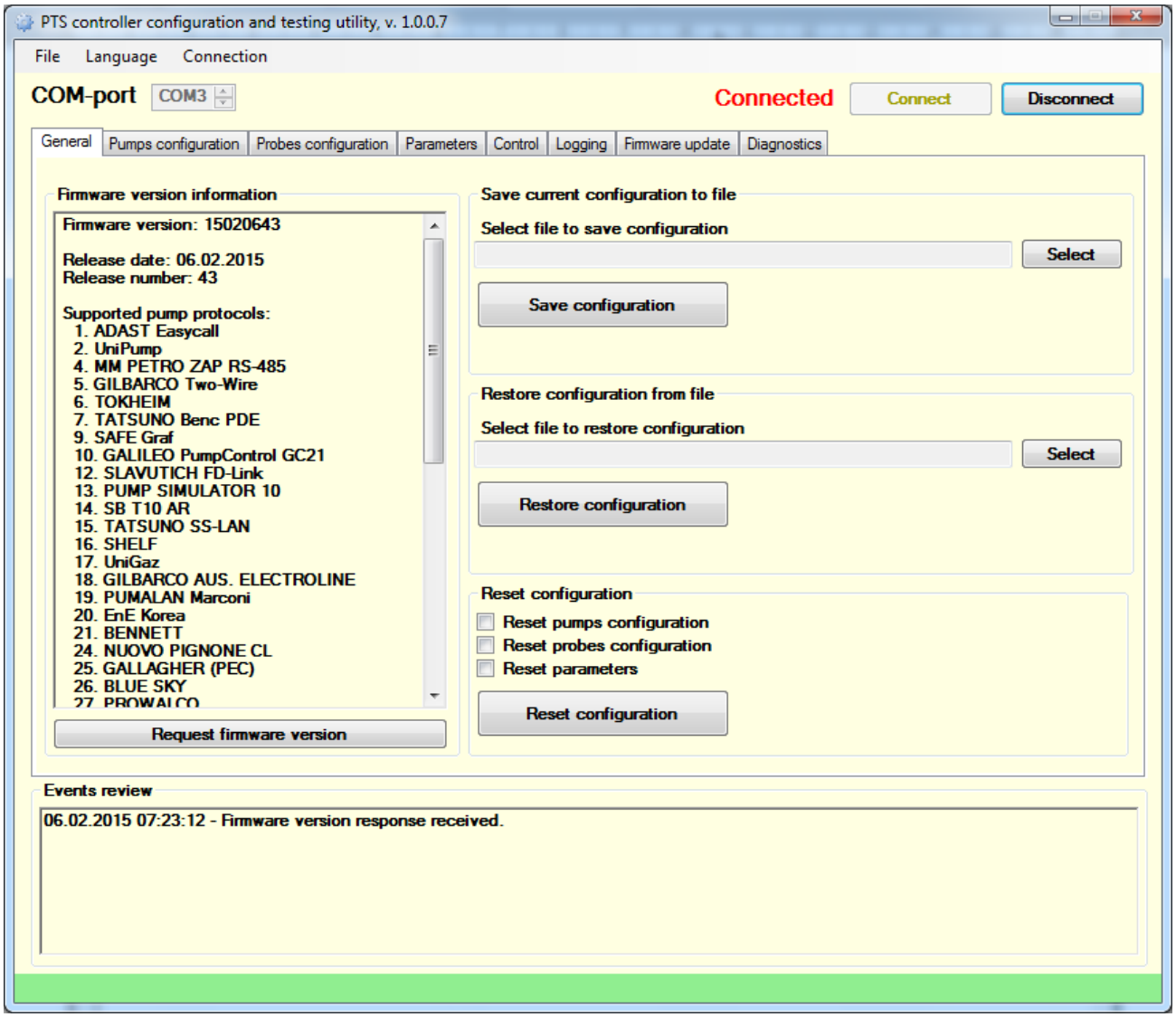
Connection of all real fuel dispensers in NaftaPOS software is done using "*PTS controller*" driver.

PTS controller driver

Driver *"PTS controller"* is used to provide control over fuel dispensers using the PTS controller. PTS controller provides conversion of its common UniPump communication protocol into communication protocols of a variety of fuel dispensers protocols of various manufacturers. More information regarding the PTS controller, its configuration and schemes of connection to fuel dispensers can be found on its web-page: http://www.technotrade.ua/fuel-pump-controller.html.

Configuration of PTS controller is made by calling *Pts_config.exe* utility, which is launched from tab "*Pumps*" by clicking a button "*PTS configuration*" (location on the disk is *NaftaPOS\Pts_config\Pts_config.exe*") – see section "*Configuration of PTS controller*" for more information.

Configuration of PTS controller is done using a PTS controller configuration and testing utility *Pts_config.exe*, which is can be launched from "*Pumps*" tab of NaftaPOS configuration tool.



Main view of PTS controller configuration and testing utility

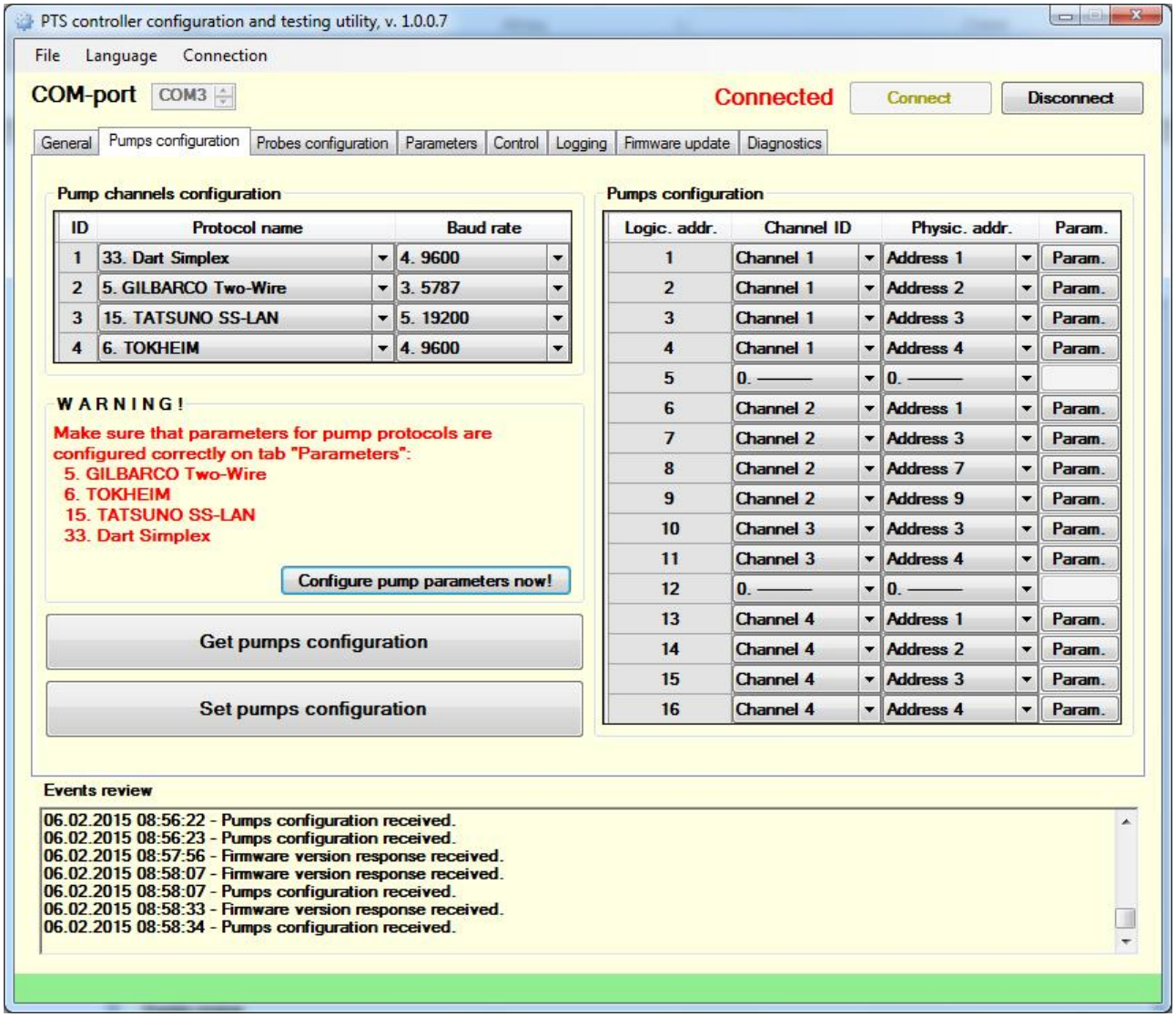
PTS controller configuration and testing utility *Pts_config.exe* is a multipurpose utility for PTS controller. It provides the following possibilities:

- provision of control over the connected pumps (fuel dispensers) and probes (ATG systems) for testing purposes
- configuration of pumps (fuel dispensers) channels and probes (ATG systems) channels
- configuration of PTS controller parameters and pumps (fuel dispensers) protocols parameters

- update of the PTS controller firmware
- logging of PTS controller communication exchange with connected equipment
- self-diagnostics of PTS controller communication ports and switches
- saving of all configuration of PTS controller to file and loading of all configuration of PTS controller from file

More information about this utility please find in the technical guide for PTS controller, which can be downloaded from PTS controller web-page: http://www.technotrade.ua/fuel-pump-controller.html.

Pump channels in PTS controller are configured on tab '*Pumps configuration*' of the *Pts_config.exe* utility. To read current configuration of the PTS controller use a button "Get pumps configuration".



Pts_config utility: pumps configuration

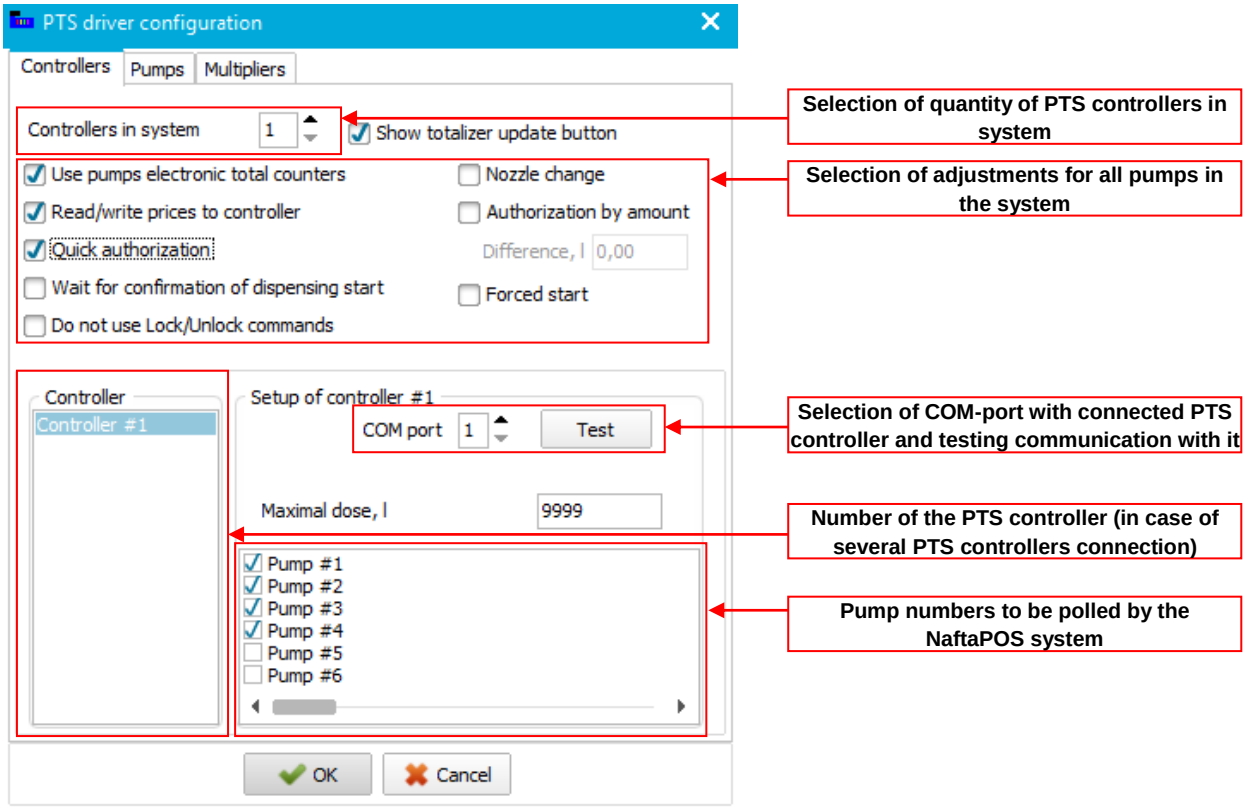
Configuration of pump channels includes setting of communication protocol and baud rate for each of the pump channels and also assigning of pumps to each of the pump channels. Each of the pumps can be assigned to any of the pump channels and requires specification of the pump physical address.

Logical address of the pump means the address on which the control system (POS system, cash register, OPT, etc) will see given fueling place. Physical address of the pump means address of the real fueling place, which is programmed or set in configuration of the fuel dispenser fueling place.

After configuration is finished it is necessary to click a button "*Set pumps configuration*", which will write current pump channels configuration to PTS controller. Information about result of operation of writing of configuration to controller (whether it is made successfully or there was some problem) will be written in the events review field on the form.

For some pump protocols it is also necessary to configure parameters, which is to be done on tab "*Parameters*" of the utility.

Configuration of the PTS controller driver includes the following:

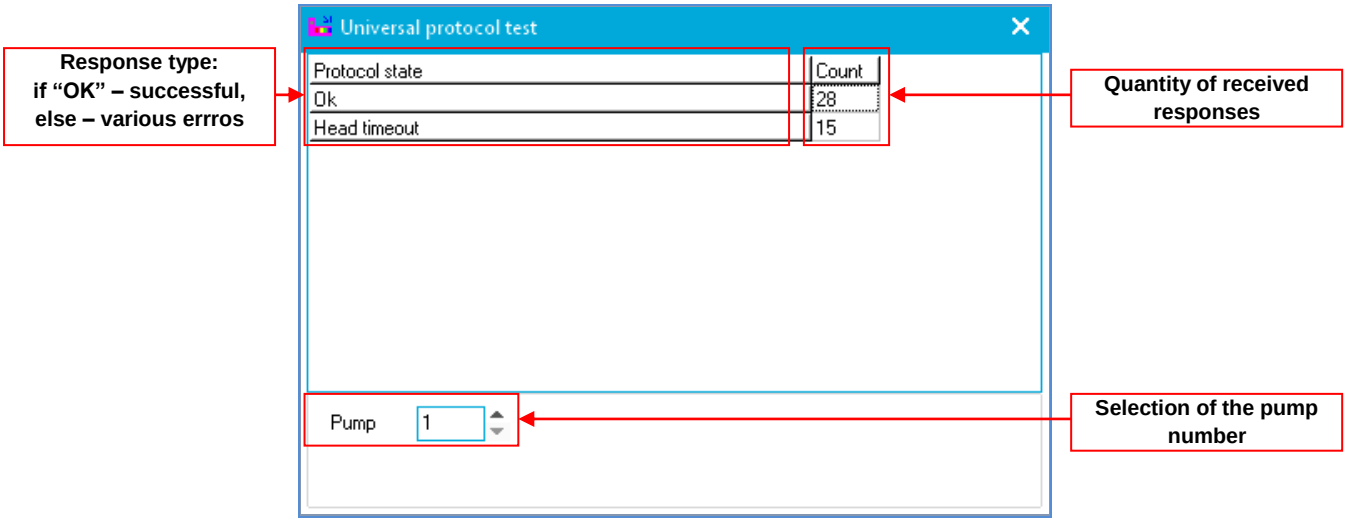


NaftaPOS configuration tool – PTS controller driver configuration, tab "Controller"

Clicking of button "*Test*" opens a window for checking communication with the current PTS controller on specified COM-port: If response is OK – communication is successful, otherwise various errors will be displayed.

Adjustment for the pumps include:

- "*Show totalizer update button*" – enables to update total counters values from pumps at any moment.
- "*Use pumps electronic total counters*" – sets to request total counters from pumps after each performed dispensing
- "*Quick authorization*" – authorization of pumps should be made quickly
- "*Wait for confirmation of dispensing start*" – pump window will show '*WORK*' state only after real dispensing on pump starts and dispensed volume is bigger than zero
- "*Nozzle change*" – repeated authorization of same pump nozzle is allowed only after the nozzle is returned back
- "*Authorization by amount*" – authorization is made by money amount (if checked) or by volume (if unchecked)
- "*Forced start*" – authorization command is given forced
- "*Do not use Lock/Unlock commands*" – enables communication with PTS controller without using LockRequest and UnlockRequest commands to make communication be faster, however at this it is required to use configure parameter "NOT USE COMMANDS LOCKREQUEST AND UNLOCKREQUEST" in PTS controller configuration and used PTS controllers should not be interconnected with any other PTS controllers over DISP port.



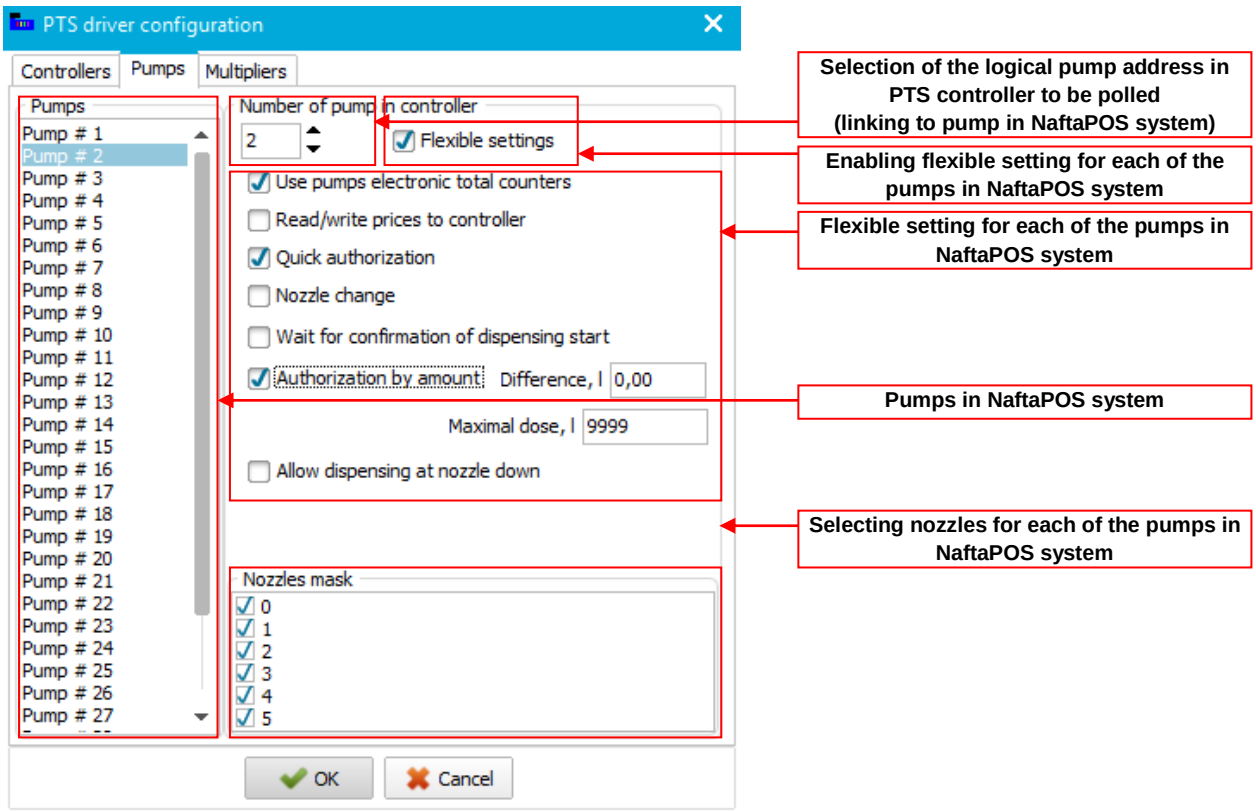
Test of communication with PTS controller

In configuration of "*PTS controller*" driver only logical addresses of dispensers are set, the physical address of the connected fueling place is specified in PTS controller configuration utility.

Notice!

Due to a reason of constant development of PTS controller and adding to it communication protocols of new fuel dispensers and ATG systems PTS controller configuration utility is also constantly being developed. That is why in order to have the latest version of the configuration utility and the latest firmware of the PTS controller – request it from "*TECHNOTRADE LTD*" company. Location of PTS controller configuration utility is *NaftaPOS\Pts_config*".

Linking of pump windows numbers to logical addresses of fuel dispensers set in PTS controller configuration utility is made on tab "*Pumps*" of PTS controller driver:

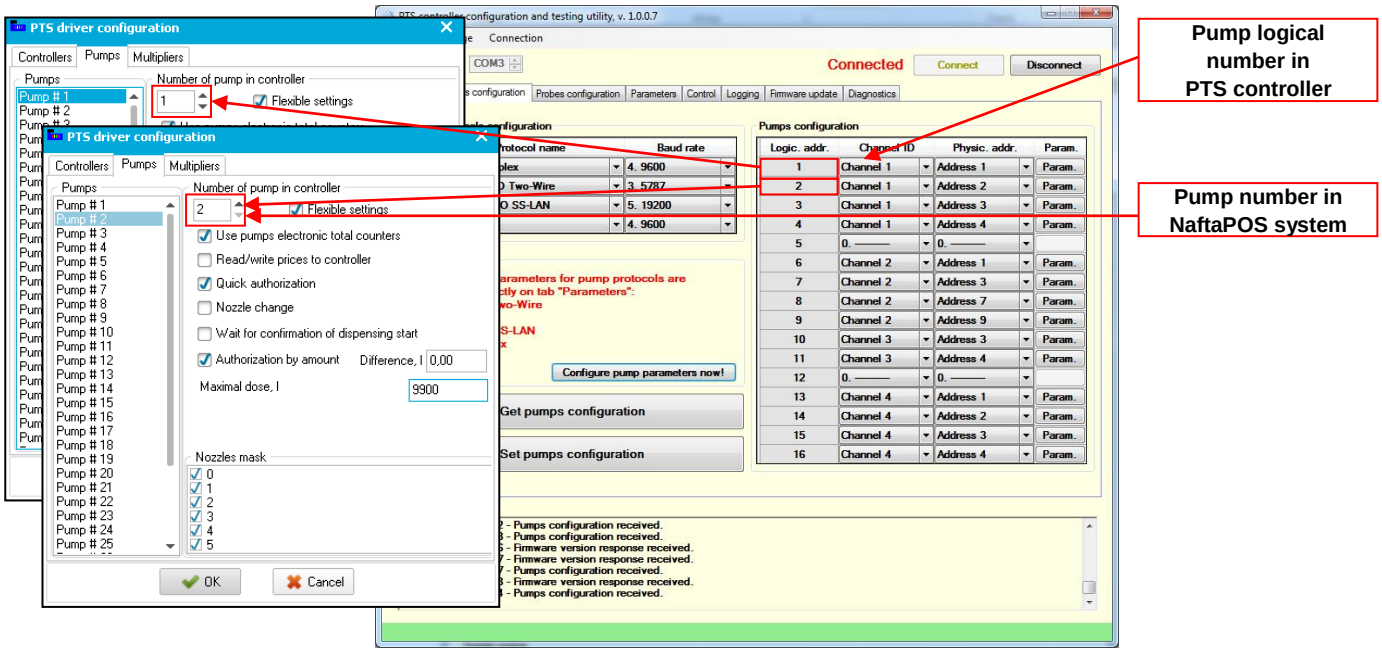


NaftaPOS configuration tool – PTS controller driver configuration, tab "Pumps"

Field "*Nozzles mask*" serves for specification of what nozzles are enabled in selected pump (for normal operation all checkboxes should be checked).

Flexible settings are used to enable/disable individual settings for each of the pumps.

Tab "*Pumps*" specifies the pumps in NaftaPOS system, with which NaftaPOS works. To each of these pumps on tab "*Pumps*" can be linked any pump logical address, which is configured in PTS controller configuration.

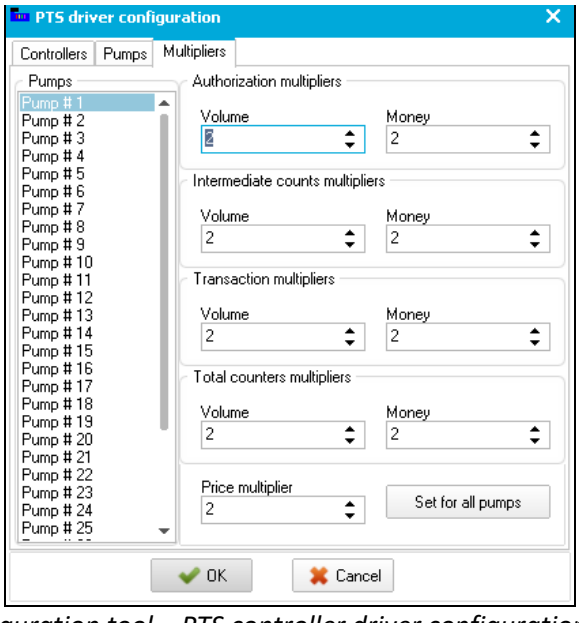


Configuration of "PTS controller" driver (tab "Pumps") – linking of logical pump numbers in PTS controller to pump numbers in NaftaPOS system

Tab "*Multipliers*" specifies quantity of digits in money amount, volume and price fields used on the pump for NaftaPOS software to operate correctly with it. These fields are used in communication protocol with PTS controller, where quantity of digits in each of the values is to be specified:

- Authorization multipliers (separate for volume and money)
- Intermediate counts multipliers (separate for volume and money)
- Transaction multipliers (separate for volume and money)
- Total counters multipliers (separate for volume and money)
- Price multipliers

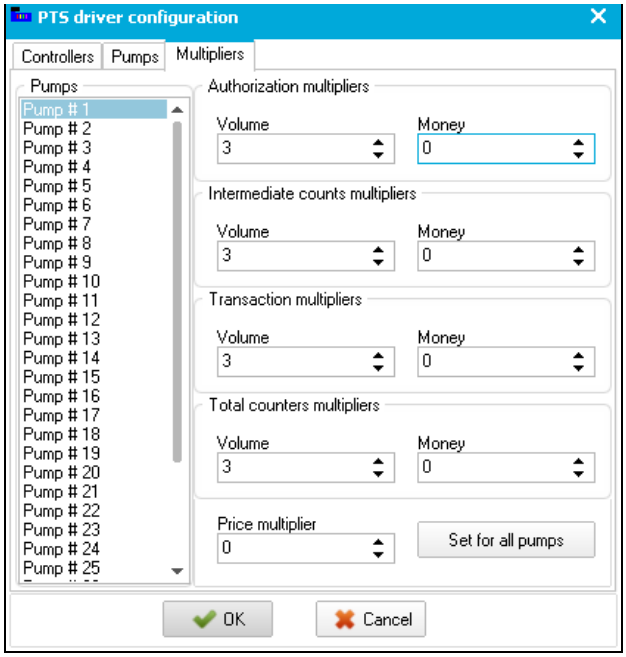
Multipliers can be set separately for each of the pumps. Clicking on button "*Set for all pumps*" leads to setting of the current multipliers on currently selected pump for all other pumps.



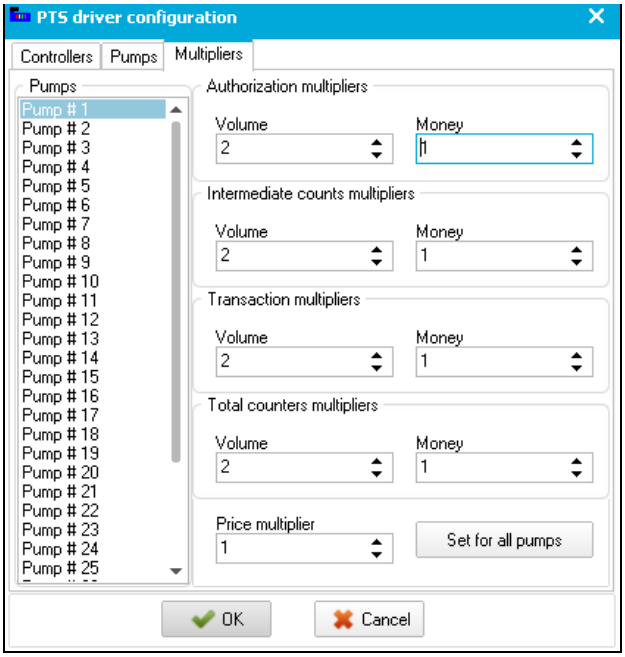
NaftaPOS configuration tool – PTS controller driver configuration, tab "Multipliers"

Shown on image above multipliers set that there are 2 digits on the pump in fields of money amount, volume and price and also pump gives out total counters (volume and money) with 2 digits after decimal separator.

Other examples of multipliers:



Setting multipliers for pump with 0 digit in money amount and 3 digits in volume



Setting multipliers for pump with 1 digit in money amount and 2 digits in volume

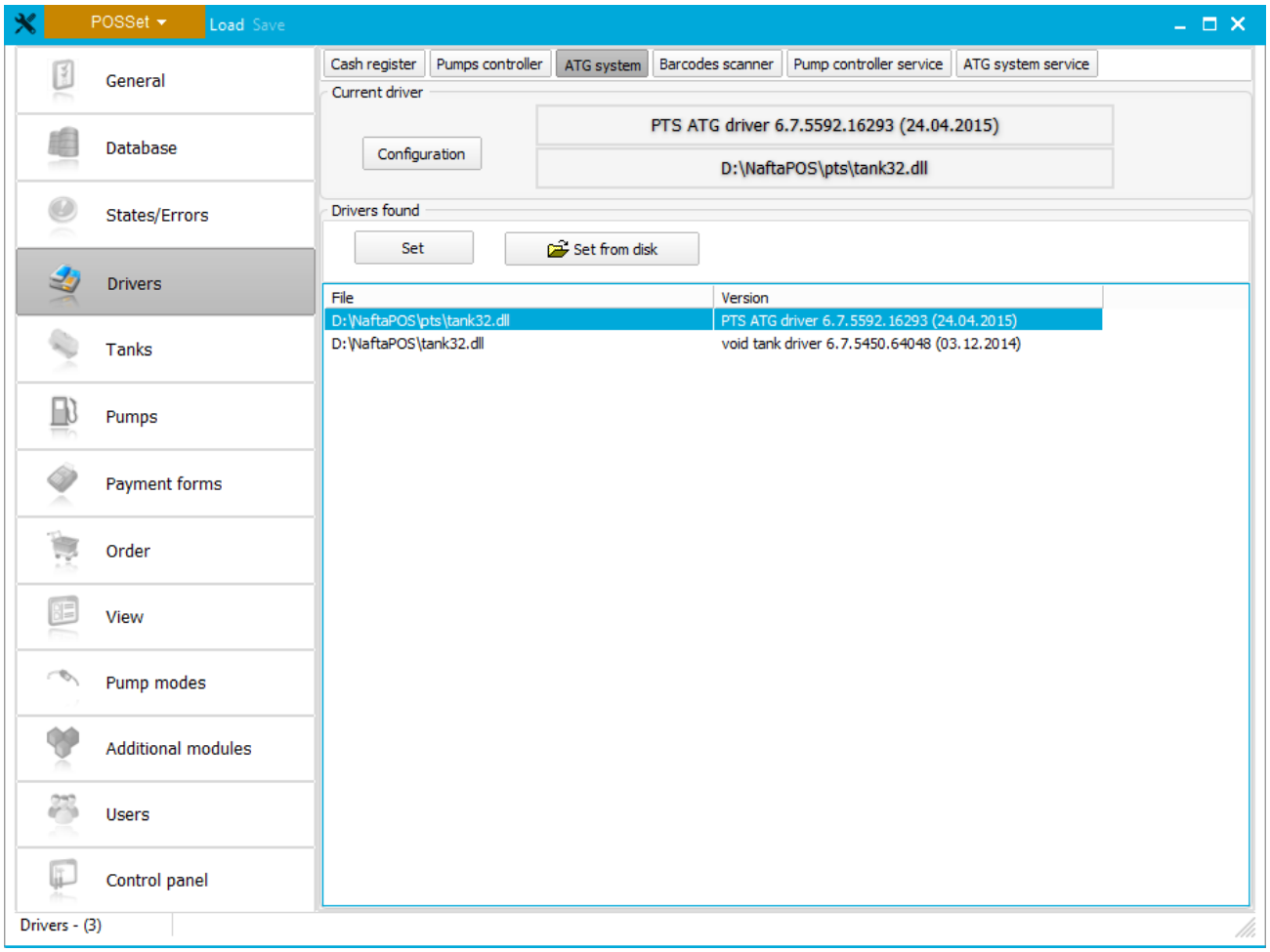
Except setting of multipliers for each of the pumps it is necessary to set multipliers in NaftaPOS system in order to set how data should be accounted in system, stored in database and displayed in reports. Setting of multipliers for NaftaPOS system is made on tab "*Order*" in configuration utility of NaftaPOS.

Virtual controller driver

Driver *"Virtual controller"* is used for simulation of fuel dispensers. At using of this driver NaftaPOS can simulate presence of actual fuel dispensers, but at this no real dispensers are connected to the system. This driver is often used in situations when between all the dispensers on the petrol stations there 1 (or several) dispensers, which can not be automated, but account on these dispensers should be lead. In such a way NaftaPOS will indicate pump windows on the screen and virtual sales through these dispensers will be possible to be made, which will be indicated in the reports.

Configuration of ATG system drivers

Main view of subtab "*ATG system*" is shown below:



NaftaPOS configuration tool – "Drivers" tab: "ATG system" subtab

List of drivers for ATG systems includes the following:

- *PTS ATG driver* – is used for communication with various ATG systems, connected through the PTS controller over fuel dispensers and ATG systems for petrol stations (http://www.technotrade.ua/fuel_pump_controller.html)
- *Driver of virtual tank* – is used for emulation of ATG system presence in system
- other specific drivers can be added optionally upon request

In order to set a tanks driver in NaftaPOS it is necessary to focus the required driver and press a button "*Set*". In case if tanks driver is in a view of external file (dynamic library tank32.dll file) and is not present in the list – it is possible to select it using a button "*Set from disk*".

Configuration of the set driver is made using a button "*Configuration*".

Connection of all real ATG systems in NaftaPOS software is done using "*PTS ATG*" driver.

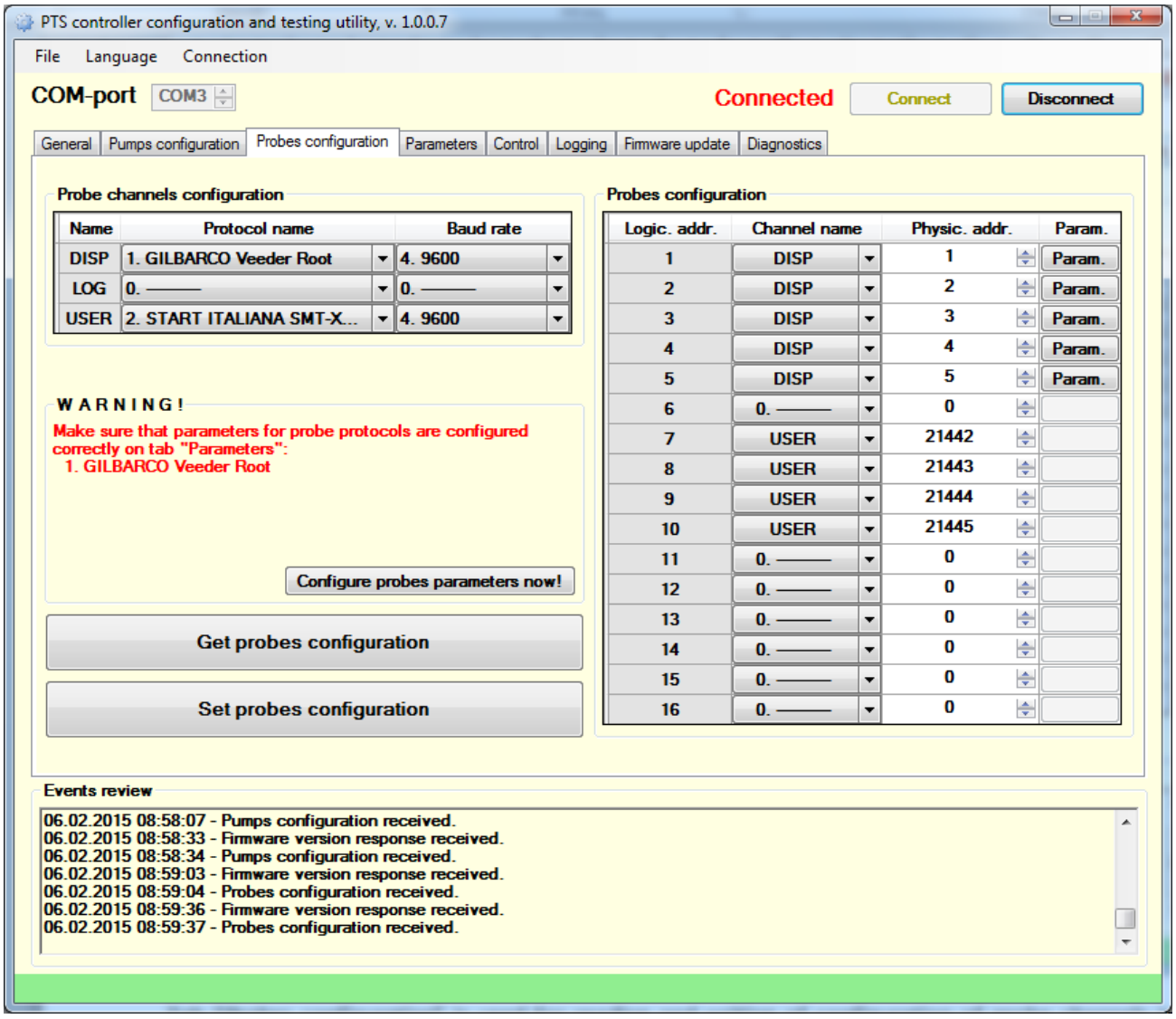
PTS ATG driver

Driver *"PTS ATG driver*" is used for communication with various ATG systems using the PTS controller. PTS controller provides conversion of its common UniPump communication protocol into communication protocols of a variety of ATG systems protocols of various manufacturers. More information regarding the PTS controller can be found on its web-page: http://www.technotrade.ua/fuel_pump_controller.html.

In configuration of "*PTS ATG driver*" driver only logical addresses of ATG system probes (sensors) are set, the original physical addresses of probes are specified in PTS controller configuration utility.

Configuration of PTS controller is made by calling *Pts_config.exe* utility, which is launched from tab "*Pumps*" by clicking a button "*PTS configuration*" (location on the disk is *NaftaPOS\Pts_config\Pts_conigf.exe*").

Tab "*Probes configuration*" is used for reading and writing of configuration of probe channels in PTS controller.



Pts_config utility: probes configuration

Configuration of probe channels includes setting of communication protocol and baud rate for each of the probe channels and also assigning of probes to each of the probe channels. Each of the probes can be assigned to any of the probe channels and requires specification of the probe physical address.

Logical address of the probe means the address on which the control system (POS system, cash register, OPT, etc) will see given probe. Physical address of the probe means address of the ATG system probe, which is programmed or set in configuration of the ATG system console or probe.

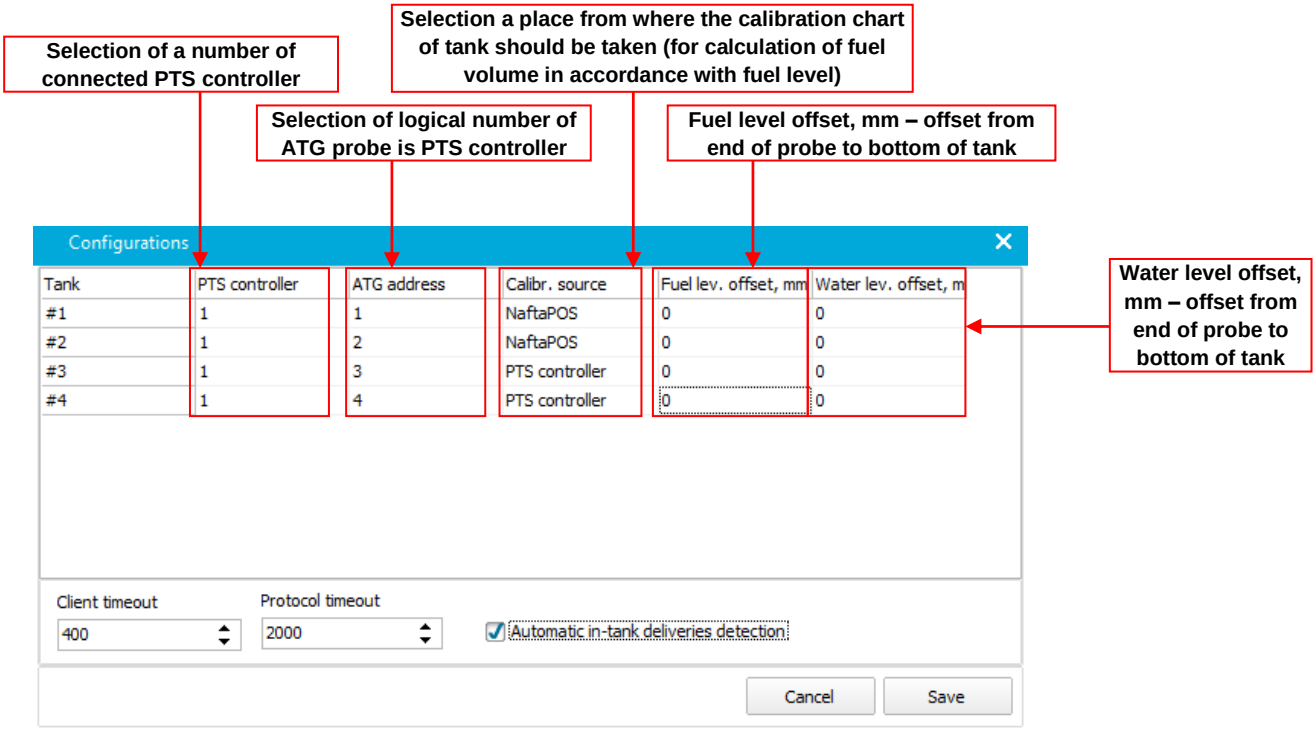
After configuration is finished it is necessary to click a button "*Set probes configuration*", which will write current probe channels configuration to controller. Information about result of operation of writing of configuration to controller (whether it is made successfully or there was some problem) will be written in the events review field on the form.

Notice!

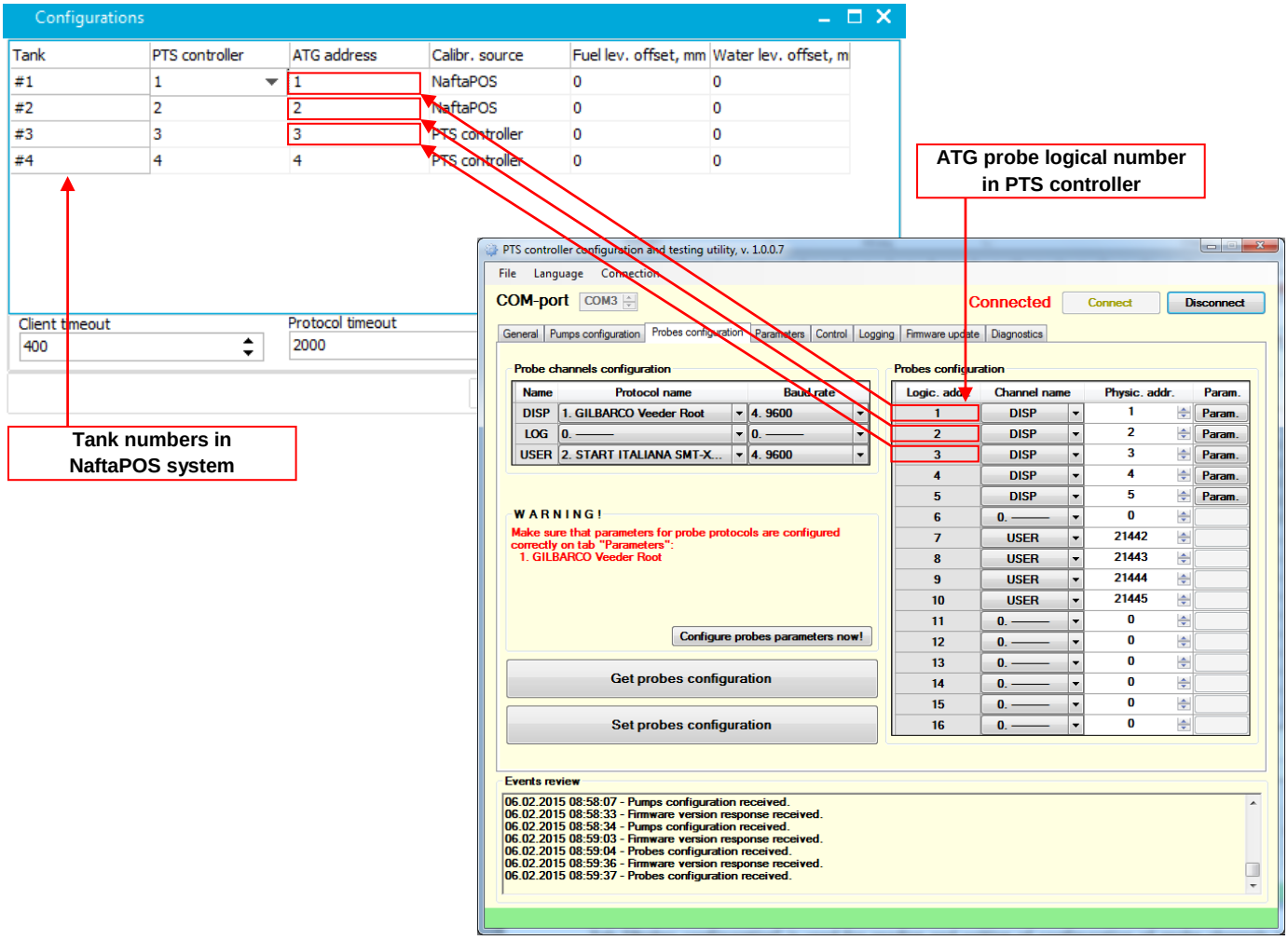
Due to a reason of constant development of PTS controller and adding to it communication protocols of new fuel dispensers and ATG systems PTS controller configuration utility is also constantly being developed. That is why in order to have the latest version of the configuration utility and the latest firmware of the PTS controller – request it from "*TECHNOTRADE LTD*" company. Location of PTS controller configuration utility is N*aftaPOS**Pts_config*\.

Configuration of the PTS controller driver includes the following:

In configuration of "*PTS ATG driver*" driver only logical addresses of ATG system probes (sensors) are set, the original physical addresses of probes are specified in PTS controller configuration utility.



Configuration of "PTS ATG driver"



Configuration of "PTS ATG" driver – linking of logical ATG probe numbers in PTS controller to tanks in NaftaPOS system

Notice!
When "PTS ATG" driver is set in order to make it display probes data in NaftaPOS system it is necessary to set a checkbox "*Level meter presence in system*" on tab "*General*" in POSSet.

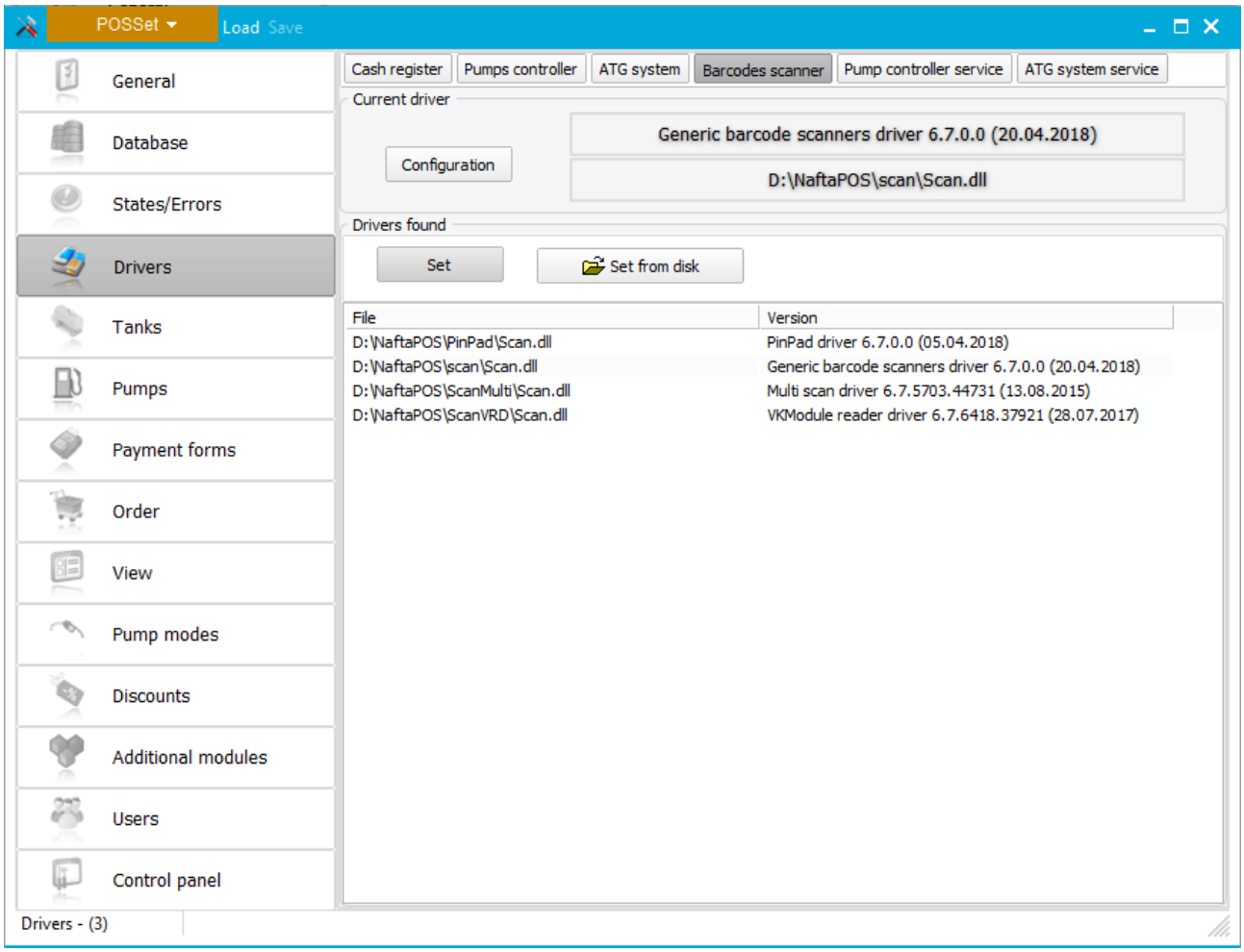
Driver of virtual tank

Driver *"Driver of virtual tank"* is used for simulation of ATG system presence in system. This driver should be set, when there is no ATG system connected.

Notice!
In this case a checkbox "*Level meter presence in system*" on tab "*General*" should be unchecked.

Configuration of barcode scanner drivers

Main view of subtab "*Barcode scanner*" is shown below:



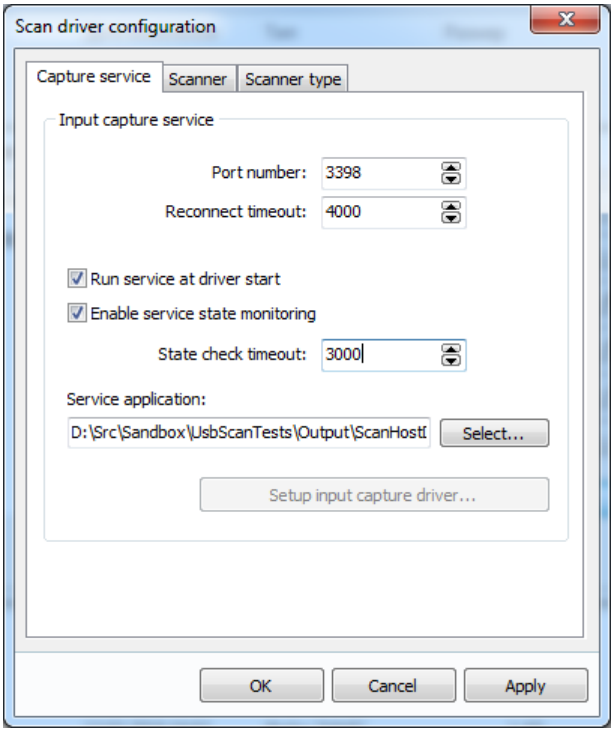
NaftaPOS configuration tool – "Drivers" tab: "Barcode scanner" subtab

List of drivers for barcodes scanners includes the following:

- *PinPad driver* – is used for communication with Pinpad terminal (http://technotrade.ua/pinpad-terminal.htm)
- *Generic barcode scanners driver* – is used for communication with barcode scanner connected through COM-port and through keyboard wedge
- *Multi scan driver* – is used for communication with scanners through several drivers
- *VKModule reader driver* – is used for communication with VRD-E RFID readers (http://technotrade.ua/vrd-e-card-reader.html)

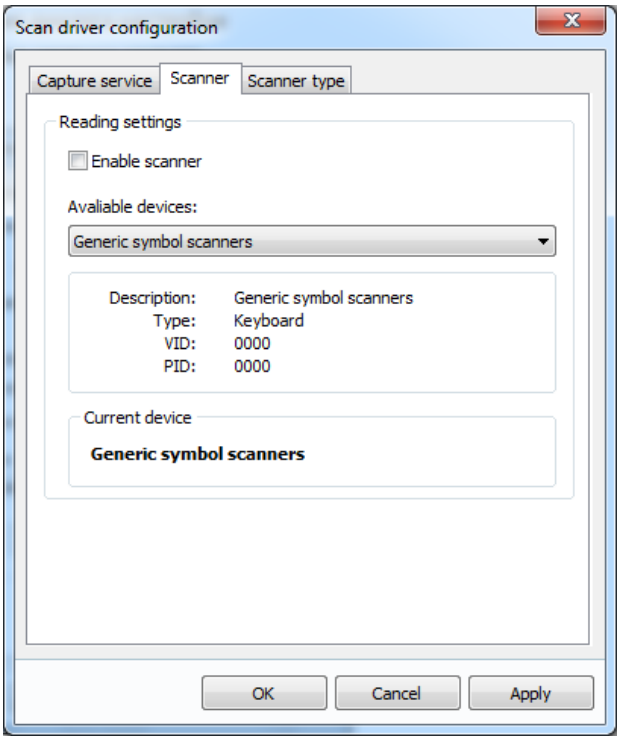
Description of "*Generic barcode scanners driver*" configuration

Capture service configuration



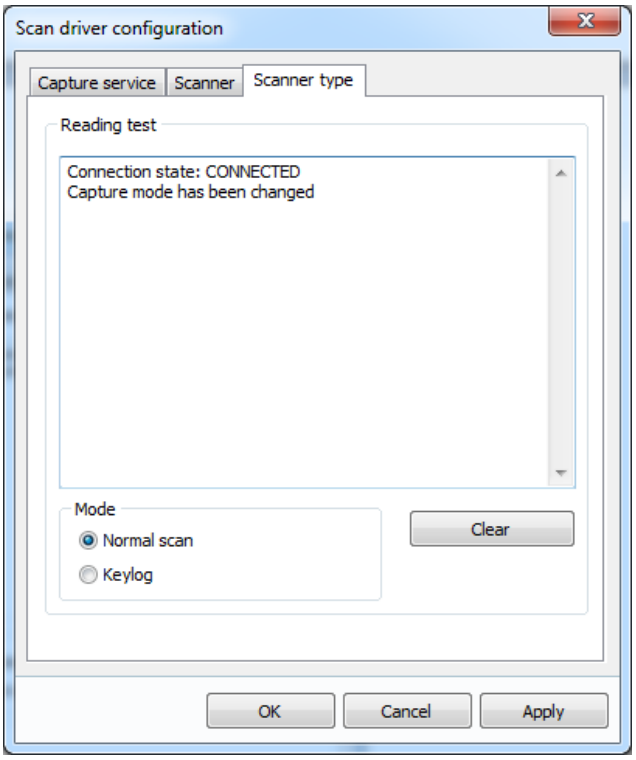
- ***Port number:*** port on which the driver connects to capture service
- ***Reconnect timeout:*** time period, through which there will be an attempt to make connection to service in case of disconnection
- ***Run service at driver start:*** if this flag is set – then the driver will automatically start and stop the service at operation
- ***Enable service state monitoring:*** if this checkbox is set – then the driver will automatically relaunch the service if it was closed or stopped its operation abnormally
- ***State check timeout:*** time period, through which there will be an attempt to restart the service
- ***Service application:*** full path to executable file of service

Scanner configuration



- ***Enable scanner:*** *flag, which enables scanner operation*
- ***Available devices:*** *list of present devices, which can select for input capture*

Scanner test



Mode: sets a mode of scanning during test:

- ***Normal scan:*** acceptance of code as at normal operation with control system
- ***Keylog:*** display of detailed information about actions with keyboard

Information is given out in a view **[HEX:0x__, STATE:__, CHAR: `_`]**.

Key `HEX` contains hexadecimal code of key; `STATE` contains state of key (PRS – pressed, RLS - released); symbol value (without register shift).

Button "Clean": deletes strings from reading test field.

Configuration of "*Generic barcode scanners driver*"

Configuration of equipment

For correct operation of driver it is necessary to program prefixes of scanner. By defaults driver is configured to combination [Ctrl + b]. Also in code end scanner should send a code of pressing button Enter.

Configuration of service

Configuration is done by editing of file ScanHostDaemonCfg.ini. Main settings:

- ***PORT:*** number of input port
- ***CAPTURE_LIBRARY:*** name of library for input capture

Perhaps it is needed to add used port to exceptions to firewall.

Configuration of capture driver

Configuration is done by editing a file VKCodeCaptureCfg.ini. Depending on the library specified in this file

the driver can process scanners connected through COM-port (library SerialCodeCapture.dll) or scanners connected through keyboard wedge (library VKCodeCapture.dll). Each of the specified libraries contain .ini file for configuration.

SCAN_CODE_TIMEOUT: maximal time, through which a bar-code should be read

WORDS_LIST_SIZE: number of commands of start sequence (prefix) including press and release of buttons

Each action is described by 2 keys *KEY_CODE_n* and *KEY_STATE_n*, where n is a number of action (number starts from 0):

- ***KEY_CODE_n*** should contains a hexadecimal code of button (for example 0xA2, 0x42);
- ***KEY_STATE_n*** is a state of button (1 – pressed, 0 – released).

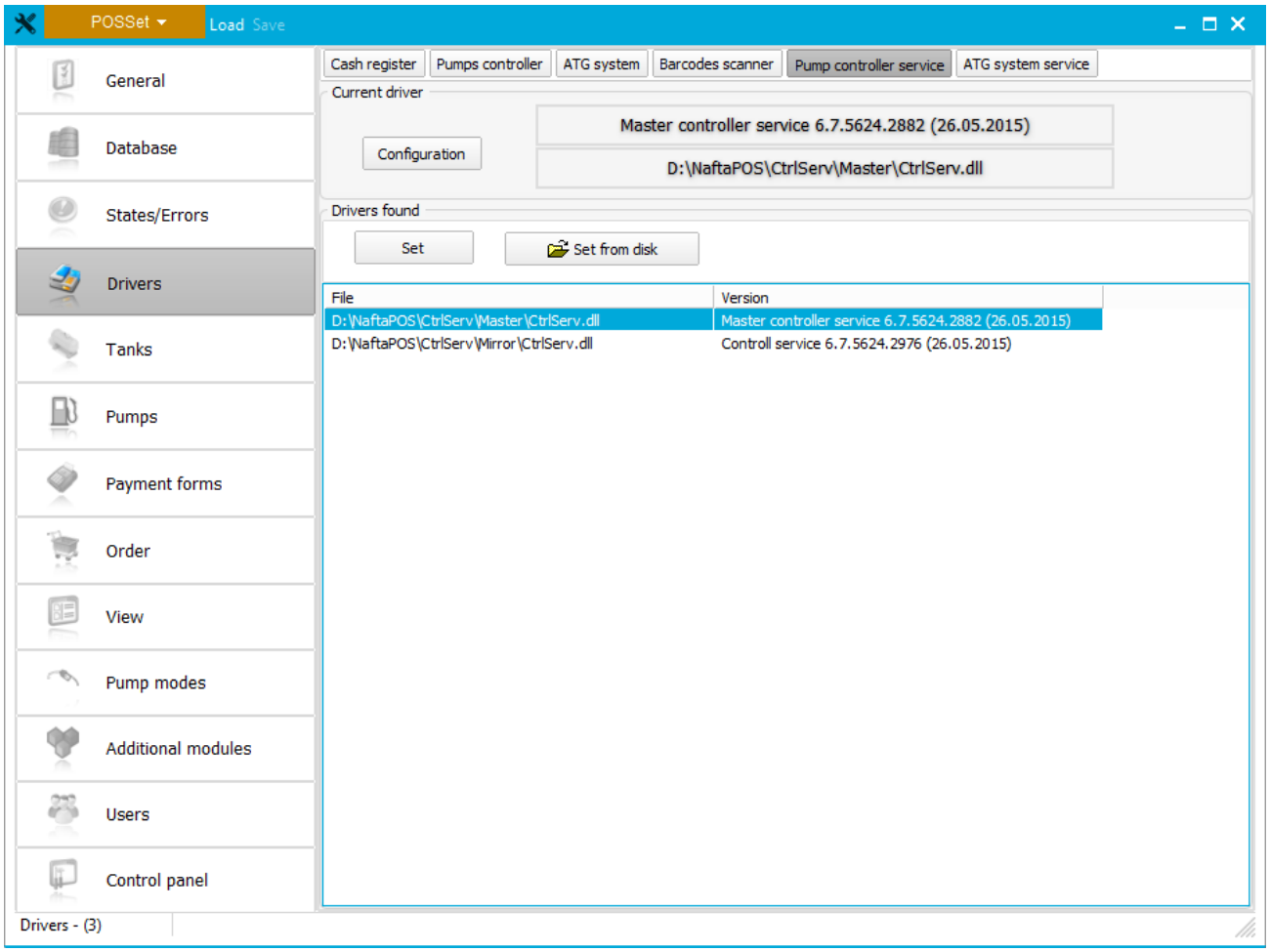
Different scanners process prefixes in different way. For exact definition of it you can use a reading test in a mode "*Keylog*". On received results you can easily configure a list of start sequence.

Configuration of scanner driver for NaftaPOS

Critical settings of the driver are fields "Service application" on "Capture service" tab and a flag "Enable scanner" on "Scanner" tab. These fields should be obligatory configured. After change of configuration "Service application" it is necessary to press a button "Apply" for restart of service.

Configuration of pumps controller service drivers

Main view of subtab "*Pumps controller service*" is shown below:



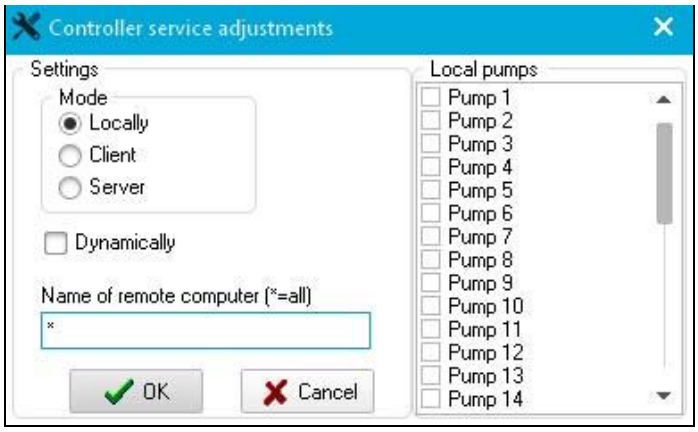
NaftaPOS configuration tool – "Drivers" tab: "Controller service" subtab

List of drivers for ATG systems includes the following:

- *Mirror controller service driver* – is used for organization of several NaftaPOS systems operation for provision of control over any of the fuel dispensers when each of the NaftaPOS systems has some of the fuel dispensers connected
- *Master controller service driver* – is used for organization of several NaftaPOS systems operation for provision of control over any of the fuel dispensers when all fuel dispensers are connected to one of NaftaPOS systems
- other specific drivers can be added optionally upon request

Difference between the specified drivers is that driver "*Mirror controller service driver*" is used when part of fuel dispensers are connected to one of NaftaPOS systems, other part of fuel dispensers – connected to the other NaftaPOS system(s) (each NaftaPOS system has its own fuel dispensers connected) and it is required to provide control over any of the fuel dispensers from each of the NaftaPOS systems. Driver "*Master controller service driver*" is used only when all fuel dispensers are connected to one NaftaPOS system and the other NaftaPOS system(s) does not have connected fuel dispensers and it is required to provide control over any of the fuel dispensers from each of the NaftaPOS systems.

Configurations of drivers "*Master controller service driver*" and "*Mirror controller service driver*" are similar and include the following:



Configuration of "Mirror controller service driver"

"*Mode*" area:

- Locally: if given NaftaPOS system has connected dispensers and there is no other NaftaPOS system installed
- Client: if given NaftaPOS system does not have connected dispensers and it connects to other NaftaPOS system
- Server: if given NaftaPOS system has connected dispensers (Server can be only one)

Checkbox "*Dynamically*" is to be checked when automatic definition of connection with other NaftaPOS system is required.

Field "*Name of remote computer (*=all)*" sets IP-address a PC with another NaftaPOS system or '*' in case of several NaftaPOS systems working together.

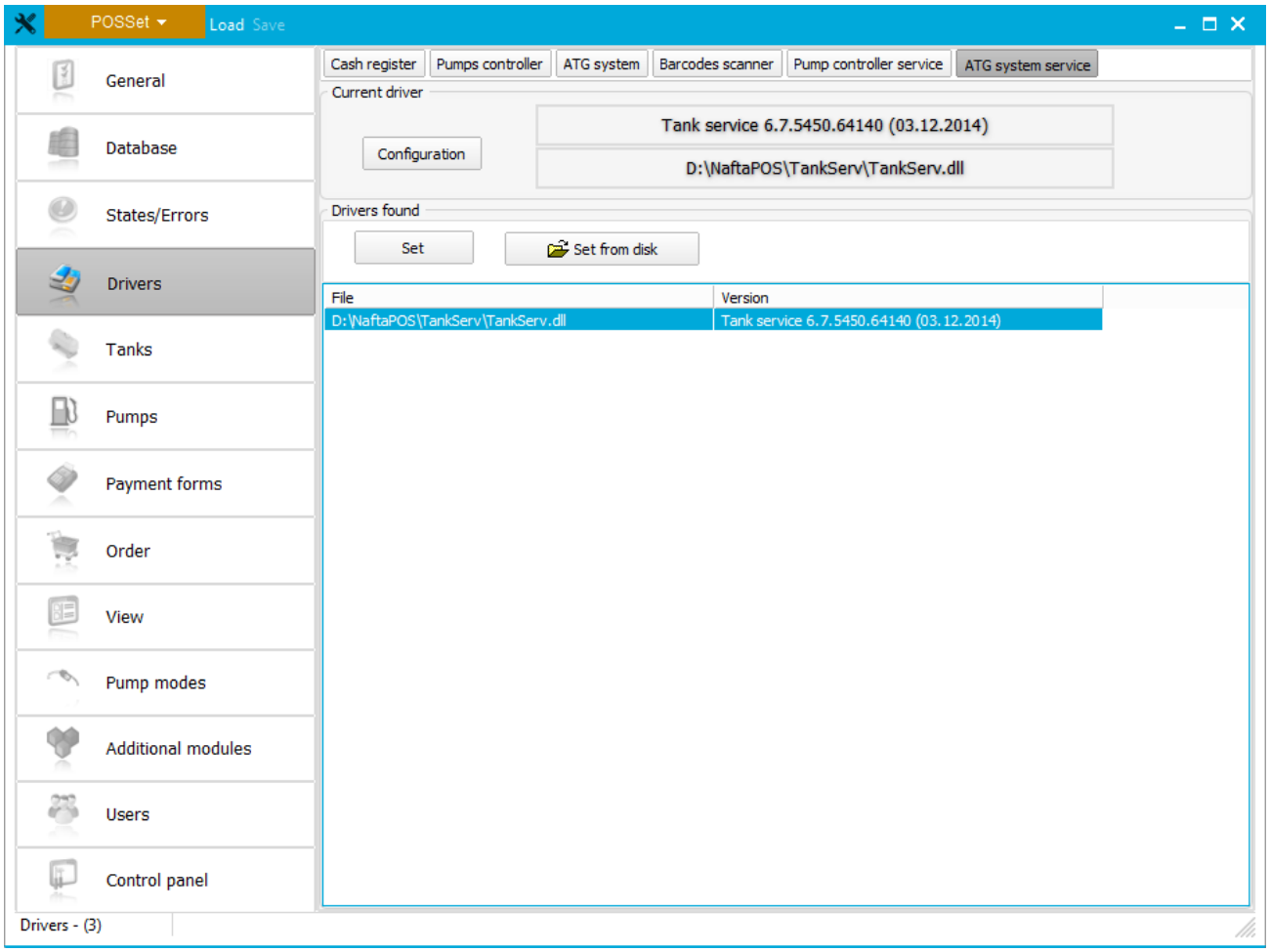
Field "*Local pumps*" sets what fuel dispensers can be controlled only locally (from given NaftaPOS system) and should be inaccessible for control from all other NaftaPOS systems.

If there are several NaftaPOS systems used at the petrol station – then it is necessary to specify IP-addresses of each of them for common interconnection. Thus in driver "*Master controller service driver*" in system, to which all fuel dispensers are connected, flag "*Server*" is set and if there is only one additional system NaftaPOS – then in field "*Name of remote computer (*=all)*" it is necessary to IP-address of this additional system, if there are several other systems (3 and more) – then in field "*Name of remote computer (*=all)*" it is necessary to set a sign '*'; in additional systems without fuel dispensers connected it is necessary to set a flag "*Client*" and set IP-address of server system in field "*Name of remote computer (*=all)*". In the similar way it is necessary to set IP-addresses of each of interconnected systems for common connection in driver "*Mirror controller service driver*" (here flags "*Client*" и "*Server*" do not play functional role and are used for specification of address of each of connected systems).

If there are no other NaftaPOS systems at petrol station – as a mode value "*Locally*" should be set.

Configuration of ATG system service drivers

Main view of subtab "*ATG system service*" is shown below:

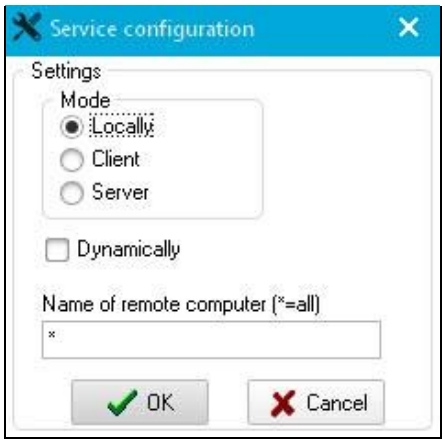


NaftaPOS configuration tool – "Drivers" tab: "Tanks service" subtab

List of drivers for ATG systems includes the following:

- Controllers list includes the driver "*Tanks service*", which is used for organization of several NaftaPOS systems operation, when ATG system(s) is connected only to one NaftaPOS system and all other NaftaPOS systems do not have connected ATG system.
- other specific drivers can be added optionally upon request

Configuration of the "*Tanks service*" includes the following:



Configuration of "Tanks service driver"

"*Mode*" area:

- Locally: if given NaftaPOS system has connected ATG system(s) and there is no other NaftaPOS system installed
- Client: if given NaftaPOS system does not have connected ATG system(s) and it connects to other NaftaPOS system
- Server: if given NaftaPOS system has connected ATG system(s) (Server can be only one)

Checkbox "*Dynamically*" is to be checked when automatic definition of connection with other NaftaPOS system is required.

Field "*Name of remote computer (*=all)*" sets IP-address a PC with another NaftaPOS system or '*' in case of several NaftaPOS systems working together.

Driver "*Tanks service*" – is used when there is one NaftaPOS system, to which ATG system(s) is connected (which is called as S*erver*) and all there are other NaftaPOS systems installed nearby that have to read data on same ATG system(s) measurements (called as *Clients*). In this case if there is only 1 Client – then in Server configuration in field "*Name of remote computer*" IP-address of Client is specified and in Client PC – IP-address of Server PC. When there are several Clients – in each of the Clients IP-address of the Server PC is specified in this field and in Server – sign '*' is specified.

If there are no other NaftaPOS systems at petrol station – as a mode value "*Locally*" should be set.

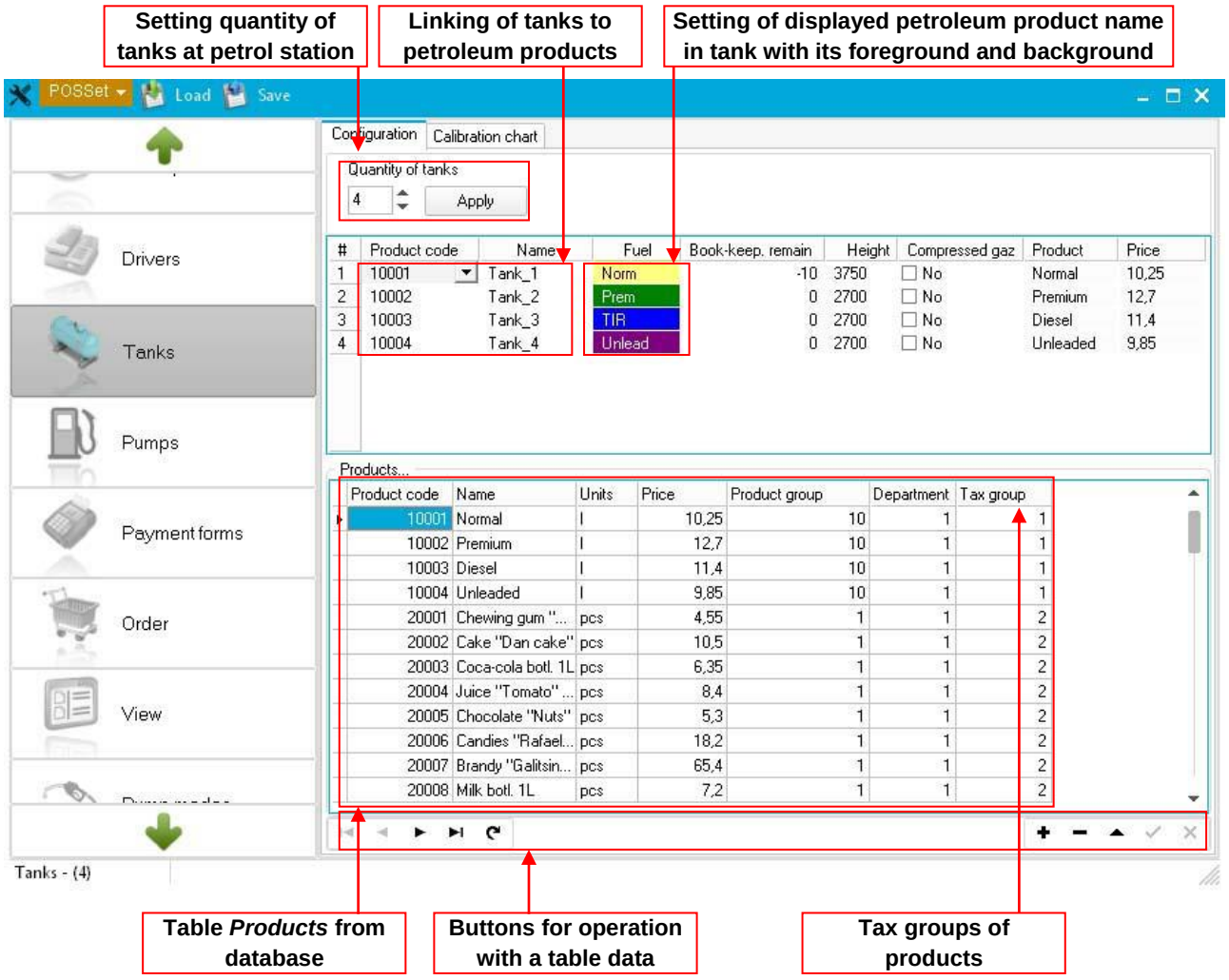
Configuration tab "Tanks"

Tab "*Tanks*" serves for:

- configuration of tanks at petrol station
- linking of petroleum products to tanks
- adjusting of calibration chart of tanks

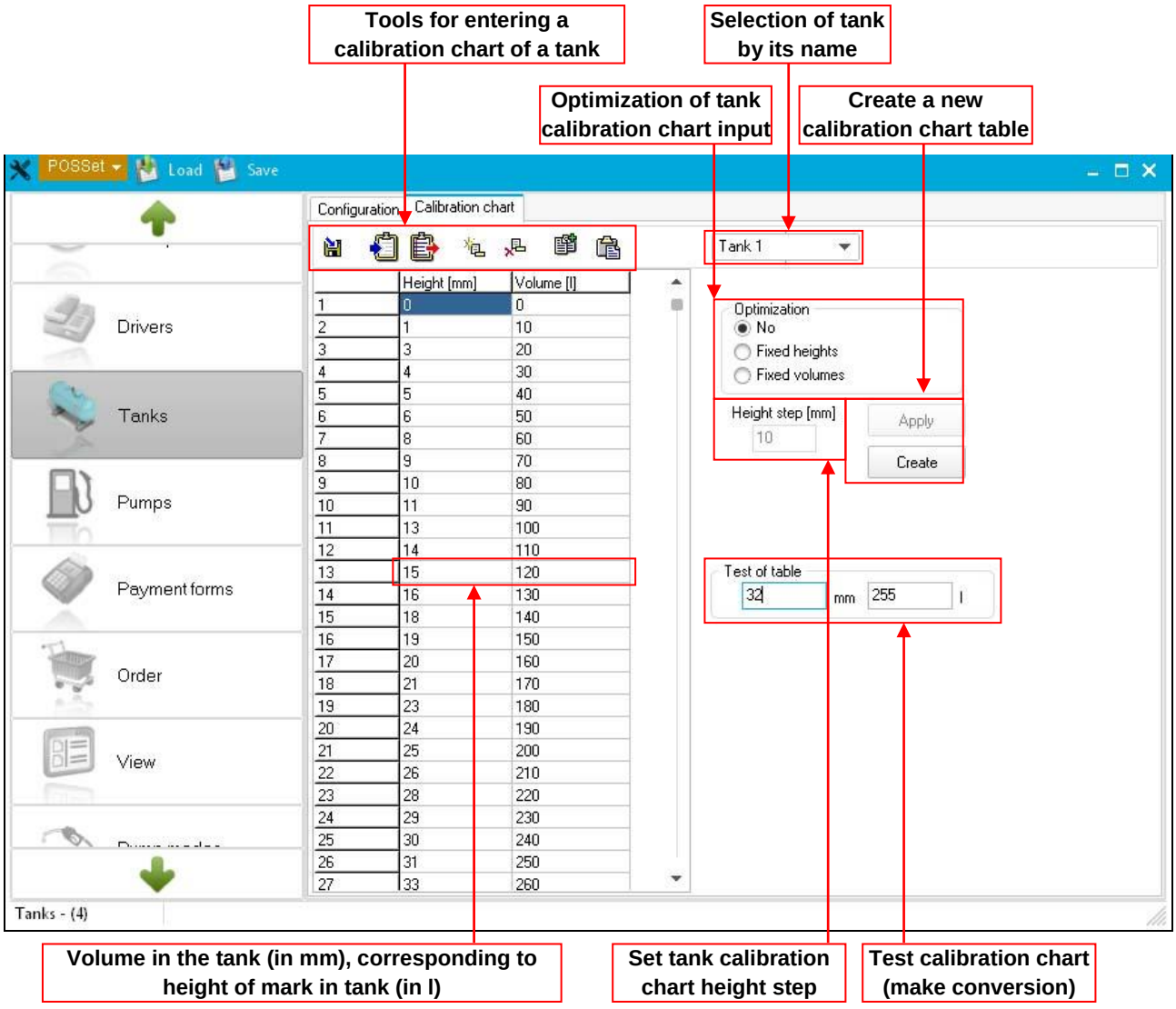
Tab "*Tanks*" contains two subtabs: "*Configuration*" and "*Calibration chart*".

"*Configuration*" subtab is used for adjusting of tanks quantity, linking of petroleum products from database with tanks, setting of fuel name in tanks and its displaying attributes, setting of tanks height, adjusting of *Products* table in database. Main view of the "*Configuration*" tab and explanation of its parameters is shown on the image below:



NaftaPOS configuration tool – configuration of tanks in system

"*Calibration chart*" subtab is used for entering and adjusting tanks calibration chart table, setting of its height step and optimization of entering, and testing it. Main view of the "*Calibration chart*" subtab and explanation of its parameters is shown on the image below:



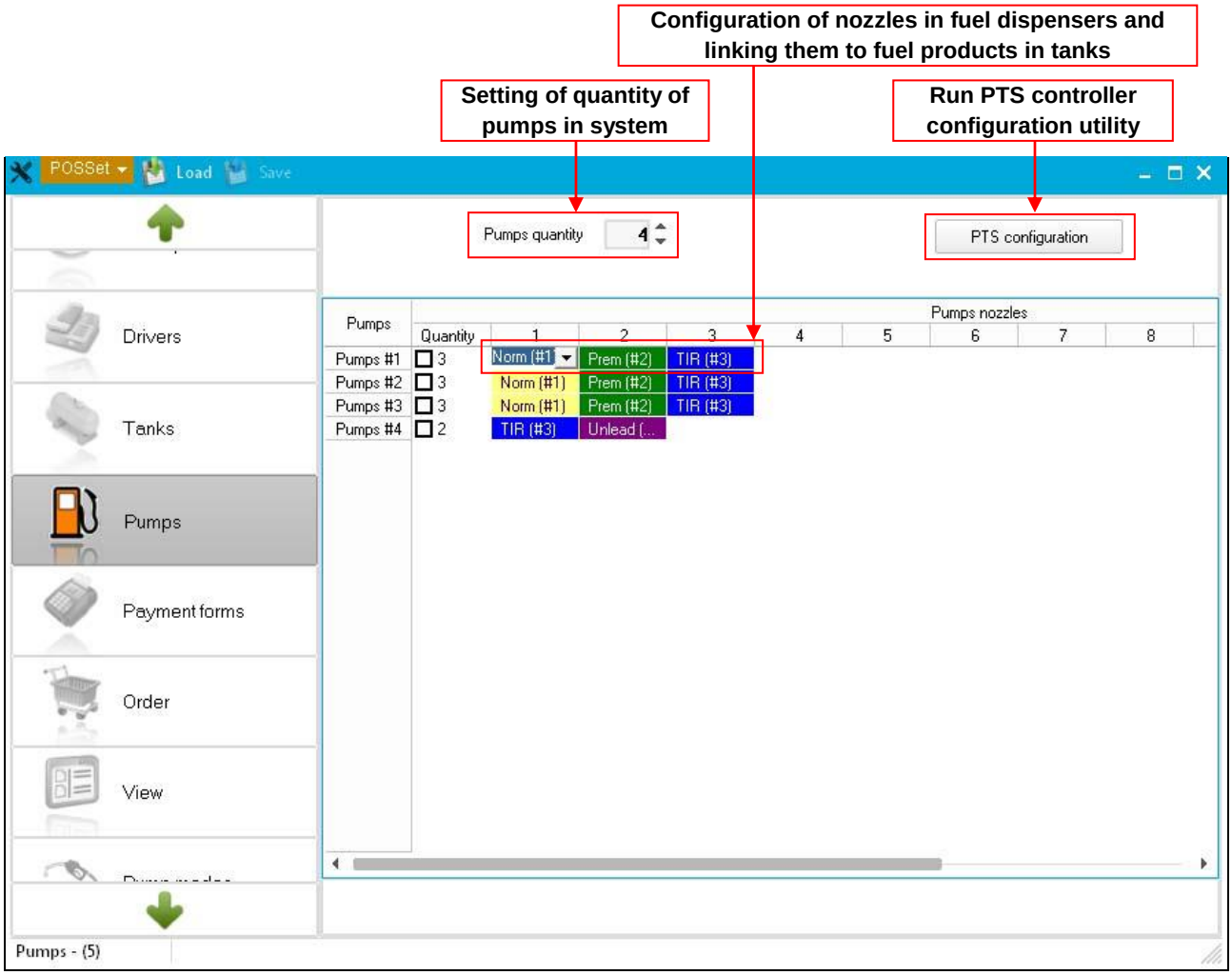
NaftaPOS configuration tool – configuration of tanks' calibration chart tables

Configuration tab "Pumps"

Tab "*Pumps*" serves for:

- Setting of number of fuel dispensers on the petrol station
- Setting of quantity of nozzles on each fuel dispenser
- Linking of petroleum products in tanks to each of the nozzles of fuel dispenser
- Running PTS controller configuration tool

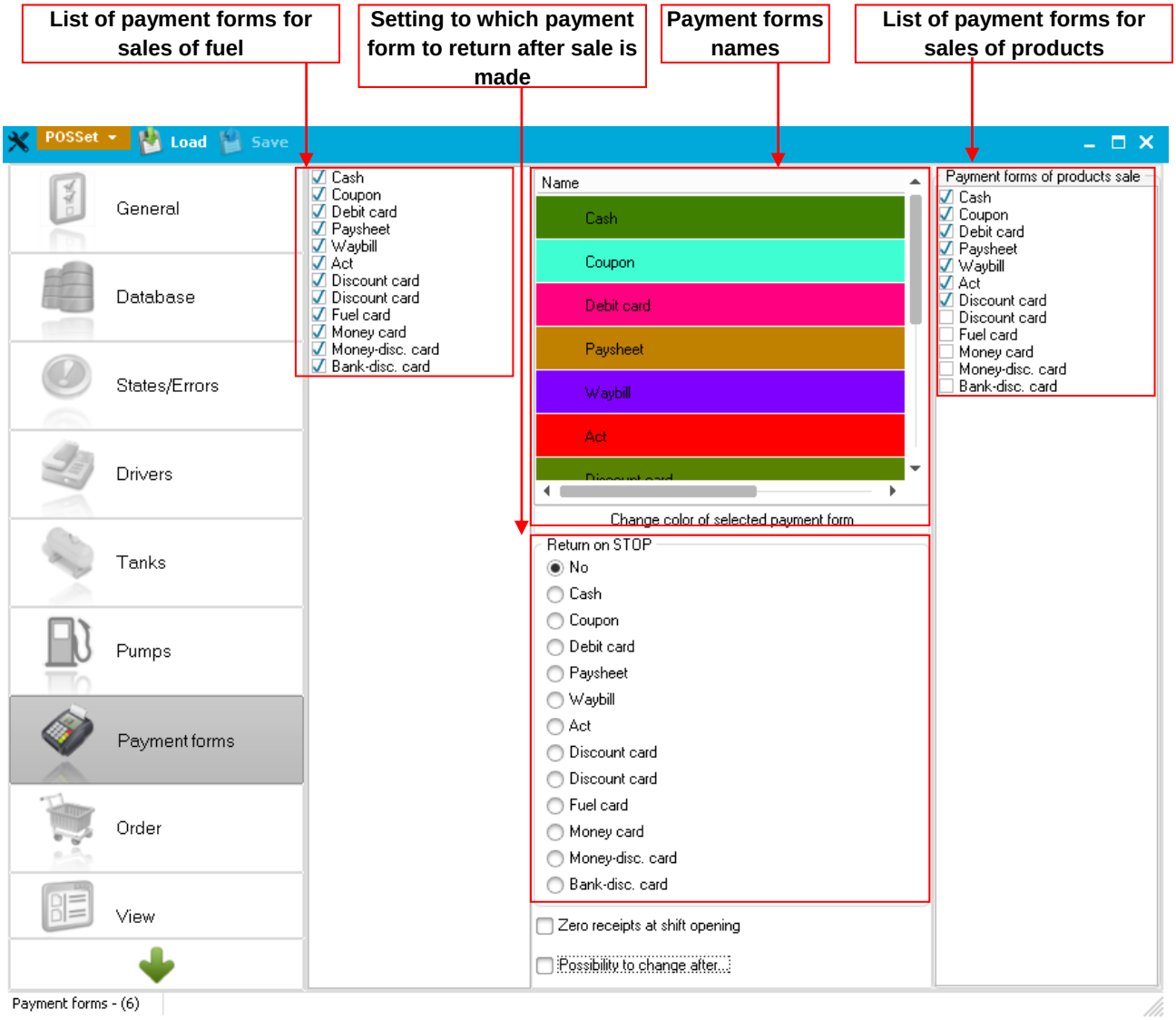
Main view of the "*Pumps*" tab and explanation of its parameters is shown on the image below:



NaftaPOS configuration tool – configuration of fuel dispensers and their nozzles in system

Configuration tab "Payment forms"

Tab "*Payment forms*" serves for setting of payment forms in the system, their names and pictures for sales of fuel and for sales of retails products. Main view of the "*Payment forms*" tab and explanation of its parameters is shown on the image below:



NaftaPOS configuration tool – configuration of payment forms in the system

Names of payment forms can be edited in the table. Payment form with ID equal to 32 serves for technological dispensing of fuel for reasons of dispenser calibration (assumed that fuel is returned to tank after being dispensed).

Checkbox "*Zero receipt at shift opening*": if checked – leads to printing-out of a zero receipt at opening of a new shift at operation with a fiscal receipts printer.

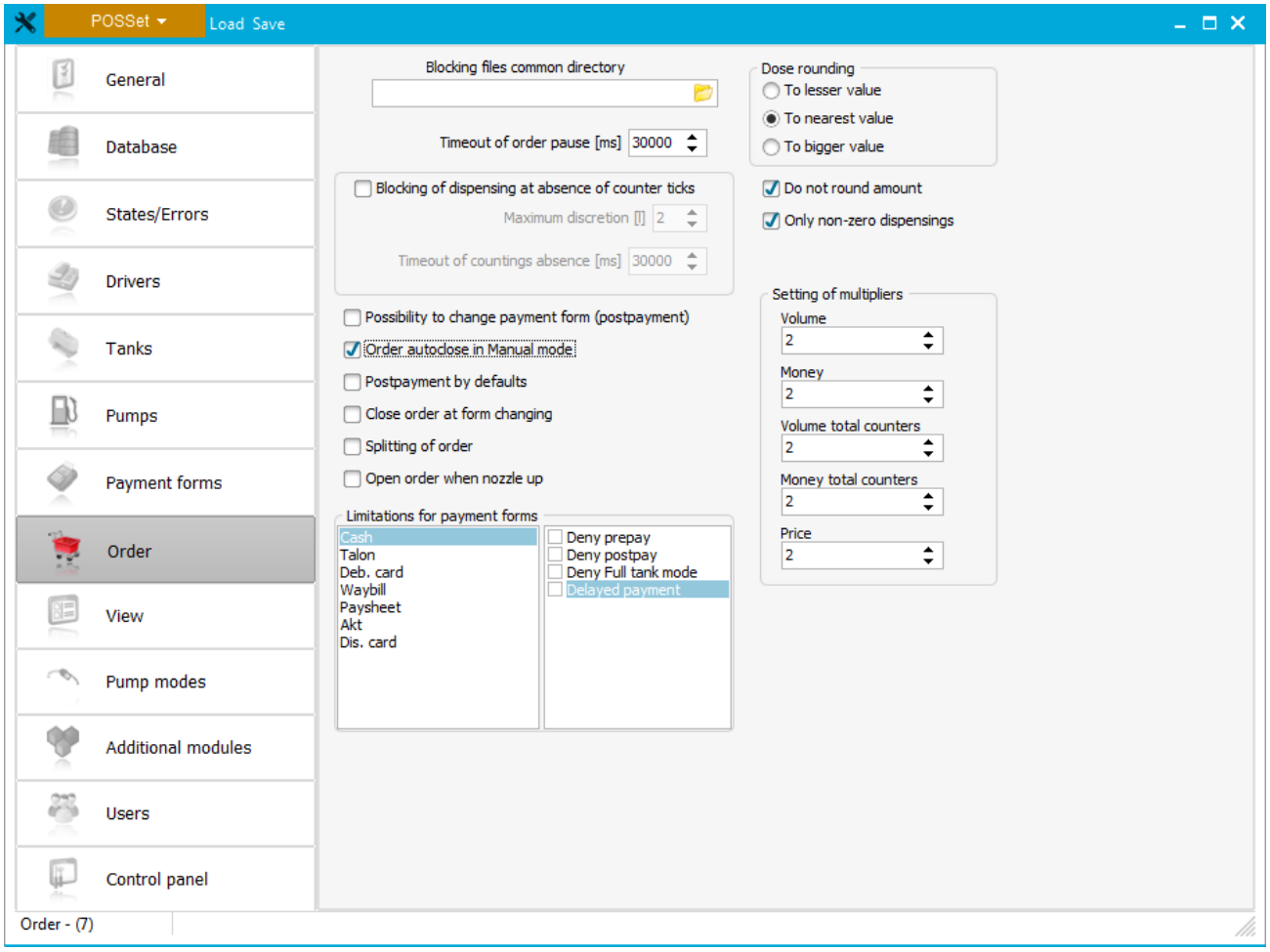
Checkbox "*Possibility to change after*": if checked – allows to select a payment form after the fuel was dispensed.

Configuration tab "Order"

Tab "*Order*" serves for setting of configuration of actions related to orders, namely:

- enabling prepayment / postpayment when using various payment forms
- automatic order closing
- possibility to change payment form
- closing of order at form changing
- rounding of ordered dose of fuel
- others

Main view of the "*Order*" tab is shown on the image below:



NaftaPOS configuration tool – configuration of actions related to orders in the system

Area "*Dose rounding*" serves for selection the direction of rounding of fuel amount in the mode of control "Order/Remains" when order is made on money amount. It includes the following items:

- To lesser value
- To nearest value
- To greater value

As an example: assume that we need to dispense fuel on 50 USD (cost) with price 7.97 USD/l and the dispenser has a pulse sensor with discreteness of 10 ml/pulse. In such a way if we divide cost on price we receive that the volume to be dispensed is not an integer value (in 10^{th} of ml) and equals to 50 / 7.97 = 6.273525…. Dispenser having 10 ml pulse (most of dispensers have such sensor discreteness of the pulse sensor) can dispense fuel volume only in 10 ml portions. Thus it can either dispense 6.27 l (which is lesser value) or 6.28 l (which is bigger value).

- In case if it dispenses 6.27 l – then cost will be 6.27 l * 7.97 USD/l = 49.97 USD (not 50 USD)
- In case if it dispensers 6.28 l – then cost will be 6.28 l * 7.97 USD/l = 50.05 USD (not 50 USD)

Thus **area "*Dose rounding*"** in NaftaPOS at once sets in which direction should be the cost rounded: to lesser, to bigger or to closest. In our example the values will be the following:

- To lesser value => 49.97 USD
- To nearest value => 49.97 USD
- To greater value => 50.05 USD

This behavior of NaftaPOS is fair because having a 10 ml pulse sensor in dispenser makes it impossible to dispense fuel on 50 USD with fuel cost of 7.97 USD/l.

For a situation when order of fuel is made from the preset keyboard located on the fuel dispenser with amount and price of fuel, which form volume of fuel to be dispensed not an integer value (in 10th of ml) (like in an example with cost of 50 USD and price 7.97 USD/l) and exactly this numbers should be indicated in NaftaPOS – then **checkbox "*Do not round amount*"** is to be checked.

For the situations when order is to be given from NaftaPOS software with amount and price of fuel, which form volume of fuel to be dispensed not an integer value (in 10th of ml) (like in an example with cost of 50 USD and price 7.97 USD/l) – then **checkbox "*Do not round amount*"** is to be checked and in configuration of PTS controller driver it is necessary to check a **checkbox "*Authorization by amount*"** (see section *"PTS controller driver"*).

Checkbox "*Only non-zero dispensings*" is used to set whether zero dispensing on pumps should be displayed and accounted in system or not.

Area "*Setting of multipliers*" sets how many digits after decimal separator in values of money amount, volume, price and total counter values received from pumps should be accounted in NaftaPOS system for calculations, storing in database and displaying in reports.

Field "*Timeout of order pause (ms)*" serves for specifying of time period, after which the dispenser will be stopped if it does not dispense fuel during this period.

Checkbox "*Blocking of dispensing at absence of counter ticks*": if checked – then if there are not counter ticks from the dispenser during dispensing process during the specified period – it will be automatically stopped.

Opendialog "*Blocking files common directory*" is used for specification of a directory, where files with information regarding blocked dispensers, are to be situated.

Checkbox "*Possibility to change payment form (postpayment)*": if checked – allows to change a payment form in postpayment mode.

Checkbox "*Order autoclose in Manual mode*": if checked – allows automatic order closing in the *"Manual mode"* of control at hanging down the nozzle. This allows to make NaftaPOS work completely automatically in *"Manual mode"* (without a cashier). Order will be opened at taking up the dispensing the nozzle and closed – at placing the dispensing nozzle down. In such a way NaftaPOS system can work as a monitoring of all fuel dispensers operation, but at this cashier will not have to interfere its work.

Checkbox "*Postpayment by defaults*": if checked – allows postpayment mode be set as a default mode (prepayment mode is set in opposite case).

Checkbox "*Close order at form changing*": if checked – closes the order at changing the selected payment form.

Checkbox "*Splitting of order*": if checked – allows to pay for the selected order using various types of payment form at the same time.

Checkbox "*Open order when nozzle up*": if checked – leads to automatic opening of a new order at taking up the dispensing nozzle.

Area "*Limitations for payment forms*" allows or denies prepayment and postpayment forms for selected payment forms as well as working in the mode of control "*Full tank*". Also it sets whether payment for the selected form should be delayed (placed in delayed payment form) or not.

There are special options available for each of the payment forms in **area "*Limitations for payment forms*"**:

- Deny prepay
- Deny postpay
- Deny full tank mode
- Delayed payment

Option "*Delayed payment*" is used for allowing/disallowing delayed payment for fuel dispensing. If this option is enabled then prior to sale of fuel of any dispensing at once after dispensing is finished information about it is added as a new entry to a window of delayed sales specification of information on performed dispensing. Dispensing will be automatically added to window of sales at clicking on the entry in the window of delayed sales.

Configuration tab "View"

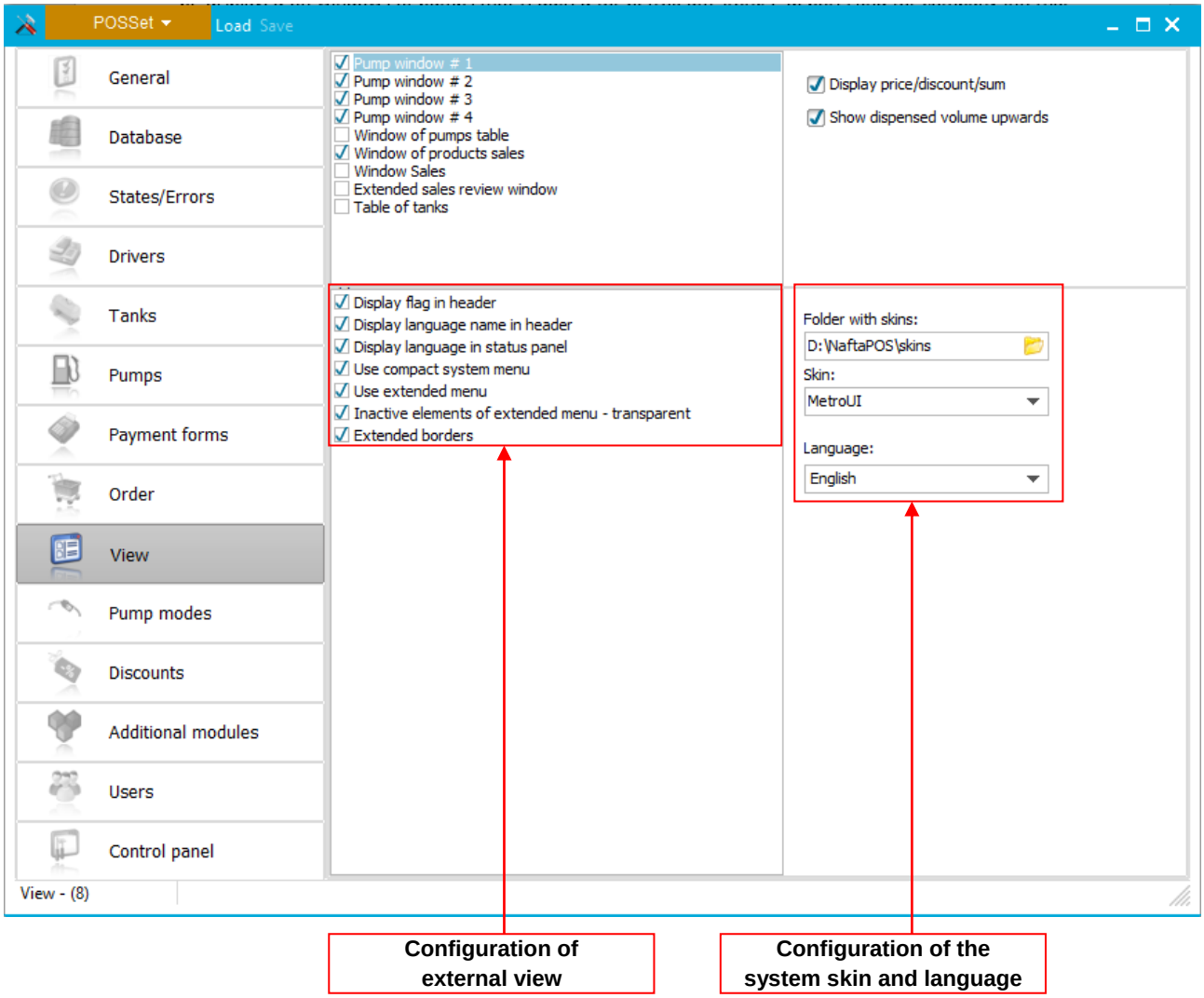
Tab "*View*" serves for setting of what windows should be displayed on the main panel of NaftaPOS system, through which:

- Windows of pump
- Window of pumps table
- Window of products sales
- Window Sales
- Table of tanks

Checkbox "*Display price / discount / sum*" serves for setting whether price, discount and sum fields should be displayed on windows of pumps (not required for petroleum storage deports and for company internal application for private cars park).

Checkbox "*Show dispensed volume upwards*" serves for setting of a direction of counting volume during dispensing process: upwards (if checked) or downwards.

Main view of the "*View*" tab is shown on the image below:

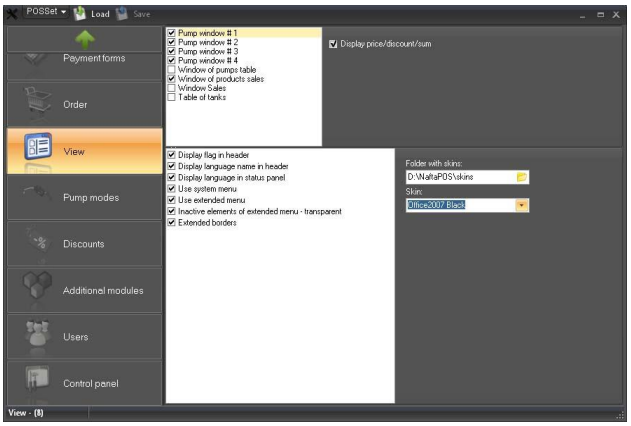


NaftaPOS configuration tool – configuration of set of windows displayed in the main panel of the system

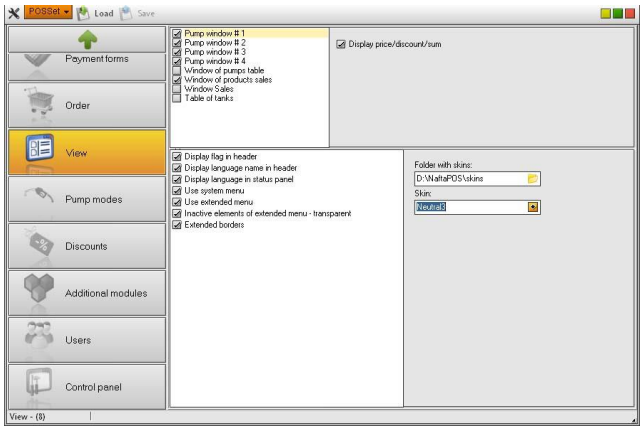
Fields for configuration of external view serve for flexible adjustment of user interface of the software.

Skins serve for changing of the software appearance to make NaftaPOS software suit to any taste and POS system design. Selection of the skin is made in a dropdown.

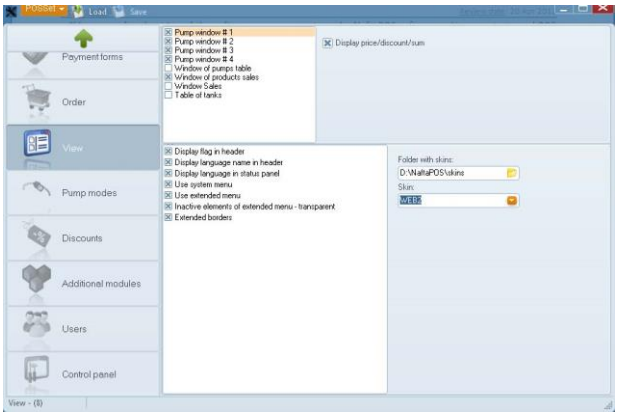
Examples of skins:



Office 2007 Black skin

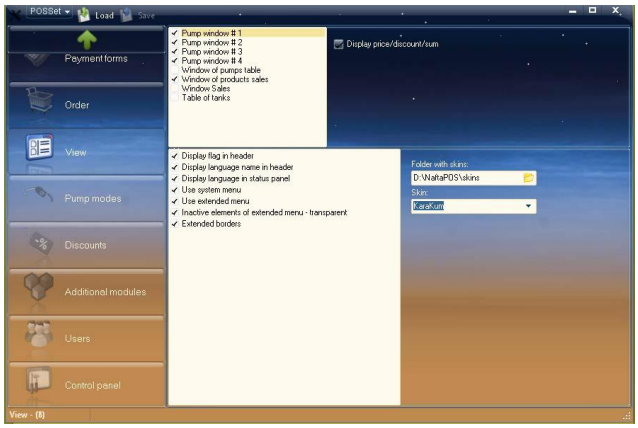


Neutral 3 skin

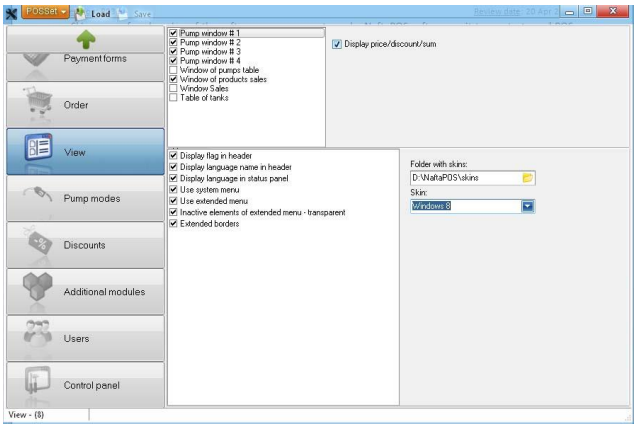


WEB2 skin

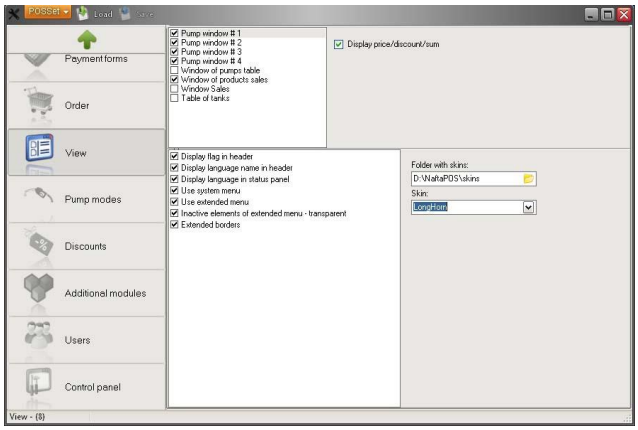
Retro skin



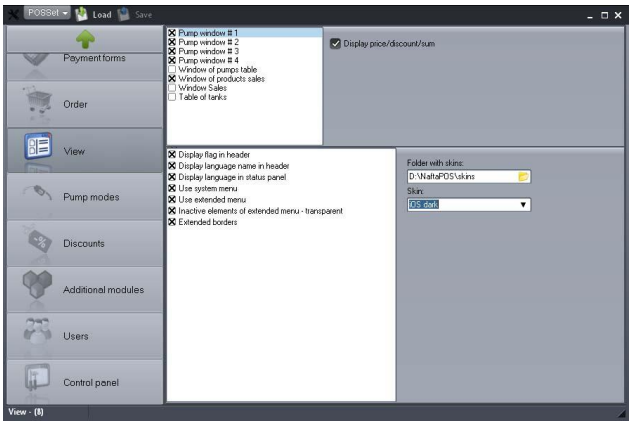
KaraKum skin



Windows 8 skin



LongHorn skin

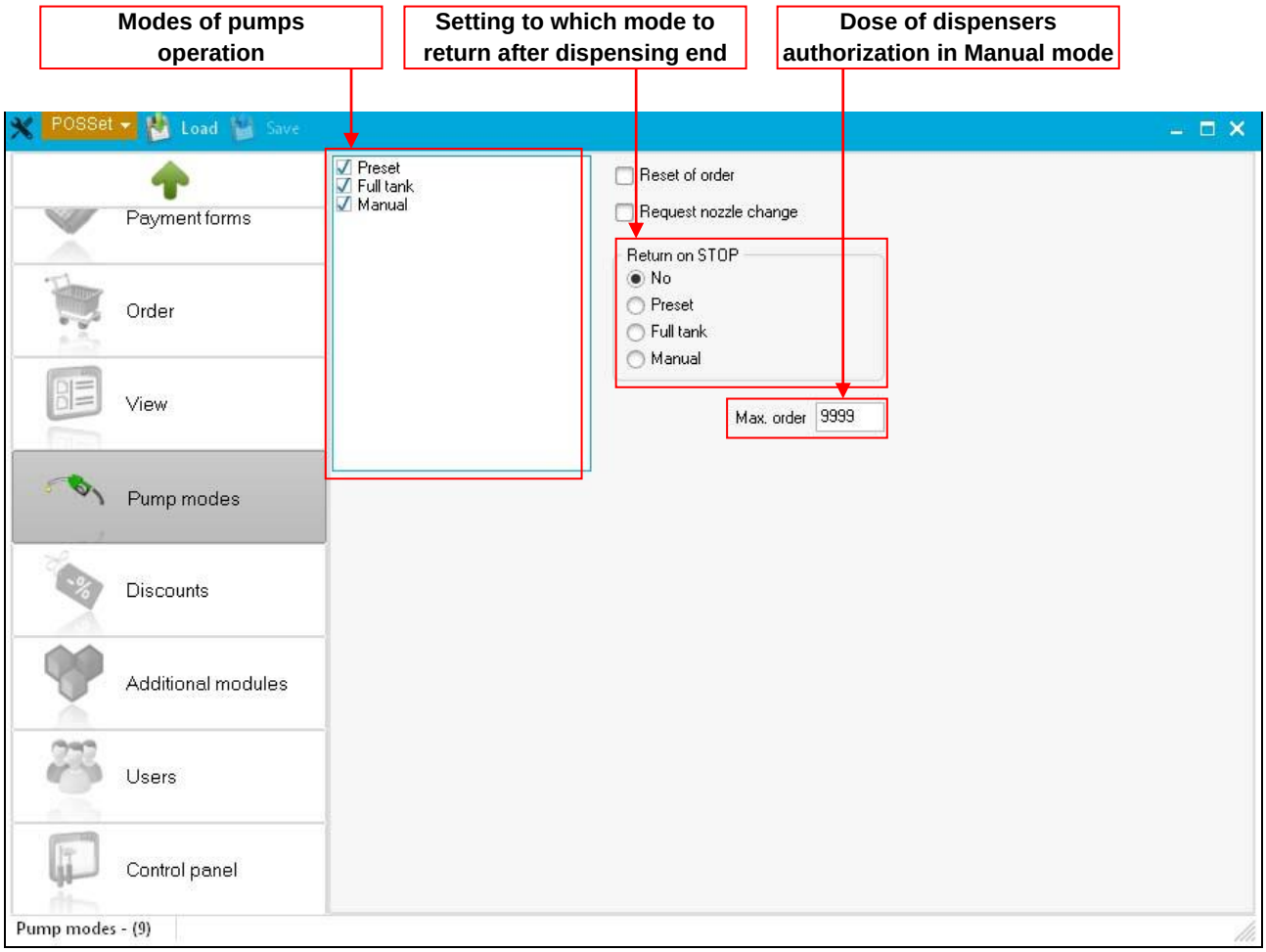


iOS dark skin

Configuration tab "Pump modes"

Tab "*Pump modes*" serves for setting the modes of control over fuel dispensers, to what mode to return after the dispensing is finished, maximum allowed volume dose to authorize fuel dispensers.

Main view of the "Pump *modes*" tab and explanation of its parameters is shown on the image below:



NaftaPOS configuration tool – configuration of fuel dispensers modes in the system

Checkbox "*Reset of order*" is used for resetting indication on pump windows on NaftaPOS main panel after the dispensing is finished on the fuel dispenser.

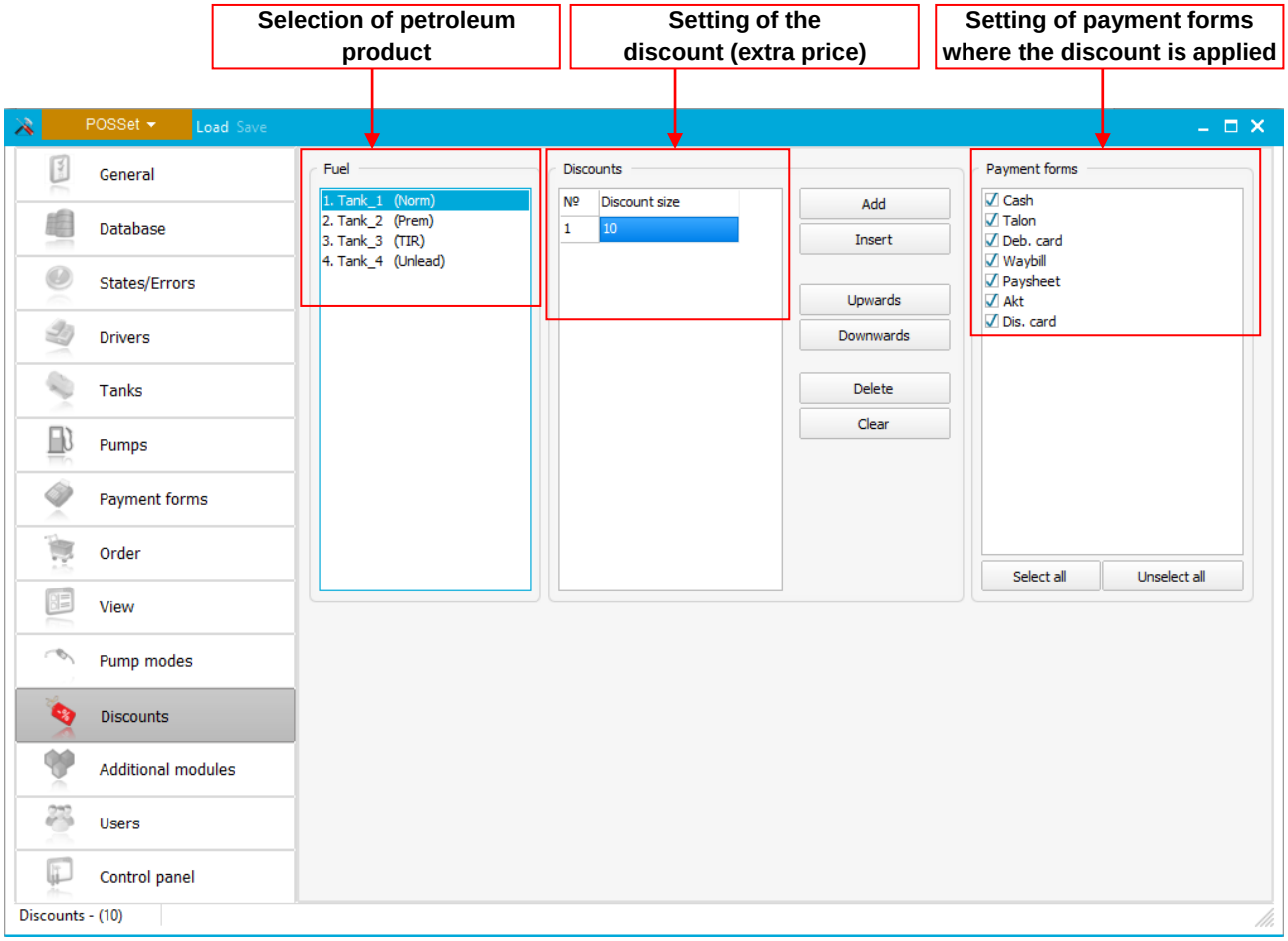
Checkbox "*Request nozzle change*" is used for setting a requirement to hang down a nozzle on the dispenser before a possibility to make another dispensing on the same dispenser through the same nozzle.

Field "*Max. order*" is used for setting maximum order for authorization a fuel dispenser.

Configuration tab "Discounts"

Tab "*Discounts*" serves for setting discounts and extra prices (surcharges) for petroleum products with specification of payment forms, where they are applicable.

Main view of the "*Discounts*" tab and explanation of its parameters is shown on the image below:



NaftaPOS configuration tool – configuration of discounts (extra prices) for petroleum products

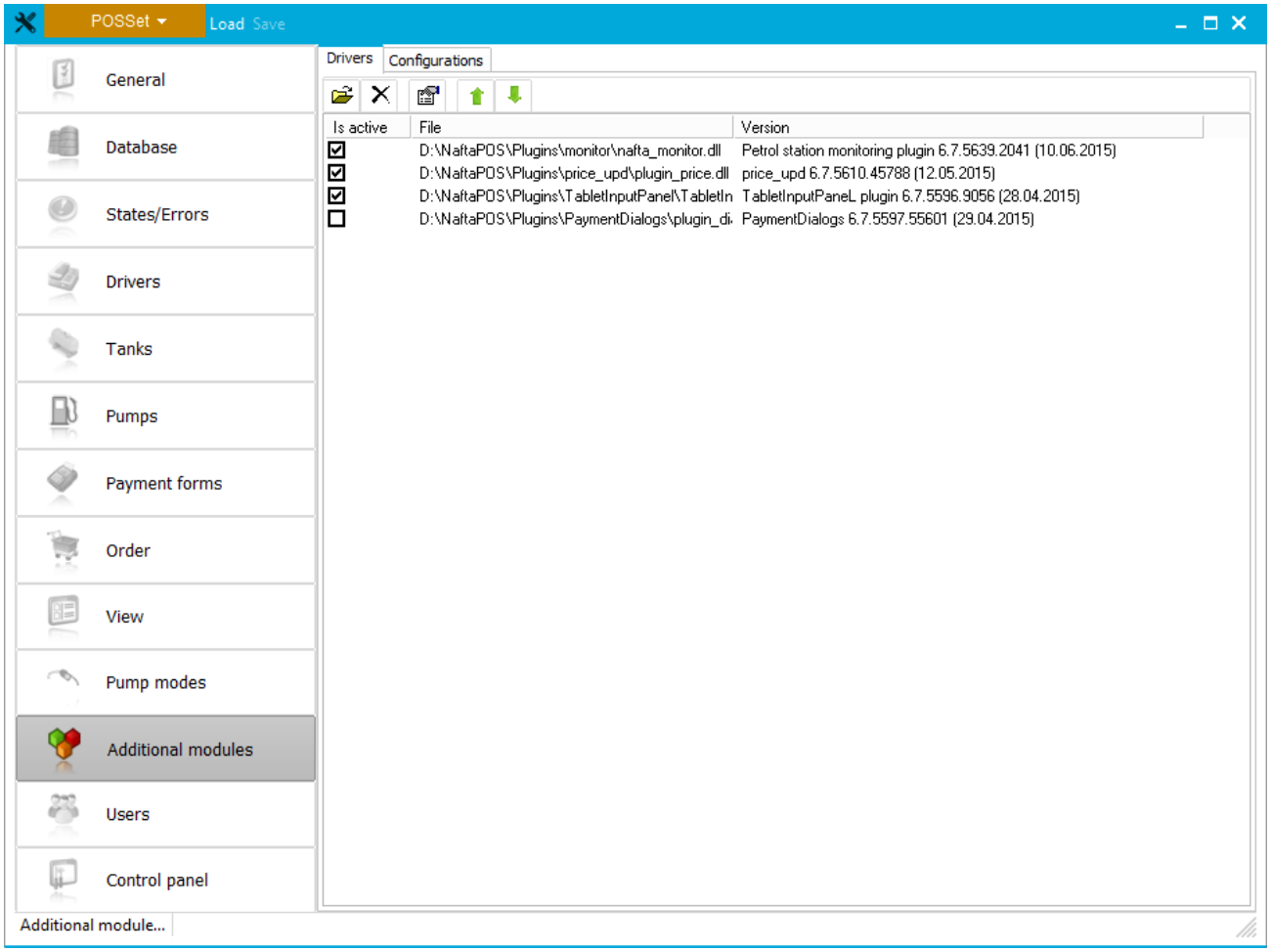
Configuration tab "Additional modules"

Tab "*Additional modules*" serves for adding to NaftaPOS system new options in the view of connected modules (plug-ins) for widening of system possibilities.

It contains 2 subtabs: "*Drivers*", where plug-ins can be uploaded, and "*Configuration*", where permissions for plug-ins are set. Permission list includes the following options:

- Changing of prices
- Add new products
- Check of all products

Main view of the "*Additional modules*" subtab is shown on the image below:



NaftaPOS configuration tool – setting of additional modules to the system

It is possible to add plug-ins to the system from the hard disk by clicking on button "*Select file*".

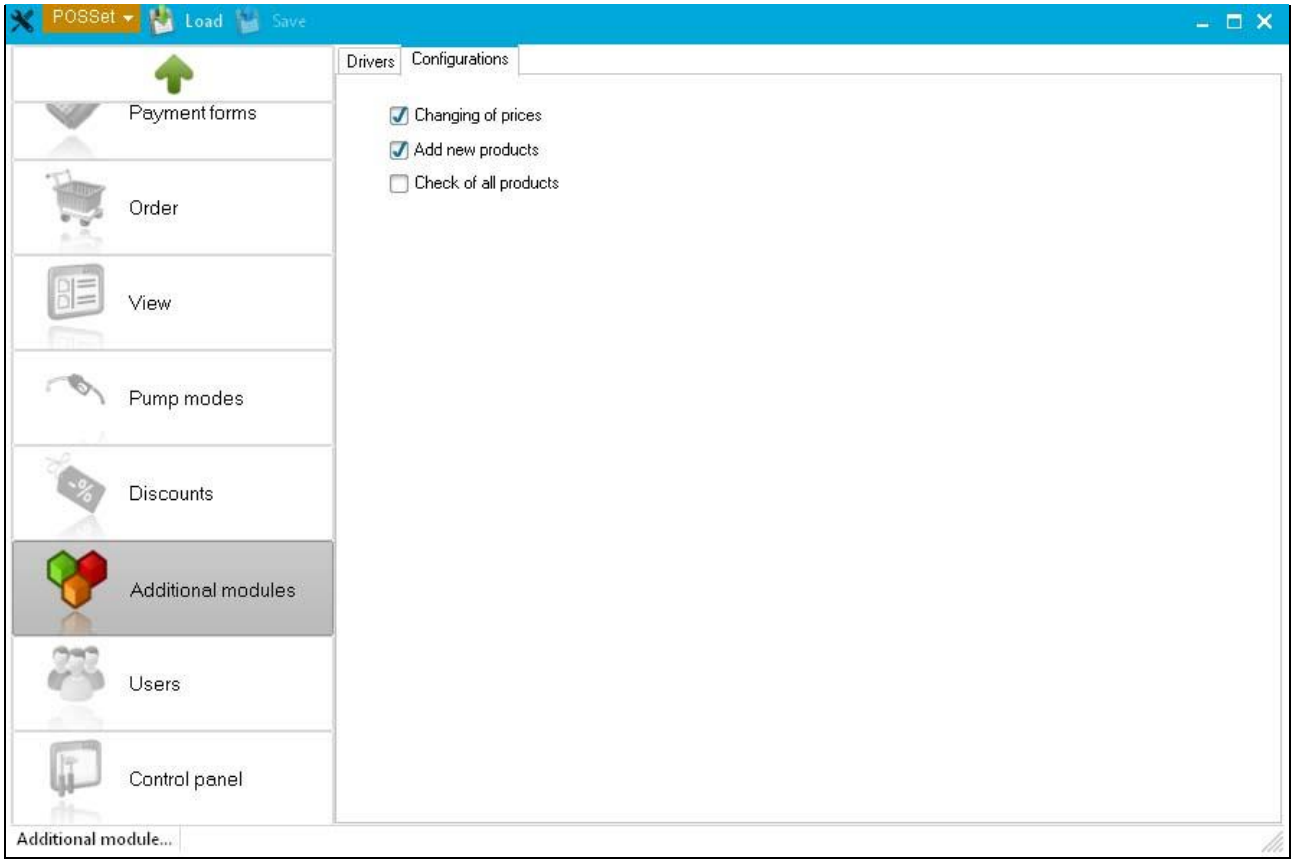
Configuration of the selected plug-in is made using a button "*Properties*".

By defaults NaftaPOS system is supplied with several plug-ins:

- "*Station monitoring plugin*", which is intended to lead databases with data, which allows easy and comfortable way to remotely monitor current actions happening online on petrol station. More information about it read it section "*Remote data gathering from a petrol station network and monitoring*".
- "*price_upd*" – plugin for easy price updating for fuel in NaftaPOS system
- "*TabletInputPanel plugin*" – plugin used to run Windows touch keyboard automatically with start of NaftaPOS for input of data when NaftaPOS is installed on tablet or panel PC with touchscreen.
- other specific plugins can be added optionally upon request

Each of the plugins has its own configuration and settings.

Main view of the "*Configuration*" subtab is shown on the image below:

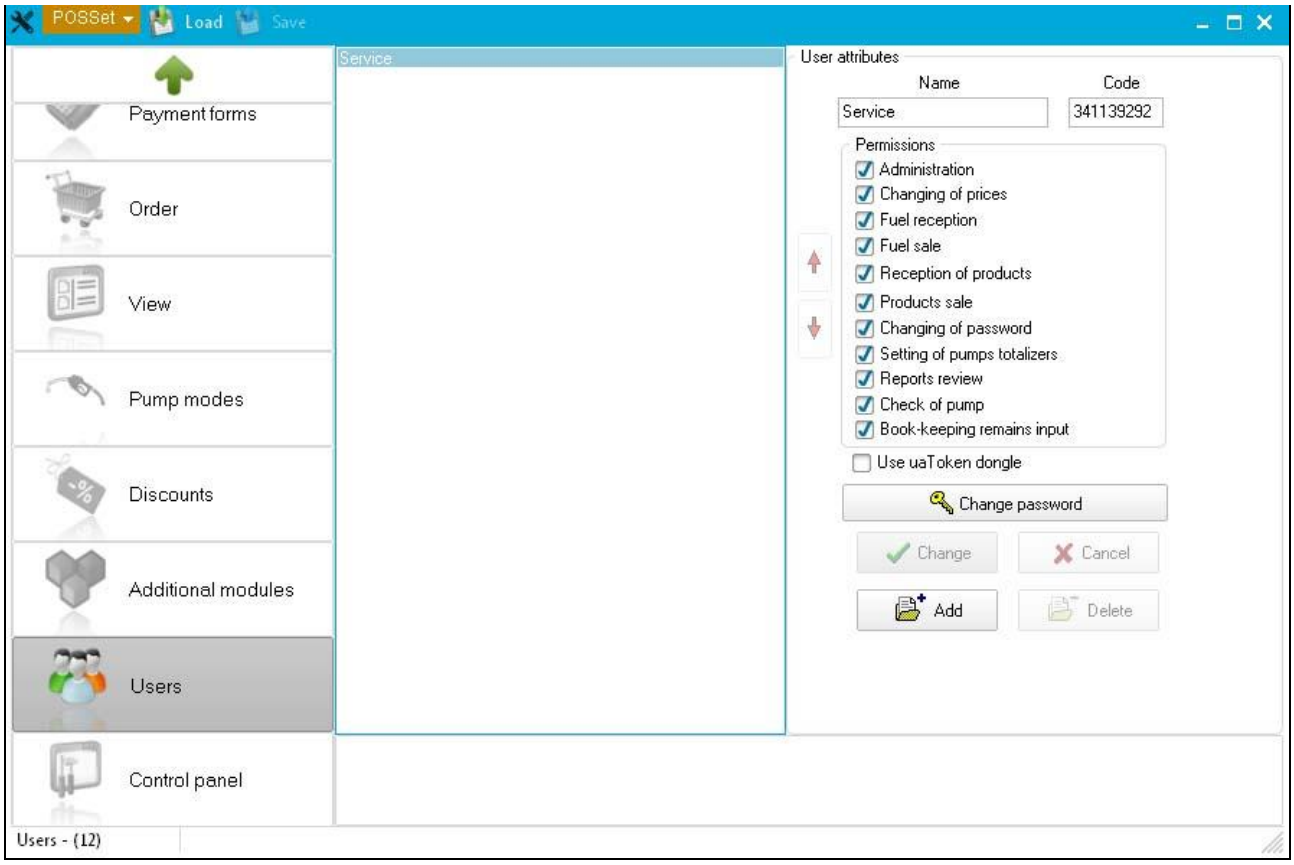


NaftaPOS configuration tool – setting of permissions for the plug-ins

Configuration tab "Users"

Tab "*Users*" serves for adding and deleting users in the system and for modification of their permissions and credentials.

Main view of the "*Users*" tab is shown on the image below:



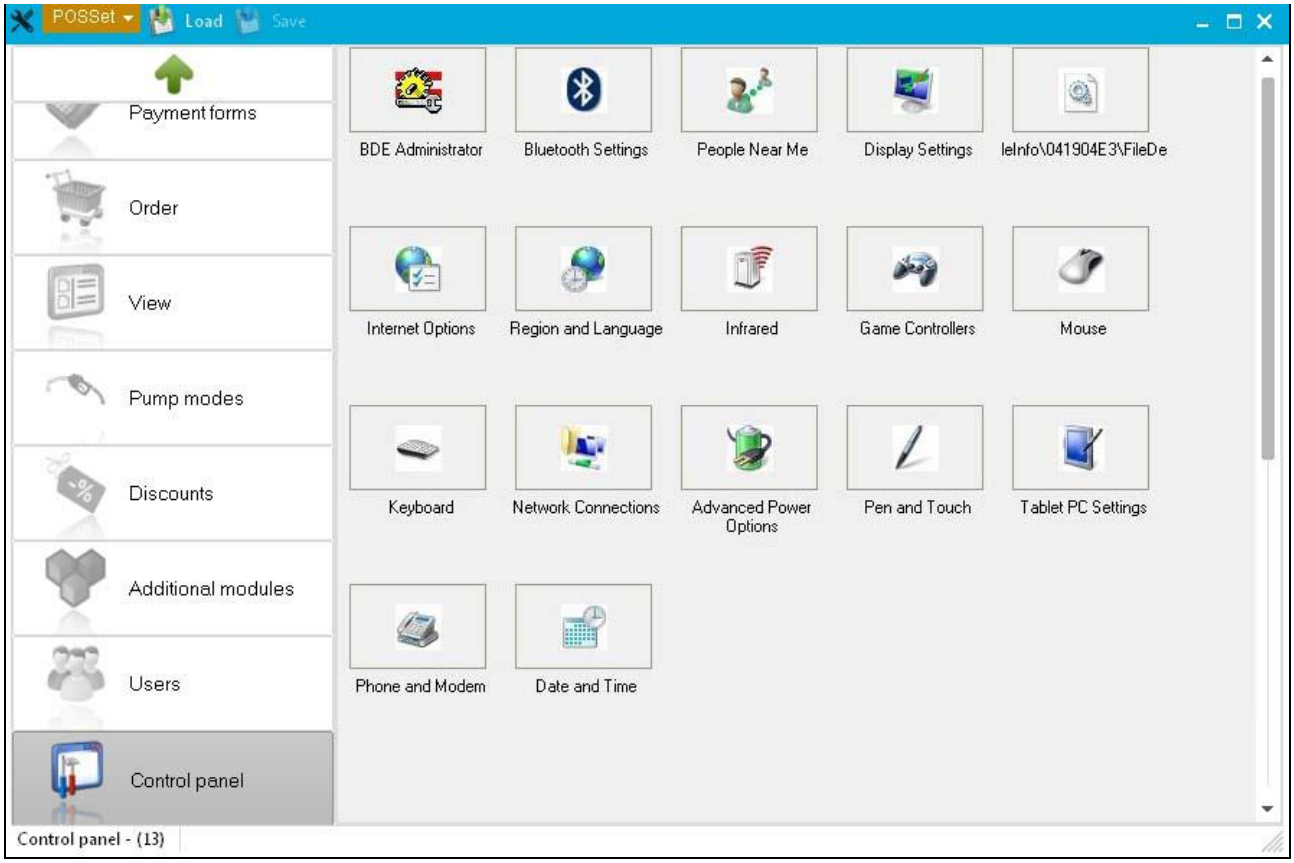
NaftaPOS configuration tool – configuration of users accounts in the system

Changing of user password in the system

Configuration tab "Control panel"

Tab "*Control panel*" provides access to Windows OS control panel and possibilities of system configuration.

It is made for a reason that in some applications NaftaPOS system can be switched as the only application running on OS Windows. NaftaPOS software has its own shell for Windows OS T&T Shell, which can be run instead of a standard Windows OS shell. In such case at starting a PC with installed NaftaPOS software T&T Shell will launch automatically, it limits access of the user to configuration tools of Windows OS, making it possible to work only in NaftaPOS on such PC. Users with administrative rights have access to all Windows OS configuration tools.



NaftaPOS configuration tool – access to Windows OS control panel from the system

Operation in NaftaPOS software

Launching the NaftaPOS system

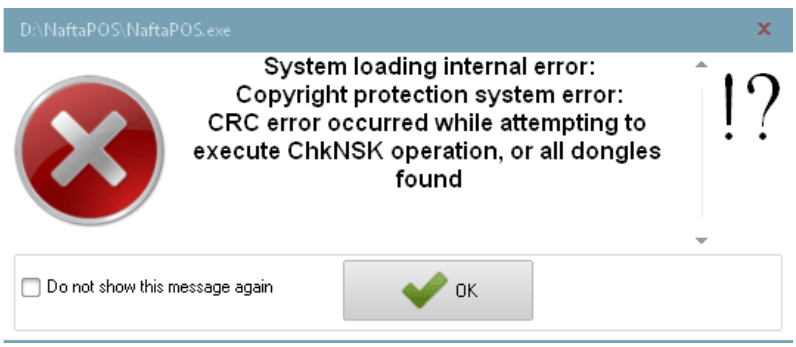
Launching of full version of NaftaPOS software is made by running a file *NaftaPOS.exe* (*NaftaPOS\NaftaPOS.exe*) or using a shortcut in Start panel of Windows OS (in case if full version was selected at installation):

Launching of trial version of the NaftaPOS software is made by running a file *NaftaPOSTrial.exe* (*NaftaPOS\NaftaPOSTrial.exe*) or using a shortcut in Start panel of Windows OS:

At launching of NaftaPOS system it shows its logo and current assembly version:

Current assembly version of NaftaPOS displayed at launching

At launching NaftaPOS is checking its configuration and Guardant dongle's list of permissions. In case if the dongle is not present – it will show an error and will now enter the system.



NaftaPOS error shown at absence of Guardant security dongle

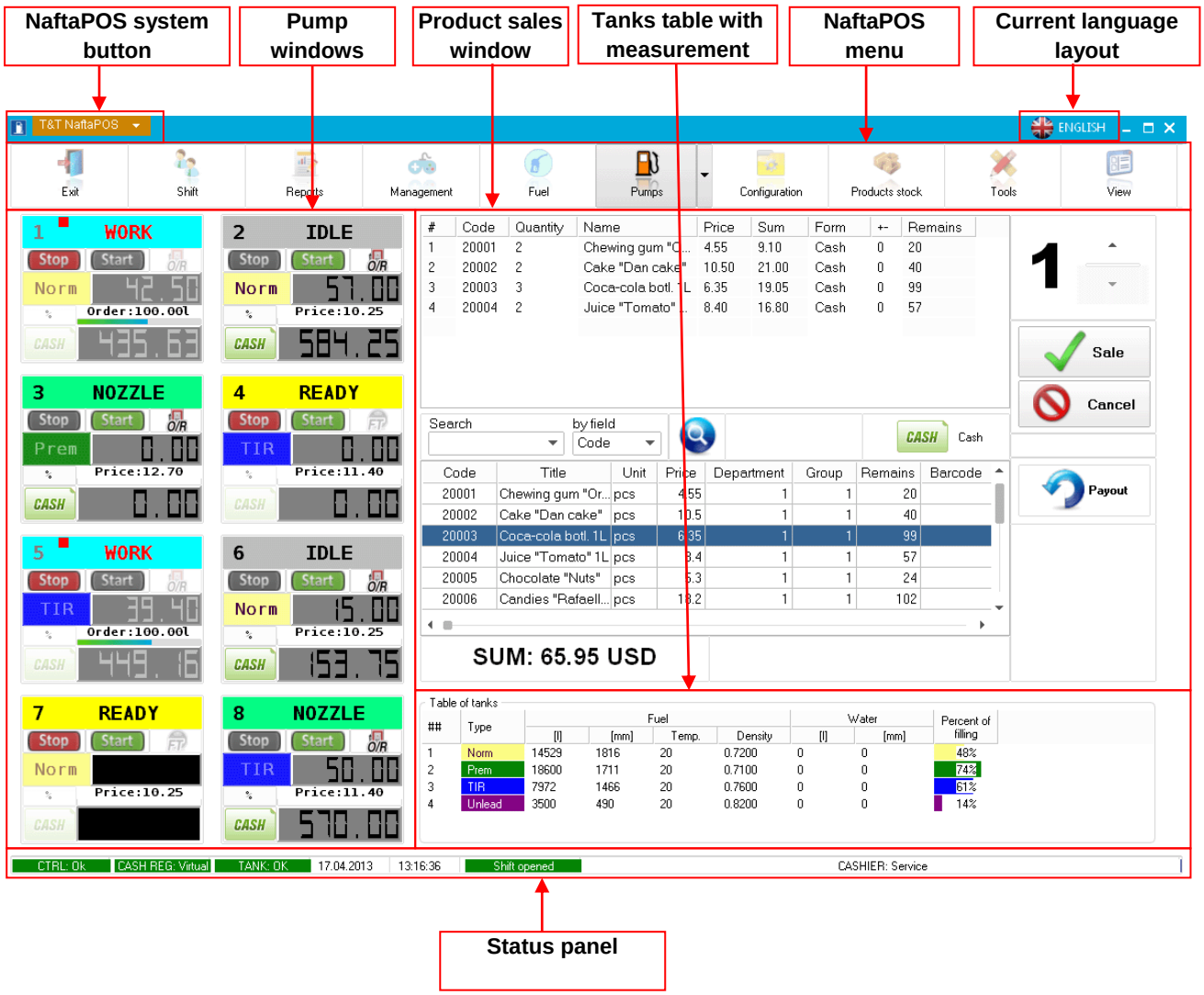
Exiting / restarting NaftaPOS software

Options for exiting / restarting NaftaPOS software are specified on its first main menu tab "*Exit*":

Options for exiting / restarting NaftaPOS software

General view of NaftaPOS software

General view of NaftaPOS for control over fuel dispensing and sales of products in shop and explanation of its visual elements is shown on image below:



NaftaPOS system general view

Main panel of NaftaPOS software can contain the following windows on it:

- windows of pumps
- window of pumps table
- window of products sales
- window of tanks table
- other windows

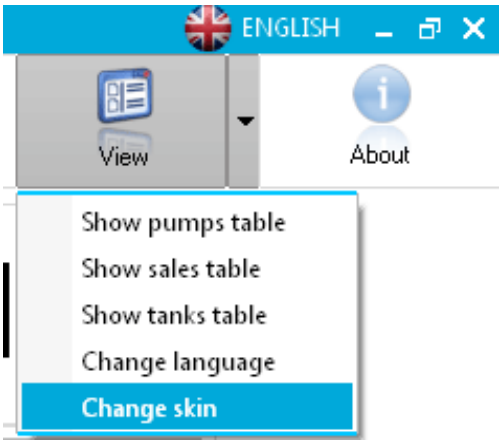
These windows can be moved and fixed on any place of the screen, sizes can be changed.

Example of another location of windows on the screen:

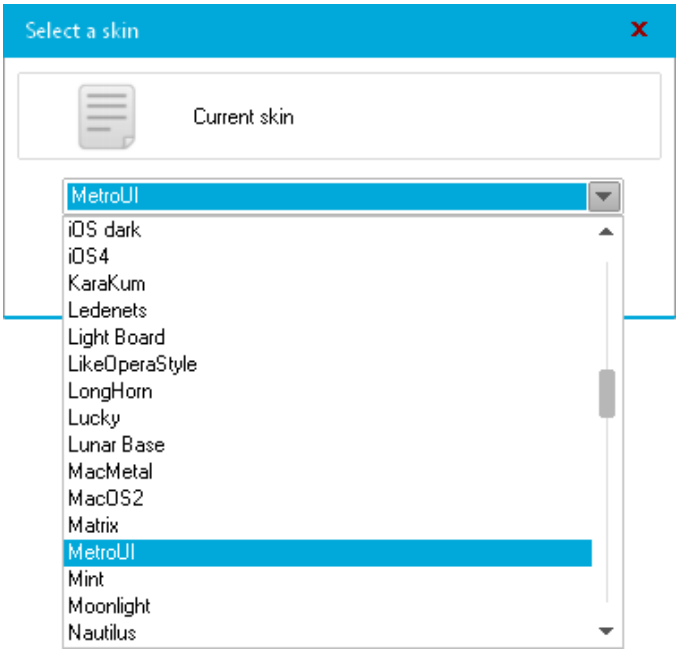
NaftaPOS system general view

Set of windows displayed in main panel is adjusted in NaftaPOS configuration on tab '*View*'.

NaftaPOS contains a big variety of skins for changing of its graphical user interface appearance. Skins serve for changing of the NaftaPOS software appearance to make NaftaPOS software suit to any taste and POS system design. Selection of the skin is made in a dropdown in a new opened dialog:



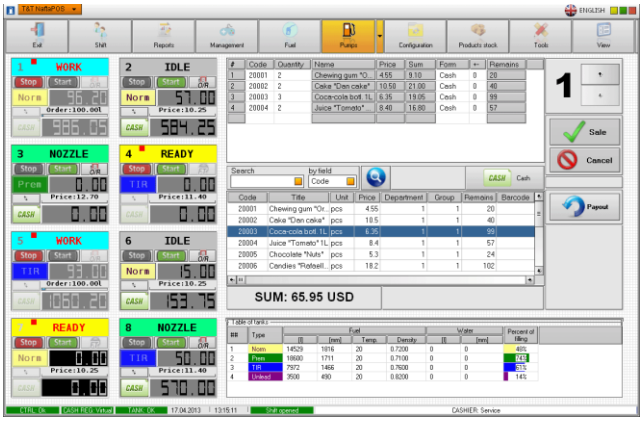
NaftaPOS system selection of skin



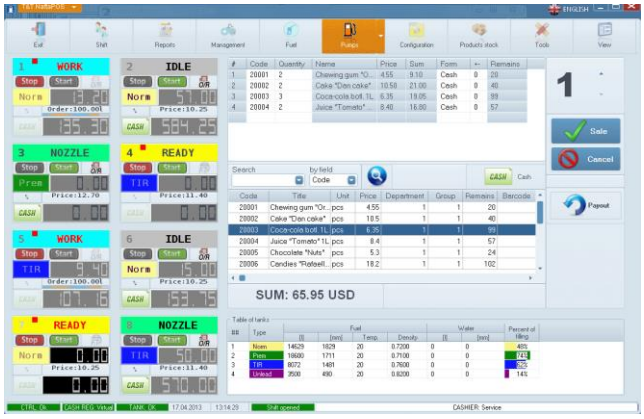
NaftaPOS system selection of skin

Examples of skins:

Office 2007 Black skin



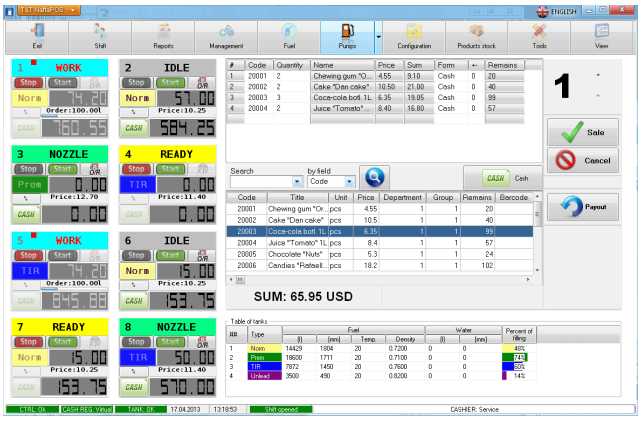
Neutral 3 skin



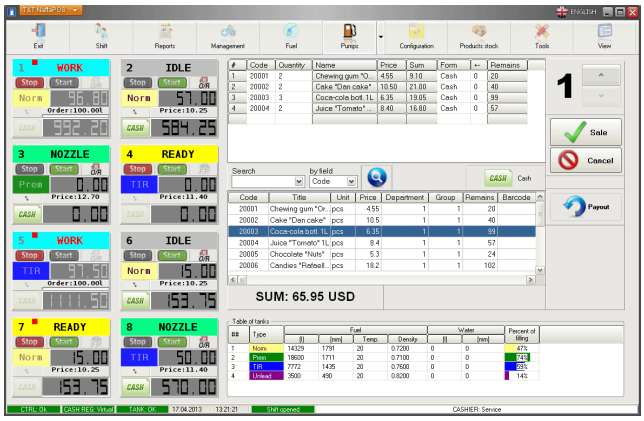
WEB2 skin

Retro skin

KaraKum skin



Windows 8 skin

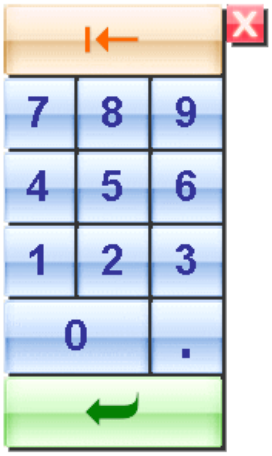


LongHorn skin

iOS dark skin

In NaftaPOS software control over operations can be performed using using a mouse and a keyboard.

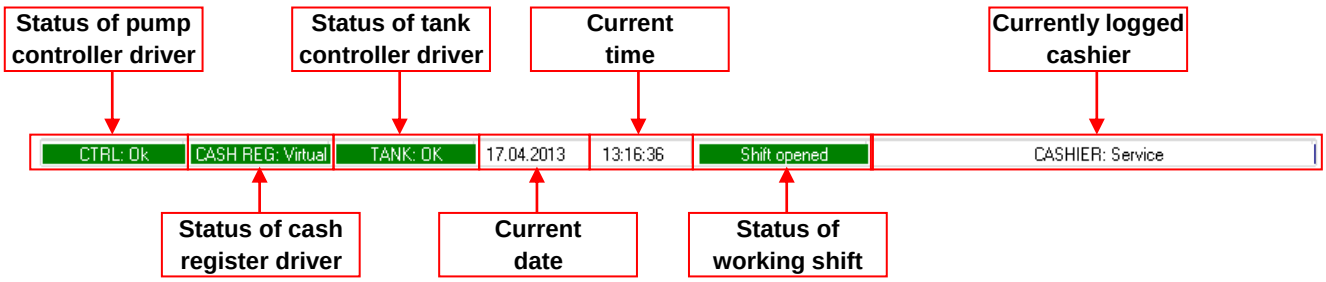
If NaftaPOS software is installed on a touchscreen POS terminal – then user can control everything with his fingers using a virtual keyboard. Switching on/off virtual keyboard is made in NaftaPOS configuration on tab '*General*'.



Virtual keyboard

Status panel, located below the main panel of the system, displays various system information.

To simplify perception of information it is displayed in red (negative) and green (positive) colors. During operation it is important to control information displayed in status panel to detect failures of the system operation in time (red color).



Status panel

NaftaPOS system main menu

Main menu of NaftaPOS software is presented by tabs with items situated in top of the screen and includes the following (actually quantity of tabs and items can differ and is adjusted in file NaftaPOS\azspos.menu):

TAB	ITEMS
Exit	*Exit*
	Restart NaftaPOS
	Shutdown computer
Shift	*Continue shift*
	New shift
	Close shift
	Temporarily close shift
	Enter without shift opening
Reports	*Reports 1*
	Reports 2
Management	*Select pump*
	Pump management
	Form of payment
	Operating mode
	Fuel
	Discount/Extra price
	Reset of pump
	Stop all pumps
	Close active orders
	Select cost
Fuel	*Fuel in tanks*
	Level measurements input
	Grades and prices
	Beginning of fuel reception
	Completion of fuel reception
	Reception of fuel
Pumps	*Totalizers*
	Setting of pump errors
Configuration	
Products stock	*Products review*
	Products reception
Tools	*Sales review*
	Receptions review
View	*Show pumps table*
	Show sales table
	Show tanks table
	Show extended window of sales review
	Show window of delayed sales

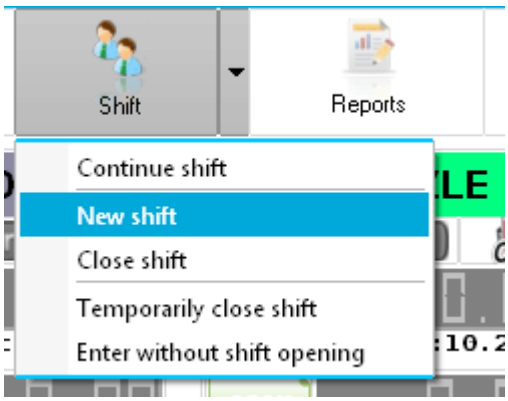
	Select language
	Select skin
About	

Beginning and finishing of operation

In NaftaPOS system shift mode of operation is applied. It means that all operations of cashiers (operators) on sales of products, receptions and others are possible only within an opened working shift. Shift control can be switched off (in NaftaPOS configuration on tab '*General* uncheck a flag "*Shift duration control*").

To open a new working shift a cashier should log in the system under his personal login and password. Cashier is able to perform actions in NaftaPOS system, that are enabled for him by the permissions set for given cashier (permissions for users are set on tab "Users" in NaftaPOS configuration).

If the previous working shift is closed – cashier at beginning of work should open a new working shift (in main menu tab '*Shift*' → '*New shift*'). If the previous working shift is not closed – cashier should continue the previous shift.



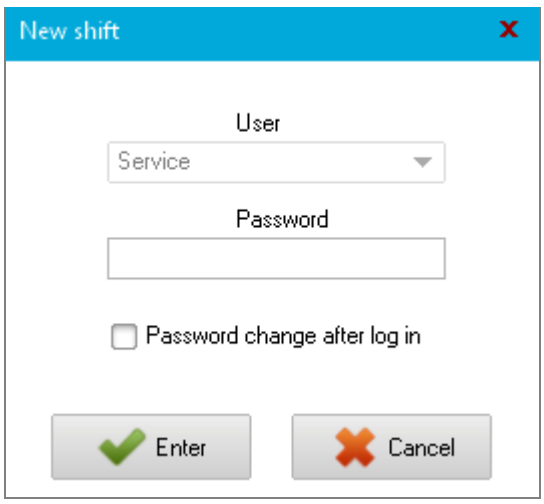
Starting of a new working shift

In order to enter NaftaPOS under another user (who for example has more permissions allowed) without closing of current shift select "*Enter without shift opening*" and in order to return to a previous cashier shift select "*Continue shift*".

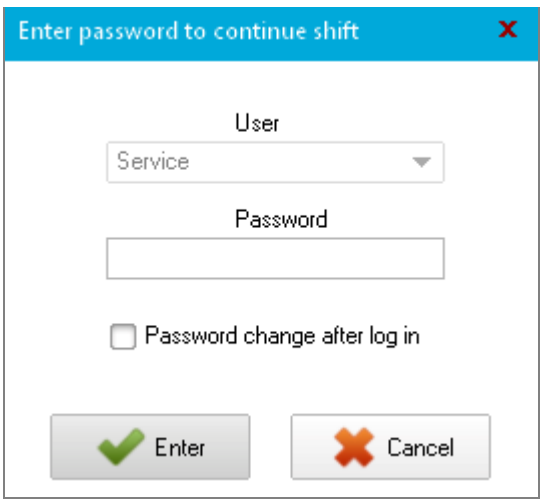
Sales and registration of reception of fuel and new products are prohibited at closed shift. Generation of reports is linked with working shifts periods.

Duration of the shift can be adjusted. At this shift can last unlimited time frame. Otherwise if the flag "*Shift duration control*" on tab '*General*' in NaftaPOS configuration is checked – shift duration can be configured to last until 23:59 each day or shift duration can be set to 24 hours, after which operation of NaftaPOS system will be blocked with a request to close previous shift and start a new one.

At starting of a new working shift or continuing of a previous working shift NaftaPOS system will ask to authenticate:



Starting of a new working shift



Continuing previous working shift

Operations with fuel dispensers

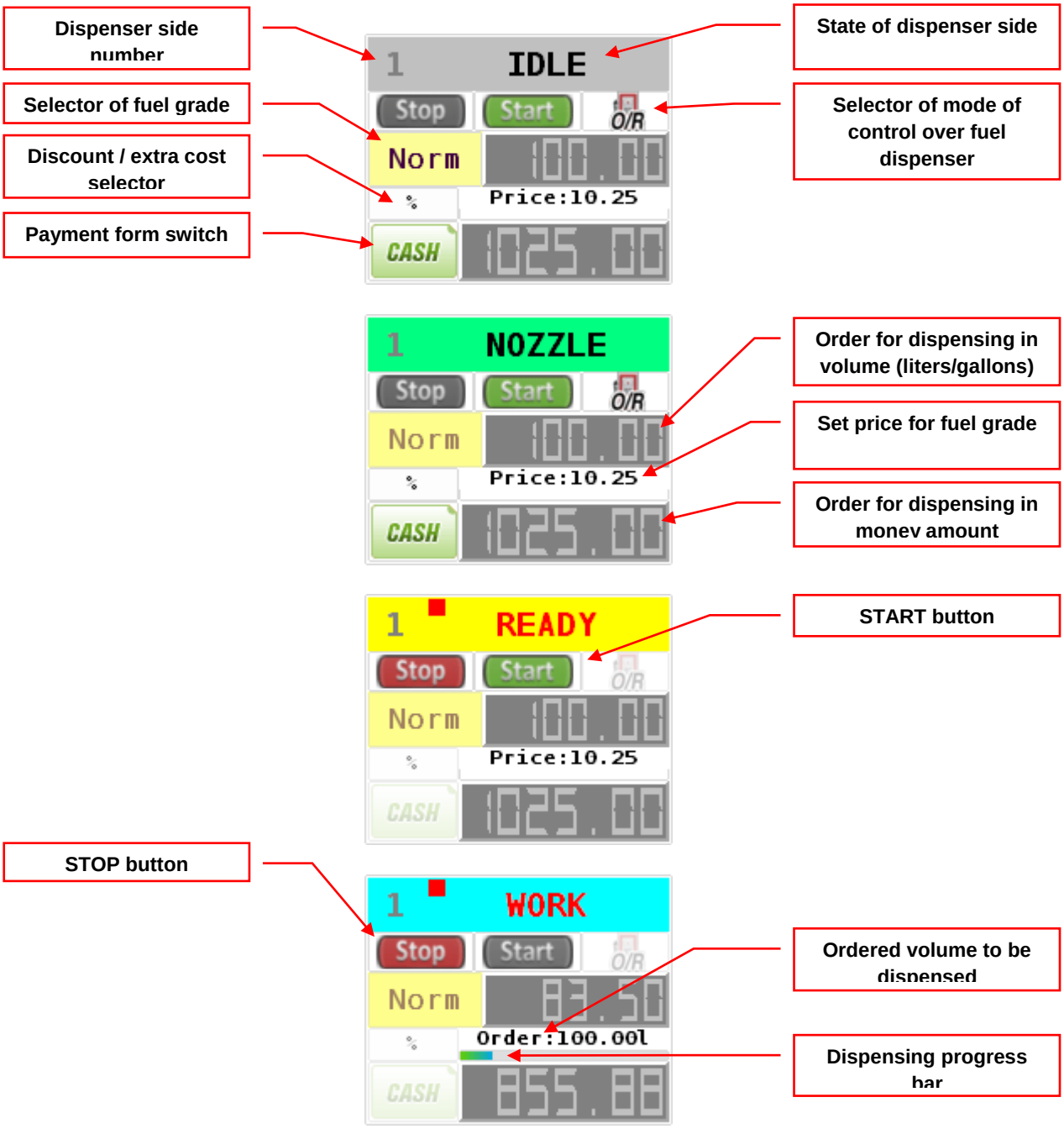
Displaying of fuel dispensers

Control over fuel dispensers is made through windows of pumps.

Linking of pump windows with tanks is made in NaftaPOS configuration on tab '*Pumps' (*linking of pump nozzles to tanks). Linking of pump windows with logical fuel dispensers addresses in forecourt controller is made in driver of controller in NaftaPOS configuration on tab '*Drivers*'. Linking of logical fuel dispensers addresses to physical fuel dispenser addresses is done in configuration utility of PTS controller *pts_conf.exe* (*NaftaPOS\Pts_conf.exe*), which can be launched from tab ' *Pumps'* by clicking on button *'PTS configuration' (*read more on configuration in section '*Configuration of forecourt controller drivers*' above*)*.

Displayed pump windows are adjusted in NaftaPOS configuration on tab 'View'.

Each side of fuel dispenser is shown by the following pump window:

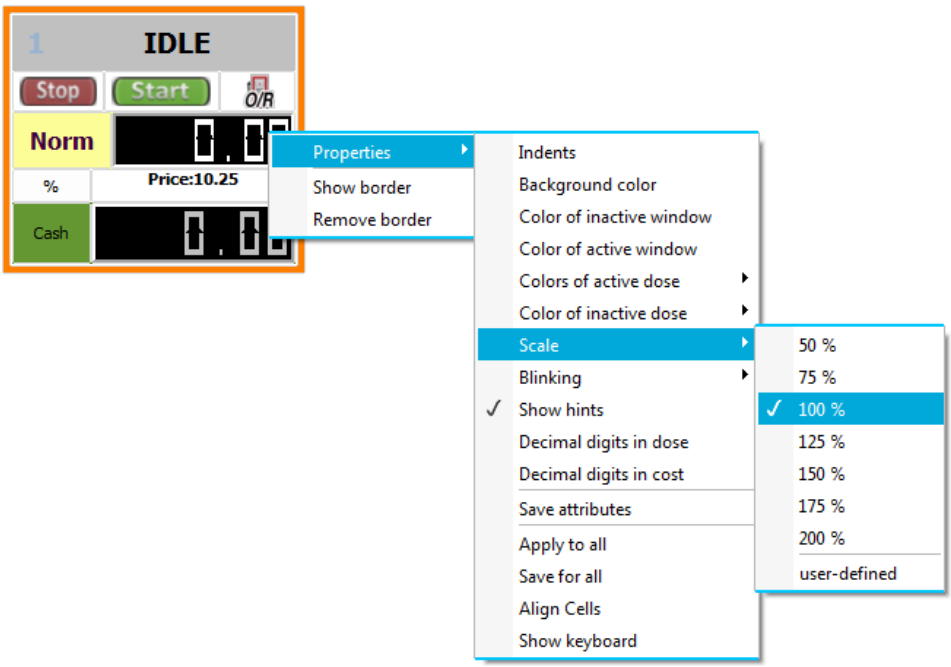


Pump windows

Pump windows can be moved (dragged) across a main panel of NaftaPOS system. It is possible to be done only at opened shift. Having pressed a mouse left button on left top corner of pump window (pump number) and dragging it user can move the window to any place. But to save a position of the pump window and its configurations for all subsequent runnings of NaftaPOS system user should select '*Properties*' → '*Save attributes*' for current pump window.

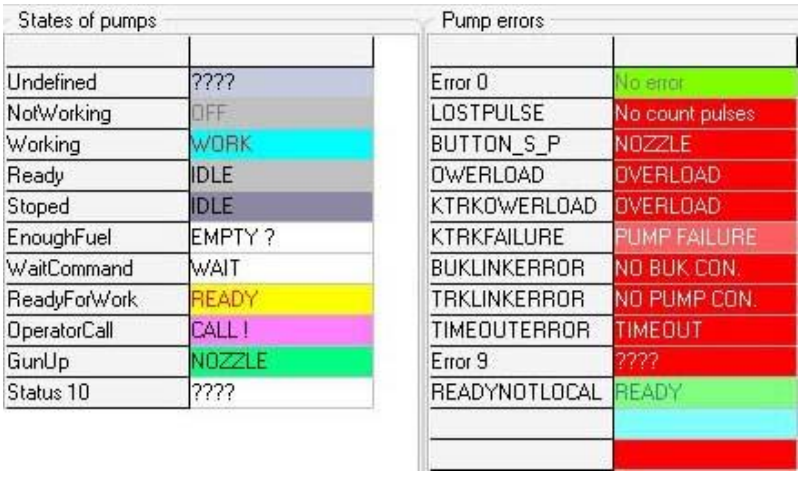
Configuration of pump window is made in a right-mouse click menu:

- setting pump window indents (borders) width and color
- selecting of colors of interface for every dispenser state
- setting scale of pump window
- setting blinking
- possibility to show hints and other visual effects
- setting quantity of decimal digits in a volume dose and cost
- saving of pump window attributes and position
- aligning cells
- showing keyboard



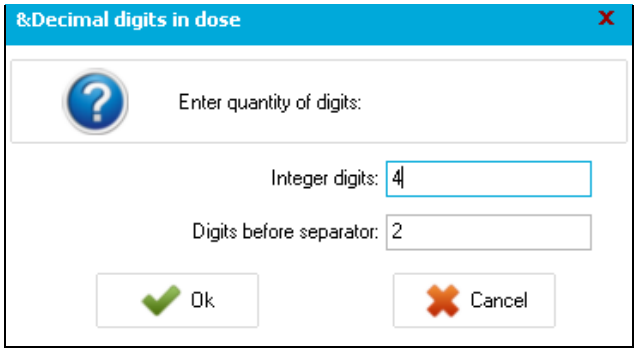
Configuration of pump window properties

Configuration of foreground and background colors of states and errors displayed on pump window is set in NaftaPOS configuration on tab '*Configuration*' → '*States / Errors*' (see section 'Configuration tab "*States/Errors*"' above):

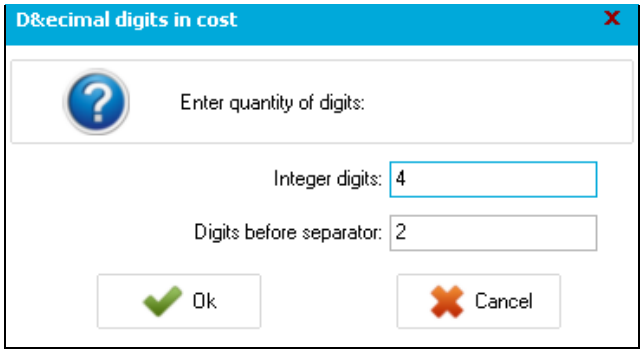


Configuration of pump window colors

By defaults pumps windows display 2 digits after decimal separator in volume and money amount. It is possible to set other values in a right-mouse click menu items "*Decimal digits in cost*" and "*Decimal digits in dose*".



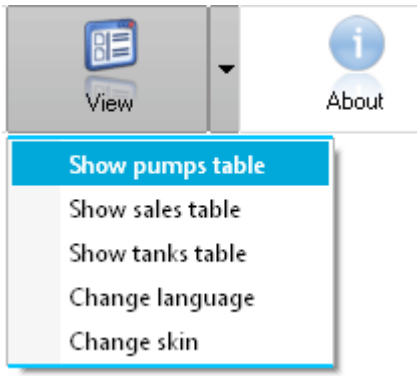
Setting quantity of digits in volume field in pump window



Setting quantity of digits in money amount field in pump window

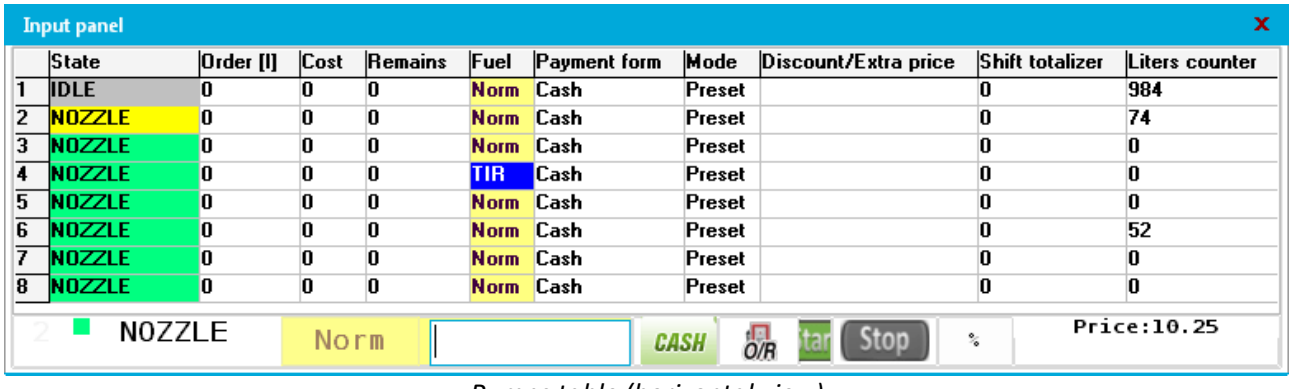
Instead of pump windows also a table representation of all pumps can be used. In this case all pumps are displayed in a single table, which contains same information regarding every pump as pump windows.

To display table of pumps it is necessary to enable it from main menu tab '*View*' → '*Show pumps table*' or to set its presence on the main panel of NaftaPOS on tab 'View' in NaftaPOS configuration:



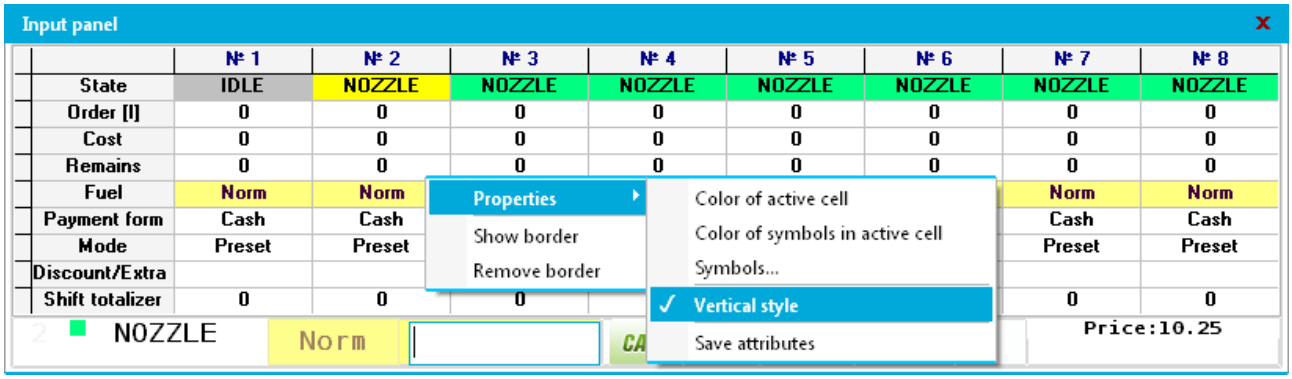
Option to display pumps table

Appearance of the pumps table is the following:

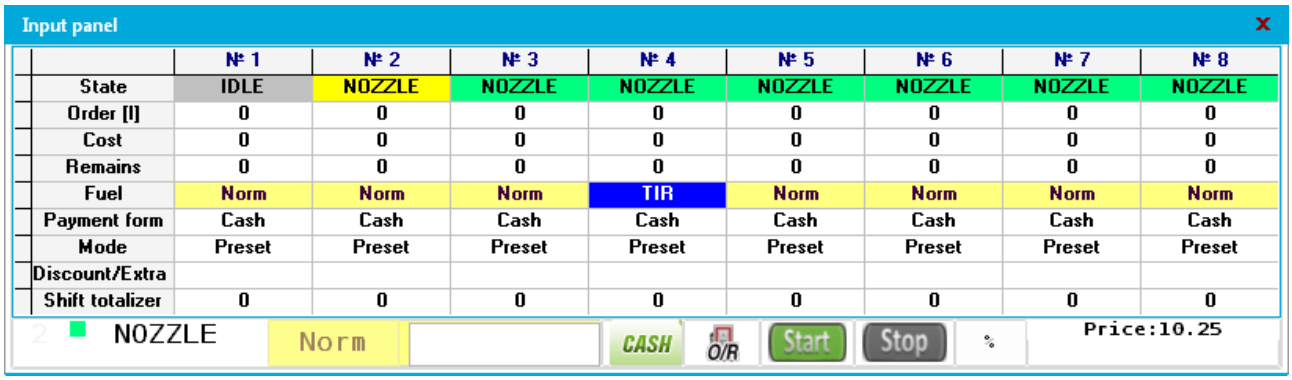


Pumps table (horizontal view)

Similar to pump windows this pumps table also has a number of visual effects, which are adjusted in a menu, called by right-button mouse click:



Fuel dispensers table menu



Pumps table (vertical view)

It is possible to set fixed position for the pumps table on NaftaPOS main panel, set its colors, style of view (vertical / horizontal), select fonts family and size.

In order to save a position of the pumps table and its configurations for all following runnings of NaftaPOS user should select '*Properties*' → '*Save attributes*'.

In order to have the pumps table to be displayed every time NaftaPOS launches – it is necessary to select it on tab '*View*' in NaftaPOS configuration.

Operations with the fuel dispensers are generally made using a keyboard and a mouse (or fingers on a POS terminal with a touch screen), but actually all these operations can be performed using the main menu options of the tab '*Management*'.

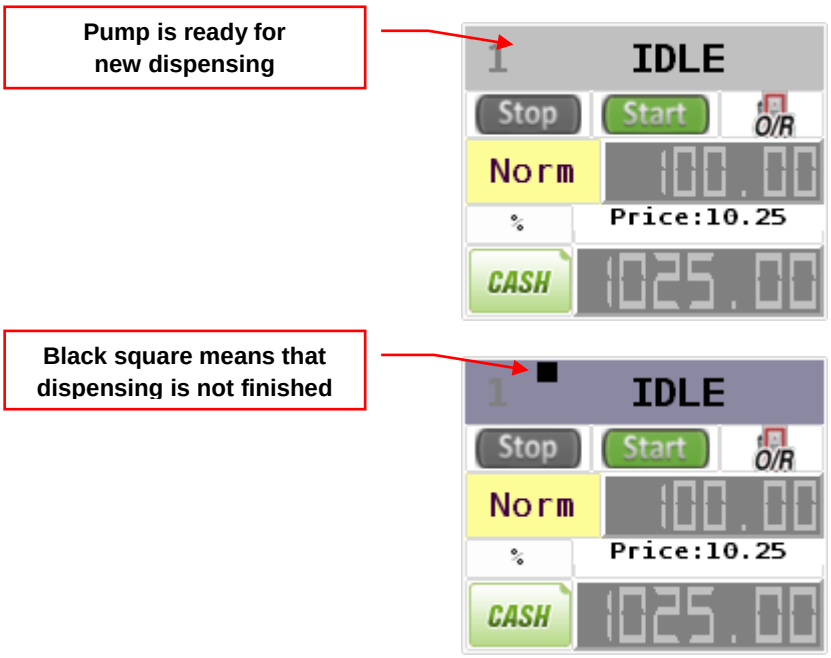
States of pumps

Pumps in NaftaPOS software have several states depending on operations performed:

- "***IDLE***" – state when dispenser is connected to the system, all nozzles are hung down and there is no dispensing process going.

  State "***IDLE***" can be of two types:

  - Intermediary (panel of pump state has background of dark grey color) – at not finished till the end dispensing. Next start of dispensing will continue previous dispensing, receipt is not printed at continuing of previous dispensing).
  - Complete (panel of pump's state has background of light grey color) – next start of dispensing will call a new fuel dispensing and formation of a new cash receipt.



IDLE state of pump

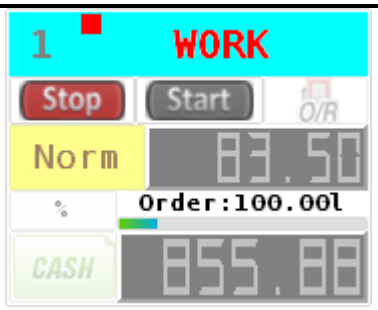
– "***NOZZLE***"- state when dispensing nozzle is hanged up on a dispenser but no dispensing is being made and NaftaPOS has not authorized the dispenser yet

NOZZLE state of pump

– "***READY***" – state when a pump has been authorized by NaftaPOS system, but the dispensing has not started yet. Pump window will show this state until a nozzle is taken up and the nozzle's trigger is pressed (pump will transfer to state "*WORK*") or until authorization is cancelled (button Stop is pressed in pump window).

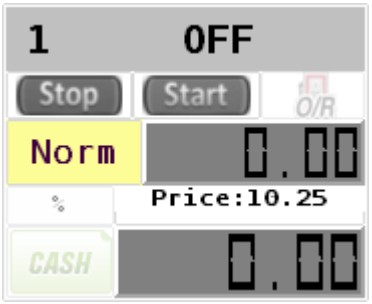
READY state of pump

– "***WORK***" – state when dispensing of fuel by dispenser is being performed and we see fuel dispensing process (currently dispensed fuel volume and amount)



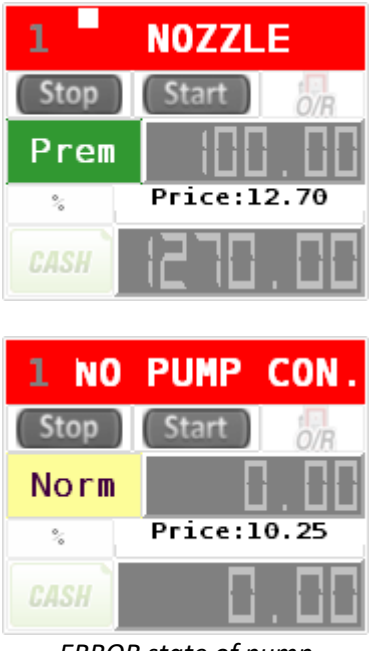
WORK state of pump

– "***OFF***" – state when a pump window is configured to the dispenser, which is not polled by the controller



OFF state of pump

– **Emergency (error) states** – states of pump, which controller recognizes as emergency. At this controller stops dispensing of fuel by pump
  – "***Link error***" – state when connection between pump controller and pump was interrupted due to failure of pump controller or pump serial lines
  – "***Overfilling***" – state when pump controller turned off fuel dispensing, but signals from a pulse sensor continue to come, which says about continuation of dispensing. This state is possible at failures of electromagnetic valves, which control switching off the pumps
  – "***No pulses***" – counting impulses are absent from the dispenser. State when controller at fuel dispensing did not register counting impulses from pulse sensor
  – "***NO PUMP CON.***" – the pump does not response to commands sent from the controller
  – "***NOZZLE***" – after NaftaPOS software authorized a pumps nozzle in IDLE state and it transferred to READY state a wrong nozzle is taken up on the pump
  – others

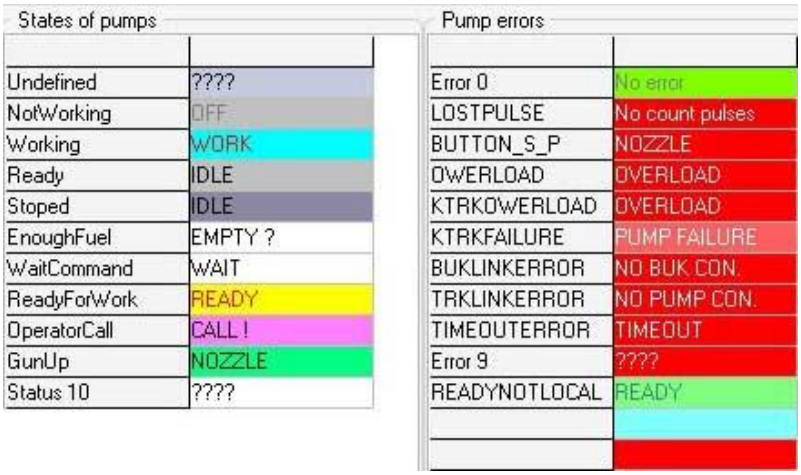


ERROR state of pump

– "***????***" – undefined state when controller is not connected to the system (for example specified COM-port for controller does not exist in system)

Undefined state of pump

Configuration of pump states, displayed colors of states and possible errors is made in NaftaPOS configuration on tab '*States / Errors*':



Configuration of pump window colors

Modes of control over fuel dispensing

Selection of the mode of control over fuel dispensers is made in pump windows or pumps tables using a switch as shown on image below:

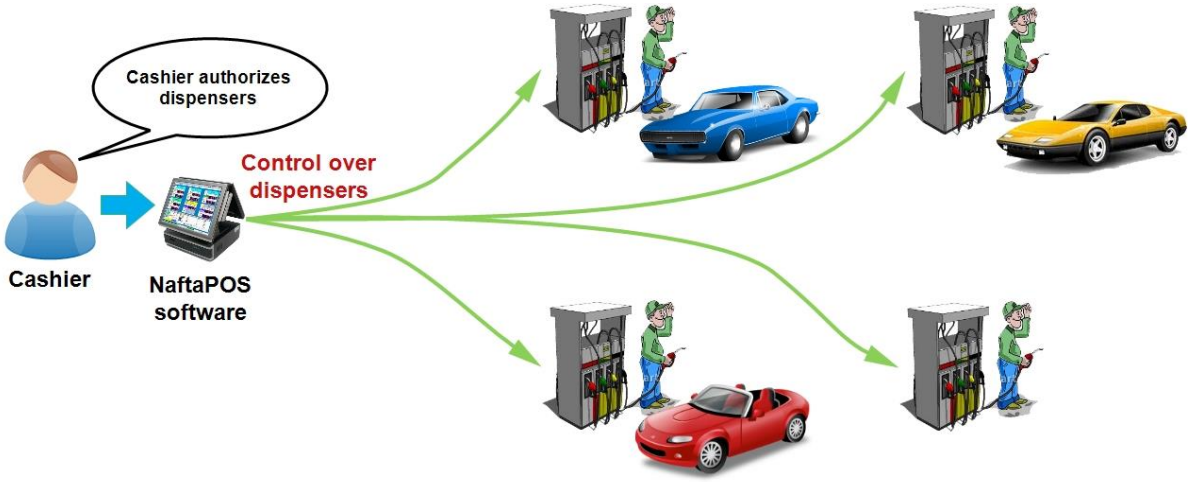
Selection of a mode of control over fuel dispenser

NaftaPOS system supports three modes of control over fuel dispensing:

1. **Preset mode (contracted O/R)**

   Preset mode of control is used when preset order of fuel to be dispensed (in volume or currency units) is given to pump from NaftaPOS software. Order value is entered in pump window and button "*Start*" is clicked.

   This mode is used at petrol stations in situations when control over every fuel dispenser is to be made from one place by cashier on known volume or money amount and money is received in advance before the dispensing was made.



Preset mode of control over fuel dispensers

2. **Full tank mode (contracted FT)**

   Full tank mode of control is used when it is not known in advance how much fuel should be dispensed (capacity of car tank is not known). NaftaPOS does not know in advance fuel volume to be dispensed and authorizes a dispenser with maximum allowed fuel volume (configured in NaftaPOS configuration on tab '*Order*', field '*Max. order*'). Command on start of dispensing is made by the cashier by clicking on button 'Start', which is similar to preset mode.
   This mode is used at petrol stations in situations when control over every fuel dispenser is to be made from one place by cashier.

3. **Manual (monitoring) mode (contracted S/S)**

   Manual mode of control is used in case when fuel dispensers should be working as if in standalone mode (dispensing starts automatically when the dispensing nozzle is lifted and trigger is pressed). At his NaftaPOS software is monitoring all the transactions being performed and writes all the data to its database. Also cashier at any time can see activity of every fuel dispenser and in case of necessity can stop any of the dispensers and receive reports on operation remotely from NaftaPOS software. Receipts can be optionally printed after each dispensing.

   Also in this mode third-party applications are able to use NaftaPOS software database as a storage of all transactions and sales performed (locally or remotely) – then this third party software can find total data on all sales and transactions from NaftaPOS database (structure of NaftaPOS

database is described in section "*NaftaPOS system database structure*" below).. NaftaPOS can be set to work without any working shifts and automatically start at launching PC so that it was possible to start operation with dispensers.

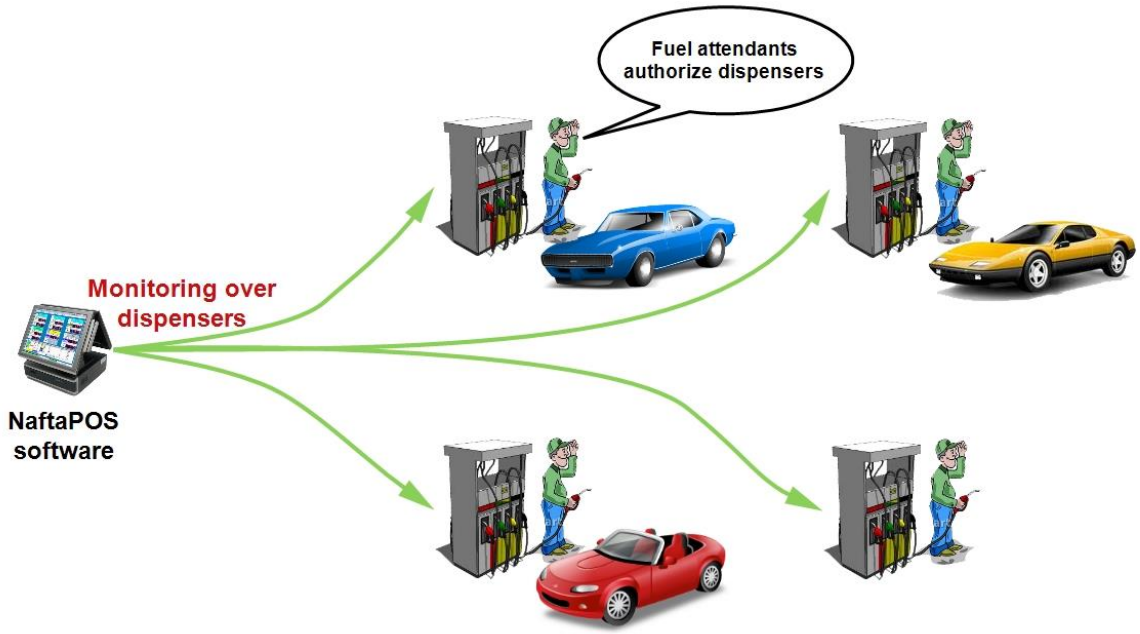
Also in this mode it is possible to make fuel order preset (in volume or in money amount) from the dispenser preset keyboard.

At taking up a nozzle on the pump NaftaPOS software authorizes this pump with some big volume (volume value is configured in NaftaPOS configuration on tab '*Order*'). At taking up a nozzle the pump will start dispensing of fuel automatically. Dispensing of fuel will last until:

- Nozzle trigger is unpressed and nozzle is taken down
- Preset order set on dispenser preset keyboard is reached
- Volume, with which NaftaPOS authorized a dispenser is reached

This mode is used at petrol stations in situations when control over every fuel dispenser is to be made near the fuel dispensers by fuel attendants, who also collect the payment from customers.

Also this mode is used at petrol stations in situations when NaftaPOS should work in a mode of monitoring over fuel dispensers: fuel dispensers work as if in manual mode, but at this NaftaPOS monitors every transaction and records it to database and cashier at any time can see activity of every dispenser, stop any of the dispensers and receive reports on operation.

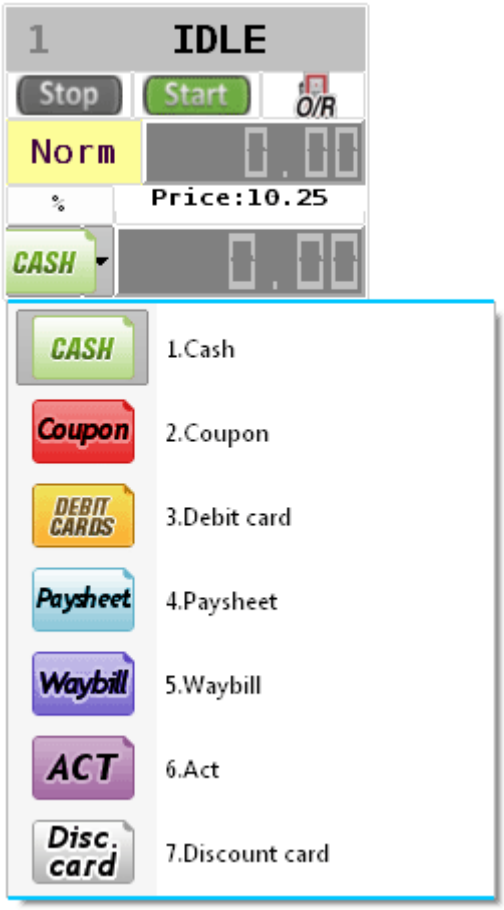


Manual (monitoring) mode of control over fuel dispensers

Configuration of modes of control over fuel dispensers is made in NaftaPOS configuration on tab '*Pump modes*'.

Selection of payment form

Sales of fuel support various payment forms. Payment form is set using a payment form switch. Pictures of various payment forms are shown on image below.



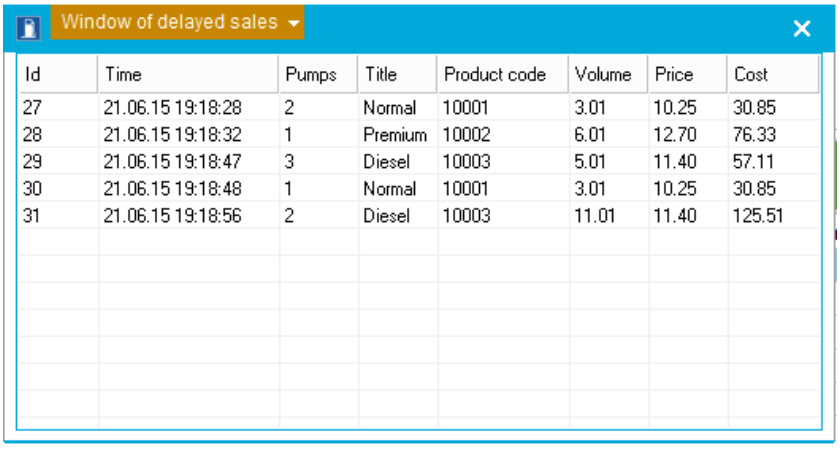
Selection of a payment form

Configuration of payment forms is made in NaftaPOS configuration on tab '*Payment forms*'. Names of payment forms can be edited. Payment form with ID equal to 32 (*Act* by defaults) serves for technological dispensing of fuel for reasons of dispenser calibration (assumed that fuel is returned to tank after being dispensed).

Delayed sales of fuel

By defaults NaftaPOS software closes a sale and prints a receipt at once after fuel dispensing process is finished on the fuel dispenser. For a reason to support a way of operation when fuel sale is done together with products in the same receipt (sale is closed not at once after dispensing is finished) and thus to enable fuel dispensing to be added to a same receipt together with products from a shop and also make it possible to add several fuel dispensings to the same receipt a window of delayed sales is to be used.

Switching of option whether to use or not to use delayed dispensing is made in NaftaPOS configuration on tab '*Order*' by checking a checkbox "*Delayed payment*" for the required payment forms. If this checkbox is set – then at once after a fuel dispensing is done using the selected payment forms information about the dispensing will be automatically added to the window of delayed sales. In order to have the window of delayed sales to be displayed every time NaftaPOS launches – it is necessary to select it on tab '*View*' in NaftaPOS configuration.

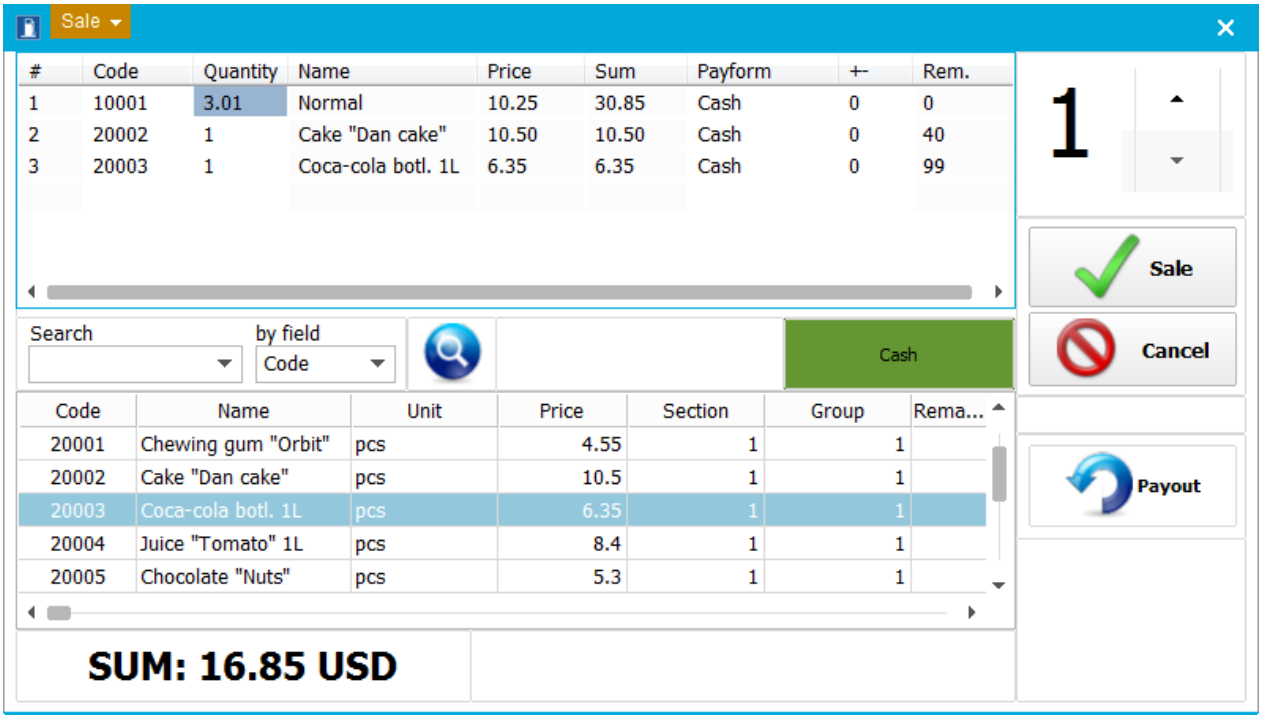


Id	Time	Pumps	Title	Product code	Volume	Price	Cost
27	21.06.15 19:18:28	2	Normal	10001	3.01	10.25	30.85
28	21.06.15 19:18:32	1	Premium	10002	6.01	12.70	76.33
29	21.06.15 19:18:47	3	Diesel	10003	5.01	11.40	57.11
30	21.06.15 19:18:48	1	Normal	10001	3.01	10.25	30.85
31	21.06.15 19:18:56	2	Diesel	10003	11.01	11.40	125.51

Window of delayed sales

Window of delayed sales displays dispensing of fuel per pumps in an order sequence.

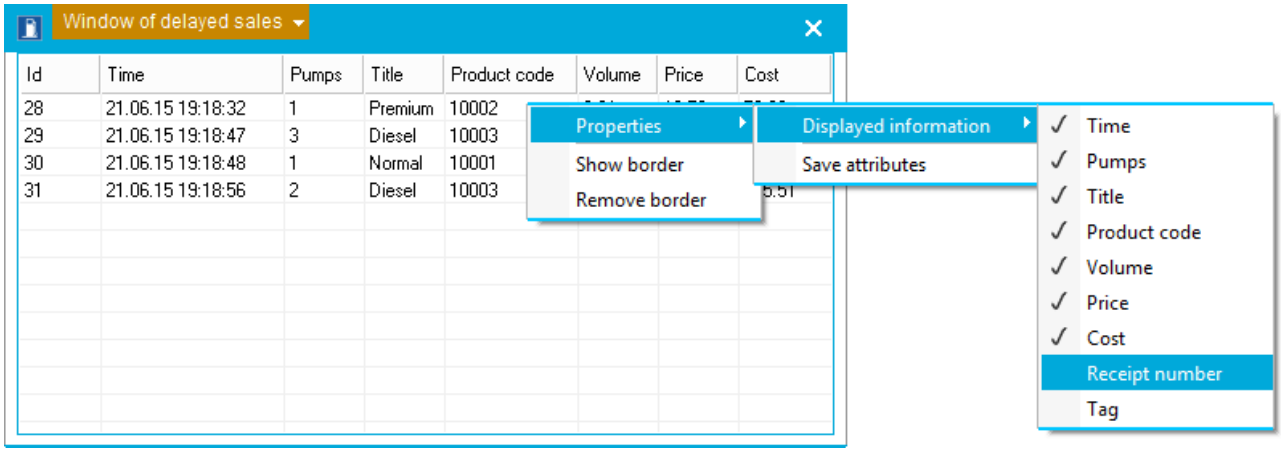
At once after clicking on any entry in the window of delayed sales – this fuel dispensing will be added to a window of products sales as a separate product, where it is possible to add also other products from petrol station shop:



Window of products sales together with entries from window of delayed sales

Entries will be removed from window of delayed sales only when the receipt is closed in window of products sales.

In window of delayed sales it is possible to display various information regarding each dispensing (e.g. fuel name, fuel price, dispensing cost, dispensed volume, receipt number, etc):

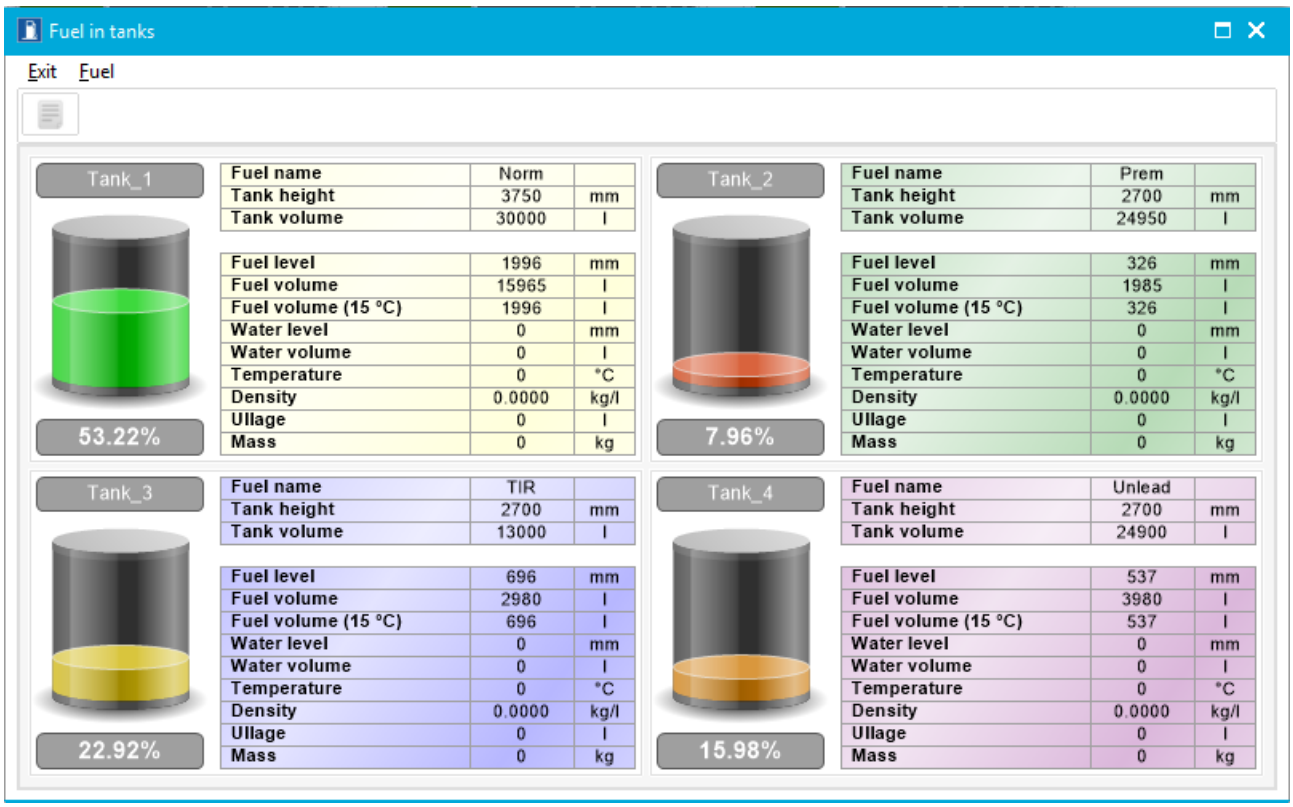


Window of delayed sales properties

In order to save a position of the window of delayed sales and its configurations for all following runnings of NaftaPOS user should select '*Save attributes*'.

Control over fuel remains in tanks

Information on current amount of fuel contained in tanks and its parameters can be received from a window "*Fuel in tanks*", which is called from a main menu '*Fuel*' → '*Fuel in tanks*' and contains graphical picture of the tanks:



Fuel in tanks

Every window of tank contains information about:

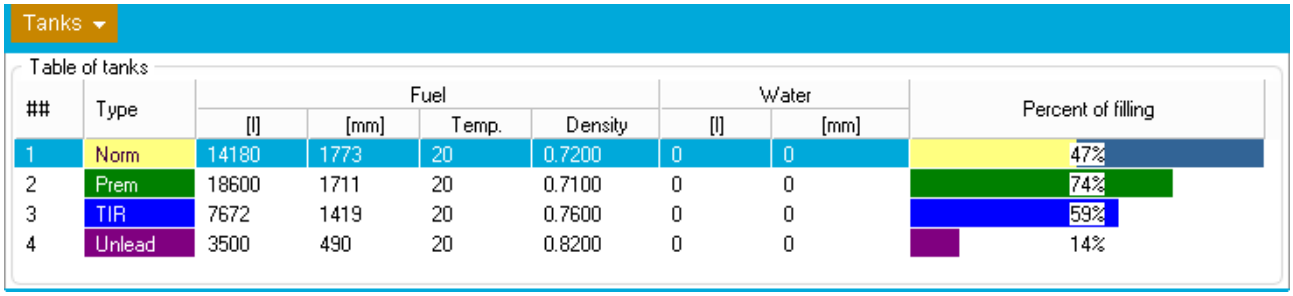
- type of fuel in tank
- height of tank
- full volume of tank
- volume of fuel in tank
- temperature compensated volume of fuel in tank (to 15 degrees Celcius)
- height of fuel in tank
- volume of underproduct water in tank
- height of underproduct water in tank
- temperature of fuel in tank
- density of fuel in tank

If there is a fuel level meter system (ATG system) installed in tanks at petrol station and connected to NaftaPOS – all values on measurements are taken from it. In case of absence of such automatic system – current remains of fuel in tanks are automatically calculated by NaftaPOS in accordance with account documents on received volumes of fuel to tanks and volumes of dispensed fuel through fuel dispensers.

Configuration of tanks and their calibration charts is made in NaftaPOS configuration on tab '*Tanks*'.

At connection of the ATG system a flag "*Level meter presence in system*" on tab '*General*' in NaftaPOS configuration should be checked and corresponding driver of the ATG system should be chosen on tab '*Drivers*' → '*Tanks*'.

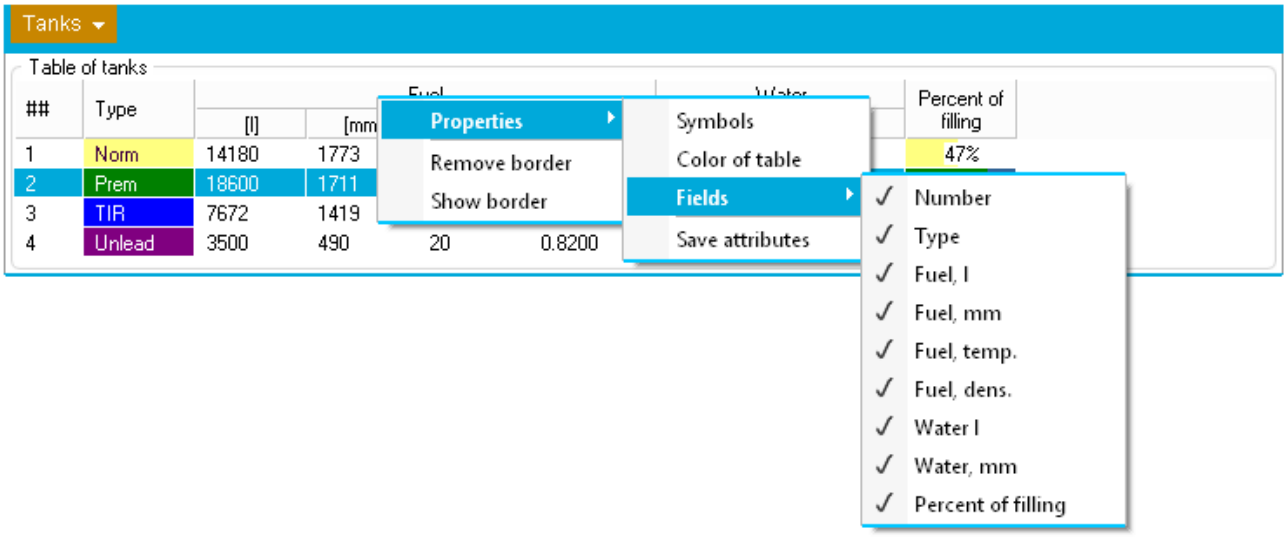
For convenience of operation a table, displaying tanks, can be fixed on the main panel of NaftaPOS. Tanks table has the following view:



##	Type	Fuel [l]	Fuel [mm]	Fuel Temp.	Fuel Density	Water [l]	Water [mm]	Percent of filling
1	Norm	14180	1773	20	0.7200	0	0	47%
2	Prem	18600	1711	20	0.7100	0	0	74%
3	TIR	7672	1419	20	0.7600	0	0	59%
4	Unlead	3500	490	20	0.8200	0	0	14%

Tanks table

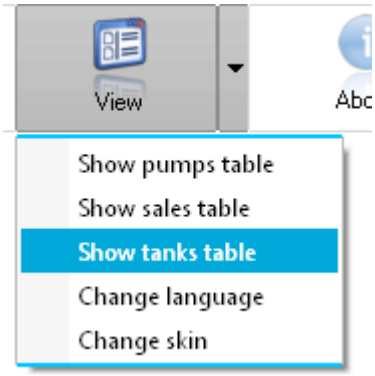
Tanks table as well as "*Fuel in tanks*" window contains information about each tank and its filling with fuel and water. Set of columns, position and dimension of the table columns can be changed using a right-button mouse menu:



Tanks table properties

Tanks table can be moved (dragged) across a main panel. To save a position of the window of products sales and its configurations for all following runnings of NaftaPOS user should select '*Properties*' → '*Save attributes*' in right-button menu.

To display the tanks table it is necessary to enable it from main menu tab '*View*' → '*Show tanks table*':



Option to display tanks table

In order to have the tanks table be displayed every time NaftaPOS launches – it is necessary to select it on tab '*View*' in NaftaPOS configuration.

Adjustment of fuel levels in tanks (input level measurements)

For cases of absence of an ATG system which automatically measures fuel level in tanks NaftaPOS system supports automatic calculation of fuel remains in tanks in accordance with volumes of received fuel volumes in tanks and volumes of dispensed fuel through fuel dispensers. Due to a reason that such account of manual leading of fuel remains is not precise and due to possible nonconformity between calibration charts of tanks (that are input in NaftaPOS) to real calibration charts calculated fuel remain values in tanks can differ from actual fuel remain values in tanks. At this periodical measurements of fuel level is tanks are required. In this case cashier of the petrol station should perform measurement of physical level of fuel in tanks using a meter-stock (meter bar) and input measurements of level in NaftaPOS. It is recommended to enter values of real remains of fuel in tanks each time before closing a daily working shift. Necessity of inputting measured levels before closing a daily working shift is called to make fuel levels on beginning of the next working shift be equal to actual.

Input of measured levels is made from a "*Fuel in tanks*" window from main menu '*Fuel*' → '*Level measurements input*':

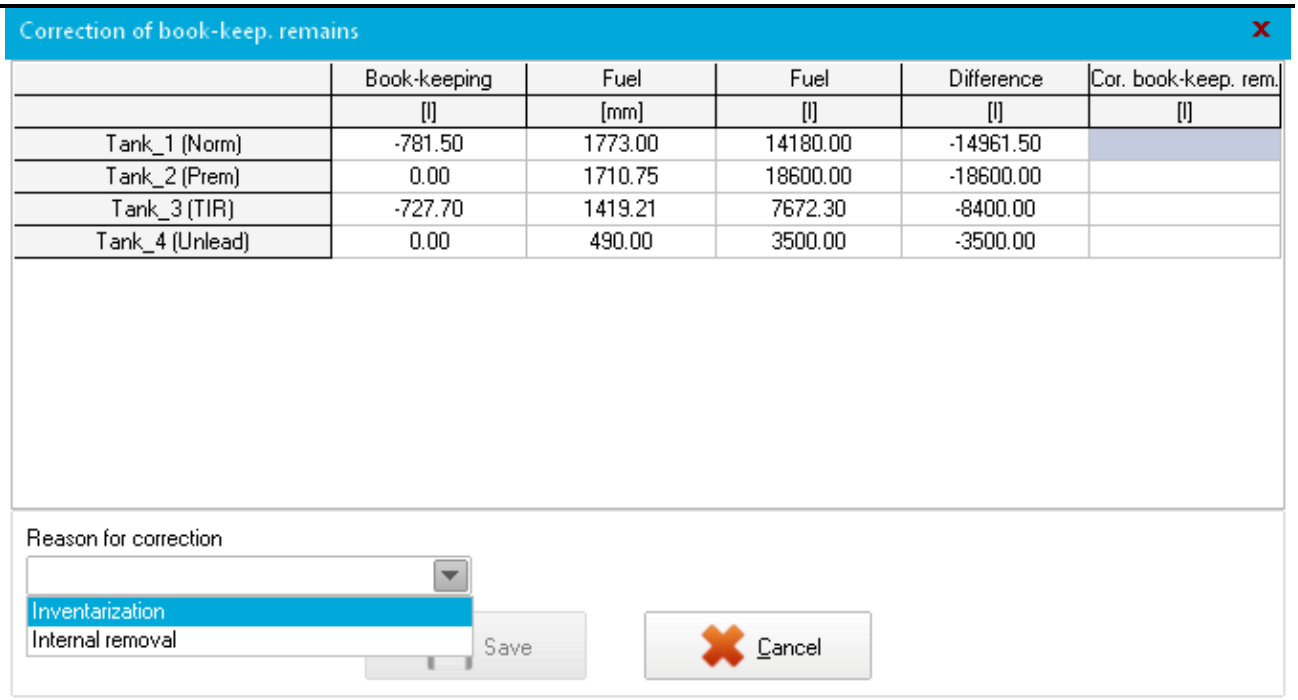
Level measurements input

Together with factual remains of fuel in tanks NaftaPOS system leads book-keeping account of fuel in tanks to measure difference between actual fuel remains in tanks and remains of fuel in tanks in accordance with book-keepings documents (waybills on reception of fuel in tanks).

Book-keeping account serves for indication of inventory reconciliation of fuel.

In case of book-keeping remains differ from factual remains – in the end of the working shift a window for correction of book-keeping accounts will be shown, where it is necessary to indicate a reason of correction (to make book-keeping accounts be equal to actual).

It is possible to enter book-keeping account to the system at opened working shift at a checkbox "*Permission to set book-keeping remains at opened shift*" checked in NaftaPOS configuration on tab '*General*' for a user having permission "*Book-keeping remains input*".



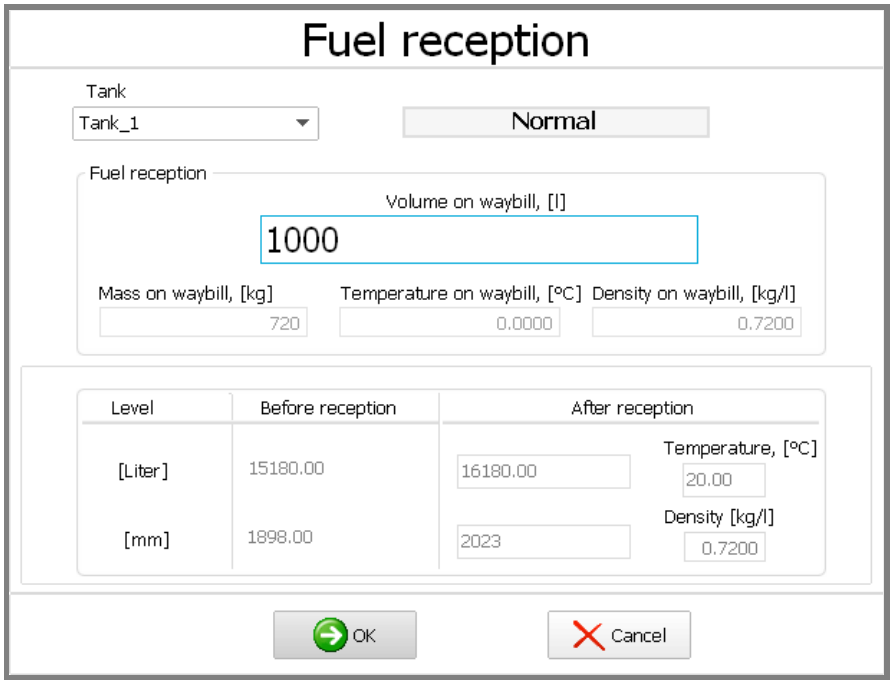
Window of correction of book-keeping remains

Registration of fuel reception at petrol station

There are two possible ways of registration of fuel reception in the system:

1. **Single-step (without entering data on fuel parameters)**

   Window "*Reception of fuel*" is called from a main menu '*Fuel*' → '*Reception of fuel*' and has an input for entering amount of received fuel in the specified tank:

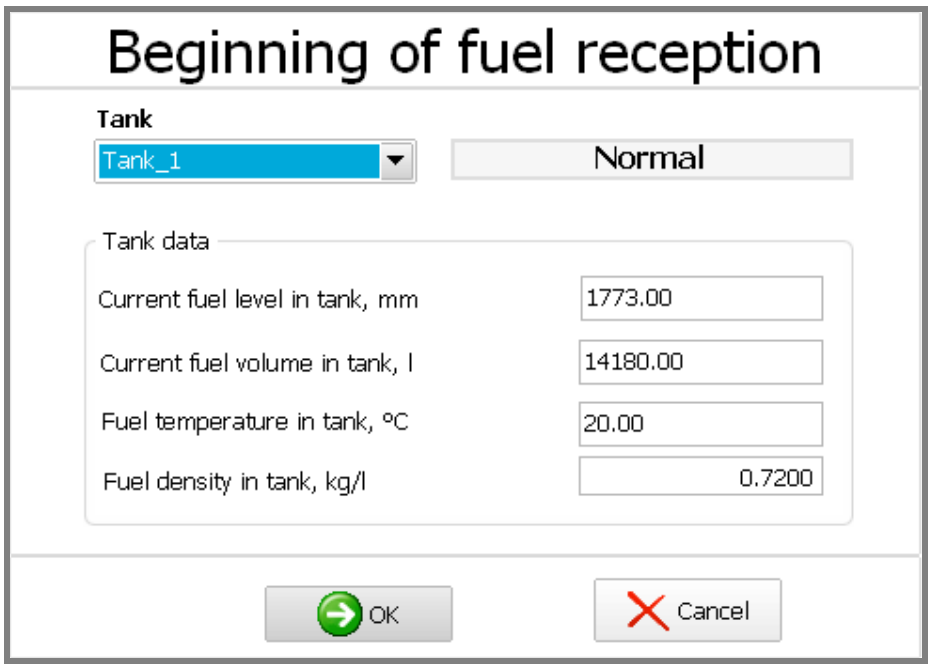


Reception of fuel

2. **Two-steps (with entering of data on parameters of received fuel)**

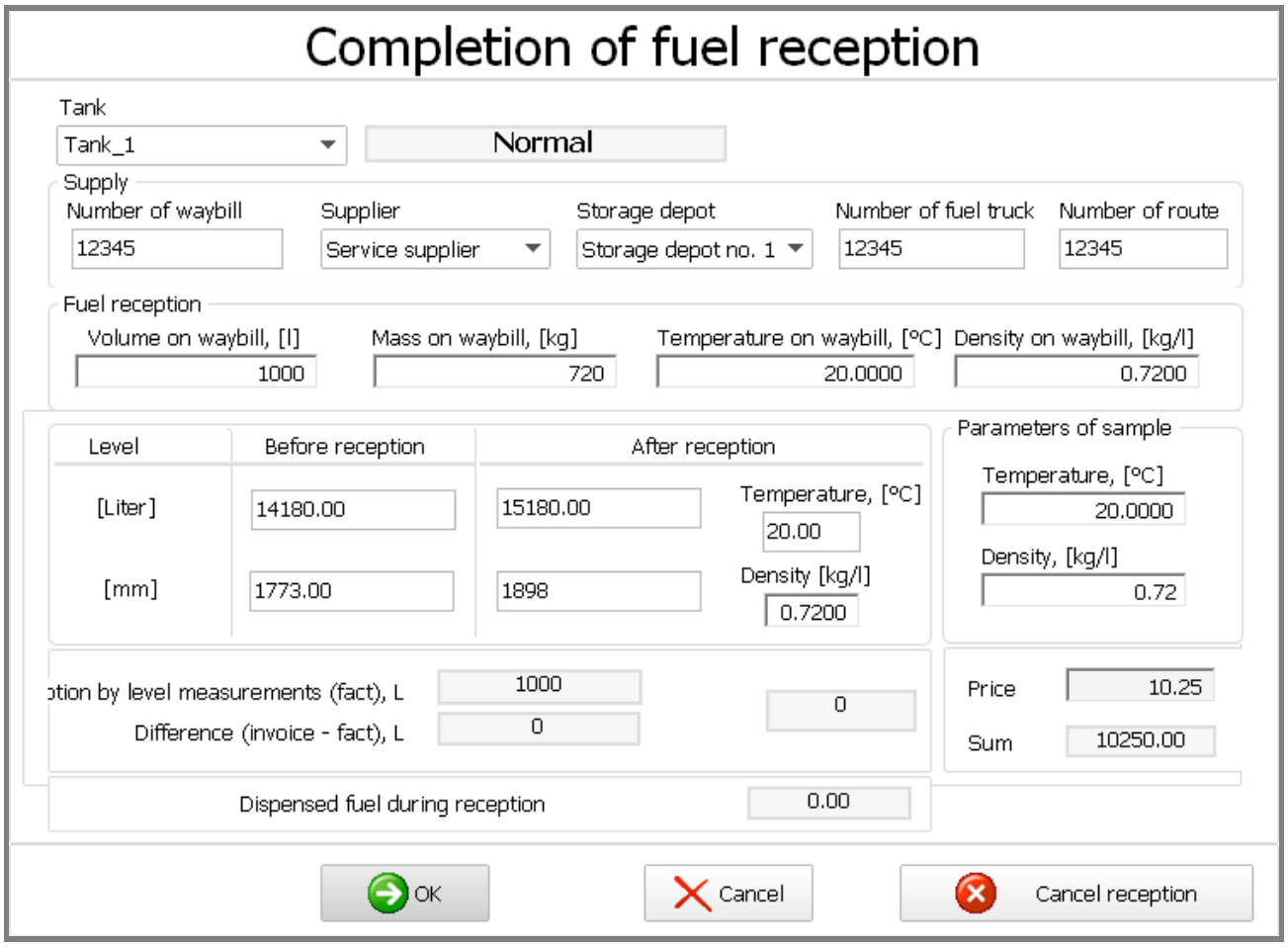
   Reception of fuel is made in 2 steps: start of reception and end of reception.

   In order to start reception open a window "*Reception of fuel*", which is called from a main menu ('*Fuel*' → '*Beginning of fuel reception*'), where it is necessary to select a required tank and make sure that tank's data correspond to actual (edit if necessary):



Beginning of fuel reception

Second, after actual fuel reception is done and fuel truck has dispensed all its fuel in tank – open a window "*Completion of fuel reception*", which can be called from a main menu (in tab '*Fuel*' → '*Completion of fuel reception*'):



Completion of fuel reception

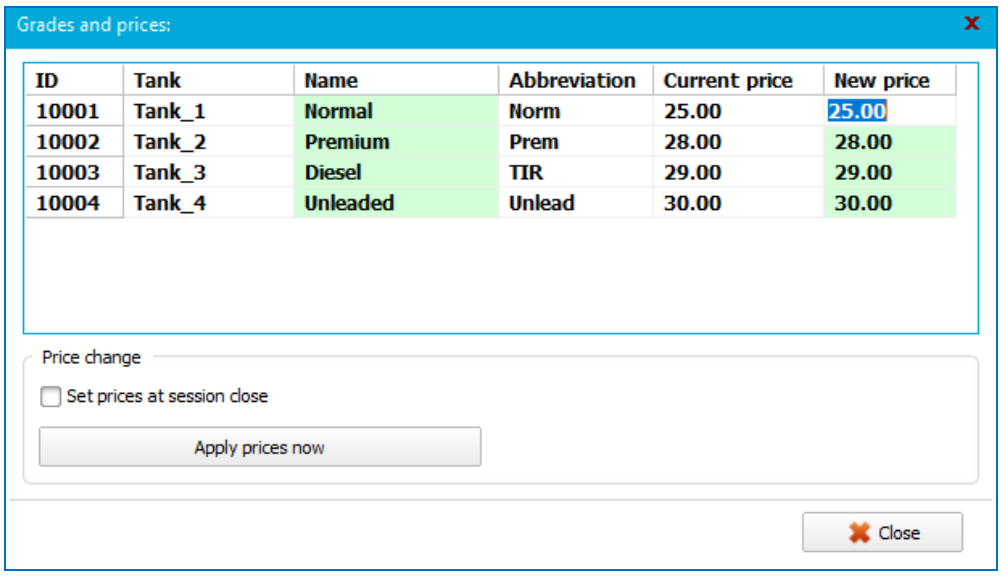
In window "*Completion of fuel reception*" it is necessary to input invoice number, select a supplier, storage depot, input number of fuel truck, and number of a route. After this it is necessary to input volume of received fuel (in liters), mass (kg), temperature (°C) and density (kg/l) according to a waybill.

After inputting it is necessary to make sure that all data is inputted correctly and only after this to click a button "*OK*" in a window. If NaftaPOS system is working together with a fiscal module – current data will be saved in fiscal module and a receipt on reception of fuel will be printed.

Note that registration of fuel is possible only in opened shift and only by users, that are allowed to make it (have permission set in NaftaPOS configuration). It is not allowed to state a volume of received fuel equal to zero.

Changing of fuel grades and prices

Changing of fuel grades and fuel prices is made in a dialog "*Grades and prices*", which is called from a main menu ('*Fuel*' → '*Grades and prices*'):



Fuel grades and prices

Given dialog contains a table where each row corresponds to a separate tank and columns mean:

- Tank name (used for indication in NaftaPOS)
- Full name of fuel (used in reports, printed in receipts)
- Contracted name of fuel (used for indication in NaftaPOS)
- Fuel price per liter

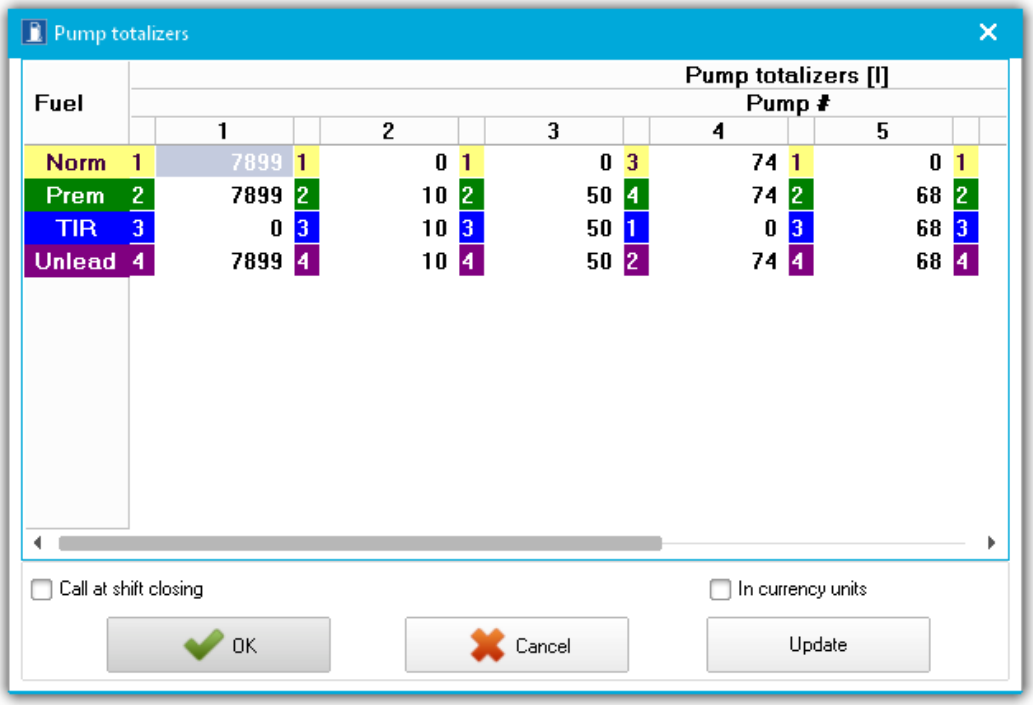
Given dialog allows to set new prices for tanks immediately or on specific time.

Editing of a table can be made at opened working shift if checkbox "*Permission to set prices at opened shift*" are checked in NaftaPOS configuration and only by users that have permission "Changing of prices". It is not allowed to state a price of fuel equal to zero.

Configuration of tanks is made in NaftaPOS configuration on tab '*Tanks*'.

Reading fuel dispensers total counters and setting increments

Reading of fuel dispensers total counters is made in a dialog "*Pump totalizers*", which is called from a main menu ('*Pumps*' → '*Totalizers*'):



Pumps totalizers (volume)

Given window indicates values of total counters for each nozzle of every controlled fuel dispenser.

Reading of fuel dispensers electronic total counters is possible only at allowing it in driver of the fuel dispenser controller (checkbox "*Use pumps electronic totalizers*" should be checked).

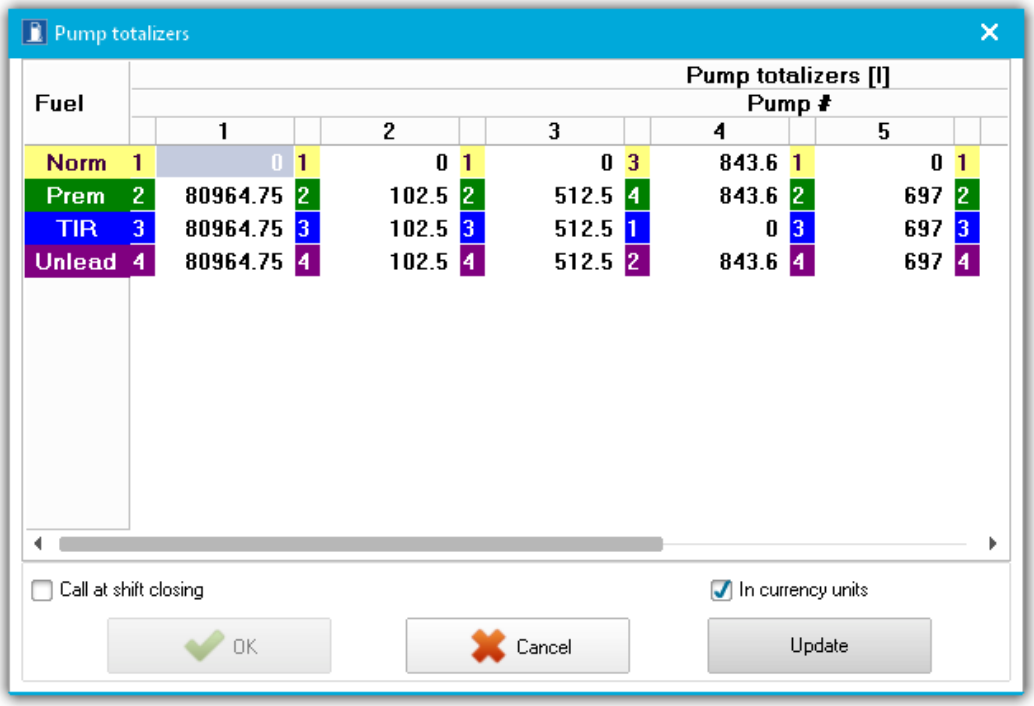
In case if the dispenser has mechanical totalizer on some constant value bigger (lesser) than value, given out by NaftaPOS – it is possible to add this delta to NaftaPOS indications in order to have the mechanical counter on the dispenser match total counter value in NaftaPOS, For this it is necessary to input in "*Pump totalizers*" window a value, displayed on the mechanical counter in a field of corresponding nozzle.

Editing of the total counters window is possible only by users that have permission "*Setting of pump totalizers*".

When checkbox "*Use pumps electronic totalizers*" is checked in configuration of the controller then after each transaction totalizers are read from the dispenser and the window 'Pump totalizers' indicates the latest values. Also it is possible to reread the totalizers from dispensers by clicking on a button 'Update'.

Reading pumps totalizers

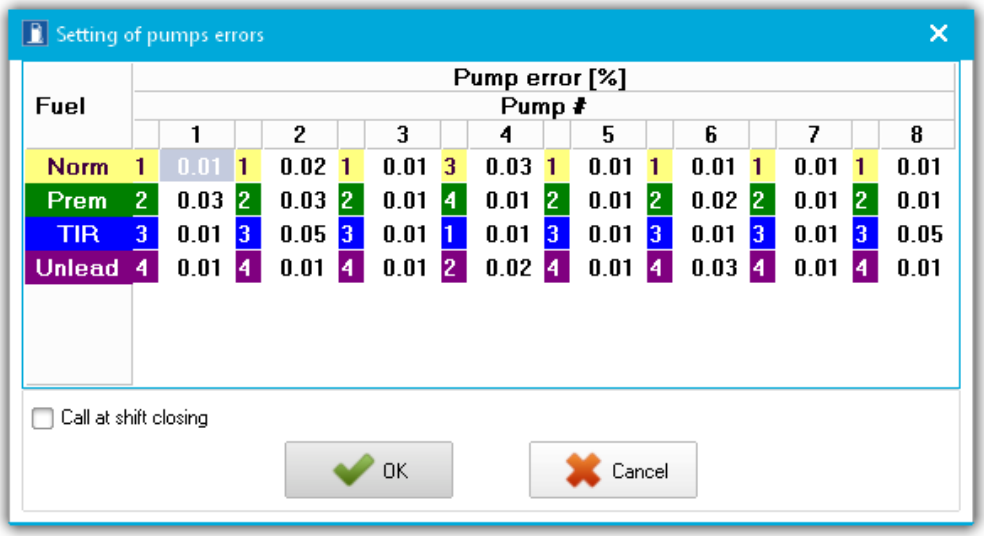
Checkbox 'In currency units' is used for displaying of money amount total counter.



Pumps totalizers (currentcy units)

Setting of pump relative errors

Setting of pumps relative errors is made in a dialog "*Setting of pumps errors*", which is called from a main menu ('Pumps' → '*Setting of pumps errors*):



Setting of pumps errors

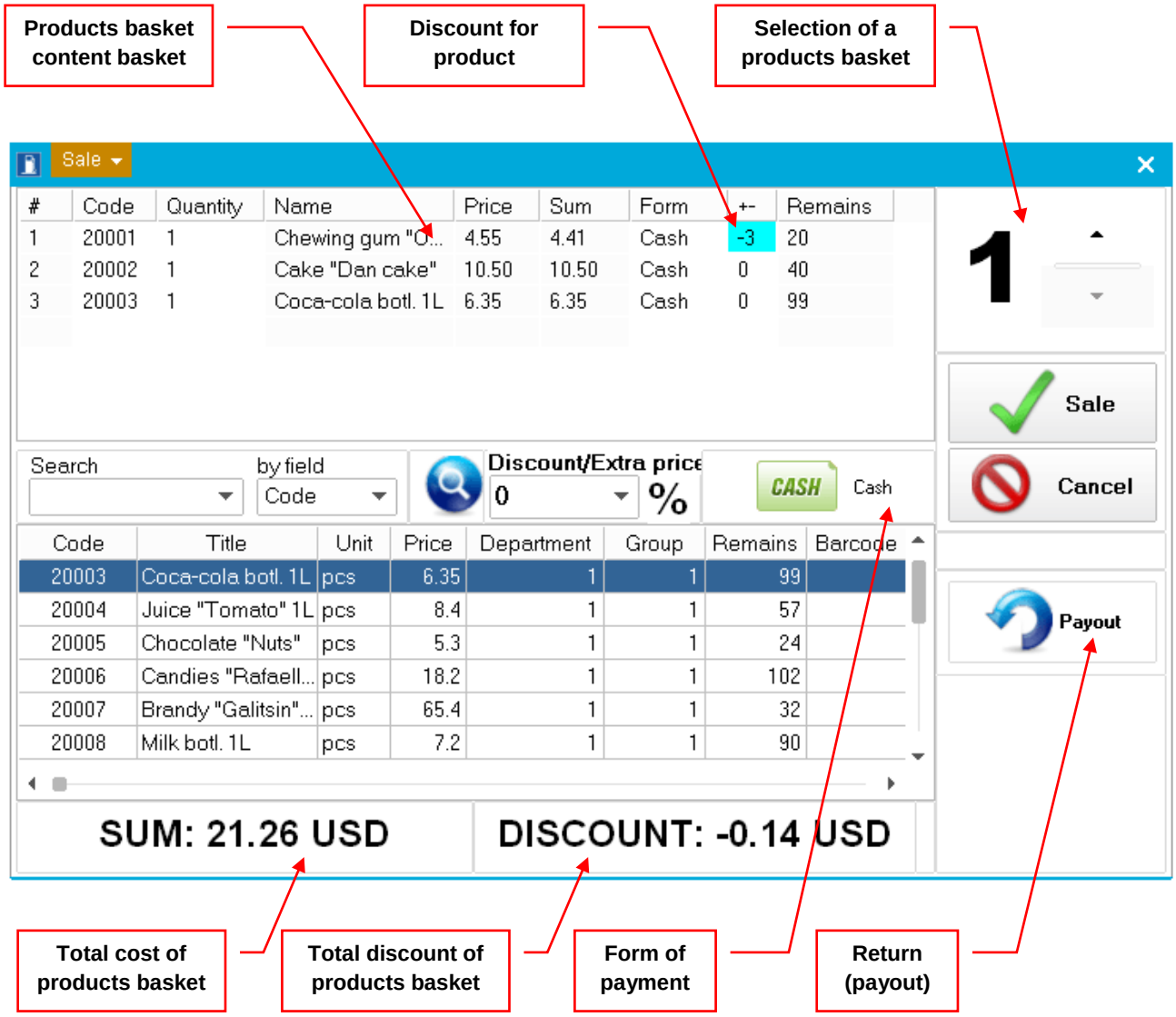
Given window indicates values of relative errors for each nozzle of every controlled pump.

Given information is used in formed reports by NaftaPOS in order to define possible deviation off dispensed total volumes by dispensers from accounted.

Operations on sales of products in shop

Window of product sales

Sales of products is made using a window for sales of products "*Sale*", which is shown on main panel of NaftaPOS.



Window for products sales

Window for sales of products may contain various sets of fields, which are selected in its right-button menu:

- products search panel
- discount / extra price panel
- virtual keyboard

Purpose of the sales window is to fill products baskets of sales and provide their sale. There could be up to 5 product baskets, which work independently.

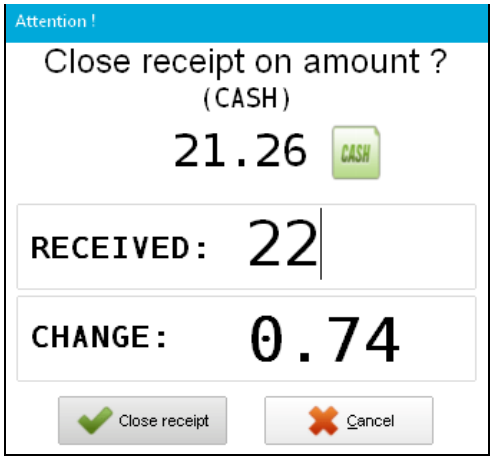
Selection of products can be made:

- from the table of all products (double click on the list of existing products)
- manually by inputting the product code in field "*Code*"
- automatically by reading the products barcode using barcodes scanner (at this barcode scanner's driver should be configured in configuration on NaftaPOS software on tab '*Drivers*')

After entering of product's code it is necessary to fill in a quantity of product's items. After this total sum will be automatically calculated. Repeat above steps for all products for sales in required quantities.

Select payment form for specified products. For confirmation of sales press a button "*Sale*". For declining of sales press a button "*Cancel*" - all entered products will be deleted. For payout press a button "*Payout*" to return back from a customer selected products in specified quantities.

At pressing a "*Sale*" button NaftaPOS system will open a window to confirm a sale and for cashier to calculate change for a sale correctly. It contains a sum that a customer should pay, field to fill in how much money was actually given by a customer and automatically calculated change that an cashier should return to the customer:

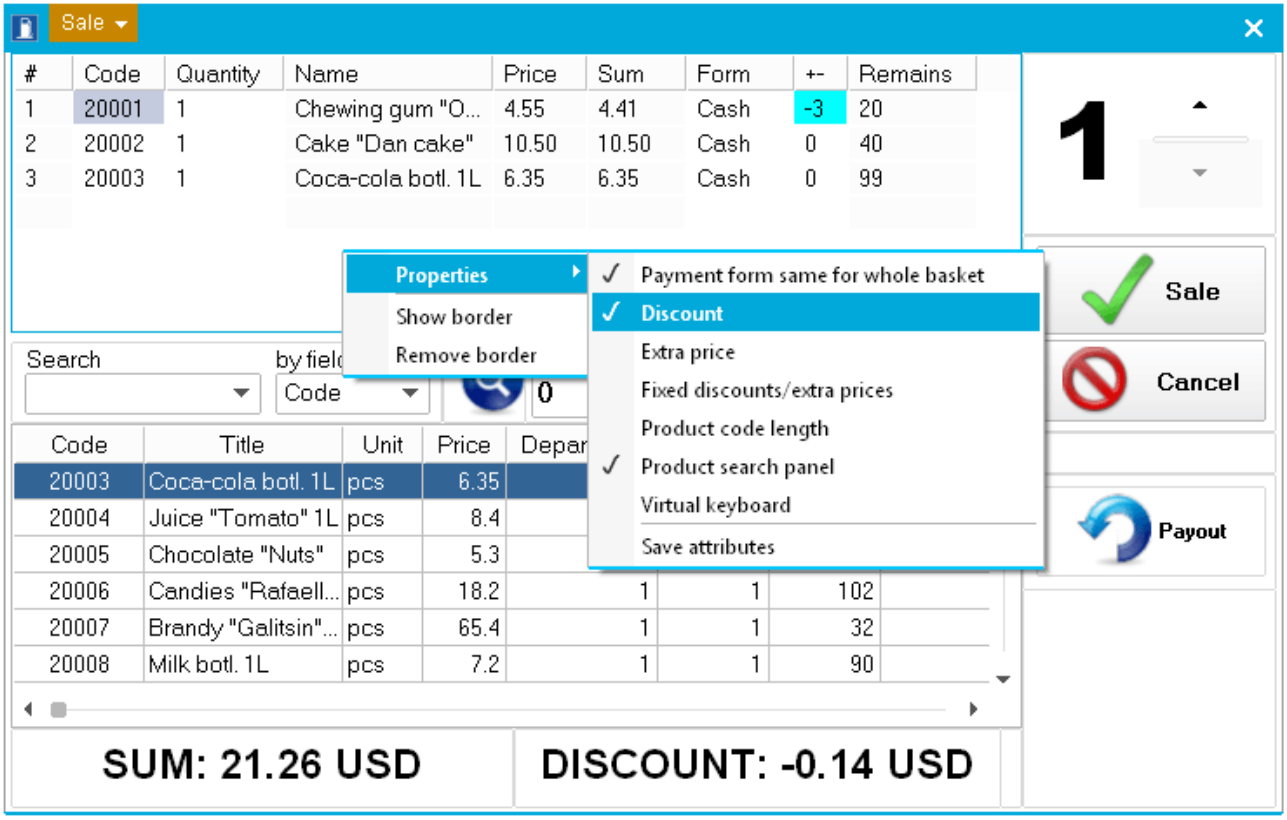


Confirmation window of sale (selected payment form – "Cash")

If a customer gives to cashier a sum lesser than a total products cost - then a button "*Close receipt*" will not be available.

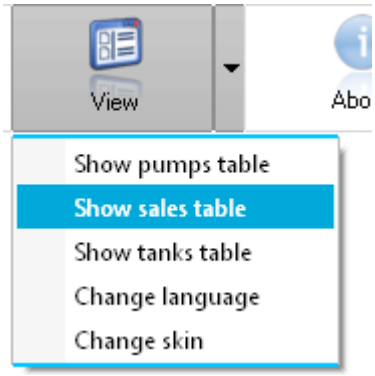
It is possible to configure the window of product sales in accordance with requirements: set window position on the screen and select displayed panels in a right-button mouse menu.

Window of product sales can be moved (dragged) across a main panel. To save a position of the window of products sales and its configurations for all following runnings of NaftaPOS user should select '*Properties*' → '*Save attributes*' in right-button menu.



Properties of window for products sales

To display the window of product sales it is necessary to enable it from main menu tab '*View*' → '*Show sales table*' or press key '=':



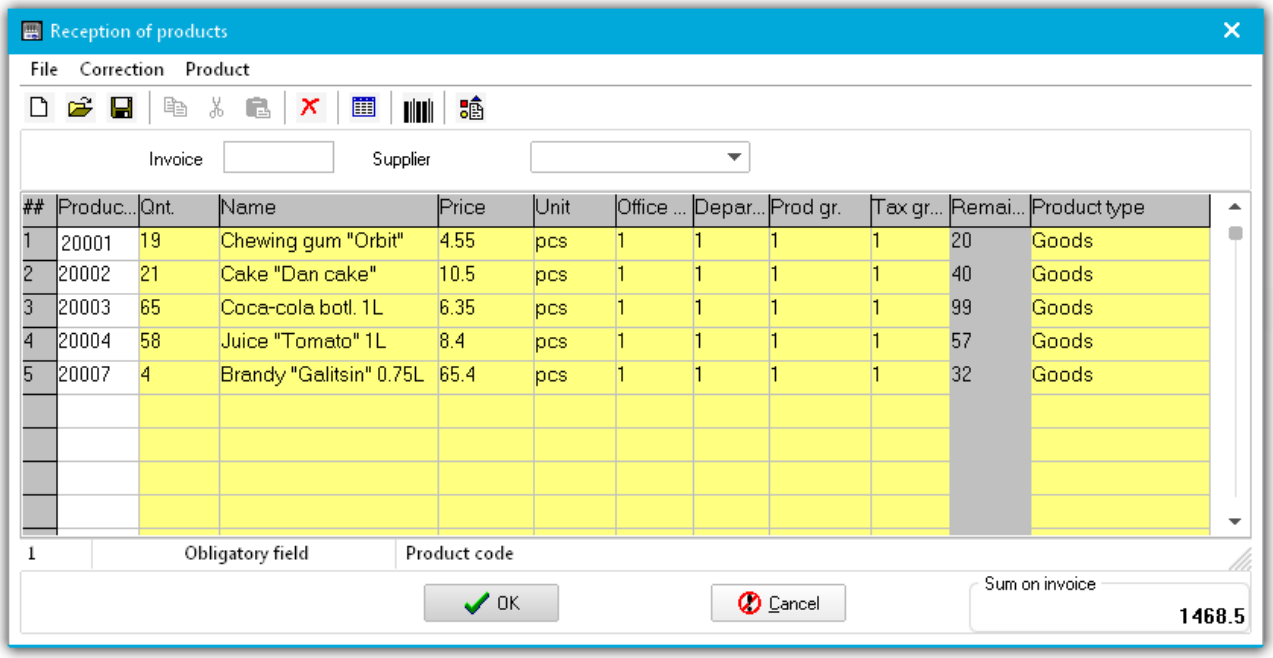
Option to display window for products sales

In order to save a position of the window of product sales and its configurations for all following runnings of NaftaPOS user should select '*Properties*' → '*Save attributes*'.

In order to have the window of product sales to be displayed every time NaftaPOS launches – it is necessary to select it on tab '*View*' in NaftaPOS configuration.

Registration of products reception

Registration of products reception is made in a window "*Reception of products*", which can be called from a main menu ('Products *stock*' → '*Products reception*').



Registration of products reception

To receive new products it is necessary:

Enter 5-digit code of received products in table's cell "*Products code*". If a products with such code exists in products database – then table cells "*Name*", "*Price*", "*Unit*", "*Office*", "*Department*", "*Product group*", "*Tax group*", "*Remain*", "*Product type*" will be automatically filled in. If a product does not yet exist in products database – then all fields are to be filled in manually.

At presence of a bar-codes scanner it is possible to read product's barcode for identification of the products code – then if a product with such bar-code exists in products database all fields mentioned above will be automatically filled in.

After filling the products code it is necessary to specify quantity of received product in table's cell "*Quantity*".

Repeat the above described procedure for all received products

Performing receptions is possible only for users that have permission "*Reception of products*". It is not allowed to state a price of received product equal to zero. It is allowed to receive an existing in products database product with a zero quantity, but with a different price for revaluation of the product.

After editing a table it is necessary to make sure that all data is inputted correctly and only after this to click a button "*Save*".

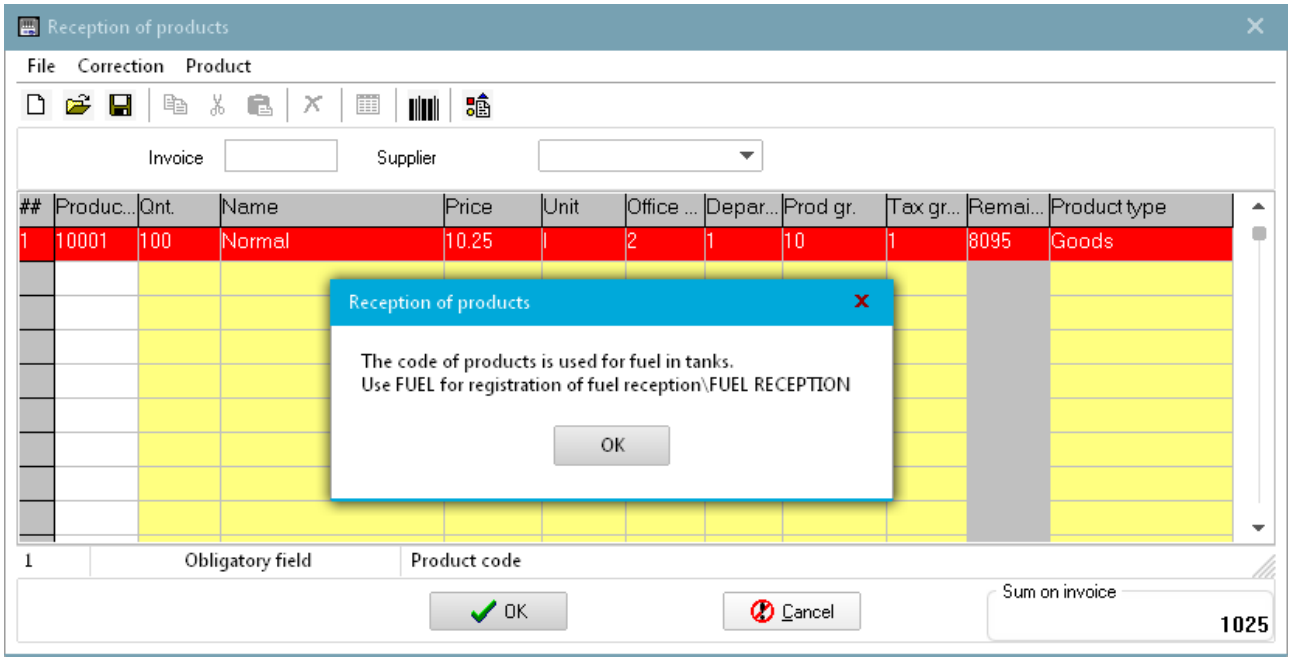
If actual quantity of products at petrol station is less than specified quantity of products in NaftaPOS then writing-off of products from NaftaPOS should be done.

Writing-off a product is performed in the same way:

- Place a cursor in field Quantity
- Enter a quantity of product's writing-off with a minus sign "-" and press OK button

Note!

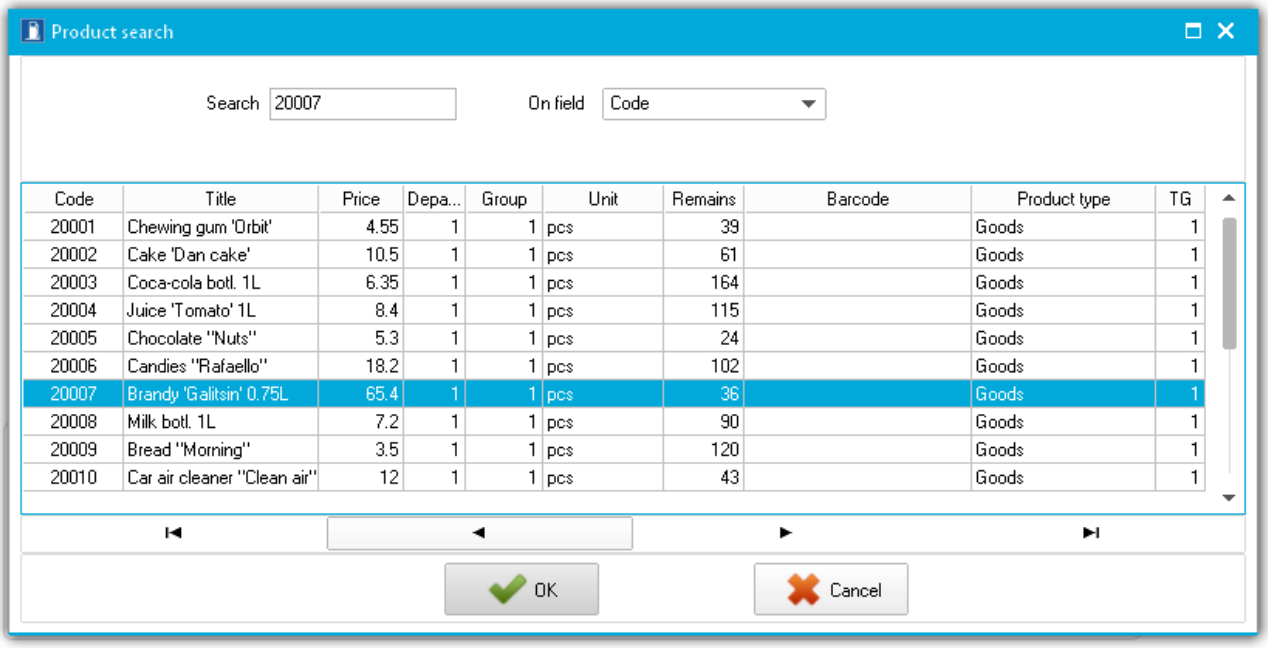
Attempt to receive products with codes, which correspond to petroleum products, will lead to indication of an error message informing that petroleum products should be received using "*Fuel reception*" window. Reception of petroleum products is prohibited in this window (only products for shop can be received).



Attempt to receive petroleum product in products reception

Review of existing products

Review of existing products in products database (stock) is made from a main menu ('Products *stock*' → '*Products review*').

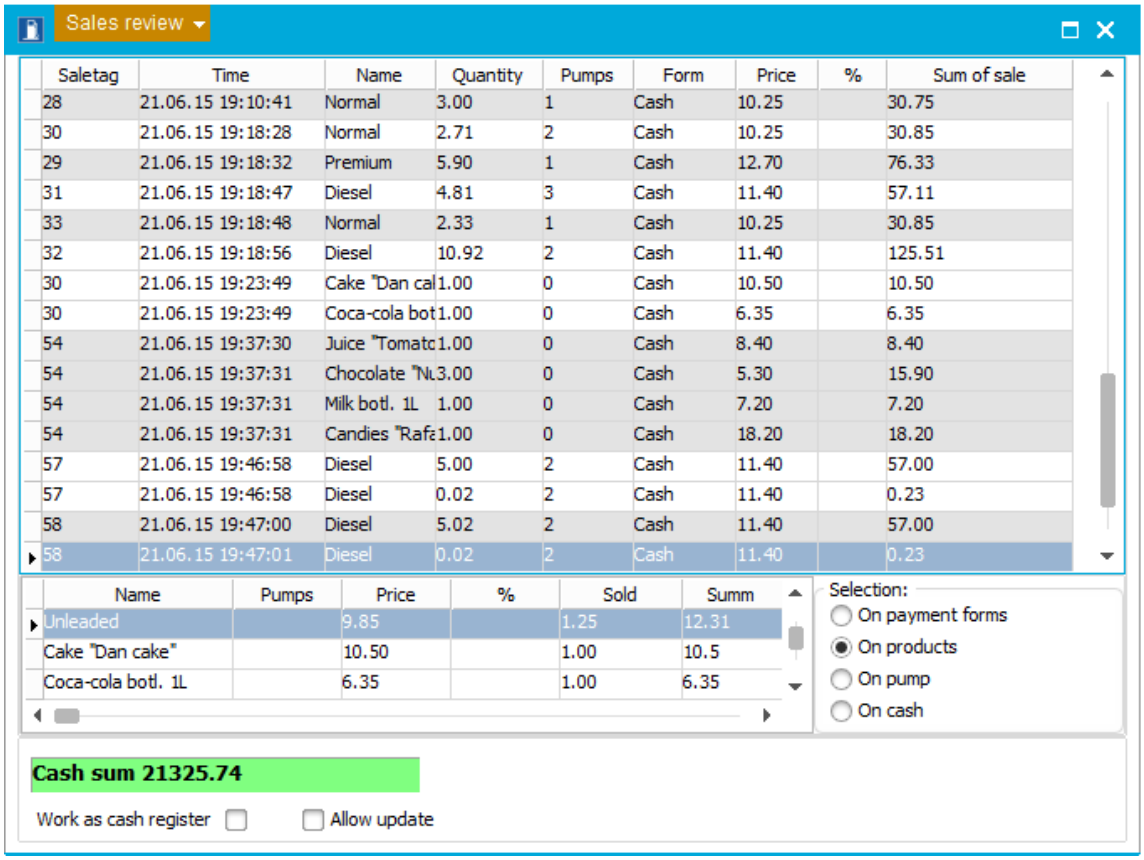


Review of existing products

It is possible to view all the products on stock, their prices and remains. Also it is possible to search any of the products by its code, name, title, price and other properties.

Review of sales

Review of all sales is made by opening a window "*Sales review*", which can be called from a main menu ('*Tools*' → '*Sales review*').



Window of sales review

Window "*Sales review*" contains two tables.

In top table each sale is represented by a separate row color. Sales made in the same receipt have the same color (same saletag). Sales are sorted by time of sales. It is possible to select displayed columns in a right-button menu.

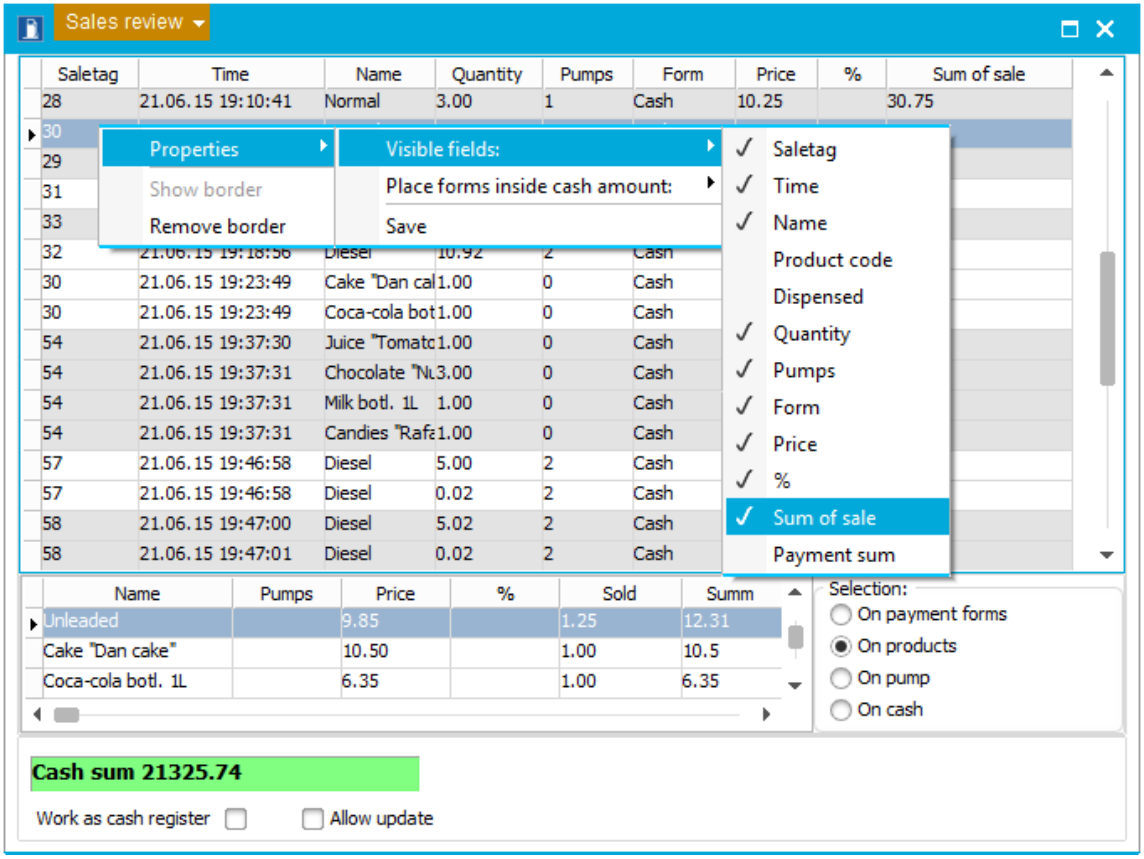
Bottom table displays total sales on:

- payment forms
- products
- fuel dispensers
- cash

Each receipt is separated by a separate color in the table, so rows of the same color mean items in the same receipt.

It is possible to select a working shift, which sales to display.

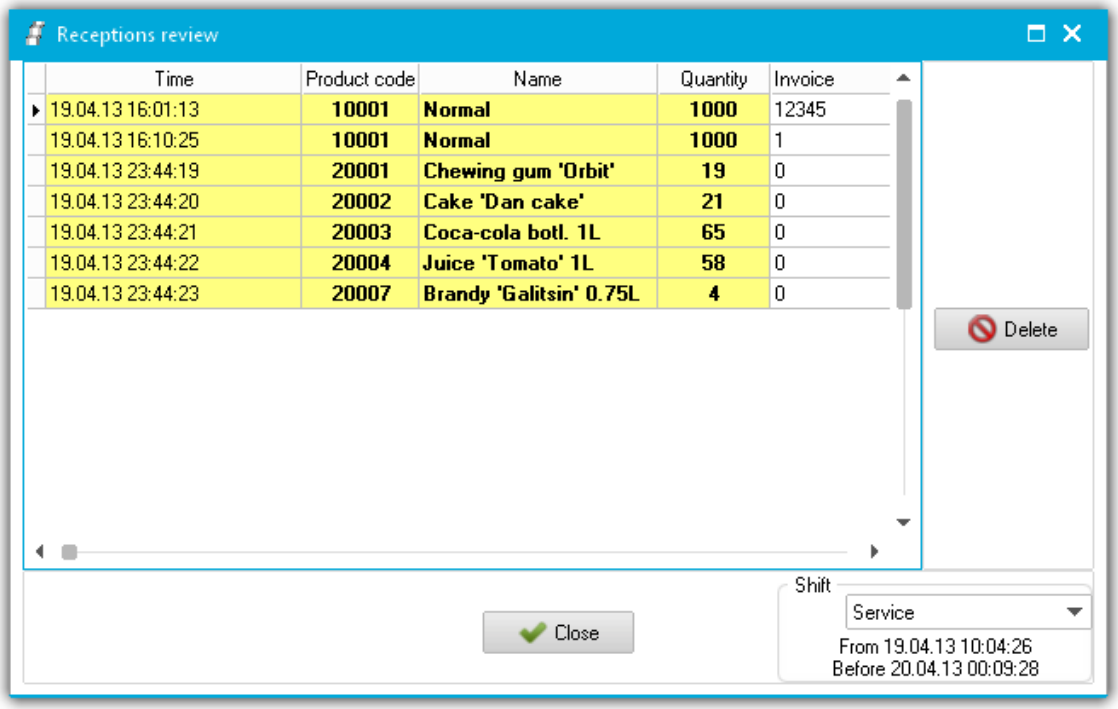
It is possible to configure the window of sales review in accordance with requirements: select displayed columns in a right-mouse menu. To save a selected configuration of sales review for all following runnings of NaftaPOS user should select '*Properties*' → '*Save*' in right-button menu.



Configuration of window of sales review

Review of reception operations

Review of reception operations is made by opening a window "*Receptions review*", which can be called from a main menu ('*Tools*' → '*Receptions review*').



Review of reception operations

It is possible to select working shift, which receptions to display.

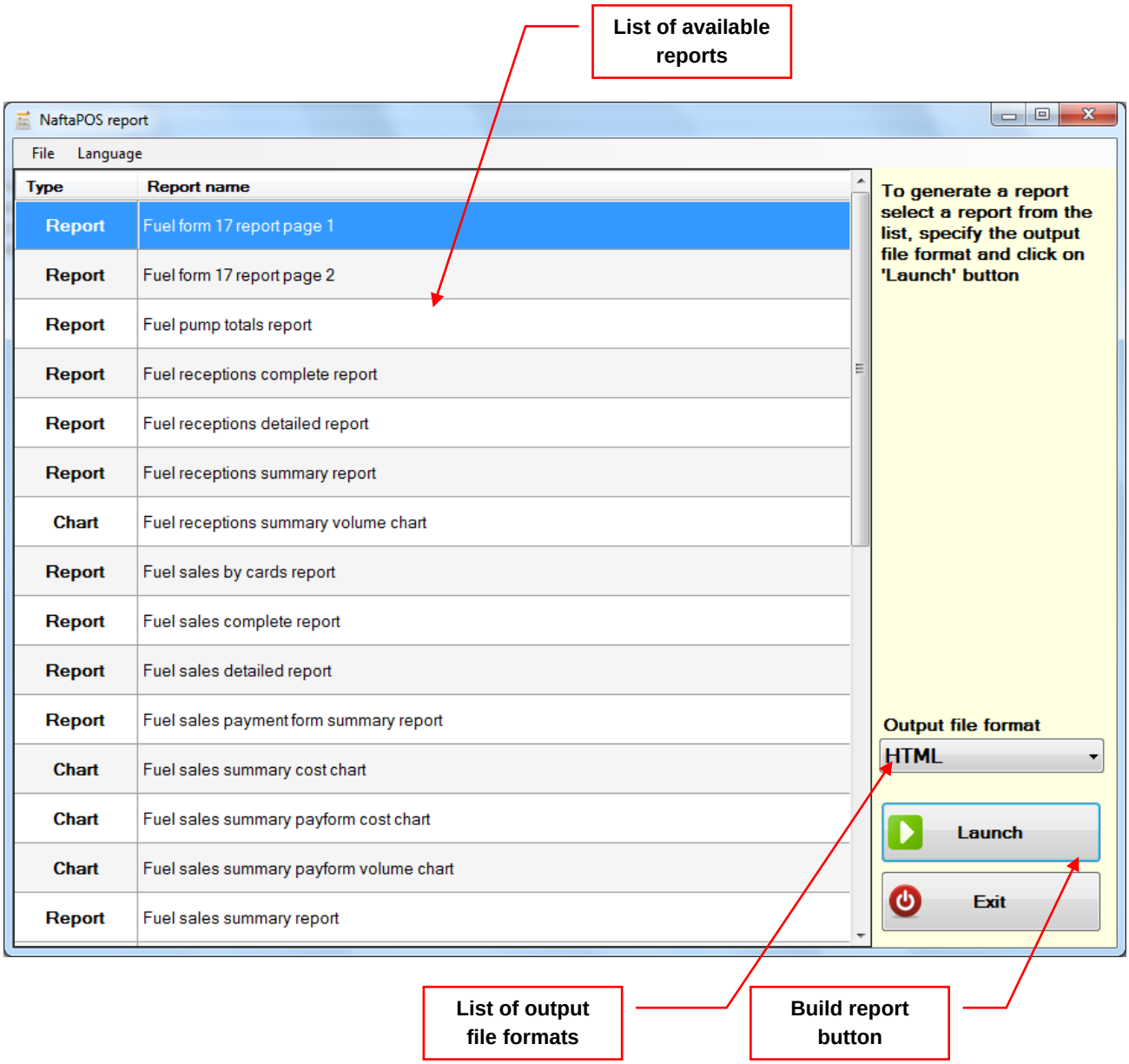
Reporting in NaftaPOS system

Reports in NaftaPOS are generated using '*NaftaReport*' utility (location *NaftaPOS\NaftaReport\NaftaReport.exe*), which is called from NaftaPOS main menu item '*Reports*'.

NaftaReports utility is built on the basis of NextReports Engine (please read more on http://www.next-reports.com/products/nextreports-engine.html), which allows to use NextReports Designer application for generating new reports and charts (please read more on http://www.next-reports.com/products/nextreports-designer.html).

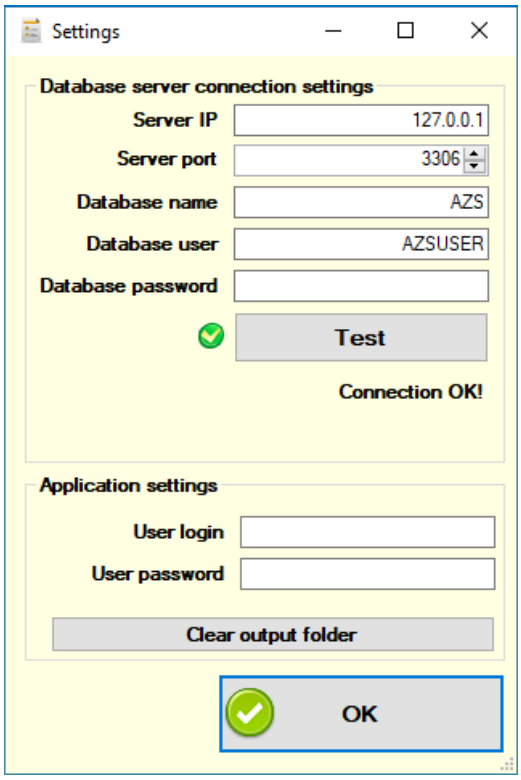
Application of designer application allows customers to generate new desired reports themselves quite quickly and easily. Reports supplied by default in NaftaPOS installation are located in folder '*NaftaPOS\NaftaReport\Reports_en*' and can be opened in NextReports Designer application to see their database script. New designed reports are to be saved to the same folder. NaftaReport application will automatically display them. Structure of NaftaPOS software database can be found in section "*NaftaPOS system database structure*" of given manual.

NaftaReport utility contains a list of all available reports and charts and a list of output formats:



NaftaReport utility general view

For configuration of database connection go to menu item '*File*' → '*Settings*':



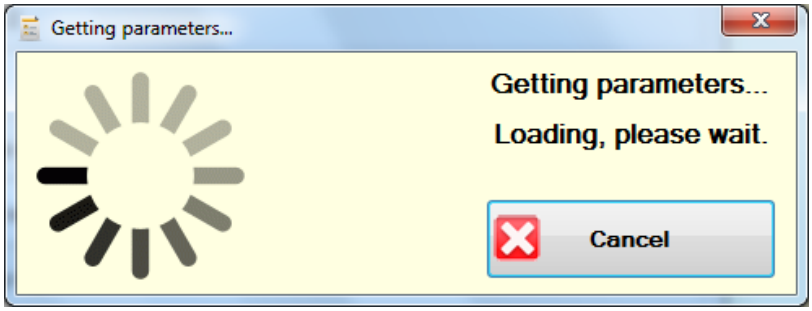
NaftaReport utility settings

Using a button "Test" you can check if connection to database can be established or not.

Output reports may be generated in one of the following report formats:

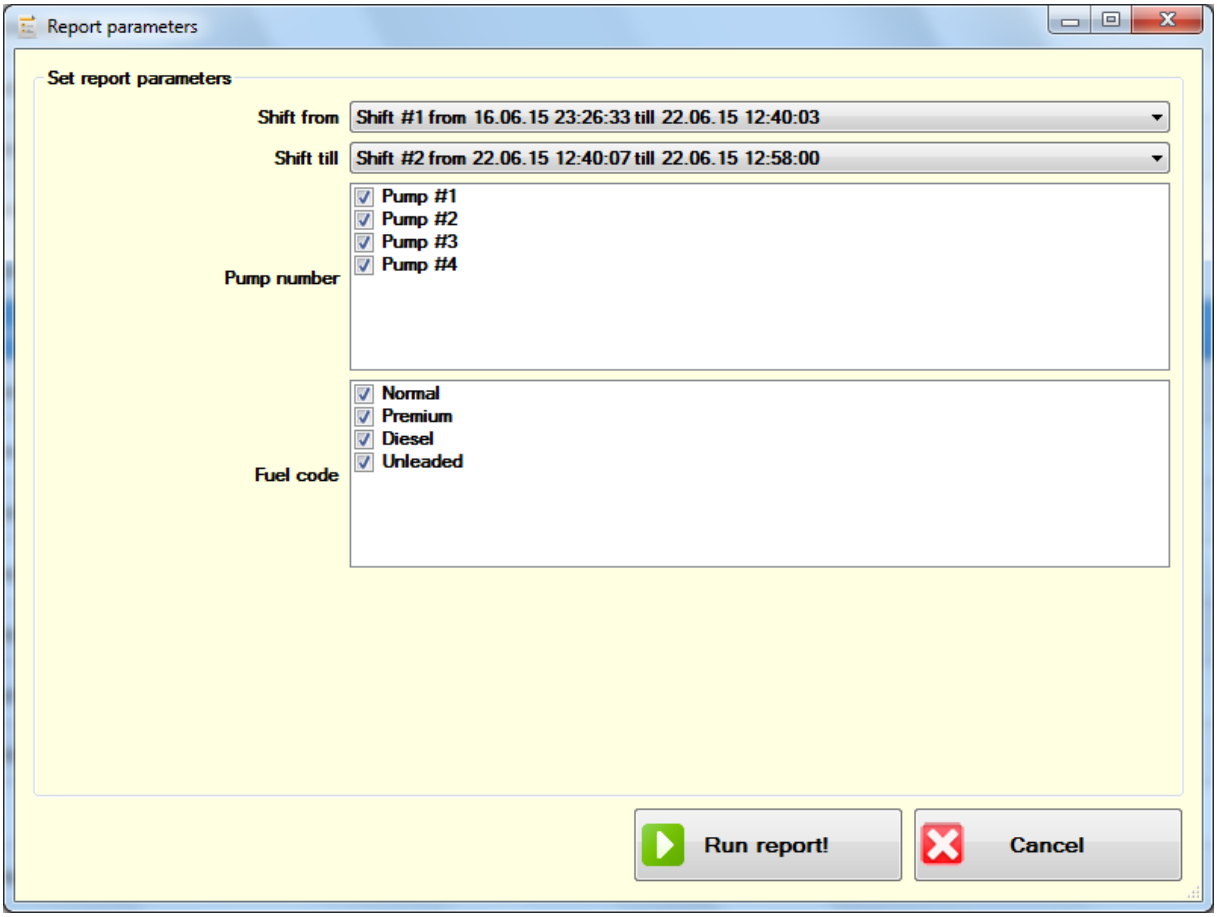
- HTML
- PDF
- XSL
- DOC
- CSV
- RTF
- TSV
- TXT
- XML

After selecting a required report or chart and selection of output report format a loading window is shown:



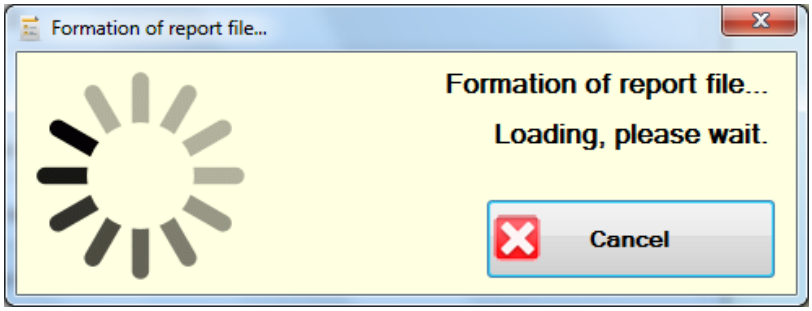
NaftaReport parameters loading window

A report may contain parameters for adjustments. If the report contains parameters – a parameters dialog is shown on the next step:



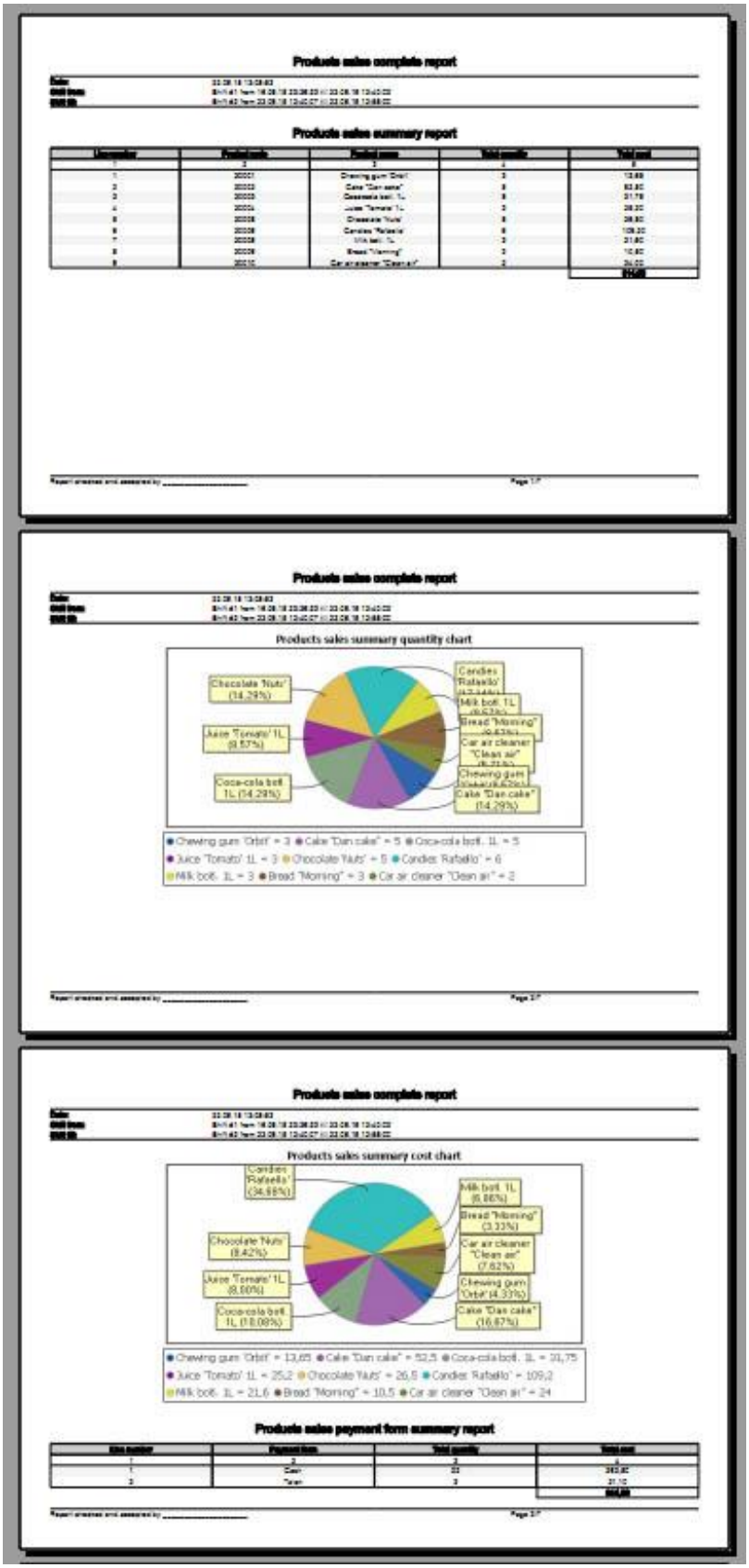
Example of NaftaReport parameters dialog

After that a report is starting to be generated in the selected report format:

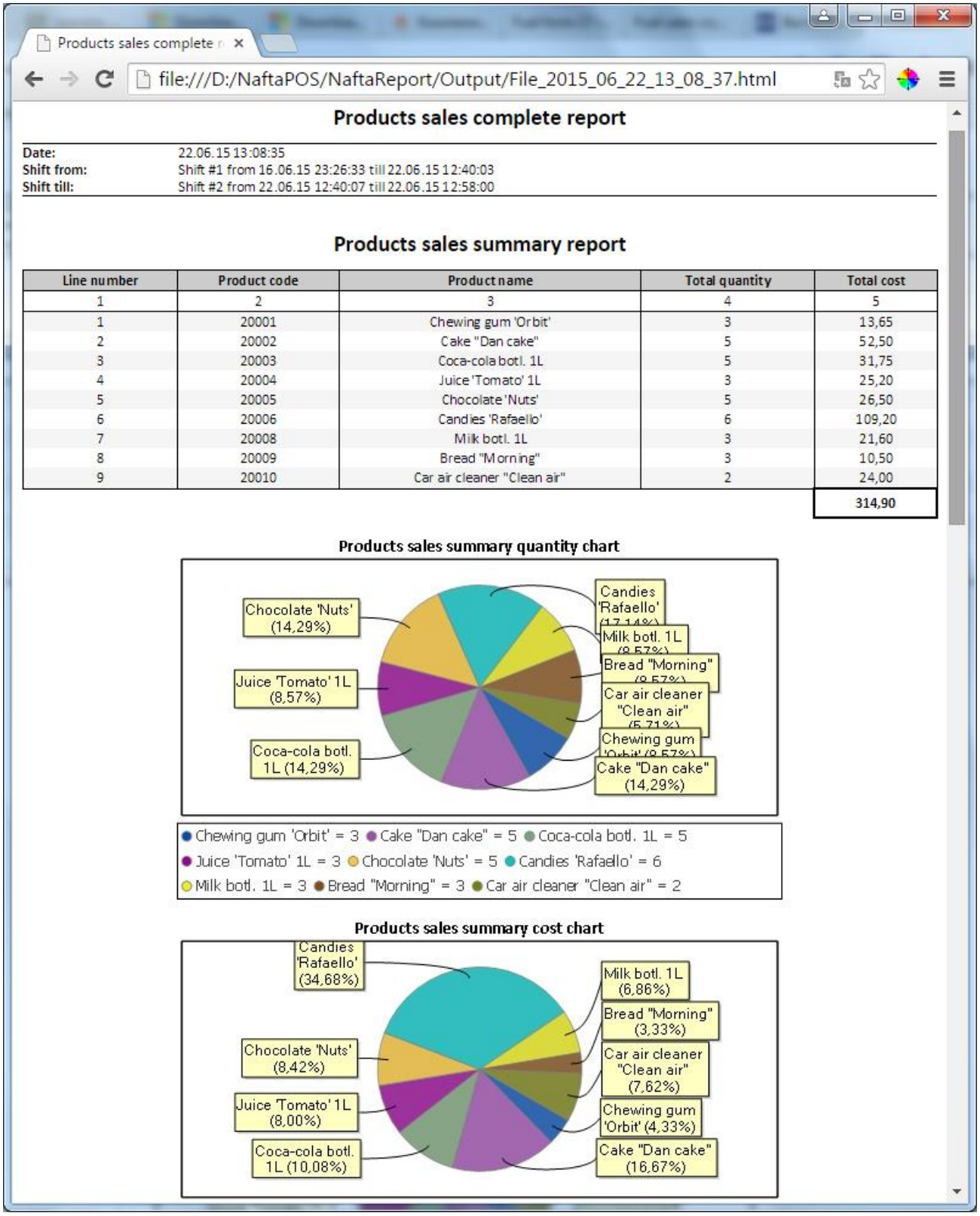


NaftaReport report formation window

Examples of formats of generated reports:

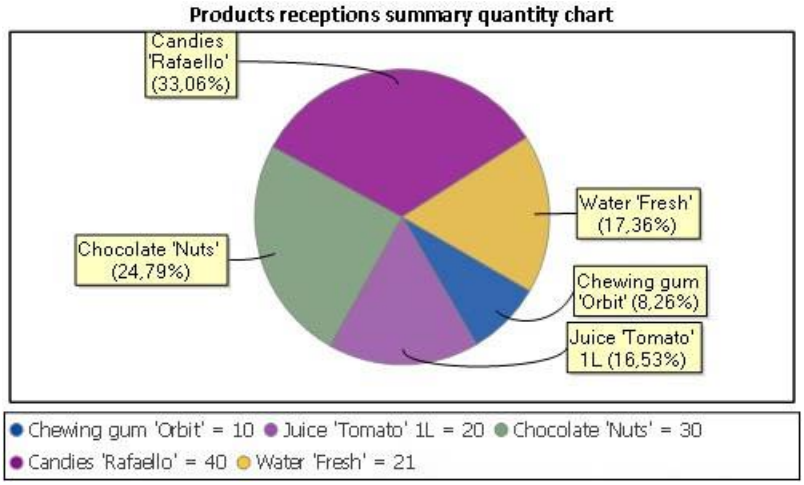


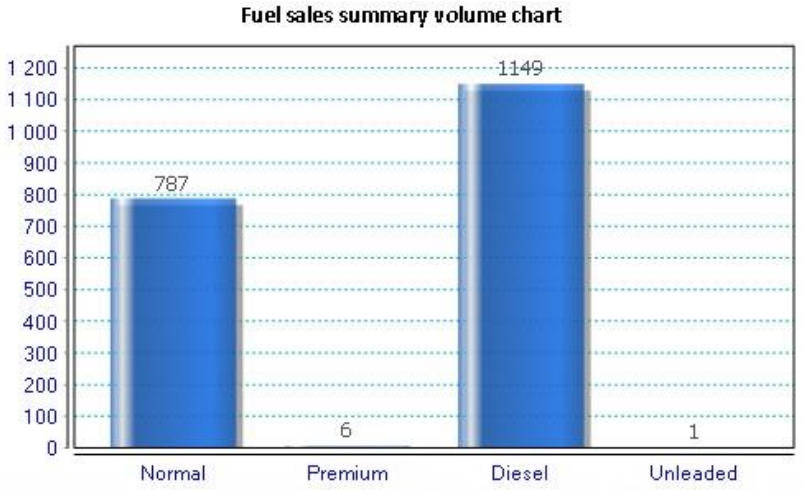
Example of generated report in PDF format



Example of generated report in HTML format

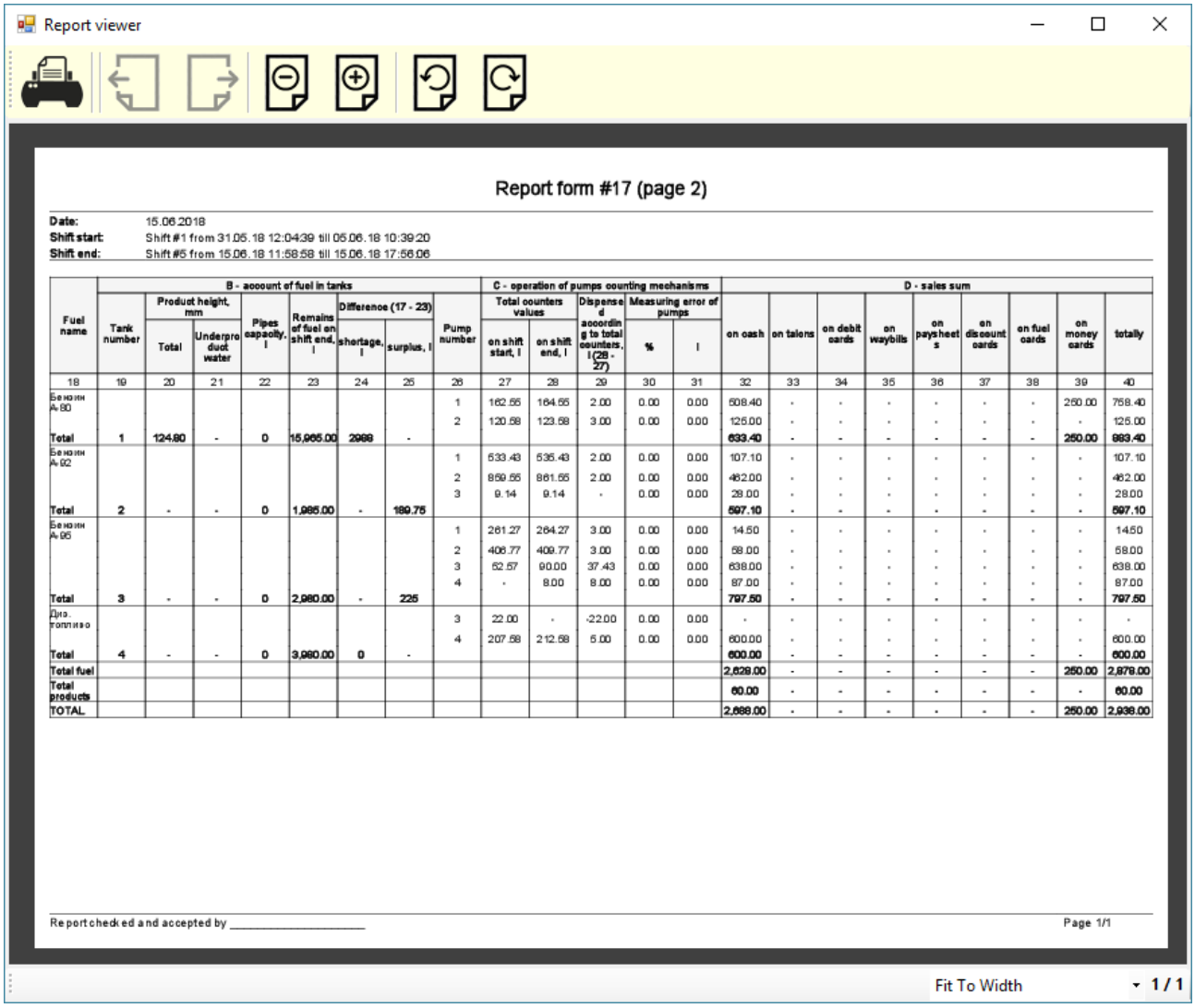
Example of generated charts:





Example of generated chart

Configuration settings of NaftaReports utility are stored in file *D:\NaftaPOS\NaftaReport\NaftaReport.config.xml*. This file contains a secret setting RestrictView, which is to be modified manually. The default value is *False*. When this setting is set to value *True* – then there is no possibility to select the output format of reports, the reports are always generated in PDF format and are opened in built-in PDF viewer, where the user can make limited operations with reports and can not access any service parts of Windows OS:



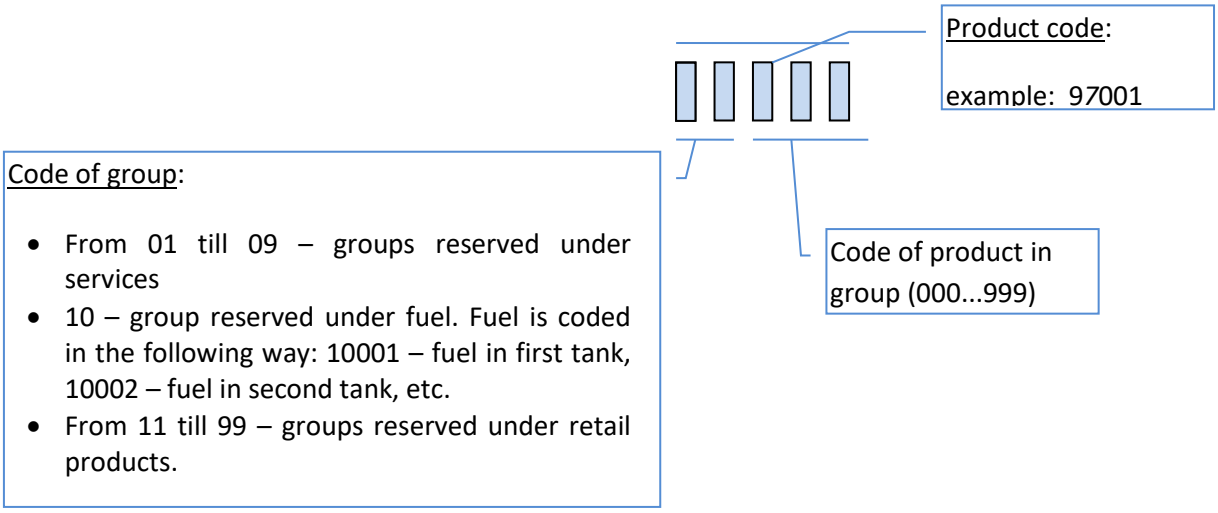
Fuel name	B - account of fuel in tanks								C - operation of pumps counting mechanisms					D - sales sum								
	Tank number	Product height, mm		Pipes capacity, l	Remains of fuel on shift end, l	Difference (17 - 23)		Pump number	Total counters values		Dispensed according to total counters, l (28 - 27)	Measuring error of pumps		on cash	on talons	on debit cards	on waybills	on paysheets	on discount cards	on fuel cards	on money cards	totally
		Total	Underproduct water			shortage, l	surplus, l		on shift start, l	on shift end, l		%	l									
18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Бензин А-80								1	162.55	164.55	2.00	0.00	0.00	508.40	-	-	-	-	-	-	250.00	758.40
								2	120.58	123.58	3.00	0.00	0.00	125.00	-	-	-	-	-	-	-	125.00
Total	1	124.80	-	0	15,965.00	2969	-							633.40	-	-	-	-	-	-	250.00	883.40
Бензин А-92								1	533.43	535.43	2.00	0.00	0.00	107.10	-	-	-	-	-	-	-	107.10
								2	859.55	861.55	2.00	0.00	0.00	462.00	-	-	-	-	-	-	-	462.00
								3	9.14	9.14	-	0.00	0.00	28.00	-	-	-	-	-	-	-	28.00
Total	2	-	-	0	1,985.00	-	189.75							597.10	-	-	-	-	-	-	-	597.10
Бензин А-95								1	261.27	264.27	3.00	0.00	0.00	14.50	-	-	-	-	-	-	-	14.50
								2	406.77	409.77	3.00	0.00	0.00	58.00	-	-	-	-	-	-	-	58.00
								3	52.57	90.00	37.43	0.00	0.00	638.00	-	-	-	-	-	-	-	638.00
								4	-	8.00	8.00	0.00	0.00	87.00	-	-	-	-	-	-	-	87.00
Total	3	-	-	0	2,980.00	-	225							797.50	-	-	-	-	-	-	-	797.50
Диз. топливо								3	22.00	-	-22.00	0.00	0.00	-	-	-	-	-	-	-	-	-
								4	207.58	212.58	5.00	0.00	0.00	600.00	-	-	-	-	-	-	-	600.00
Total	4	-	-	0	3,980.00	0	-							600.00	-	-	-	-	-	-	-	600.00
Total fuel														2,628.00	-	-	-	-	-	-	250.00	2,878.00
Total products														60.00	-	-	-	-	-	-	-	60.00
TOTAL														2,688.00	-	-	-	-	-	-	250.00	2,938.00

Example of generated report in built-in PDF viewer

Recommendations on products coding in NaftaPOS system

Products codes in NaftaPOS software should have 5-digits:

Principle of products coding in NaftaPOS system



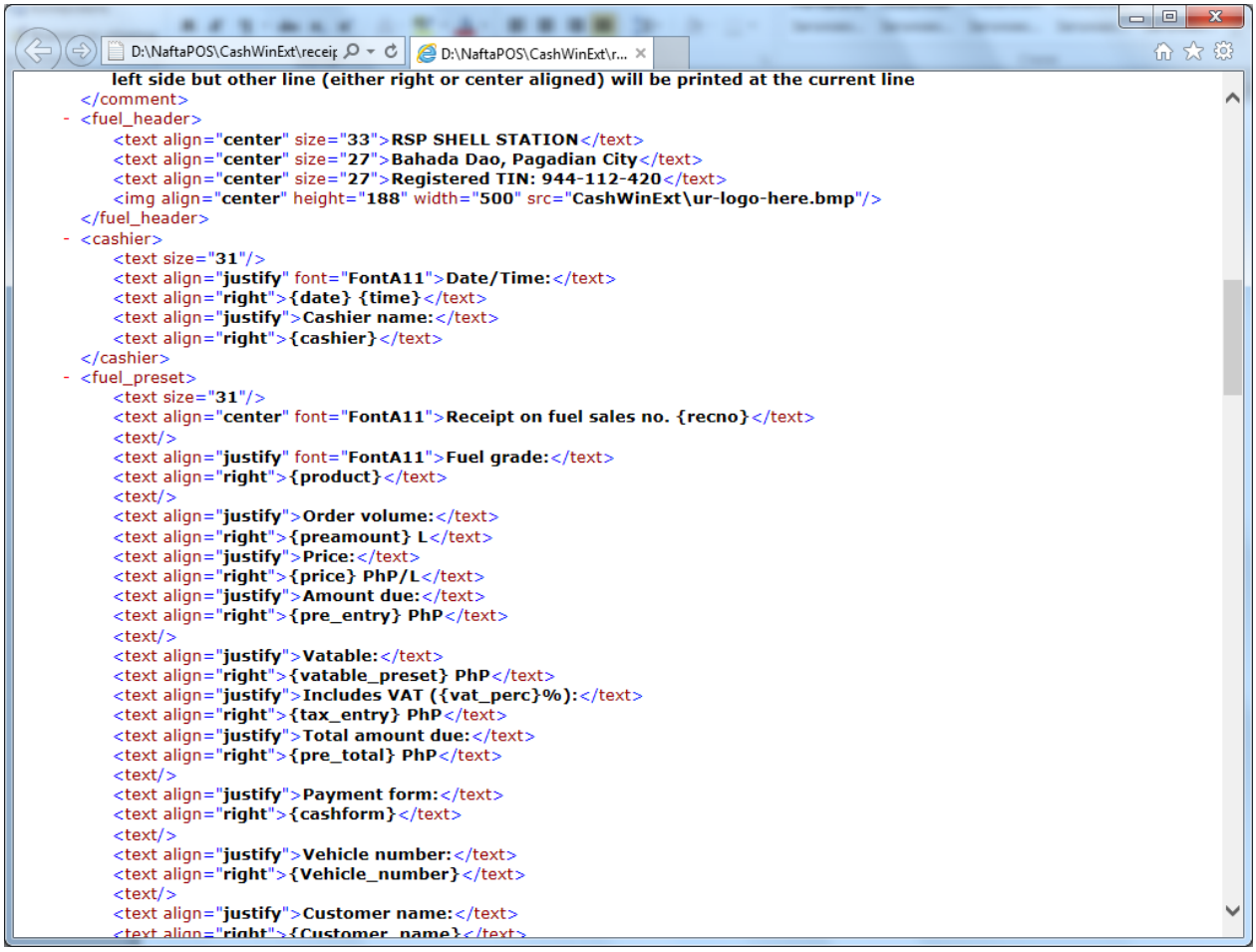
Product coding in NaftaPOS

Formation of receipt from template

As it is described above a driver "*CashWin driver*" is used to print receipts on a standard receipts printer, which driver is installed in Windows OS and this printer is set as a default printer. In such a way it possible to use any model of printer, which has a driver for Windows OS to print receipts.

Driver has a template of the receipt to be printed, which is in XML format and allows modification of its appearance and printed information. It is possible to specify in the template what text and images should be printed in the receipt. Template of the receipt is located in *NaftaPOS\CashWinExt\receipt_template.xml* file. Receipt template includes rich comments on how the text can be formatted.

File receipt_template.xml



Template of the receipt in XML format for "CashWin driver"

The file *receipt_template.xml* allows easy formation of the receipt including text and images.

List of variables used in the receipt template are:

- {date} - prints current date;
- {time} - prints current time;
- \t - prints four space tabs;
- {t} - prints tab;
- {cashier} - prints cashier name;
- {productId} - prints product Id;
- {product} - prints product name;
- {preamount} – prints ordered amount of the product;
- {amount} - prints amount of the product;
- {price} - prints price of the product;

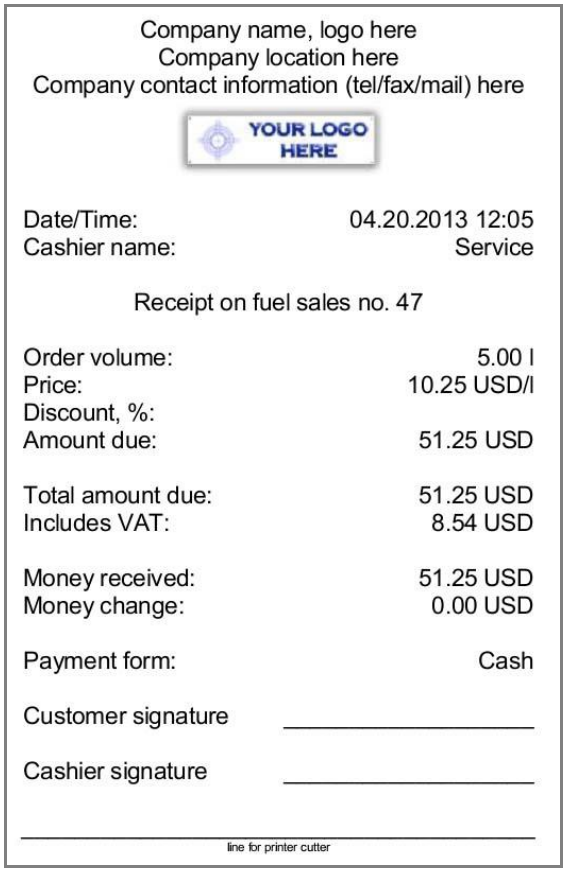
- {entry} - prints cost of the entry;
- {discount} - prints discount value (in percents);
- {discountAbs} - prints discount value in money value;
- {cash} - prints total money received;
- {change} - prints change value;
- {unit} - prints dispenser number;
- {total} - prints total cost of receipt;
- {vatable} - prints total cost of receipt without VAT;
- {vat} - prints VAT value;
- {vat_perc} - prints VAT value in percents;
- {totalizer1} - value of total counter before dispensing;
- {totalizer2} - value of total counter after dispensing,
- {recno} - receipt number;

List of tags used in the receipt template are:

- tag <text>txt</text>, where txt - text to print attributes:
  - font - sets font;
  - align - sets the position of the text, accepted values:
    - left - text will appear at the left side,
    - right - text will appear at the right side,
    - center - text will appear at the center of the receipt,
    - justify - text will appear at the left side but other line (either right or center aligned) will be printed at the current line
- tag <img />, attributes of tag:
  - src - path to the image (relative),
  - width - width of the image in printer units,
  - height- height of the image in printer units,
  - align – sets the position of the text, accepted values:
    - left – text will appear at the left side,
    - right – text will appear at the right side,
    - center – text will appear at the center of the receipt,
    - justify – text will appear at the left side but other line (either right or center aligned) will be printed at the current line
- tag <paper /> - tag for setting paper width (for example for Epson U220 printer this value equals 192, for standard PDF-printer - 4200);
- tag <cashier /> - tag for placing information regarding a cashier and date/time of the printed receipt;
- tag <fuel_header /> - tag for placing header information of a receipt, which is connected with sales of fuel;
- tag <fuel_preset /> - tag for placing information regarding a fuel dispensing made in preset mode;
- tag <fuel_postpay /> - tag for placing information regarding a fuel dispensing made in manual mode or in a full tank mode;
- tag <fuel_overfilling /> - tag for placing information regarding a fuel dispensing, which overfills ordered value, set in preset mode;
- tag <fuel_payout /> - tag for placing information regarding a fuel dispensing, when fuel was dispensed on total cost less than ordered in preset mode and money should be returned back to customer;
- tag <fuel_reception /> - tag for placing information regarding a fuel reception performed in tank of petrol station;
- tag <fuel_footer /> - tag for placing information footer information of a receipt, which is connected with sales of fuel;
- tag <product_header /> - tag for placing header information of a receipt, which is connected with sales of products;
- tag <product_sale /> - tag for placing information on each pprduct from the product basket sold;

- tag <product_payout /> - tag for placing information regarding product sales, when product is returned back to shop and money should be returned back to customer;
- tag <product_footer /> - tag for placing information footer information of a receipt, which is connected with sales of products;

Examples of receipts


Company name, logo here
Company location here
Company contact information (tel/fax/mail) here
YOUR LOGO HERE
Date/Time: 04.20.2013 12:05
Cashier name: Service
Receipt on fuel sales no. 47
Order volume: 5.00 l
Price: 10.25 USD/l
Discount, %:
Amount due: 51.25 USD
Total amount due: 51.25 USD
Includes VAT: 8.54 USD
Money received: 51.25 USD
Money change: 0.00 USD
Payment form: Cash
Customer signature _____
Cashier signature _____
line for printer cutter

Example of receipt on fuel sale

Company name, logo here
Company location here
Company contact information (tel/fax/mail) here
YOUR LOGO HERE
Receipt on products sales no. 54
Date/Time: 04.20.2013 12:08
Cashier name: Service
Product: Milk botl. 1L
Quantity: 2.00 pcs
Price: 7.20 USD/pcs
Discount: -2.00 %
Amount due: 14.11 USD/pcs
Product: Cake 'Dan cake'
Quantity: 1.00 pcs
Price: 10.50 USD/pcs
Discount:
Amount due: 10.50 USD/pcs
Total amount due: 24.61 USD
Includes VAT: 4.10 USD
Money received: 50.00 USD
Money change: 25.39 USD
Payment form: Cash
Cashier signature _____
Customer signature _____
line for printer cutter

Example of receipt on products sale

Additionally the driver allows to print additional fields in the receipt and save them to the database and also to use formulas in the receipt template.

It is possible to enter formulas in the receipt template, for example:

```
<variable name="b" value="123" />
<variable name="a" value="{b} + 2.0 * 0.2" />
<variable name="c" value="{a} + {amount}" />
<variable name="g" value="{c} + {b}" />
<variable name="h" value="{g} + {c}" />
<variable name="user_var221" value="{b} + 2.0 * 0.2 + {amount} + {b} + {b} + 2.0 * 0.2 + {amount}" />
```

In order to insert these variables values in the receipt it is necessary to print their values in braces.

Also it is possible to add additional fields, which values will be requested before the receipt is printed. For this it is necessary to add fields in the receipt template, for example:

<field name="Vehicle_number" type="string" show="true" default="" mandatory="false" desc="Vehicle number" desc_form="Vehicle number:" style="edit" />

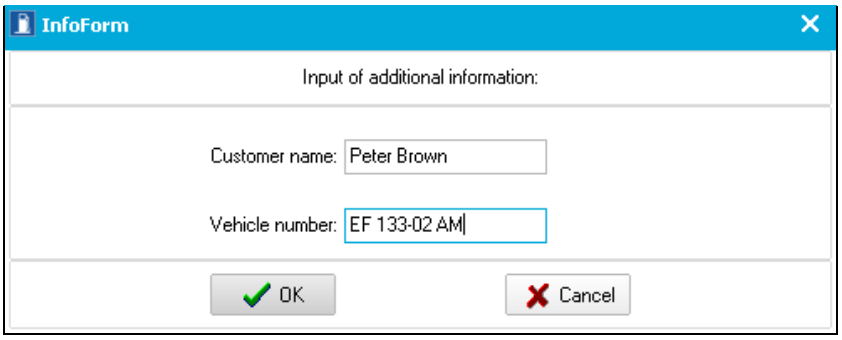
<field name="Customer_name" type="string" show="true" default="" mandatory="false" desc="Customer name" desc_form="Customer name:" style="edit" />

In this "*field*" tag attributes are the following:

- name – name of the field
- type – type of data used:
  - "*string*" – for text values
  - "*int*" – for interger values
  - "*bit*" – for Boolean values
  - "*float*" – for floating point values
  - other data types, which are used in MySQL DBMS
- show – Boolean value indicating whether a field should be requested to input before receipt printing or no
- default – value of the field in receipt in case if the field is not inputted (skipped)
- desc – description of the field
- desc_form – inscription shown near the fields to enter
- style – control to input the value, possible values are
  - "*edit*"- editable field
  - "*list*" – dropdown list

In order to apply these fields in the receipt – use name of the field, closed in braces, example:
<text align="right">Vehicle number: {Vehicle_number}</text>
<text align="right">Vehicle number: {Customer_name}</text>

When sales is performed in case if there are fields in the receipt template activated NaftaPOS will request to enter values of these fields as show on image:



Input of fields before printing of the receipt

In case if the values are not inputted (blank fiends are left) – NaftaPOS will use values, which are set in attribute "*default*" of the "*field*" tag.

After that information about the order is placed in the receipt:

Company name, logo here
Company location here
Company contact information (tel/fax/mail) here

YOUR LOGO HERE

Date/Time: 06.11.2013 20:20:22
Cashier name: Service

Receipt on fuel sales no. 2

Fuel grade: Normal

Order volume: 20 l
Price: 10.25 USD/l
Discount, %: 0
Amount due: 205 USD

Total amount due: 205 USD
Includes VAT (20%): 41 USD

Money received: 210 USD
Money change: 5 USD

Payment form: Cash

Vehicle number: EF 133-02 AM

Customer name: Peter Brown

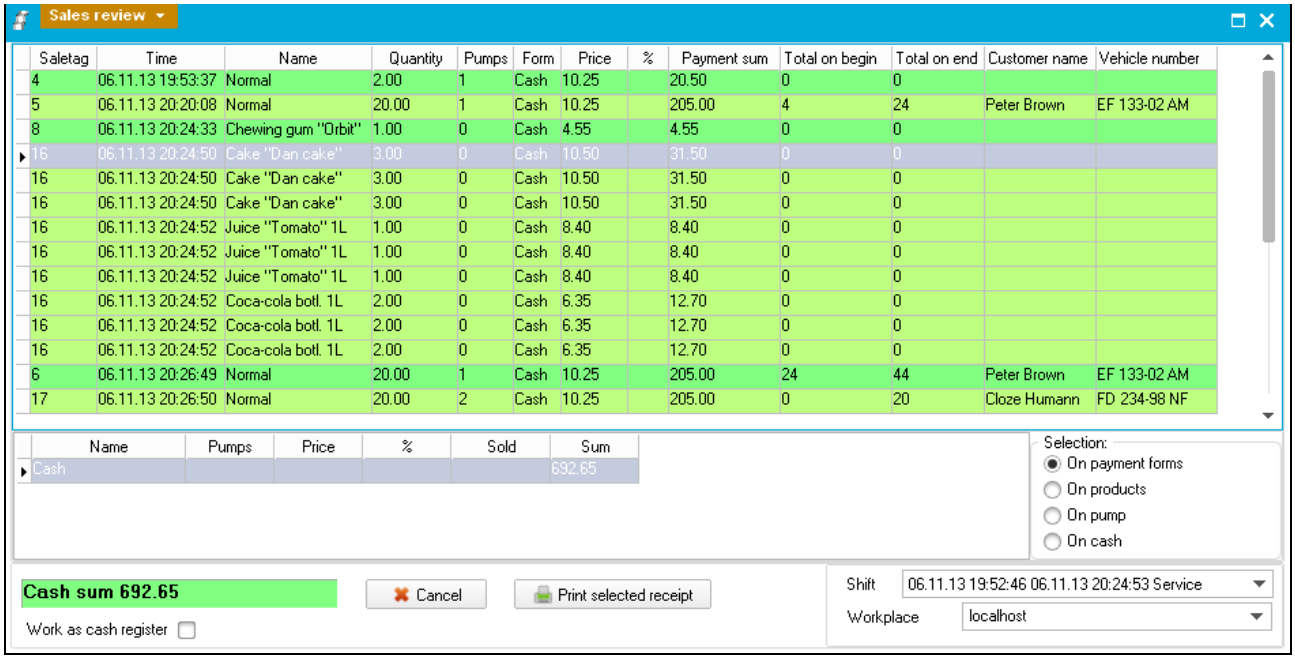
Customer signature _____

Cashier signature _____

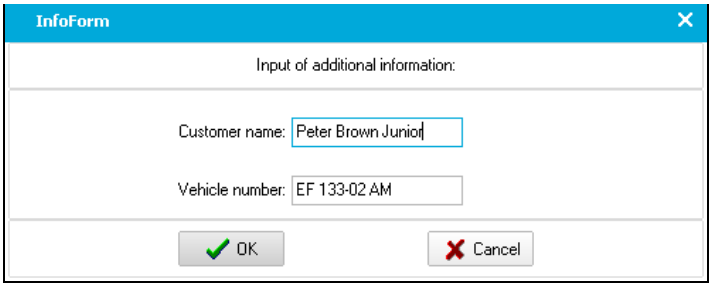
line for printer cutter

Example of receipt on fuel sale

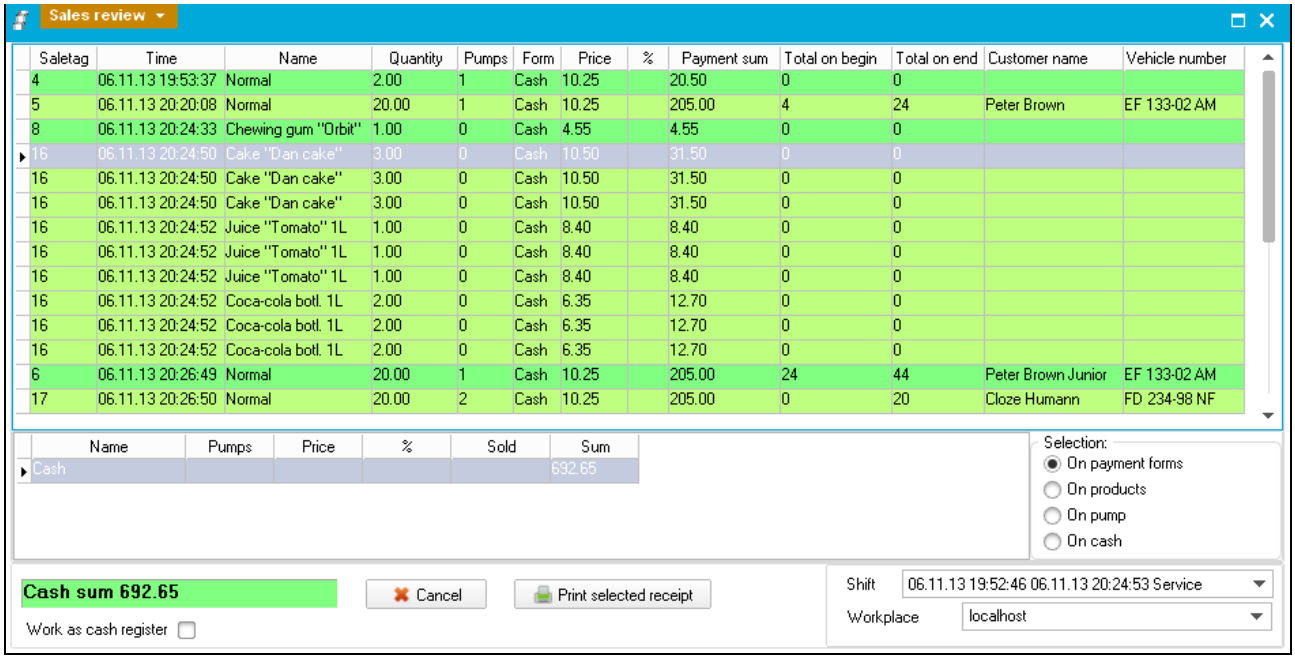
In sales review windows now it is possible to review all information about the performed sales (including additional fields), reprint any selected receipt and also correct the field values:



Sales review window with fields information



Correcting of selected receipt fields information



Sales review window with updated fields information

Also in the receipt it is possible to add additional information from the fuel card when NaftaCards system is applied (please see section "*NaftaCards fuel card system for petrol stations*"). This additional information can include fuel card number, card balance before and after the fuel sale, discount, transaction number, others.

In this case template for printing of additional information for the fuel card balance is located in a file *D:\NaftaPOS\Plugins\NaftaCards\template.xml*".

To make this information printed in the main receipt it is necessary to add a variable {CardData} in the receipts template, where {CardData} - is exactly the placeholder, where the card balance fields from template "*D:\NaftaPOS\Plugins\NaftaCards\template.xml*" is inserted in the main receipt.

For example:

```
<text />
<text align="justify">Additional info:</text>
<text>{CardData}</text>
```

At this in POSSet in configuration of the NaftaCards plugin please check a flag "*Print additional receipt*".

Operation with automatic vehicles identification system

Description and peculiarities of hardware operation

Wireless nozzle reader MT123

Reader is placed on the nozzle. It is fed from removable accumulator. It is initiator of data exchange with receiver MT124. It has a read LED for indication of data transmission on the top panel of casing. It reads tags on distance not more than 3 cm.

Reader has a sensor of location. When the nozzle is taken down the reader is in sleep mode, in which it does not provide any data exchange. When the nozzle is input into the vehicle tag the reader is periodically (approximately once per 2 seconds) sending information about its state to the receiver.

MT123 can use addresses in range from 1 to 255. For change of the address it is necessary to remove the accumulator and insert it back. At once after insertion a LED of communication exchange has to shine. During 5 seconds after this it is necessary to send a command for address change. At change of address it is strictly required to be careful and attentive: if set address is out of addresses range serviced by receiver then the reader will become unreachable as for reading of tags, so as for change of its address. If this happened – then it is necessary to change the receiver firmware allowing to communicate with new address of reader.

Receiver MT124

Receiver MT124 is a device for connection of control system and wireless nozzle readers MT123. Depending of the model of receiver it can support 16 or 32 nozzle readers. For communication exchange with a control system it uses RS-232 interface at 115200 baud rate (8 data bits, 1 stop bit , without parity check). Control system is always initiator of communication. Receiver is equipped with a power adaptor (5 V DC voltage, 1 A max current), external antenna and interface cable DB9-DB9. On the front panel of receiver there are LED indicators of communication exchange with nozzle readers. Number of LED indicators corresponds to the number of serviced nozzle readers.

Receiver responses to all addresses. In case when the requested reader is switched off or is unavailable the receiver returns status IDLE for such reader, thus it is not possible to determine whether the reader is in sleep mode or completely disconnected (accumulator is down).

Receiver can work simultaneously with 16 or 32 readers (depending on the model). For bigger number of readers it is possible to use several receivers same time. In this case each receiver will service its own range of readers addresses, for example first receiver will service nozzle readers with addresses 1-16, second receiver will service readers with addresses 17-32, third – 33-48 and so on. Range of addresses serviced is coded into the receiver firmware, which can be received from manufacturer.

RFID tag MT125

The tag is done into a small rectangular plastic casing with dimensions 10 x 30 mm. It has a glue base. It works in a range 920-925 MHz. It is installed upon a tank input in a vehicle. At attempt to replace the tag it is self destroyed. Each tag contains a unique ID number with length 8 bytes.

Description of operation and configuration of the receiver driver

Structure of files and folders of driver

For operation of the driver following files are required:

	Name	Description	Type
1	Scan.dll	Library of receiver driver	Mandatory
2	aviMT124Driver.lngx	Localization file (EN, RU, UA)	Mandatory
3	aviConfiguration.ini	Configuration file (is created at saving the configuration)	Optional
4	Icons\Error.png	Error icon	Mandatory
5	Icons\Success.png	OK icon	Mandatory
6	Icons\Unknown.png	Unknown icon	Mandatory
7	Icons\Warning.png	Warning icon	Mandatory

Also during driver operation and depending on the configuration a folder “Logs” can be created in the same folder with Scan.dl file. This folder contains log-files with information about events of driver operation and also archives with old log-files. Log-files are placed to archive in start of each month.

File “aviConfiguration.ini” contains all configuration of the driver. If there is no such file in folder with Scan.dll file – then the driver will be launched with default settings. All sections and keys of parameters are shown in table below:

	Key	Type	Default value	Description
Section **GENERAL**				General settings
1	POLL_INTERVAL	INT	200	Poll interval, ms
2	PACKET_TIMEOUT	INT	2000	Packet timeout, ms
3	BYTE_TIMEOUT	INT	30	Data byte timeout, ms
4	STOP_POLL_ON_RX	BOOL	FALSE	Stoppage of polling at reception of tag data
5	PERFORM_TO_DECIMAL	BOOL	TRUE	Convert data to decimal number
6	USE_SKINS	BOOL	TRUE	Use skins for displaying

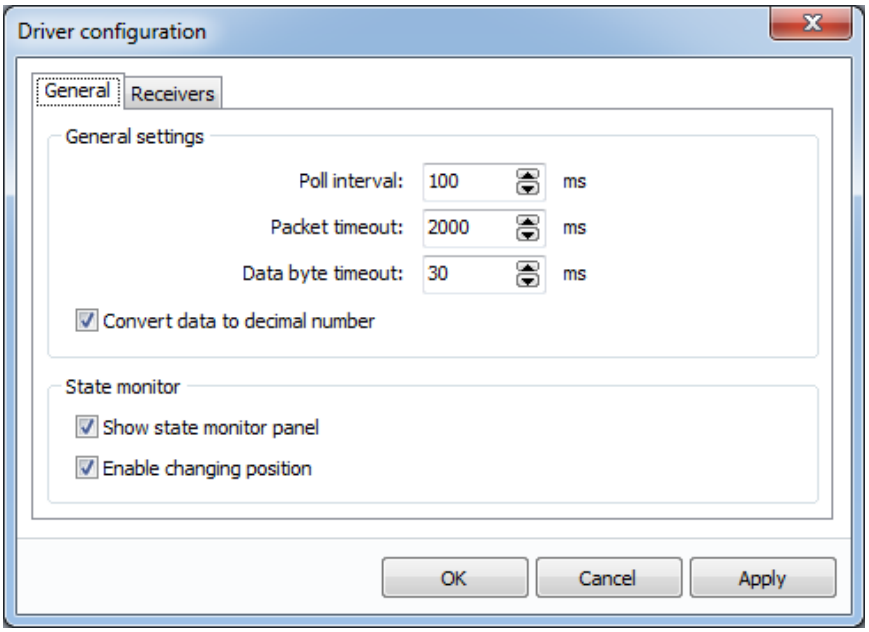
Section **STATUS_PANEL**				Status monitor panel
7	SHOW	BOOL	TRUE	Show status panel
8	ENABLE_DRAG	BOOL	TRUE	Allow window drag and drop
9	LEFT	INT	50	Location from left
10	TOP	INT	100	Location from top
Section **ROUTERS_LIST**				Configuration of receivers and readers
%r – receiver index (starts from 0) %g – index of readers group (starts from 0)				
11	ROUTERS_COUNT	INT	0	Number of receivers
12	ROUTER_%r_PORT_NUM	INT	1	Receiver port number
13	ROUTER_%r_RESOLUTION	INT	0	Receiver type (resolution)
14	ROUTER_%r_ADDR_SHIFT	INT	0	Address offset for receiver
15	ROUTER_%r_DESCRIPTION	STRING		Text description (comment)
16	GROUPS_COUNT_%r	INT	0	Number of readers groups for receiver
17	DISPENSER_NUM_RT%r_GR%g	INT	0	Number of pump for readers group
18	READERS_MASK_RT%r_GR%g	INT	0	Mask of address of readers group
Section **LOGGING**				Settings of logging of driver events
19	ENABLE_LOG	BOOL	0	Logging enabling
20	LOG_DIRECTORY	STRING		Folder with log-files
21	LOG_PREFFIX	STRING		Prefix of log-files names
22	INSERT_DATE	BOOL	0	Add date and time to messages
23	INSERT_MARKER	BOOL	0	Add marker of events in messages
24	MAX_SIZE	INT	10485760	Maximal size of log-file
25	LOG_LEVEL	INT	4	Logging level
Section **PROTOCOL_LOGGING**				Settings of logging for data exchange
List of keys and their appointment is same as keys of section **LOGGING**				

Driver configuration

Before starting to work with the driver it is necessary to connect receivers to COM-ports of PC of the control system. At necessity it is required to update firmware of receivers in case if several receivers are going to work together.

Configuration of driver is started for general parameters. Group "*General settings*" contains general configuration for all comfigurators:

- *Poll interval* allows to set interval between pollings of readers (readers groups)
- *Packet timeout* defines period of time during which the driver should wait from receiver a data packer. When the period is expired the reader status is changed to "No connection"
- *Data byte timeout* defines maximal time interval between data bytes inside the data packet. When the period is expired the reader status is changed to "No connection"
- *Convert data to decimal number* allows driver to convert received data from tag into string with decimal number. If parameter is not set – then control system will receive data in a view of a string with hexadecimal number



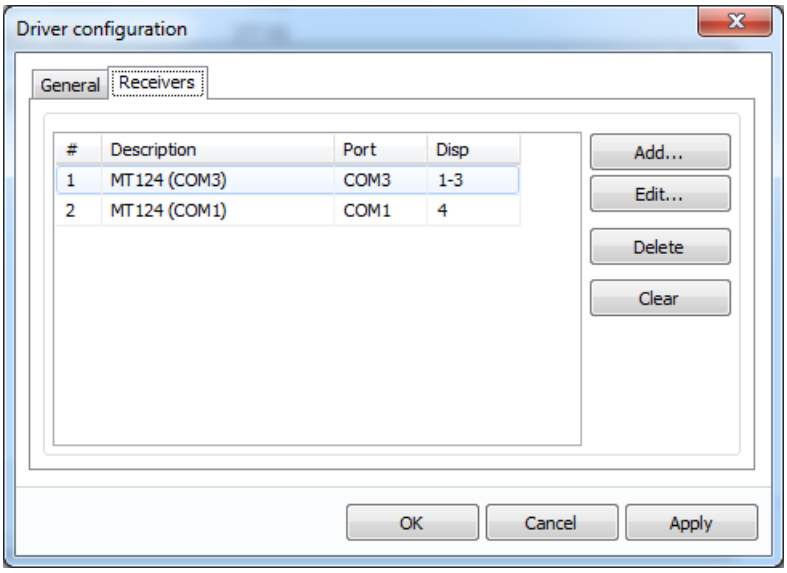
AVI driver configuration, tab General

Group "*State monitor*" provides settings for a status panel:

- *Show state monitor panel* allows displaying of state panel in main window of control system
- *Enable changing position* allows user to change location of state panel

After configuration of parameters it is necessary to add and configure parameters of receivers on tab "*Receivers*". This tag contains a list of receivers, which shows their description, number of COM-port and numbers pumps serviced by each receiver. Also the panel contains buttons for management over the list:

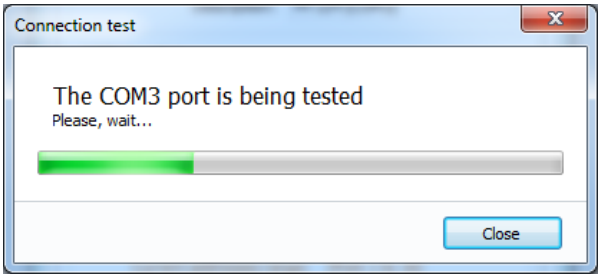
- *"Add…"* – adding a new receiver to the list. At pressing this button a dialog for configuration of new receiver with default settings is opened. New device is added to the end of the list
- *"Edit…"* – edit settings for selected receiver. At pressing this button a dialog for configuration of selected receiver is opened. *"Delete"* – remove selected receiver from list
- *"Clear"* – remove all receivers from list



AVI driver configuration, tab Receivers

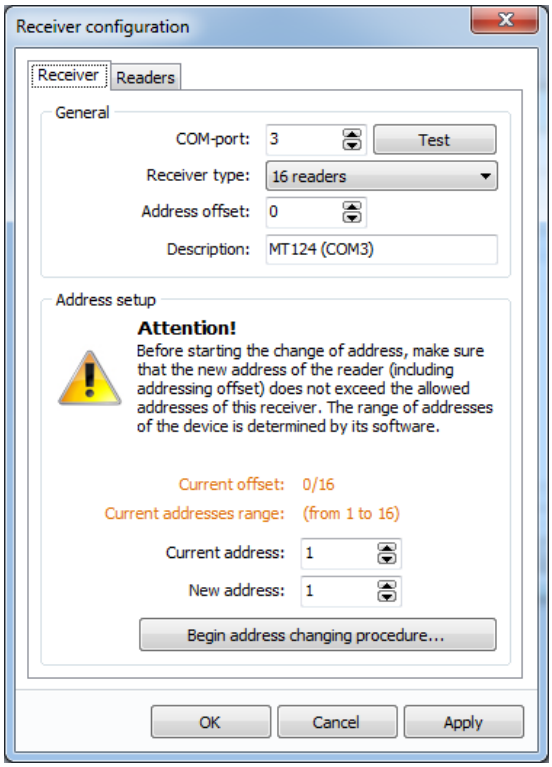
For adding a new receiver "*Add…*" button should be pressed – opens a dialog for configuration of new receiver with default settings. Configuration of receiver is started from tab "*Receiver*". This tab contains 2 groups: "*General*" and "*Address setup*". "*General*" group contains following elements:

- *"COM-port"* – number of serial port with connected receiver
- *"Test"* – test of communication with device through selected COM-port. At pressing this button a dialog for communication check is opened and communication test is performed. During the test driver is polling readers from 1 to 16, test is considered to be successful in case if the receiver responses during valid timeout without error with at least with one reader state



AVI driver: COM-port test

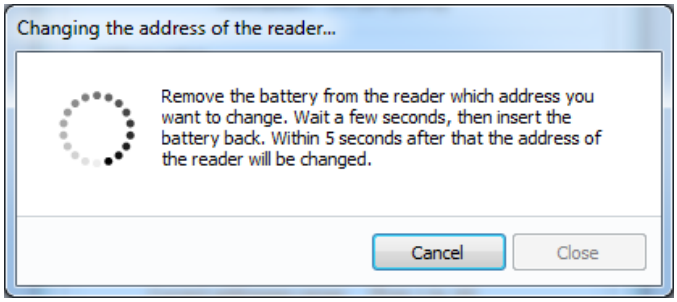
- *"Receiver type"* – selects type of receiver depending on the number of readers it can serve (16 or 32)
- *«Address offset»* – sets offset of readers addresses polled by receiver. It is an integer value in range from 0 to 240. It is used for receivers with offset range of addresses.
- *"Description"* – text description of receiver. This description is displayed in state monitor



AVI driver: receiver configuration

After check of communication a configuration of nozzle readers addresses should be done in "*Address setup*" group, it contains the following settings:

- *"Current offset"* shows a value of address offset and receiver resolution through slash separator
- *"Current addresses range"* shows addresses, served by current receiver. Value of field *"Current address"* should be within this range
- *Field "Current address"* should contain current reader address, which needs to be changed. Value should be in a range specified by field "Current addresses range"
- *Field "New address"* should contain a new address to be set in the reader
- *Button "Begin address changing procedure…"* launches a process for change of address. A dialog with description of actions to be performed for change of address in reader is displayed. Process can be cancelled by clicking a button "Cancel". After end of procedure a dialog will display result of execution.



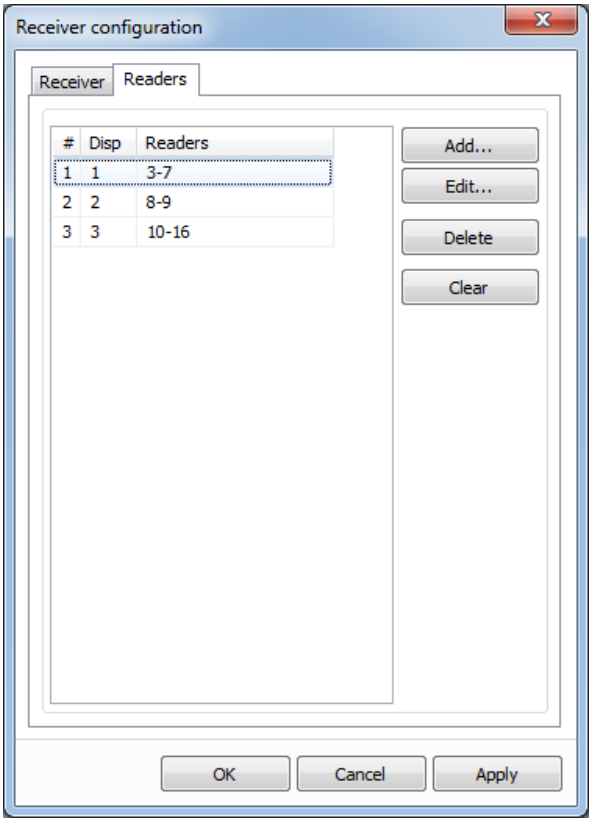
AVI driver: change of address in readers

Before changing the addresses it is necessary to make sure that all parameters from group "General" are set correctly and correspond to real. After change of parameters of "General" group a function for change of addresses will not be accessible until a user clicks on a button "Apply", having confirmed correctness of settings. At change of addresses it is needed to be very careful and attentive and make sure that a new address of the reader does not exceed the range of readers addresses serviced by receiver, connected to selected COM-port. Also to avoid collisions it is necessary to check that among configured readers there is

no reader with address same as specified in field “New address”, then to check that a reader, which address is to be changed, is online by turning the reader with a sensor upside down and making sure that its LED is blinking. Having filled the fields “Current address” and “New address” it is necessary to click a button “Begin address changing procedure…”. After displaying a dialog of address changing it is necessary to remove the accumulator from the reader and insert it back. If addresses parameters were set correctly – then in few seconds a result of operation execution will be displayed. It is possible to make sure that new address is set correctly by watching the LED indicator of the receiver: on the panel a LED corresponding to new address of the reader should be blinking. After this a dialog can be closed.

After setting of addresses links between nozzle readers and dispensers should be configured on tab *“Readers”*. On this tab readers are linked to dispensers. A tab contains several elements:

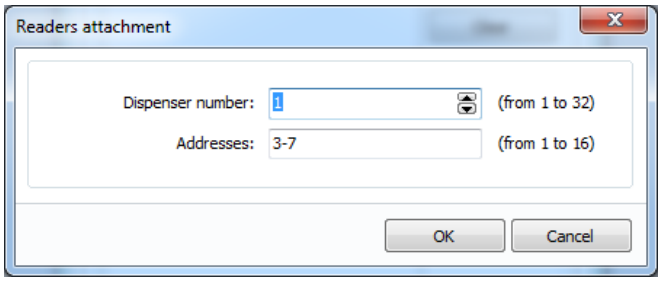
- *“List of readers”* – list of pumps and their readers (group of readers)
- *“Add…”* – adding of new group of readers. At pressing the button a new dialog is shown with configuration of a group, in which it is possible to specify a pump number and addresses of connected readers.
- *“Edit…”* – editing of selected group of readers. At pressing this button a dialog for change of group settings is opened.
- *“Delete”* – removal of selected reader from list
- *“Clean”* – removal of all readers from list



AVI driver: configuration of pumps with nozzle readers

Dialog for linking a group of readers has the following elements:

- *Field “Dispenser number”* should contain number of dispenser, to which the readers refer, field value should be from 1 to 32
- *Field “Addresses”* should contain addresses of readers, which are to be used on given dispenser. At specification of addresses it is possible to use comma for separation of addresses and dash for specification of the addresses range, for example “1, 3, 5 - 7”. Range of allowed values is displayed to right side of the field.

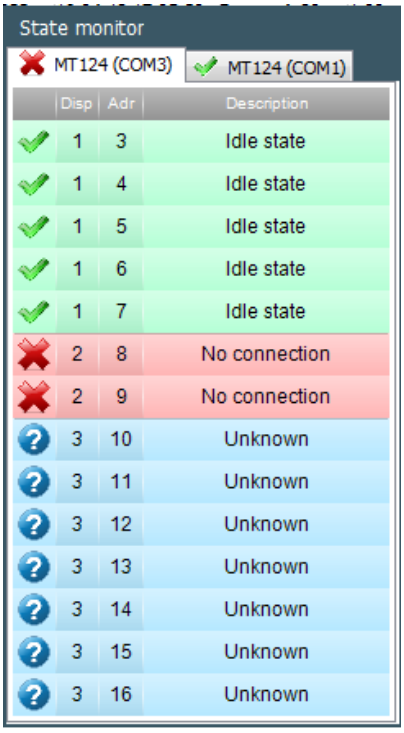


AVI driver: configuration of pumps with nozzle readers

At configuration of linking between dispensers and nozzle readers duplication of dispensers numbers and readers addresses is not allowed.

Description of operation with driver

After starting of the system in a main window of application a state monitor of readers should be shown (in case if parameter "*Show status panel*" is set). State monitor has 4 groups of states: "*Unknown*", "*No errors*", "*Warning*" and "*Error*".



AVI driver: readers state monitor

Group "*No errors*" includes states of address change, sleep mode and absence and reading of data. Group "*Warning*" includes state "*Recharge battery*", group "*Error*" – states of communication errors.

In window of state monitor states of receivers are displayed in a view of tabs. Name of tab contains an icon of summary state and description of device, specified in configuration. Icon of summary state shows presence of warnings and errors of receiver readers. Each tab contains the whole list of readers, grouped and separated by dispenser numbers.

At launch of control system the driver is in expectation mode. At this all readers are displayed with "*Unknown*" state. States of readers on monitor are refreshed during polling of receivers.

At request of tag the driver is starting of poll required receiver. If it is online the states can change between "*Expecting*", "*No data*" and "*Data read*". In case if there is a problem opening a COM-port during system start or the receiver is not responding – then state changes to "*No connection*".

After finish of operation with the readers the driver stops polling the receiver until the next request.

Operation with bank terminals

NaftaPOS software is able to communicate with bank terminals for processing of payments done using bank cards like VISA, Mastercard, others. For this it is necessary to connect NaftaPOS to bank terminals able to process these bank cards. NaftaPOS does not deal with bank cards directly and gets all the information about performed bank transactions from connected bank terminal.

Used terms

PAYMENT OPERATIONS – operations with bank account of customer: PAYMENT, CORRECTION, RETURN

PAYMENT – writing-off money funds from bank account of client

CORRECTION – change (in lesser side) of written-off sum from client bank account without usage of bank card. Sum of correction can not be more than written-off sum. Given operation can be applied only in case if the party including given transaction was not completed, otherwise a RETURN operation should be performed.

RETURN – return of written-off sum (complete of partial) to account of client with usage of card.

PARTY – set of transactions, accumulated within certain period, normally not more than 1 day, expecting its queue for settlements with acquirer organization of merchant. Party can be completed as automatically, so as with a help of POS terminal.

PROCESSING CENTER — automated system if transactions processing on bank cards in field of electronic commerce. Main task of processing center is provision of possibility to accept payment using bank cards. Also the processing center coordinates settlements between the bank issuing card, acquirer bank (authorizing the transactions), sales point and the holder of the bank card.

ACQURER BANK — bank conducting payments for goods/services using bank cards with which the enterprise has concluded an acquiring agreement

User interface

User interface at performing payment using a bank card

User dialog is separated into 3 areas: information panel, status panel and user actions panel.

Information panel contains information on order: order stage (opening, closing, payment, correction, return), mode, pump number, fuel type, ordered volume, discount.

Status panel can display a description of performed actions, errors and warnings. Also panel can display state indicators:

- operation is being performed

- operation completed successfully

- warning or error

User actions panel contains 4 control elements:

- **flag "*Postpay*"** – sets a moment of payment for order
- **button "*OK*"** – confirms action
- **button "*Cancel*" / "*Close*"** – cancels action
- **button "*Card request*" / "*Repeat*"** – launches (repeats) procedure for payment or return

Operation

Appointment

Given module gives a possibility to NaftaPOS software to perform payment operation using bank cards. It allows to provide payments by the bank card as orders for fuel, so as orders for retails products. Module can work in modes "*Preset*" and "*Full tank*".

Given module is universal and allows operation with payment terminals of various manufacturers. Link with physical devices is made through special drivers, which are connected to the modules. Drivers are unique for each model of payment terminals. Module can connect with several drivers of payment terminals same time. Definition of the payment terminal to process the transaction is performed by the number of linked fuel dispenser and selected payment form. Also allowances for processing fuel and products are taken into account. At search of required device a first found device, which satisfies the search criteria, is taken.

Sequence of operations

At operation with the module it is possible to separate 3 operations: payment, correction and return.

Payment – process of writing-off money funds from the client bank account. Execution of payment is performed at opening (prepayment) or closing (postpayment, "*Full tank*" mode) of order depending on actions of cashier (selection of payment type "*Prepayment*"/"*Postpayment*") or allowances for selected payment form (prohibition of prepayment, postpayment, full tank).

In case if during prepaid order of fuel there is an underfilling – then at closing given order a correction process will be launched – pay-off without without usage of a client card. During correction difference between the ordered cost and dispensed cost of fuel will be returned to client card.

In case if transaction for given order payment was already uploaded to server in structure of last party then attempt to return money funds with usage of client card will be performed.

Operations with parties

Module allows to provide control over parties – sets of performed transactions. Number of transactions is stored in internal counter, which is lead independently from the counter of physical device (payment terminal). Therefore, at first configuration of device it is recommended to upload its current party. This can be done in the terminal itself or to set a flag "*Forced shipment when operating with shift and manual uploading*" and by pressing a button "*Upload*". Counters are lead for each device separately and include operations for payment, correction and return.

For switching on control over upload it is necessary to set a flag "*Enable batch control*". If given flag is set – it is recommended to switch off automatic upload of parties on the physical device and not to make it manually on the device. If the device does not support operation with parties – this flag should be unchecked.

There are several conditions for start of parties upload. The main condition of upload is absence of non-completed orders. Configurable conditions are listed in group "*Transactions sending settings*" in the configuration of device driver.

Parameter *"Maximum batch size"* defines how many processed transactions can be stored for device. Value of this field can be different for different types of payment terminals. This value is recommended to set a bit lesser than a real number allowed in the terminal. Threshold of uploading start defines a moment when attempts to launch a procedure of transactions uploading start.

Upload of transactions can be performed during the process of system operation between fuel dispensings and sales of products. As the payment transactions are performed, the counters will be incremented. Check of counters is performed after closing of any type of order (sale of fuel or product). If any of counters exceeded the threshold of uploading start and linked device does not have non-completed orders – then procedure for party uploading will be launched for this device. If upload procedure was successful – the counters for give devices are zeroed, otherwise the uploading attempts are continued. If the counter of transactions reaches maximum size of party – then operation of this payment terminal will be blocked and at attempt to open a new order on this terminal a message on impossibility to perform operations until upload will be displayed.

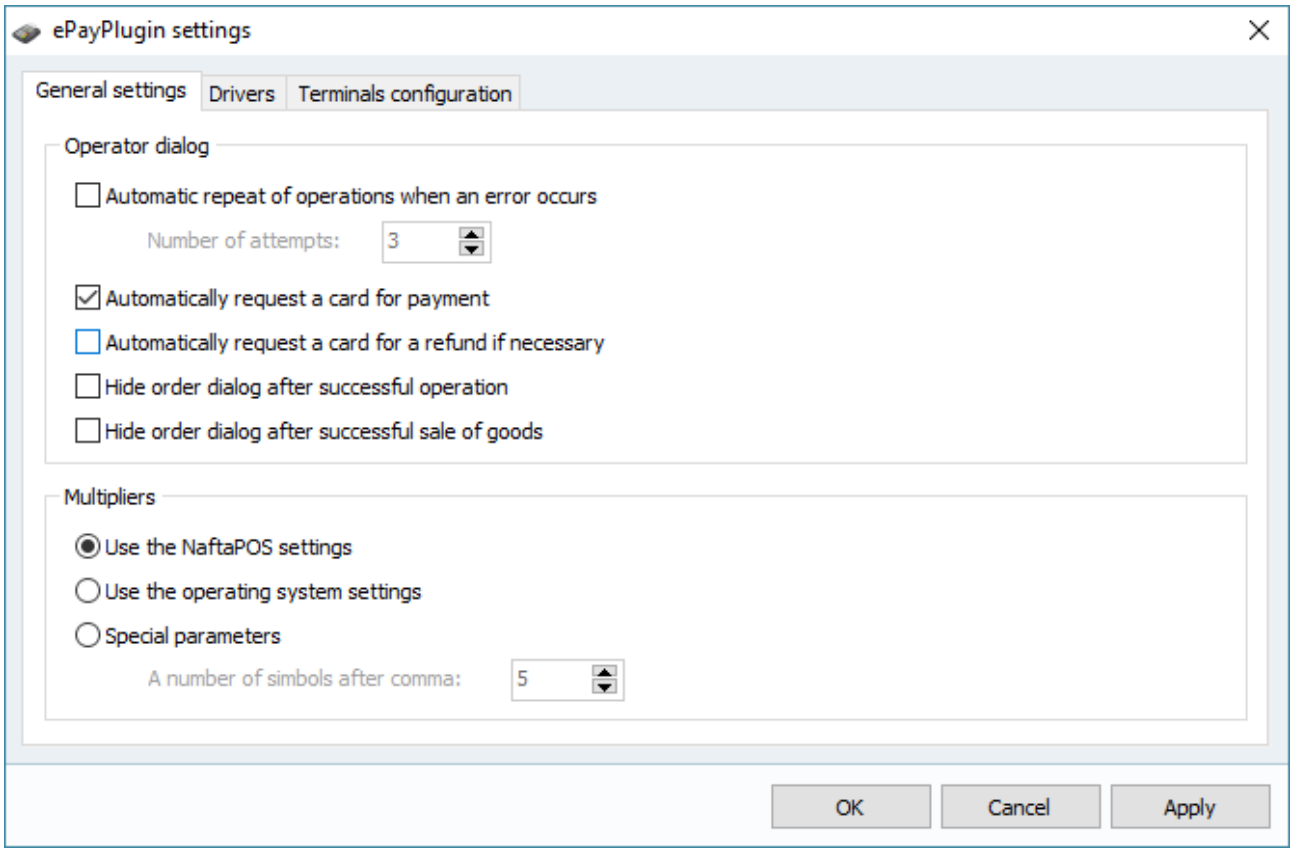
At opening a fuel order space for one more transaction is always booked: possible correction of paid sum in case of underfilling. Thus operation of correctness will be situation in the same party with payment operation and will not require a client card for return of money funds.

Also automatic upload of transactions is possible at opening (continuing) and closing or working shift. This option conforms to the same rules as launching of upload between sales of fuel and products. However listed possibilities can send upload transactions in the forced mode. At usage of forced mode condition of exceeding the threshold of accumulated transactions for uploading start by the counter is ignored. For activation of this possibility it is necessary to set a flag "*Forced shipment when operating with shift and manual uploading*".

Configuration

For provision of payment operations the terminal should be configured for operation with processing center. Given setting should be performed by representatives of the acquirer bank.

ePayPlugin module configuration interface



ePayPlugin settings: General settings tab

Automatic repeat of operations when an error occurs – parameter launches a cycle of automatic operations repeating at its failure execution. Number of automatic repeats is defined by a parameter "*Number of attempts*", values received are in range from 0 to 10.

Automatically request a card for payment – if given flag is not set then at appearing the payment dialog the module will wait for actions of cashier, buttons "Card request" and "Cancel" will be active. If the flag is set then the module will launch the payment procedure automatically. At opening an order the payment operation will be launches only in case if a mode "Postpayment" is forbidden.

Automatically request a card for a refund if necessary – if given flag is not set then at necessity to make return of money funds to client bank card the module will wait for actions of cashier, buttons "Card request" and "Cancel" will be active. If the flag is set – then the module will launch the return procedure automatically..

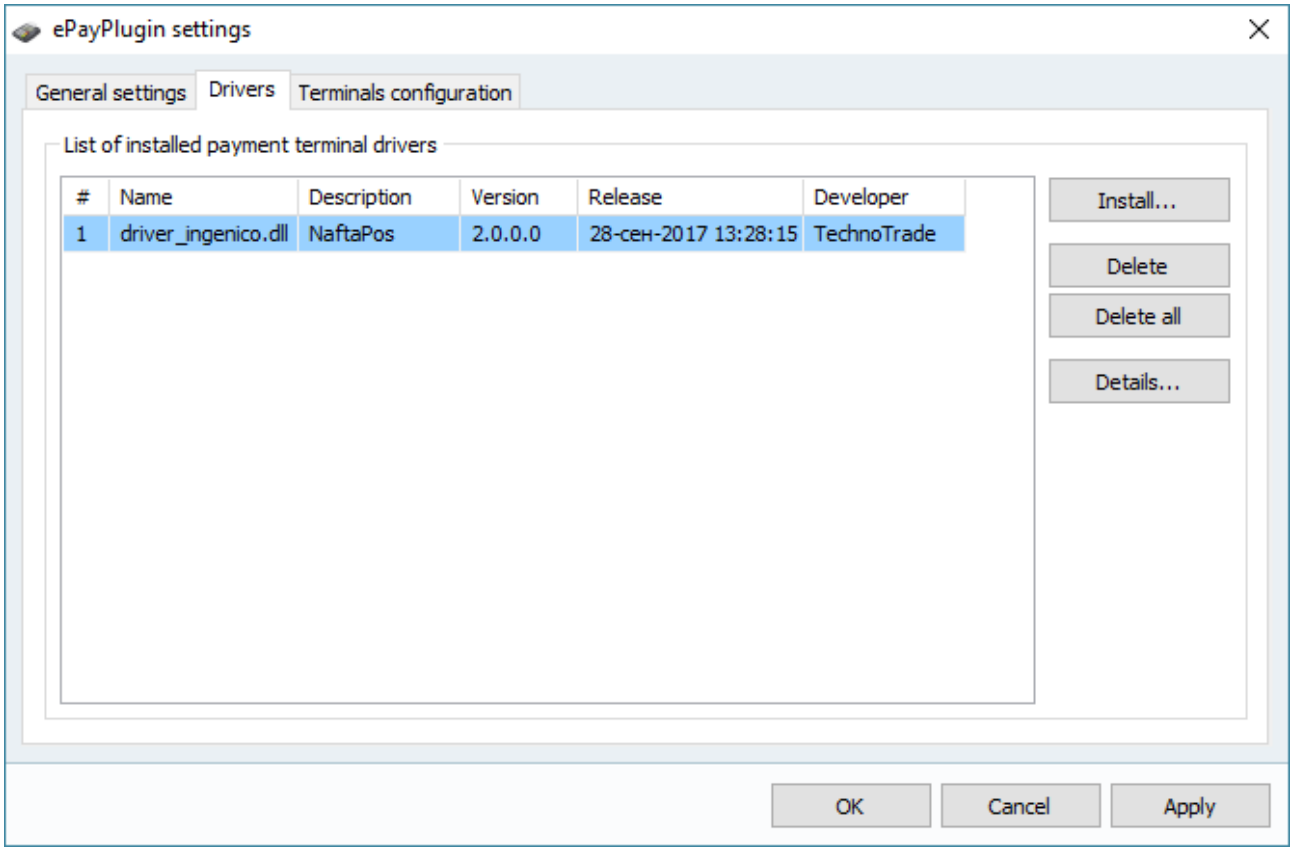
Hide order dialog after successful operation – if given flag is not set then after successful completion of payment operations the module will wait for confirmation from the cashier, button "OK" will be active. If the flag is set – then the module will automatically close the dialog and transfer the control to the system. Given setting refers to all types of payment operations and sales of fuel and retail products.

Hide order dialog after successful sale of goods – If given flag is not set then after successful completion of payment operation the module will wait for confirmation from the side of cashier, button "OK" will be

active. If the flag is set – then the module will automatically close the dialog and transfer the control to the system. Given setting refers only to payment operation and sale of retail products.

Multipliers – sets to the module which source of value of decimal digits numbers will be used. Variants are:

- ***Use the NaftaPOS settings*** – values are taken from configuration of NaftaPOS system
- ***Use the operating system settings*** – value is taken from regional settings of operation system
- ***Special parameters*** – user settings of decimal digits, is defined by value of field "*Number of decimal digits*"



ePayPlugin settings: Drivers tab

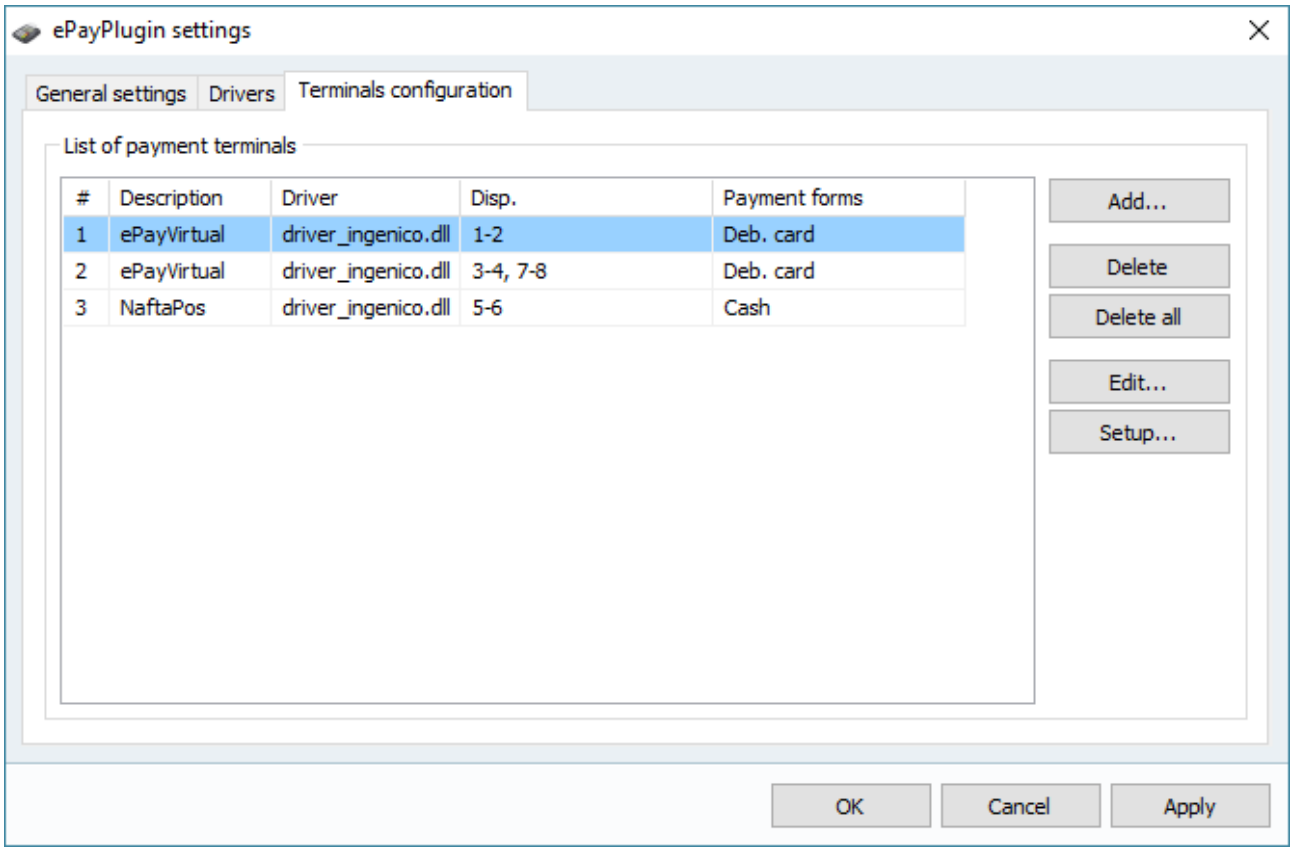
List of installed payment terminal drivers – given table contains a list of registered in module drivers of payment terminals and short details about them.

Button "*Install…*" – selects a payment terminal driver file

Button "*Delete*" – deletes selected driver from the list

Button "*Delete all*" – deletes all registered divers from the list

Button "*Details…*" – shows detailed information on selected driver



ePayPlugin settings: Terminals configuration tab

List of payment terminals – given table contains a list of payment terminals (physical devices) and short data on their configuration.

Button "*Add…*" – adds a new device.

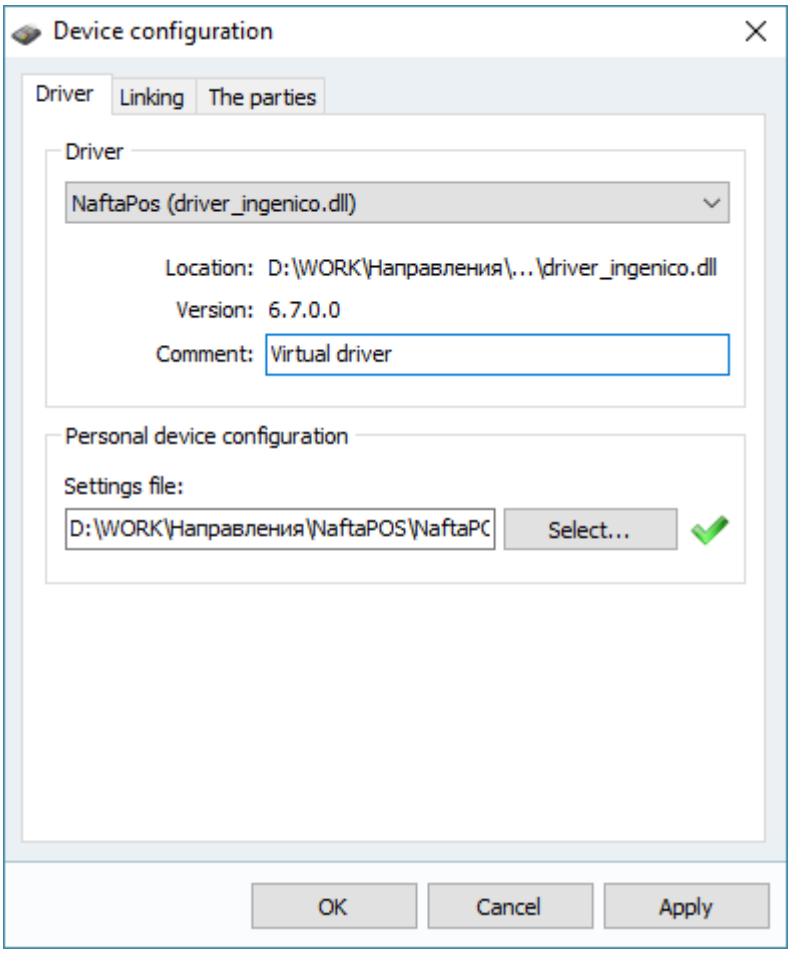
Button "*Delete*" – deletes selected device from the list

Button "*Delete all*" – deletes all devices from the list

Button "*Edit…*" - calls a device configuration dialog

Button "*Setup…*" – calls a dialog for configuration of unique properties of terminal, which are unique for each device model (connection type, seller identifier, etc). Given dialog can be different for various payment terminals types.

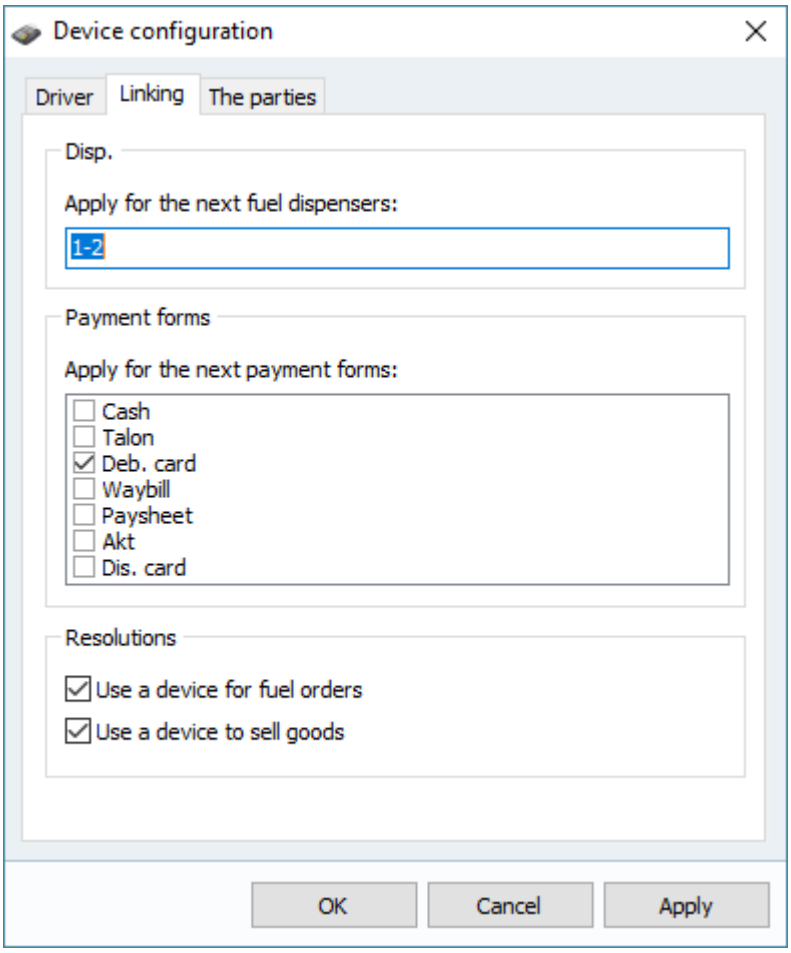
Dialog of device configuration



Device configuration: Driver tab

Driver – contains a list of drivers registered in system, defines which driver will given device use. Field “Comment” is used for identification of device (mostly used for logging).

Personal device configuration – selection of a file for storing driver configuration, should be unique for configured device.



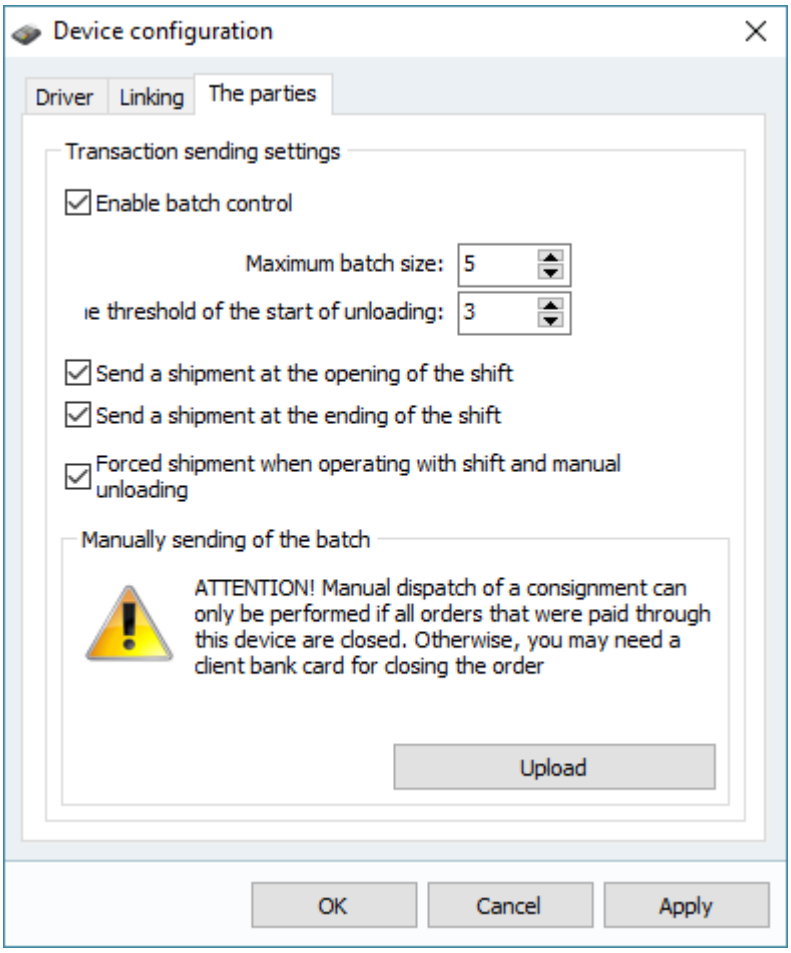
Device configuration: Linking tab

Disp. – string specifying pumps numbers, on which it is allowed to make payment using given payment terminal. Given string can contain all digits, space, hyphen and comma, numbers should be in rabge from 1 till 32..

Payment forms – list of permitted payment forms, on which it is allowed to perform payment using given payment terminal.

Use device for fuel orders – if the flag is set then the device is allowed to use for payment for sales of fuel.

Use device to sell goods - if the flag is set then the device is allowed to use for payment for sales of products.



Device configuration: Parties tab

Enable batch control – this setting allows the module to lead counter of transactions and launch a procedure of parties upload

Maximum batch size – maximal number of performed transactions, which the device allows to store until upload

Threshold of the start of unloading – number of transactions at reaching which attempts to make uploading are started

Send shipment at the opening of the shift – allows uploading of transactions at attempt to start or continue a working shift in system

Send a shipment at the ending of the shift – allows uploading of transactions at closing of working shift in system

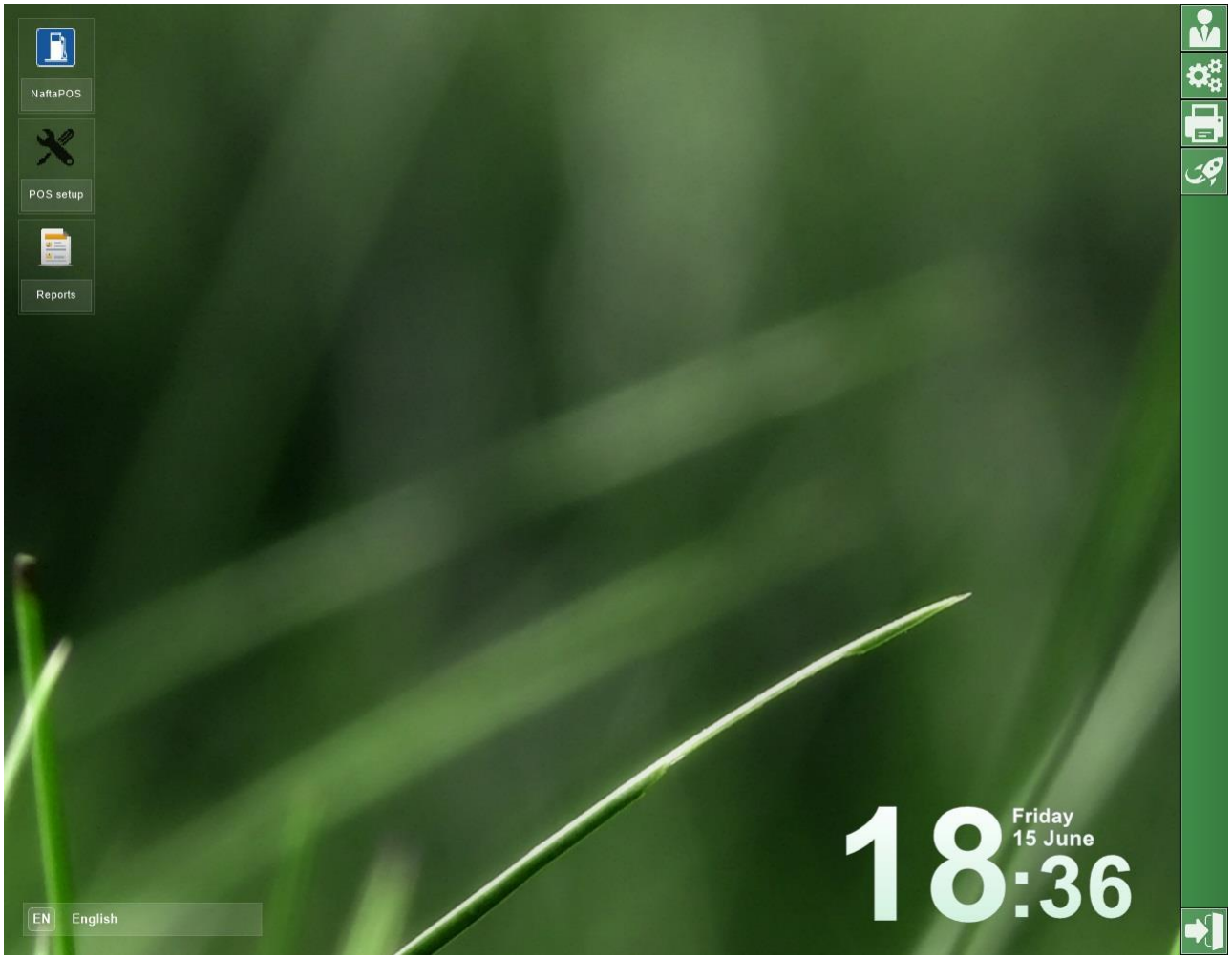
Forced shipment when operating with shift and manual uploading – allows forced unload, ignoring transaction counters

Button "*Upload*" – launches manual unload of party

TT Shell – NaftaPOS shell for Windows OS

NaftaPOS software offers its own shell for replacement of classic Explorer.exe Shell for Windows OS. This feature is appointed for situations when you need to make NaftaPOS system to be the only application to be running on a PC and thus protect your PC from unauthorized access by service personnel such as cashiers, so that they do not have access to Windows OS register and file system, NaftaPOS system files and database avoiding any cheatings and tricks. TT Shell is to be enabled instead the standard Explorer.exe Shell in Windows OS and thus the users without due permissions will not be able to run any side applications or enter the Windows file system, the only thing they will be able to do is to run NaftaPOS software and all the allowed utilities.

TT Shell works as an application with location *D:\NaftaPOS\TTShell.exe*.



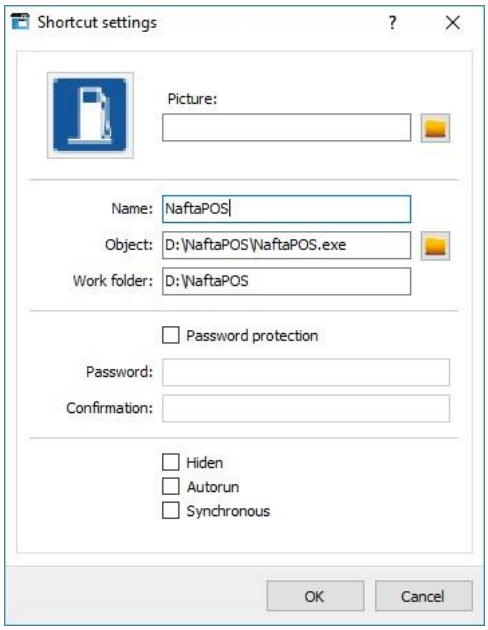
NaftaPOS TT Shell general view

TT Shell has a configurable user interface with preinstalled themes, you can add/remove icons for running of permitted applications and utilities and you can add/remove widgets to be displayed on the desktop.

It is possible to add/edit/remove icons on the desktop, configuration of the icon properties is done in the right mouse button content menu. It is possible to set password protection to running applications.

By default there are icons for running following applications from the TT Shell:

- NaftaPOS software
- PosSet configuration utility
- NaftaReports viewer

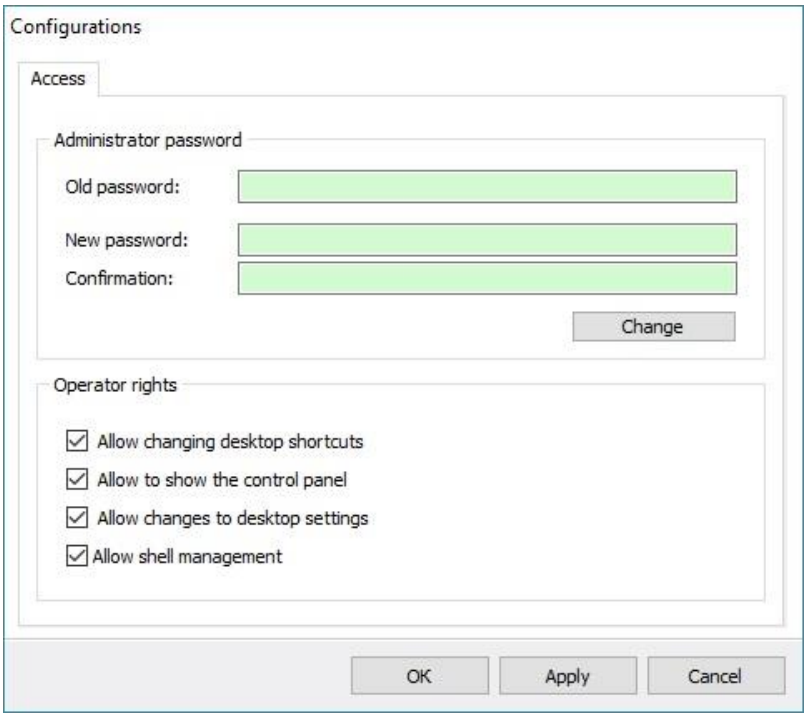


Configuration of icons in TT Shell

It is possible to turn on constantly or turn off the TT Shell, setting is done in the right side menu:

Turning on/off the TT Shell

Configuration of the TT Shell includes few option and password to their access:

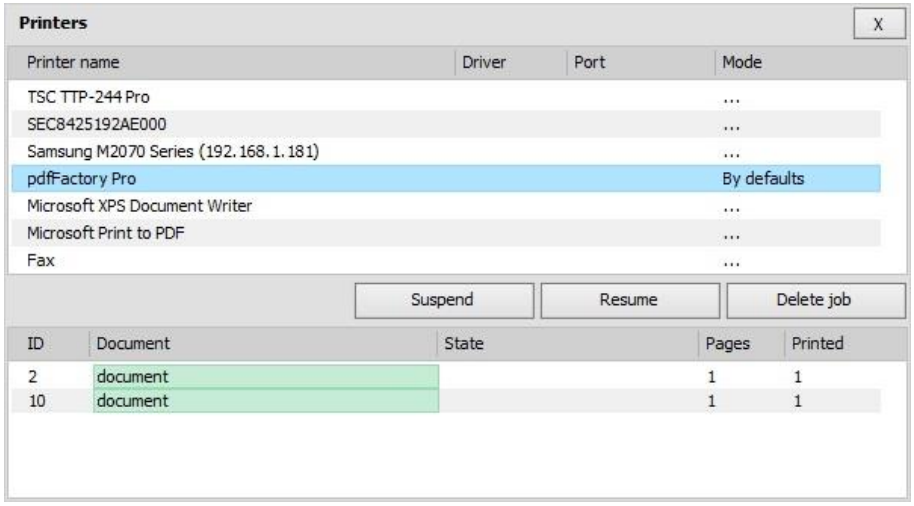


Configuration of TT Shell

You can log off the TT Shell or shutdown the computer from TT Shell:

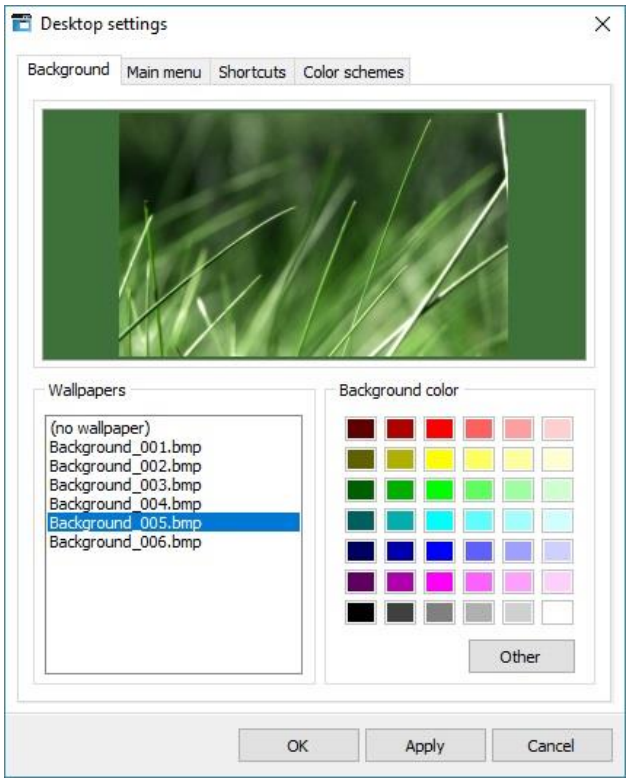
Exiting the TT Shell

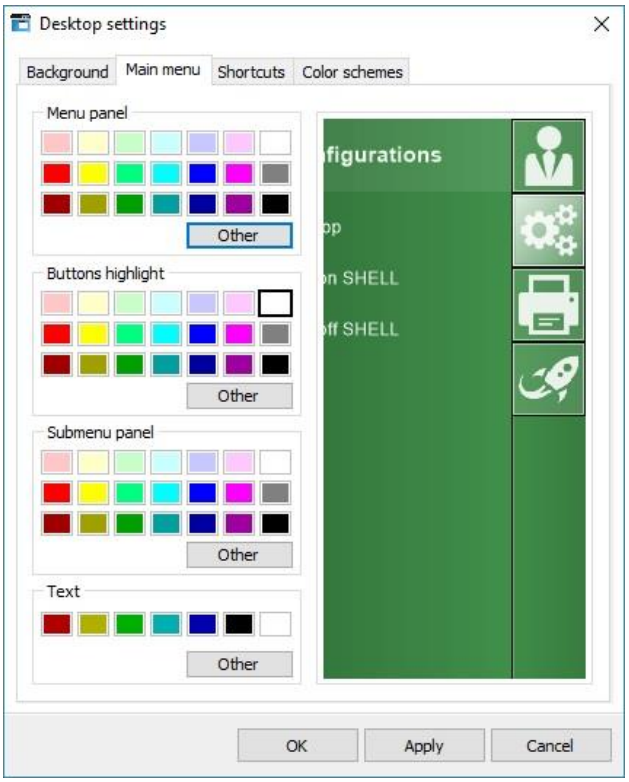
It is possible to provide management over printers from the TT Shell:

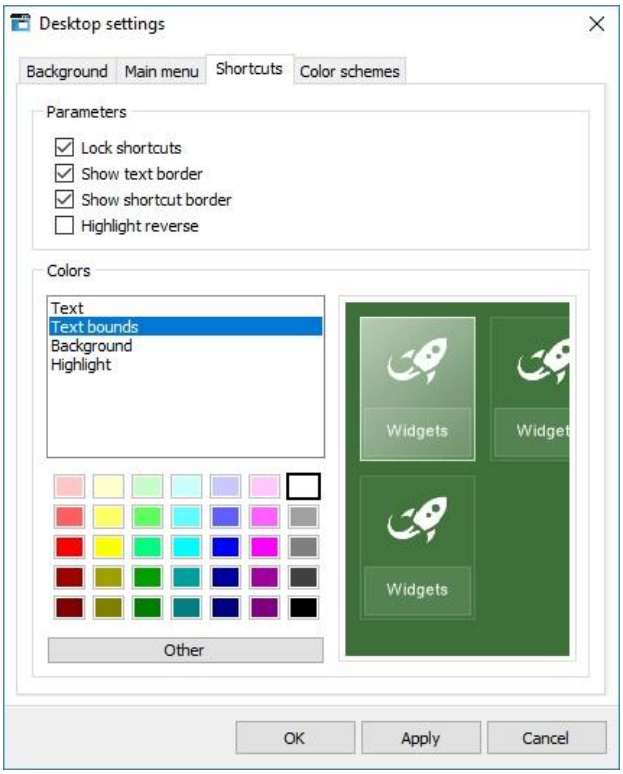


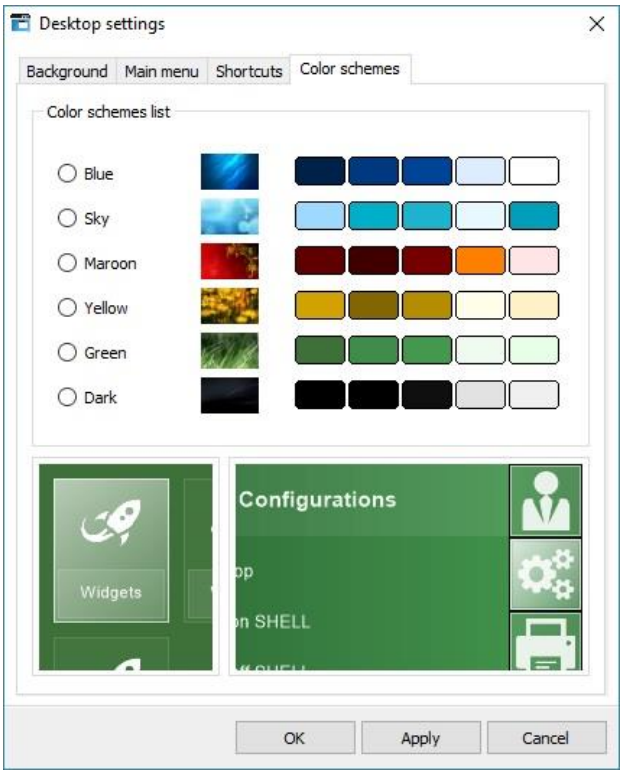
Management over printers from the TT Shell

Configuraton of the TT Shell desktop includes setting of color scheme, background image, placing of widgets, etc:

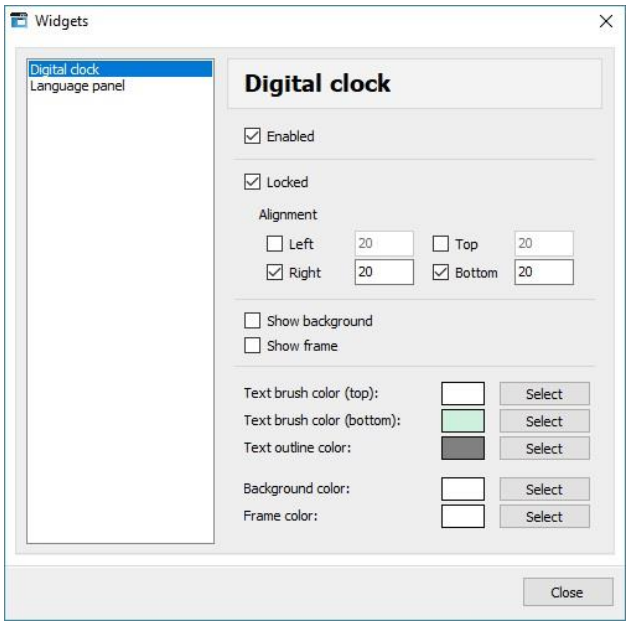


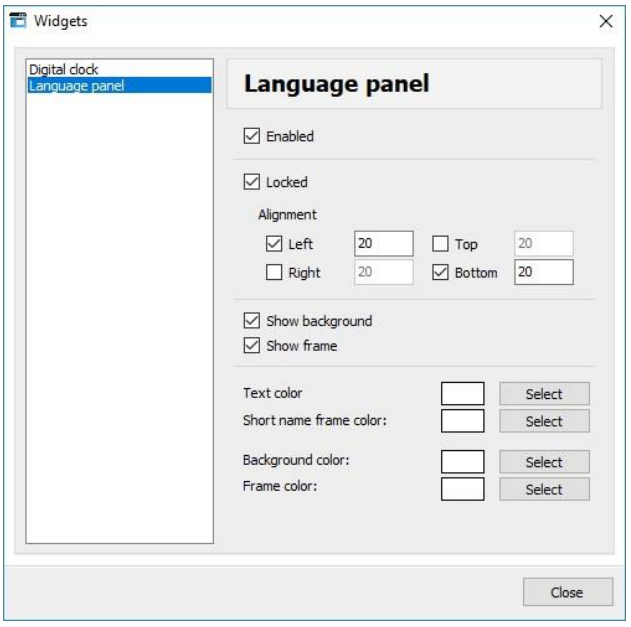






Configuration of widgets includes the default digit clock and language panel widgets:

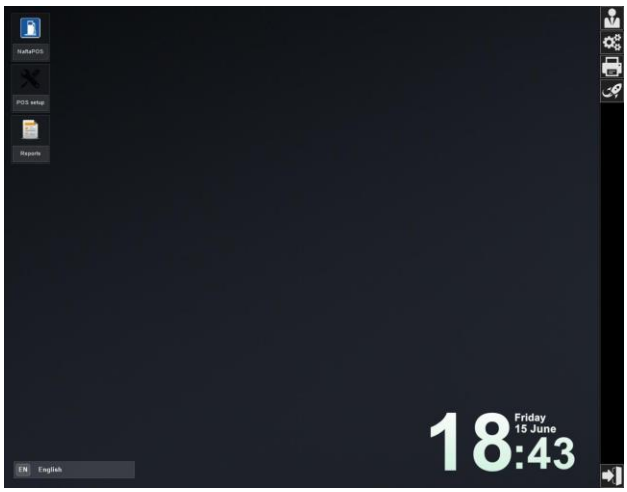


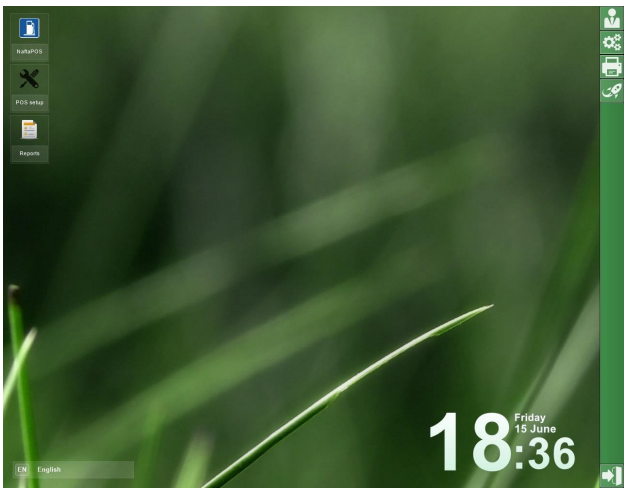


There are several predefined color schemes in TT Shell, here are few examples:

Friday
15 June
18:43

Friday
15 June
18:44


Friday
15 June
18:43


Friday
15 June
18:36

Backup and restore of configuration and database of NaftaPOS system

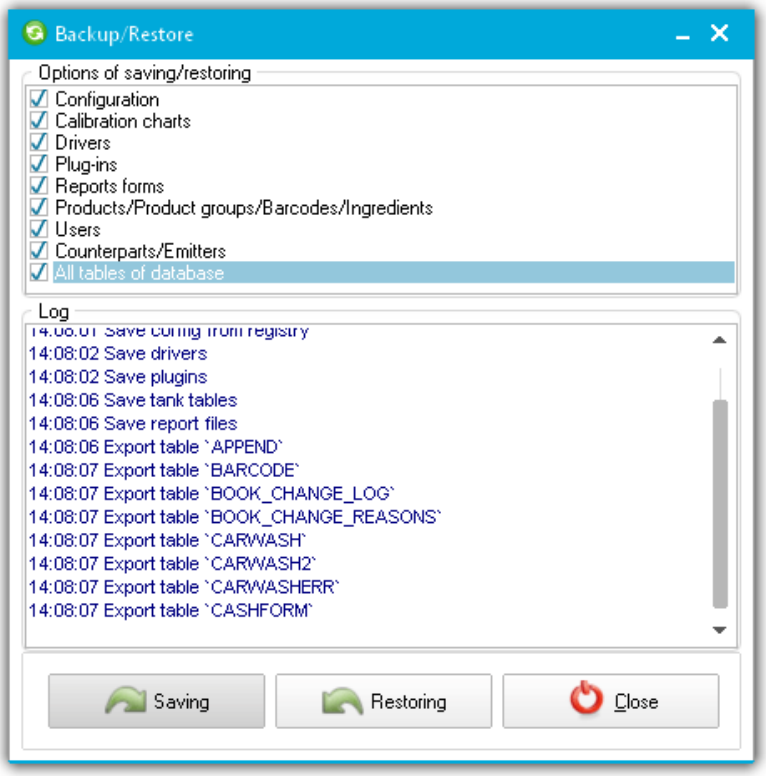
As any modern system NaftaPOS system is being constantly developed and new versions of NaftaPOS system are available. For the reason of updating NaftaPOS software with saving of all previous system data, files and configurations a separate Backup/update utility is foreseen.

Utility is called by clicking on button "*Configuration backup and restore wizard*" on tab "*Database*" in NaftaPOS configuration.

It is possible to make backup/restoring of:

- NaftaPOS configuration
- Tanks calibration charts
- NaftaPOS drivers
- NaftaPOS plug-ins
- Report forms
- Products
- Users
- Counterparts
- Database tables

Required items to backup or to restore are selected in the checkboxes in the utility:



NaftaPOS backup and restore utility

Backup of the system is made by clicking on the button "*Saving*" and selection of the file name of the backup and its location. For restoring you need to press a button "*Restoring*".

Notice!

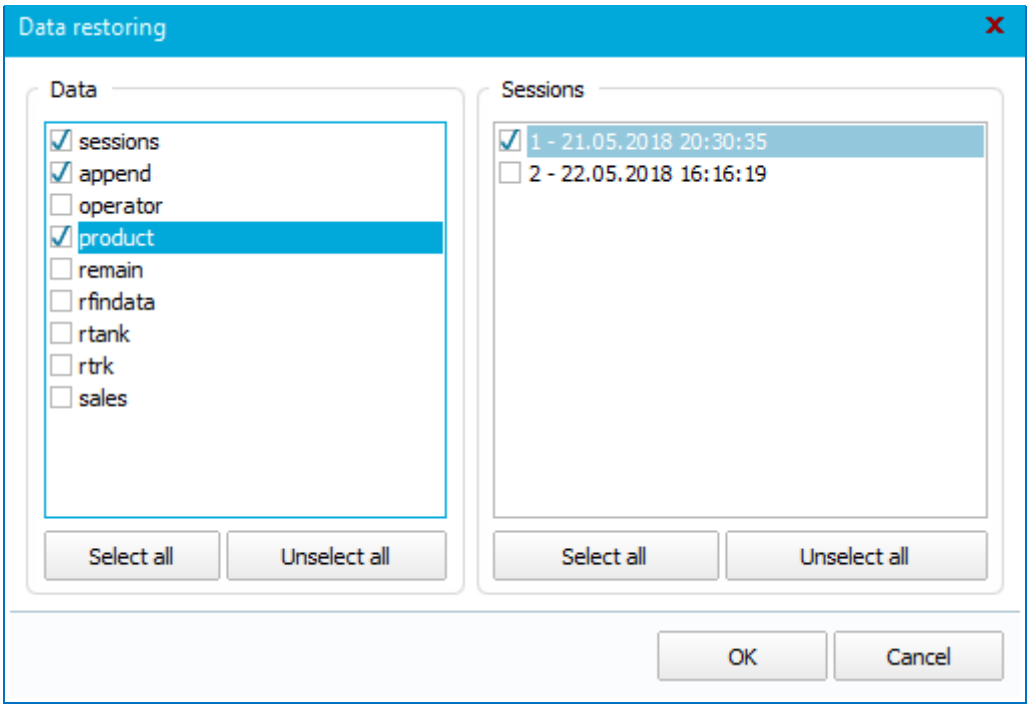
At restoring current files/configurations will be replaced with files/configuration from the backup!

When NaftaPOS software is to be updated – it is necessary to use Backup/update utility to save and restore all the configuration and database tables.

Whole process of NaftaPOS system update is to be done as follows:

1. Take a backup of the present NaftaPOS system using Backup/restore utility (select points, which you need to backup from it).
2. For any unforeseen situations save all NaftaPOS system files from *Drive:\NaftaPOS* folder to some backup place (these files probably will not be required in future, but nevertheless we should do it for the case if there will be any inconsistency with new version, if the new system is working normally after the update – you are free to delete all these files).
3. For any unforeseen situations save all MySQL database files from *C:\mysql\data* folder to some backup folder (these files probably will not be required in future, but nevertheless we should do it for the case if there will be any inconsistency with new version, if the new system is working normally after the update – you are free to delete all these files).
4. Uninstall previous version of NaftaPOS software (follow steps described in section "*NaftaPOS system uninstallation*" below).
5. Install a new version of NaftaPOS software.
6. Using Backup/restore utility restore configuration from the previous NaftaPOS system (from a file, which was saved in point 1 above).
7. Make sure that all configuration and database of the system are well-restored, recheck all settings and NaftaPOS system operation.

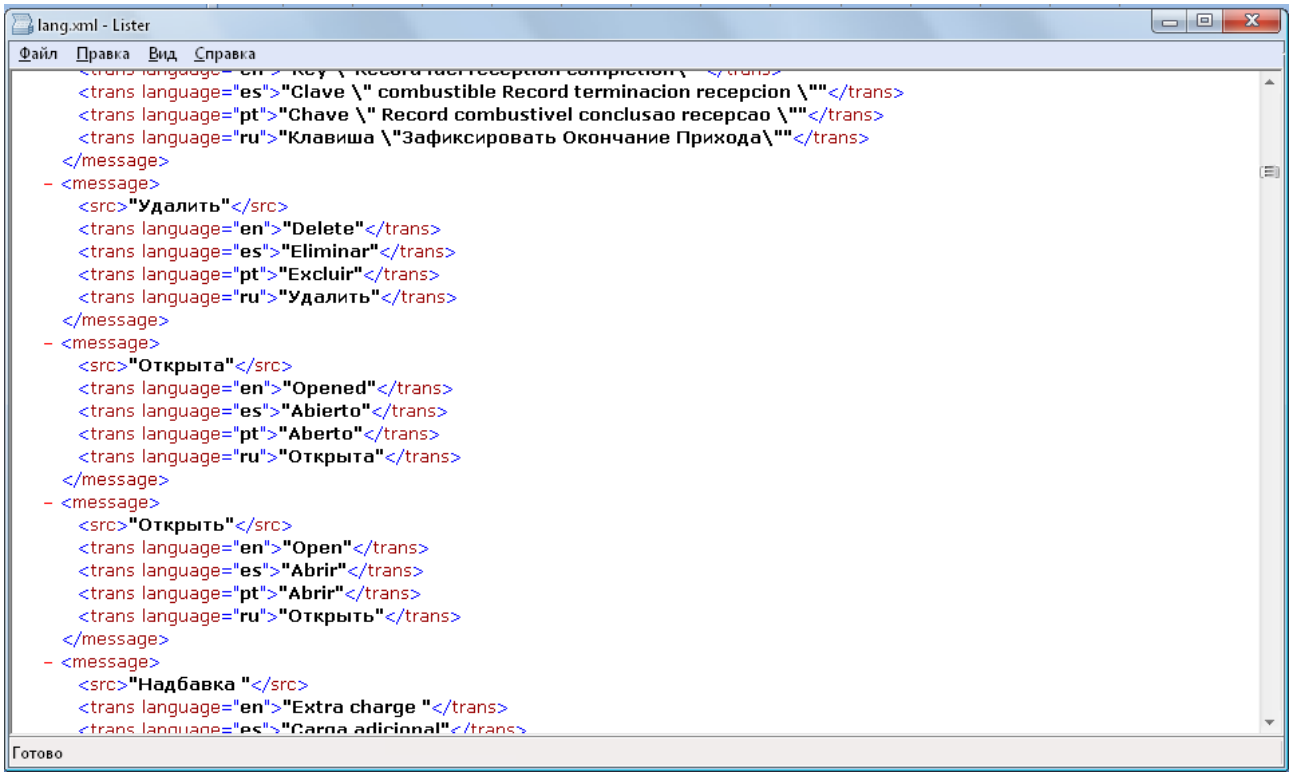
It is possible to restore NaftaPOS database from previously automatically backup database using "*Data retoring*" utility. This utility is called by clicking on button "*Recover data from the backup database*" on tab "*Database*" in NaftaPOS configuration. You can select the tables to restore and the shift number, from which the data should be taken from.



NaftaPOS backup database restore utility

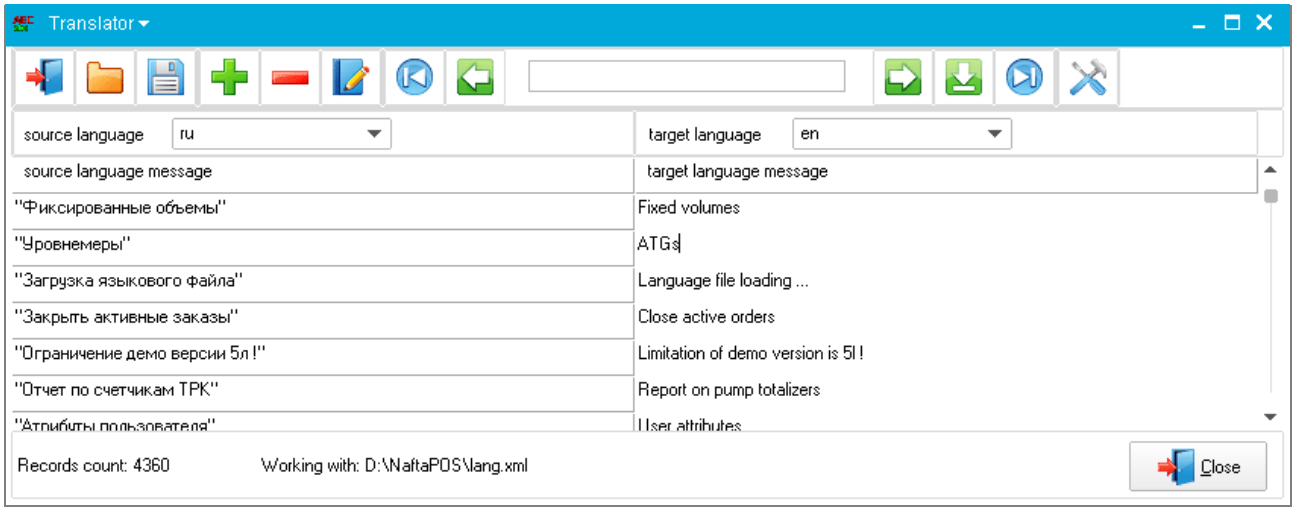
NaftaPOS system localization

NaftaPOS system is easy to be localized to any international language. All text constants and phrases are stored in file *lang.xml*, which is located in NaftaPOS\ folder. So, it is necessary to add to it new language and translate the phrases to this new language:



NaftaPOS localization file lang.xml

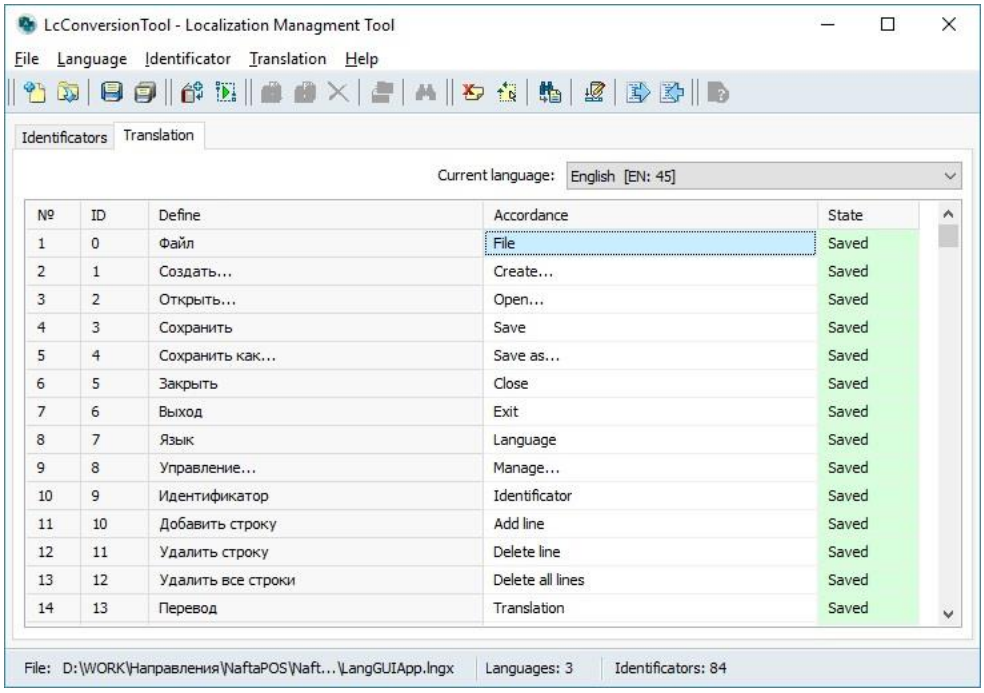
NaftaPOS system has a localization utility *translator.exe* (location is NaftaPOS\Translation\ folder) to work with localization file lang.xml. This utility allows easy possibilities for adding new languages and translating of the phrases.



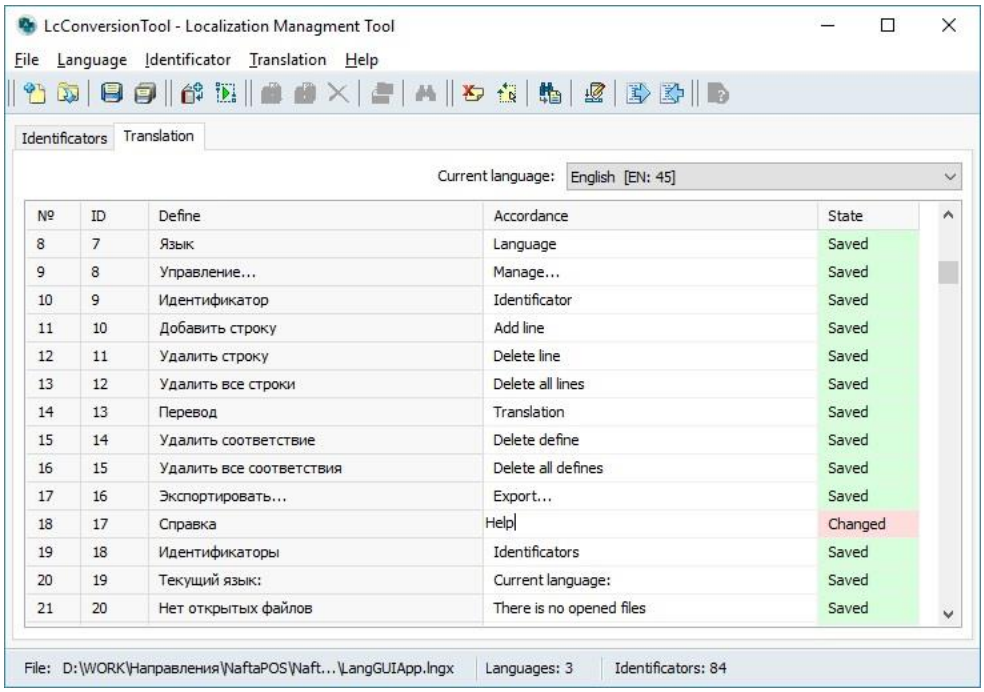
Localization utility translator.exe

Some new sections of NaftaPOS software are using a newer version of localization utility. This utility is found in *NaftaPOS\LCConversionTool* folder. It has the same idea as *translator.exe* utility, however is using

a new design and new format of localization files:



Localization utility LCConversionTool



Localization utility LCConversionTool

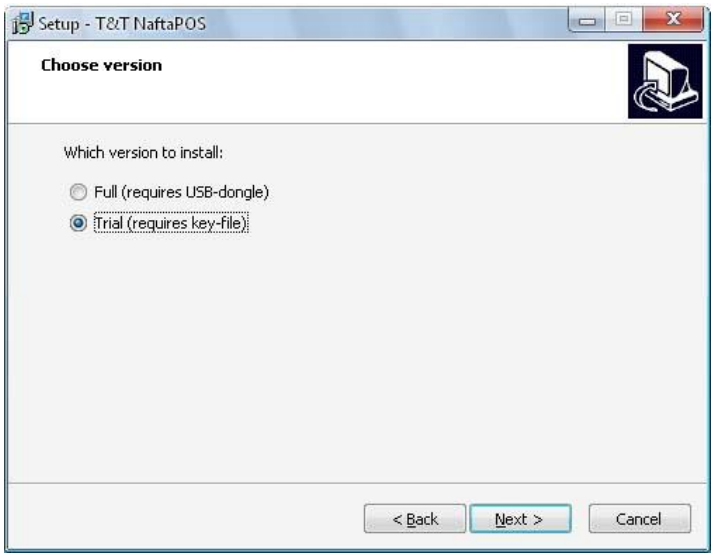
NaftaPOS system trial version

For trial running (testing) of NaftaPOS software it includes a trial version. Its difference from standard full NaftaPOS software system is that it can work without a Guardant protection dongle, but requires constant Internet connection.

Actually trial version of NaftaPOS software also works through a Guardant dongle, but dongle is located remotely on server of TECHNOTRADE LTD.

In order to run trial version of NaftaPOS software it is necessary to:

1. Download NaftaPOS software installation file
2. Install NaftaPOS software. During installation it is necessary to specify that trial version of NaftaPOS is to be installed:



Select "Trial" version of NaftaPOS system to be installed

3. After installation is complete place received from TECHNOTRADE LTD key-file for NaftaPOS system file with extension .npr) to NaftaPOS folder (Drive:\NaftaPOS\).
4. Run POSSet.exe utility to configure NaftaPOS software.
5. Run NaftaPOSTrial.exe file to launch trial version of NaftaPOS.

Trial version of NaftaPOS works like a full version with all possibilities and does not have limited functions. But as it is a trial version of NaftaPOS software - it requires constant access to Internet of the PC, on which it is launched. In case if Internet connection disappears during operation of NaftaPOS trial version – NaftaPOS will be switched to Demonstration mode of operation, which has limitations on sales of fuel and products.

Things to configure first in NaftaPOS system

Things that need to be configured first in NaftaPOS are:

1. Enter petroleum products present on the site in NaftaPOS configuration on tab ‘Tanks’.
2. Configure tanks: set quantity of tanks, their height, fuel products inside of them on tab ‘Tanks’ in NaftaPOS configuration.
3. Configure pumps: enter quantity of pumps, set correspondence between pumps nozzles and tanks on tab ‘Pumps’ in NaftaPOS configuration.
4. Configure drivers of cash register, controller and tanks (ATG systems) on tab ‘Drivers’ in NaftaPOS configuration.
5. Set configurations on ‘General’ in NaftaPOS configuration.
6. Configure users and their permissions on tab ‘Users’ in NaftaPOS configuration.
7. Set correct adjustments on tab ‘View’ in NaftaPOS configuration.

Remote data gathering from a petrol station network and monitoring

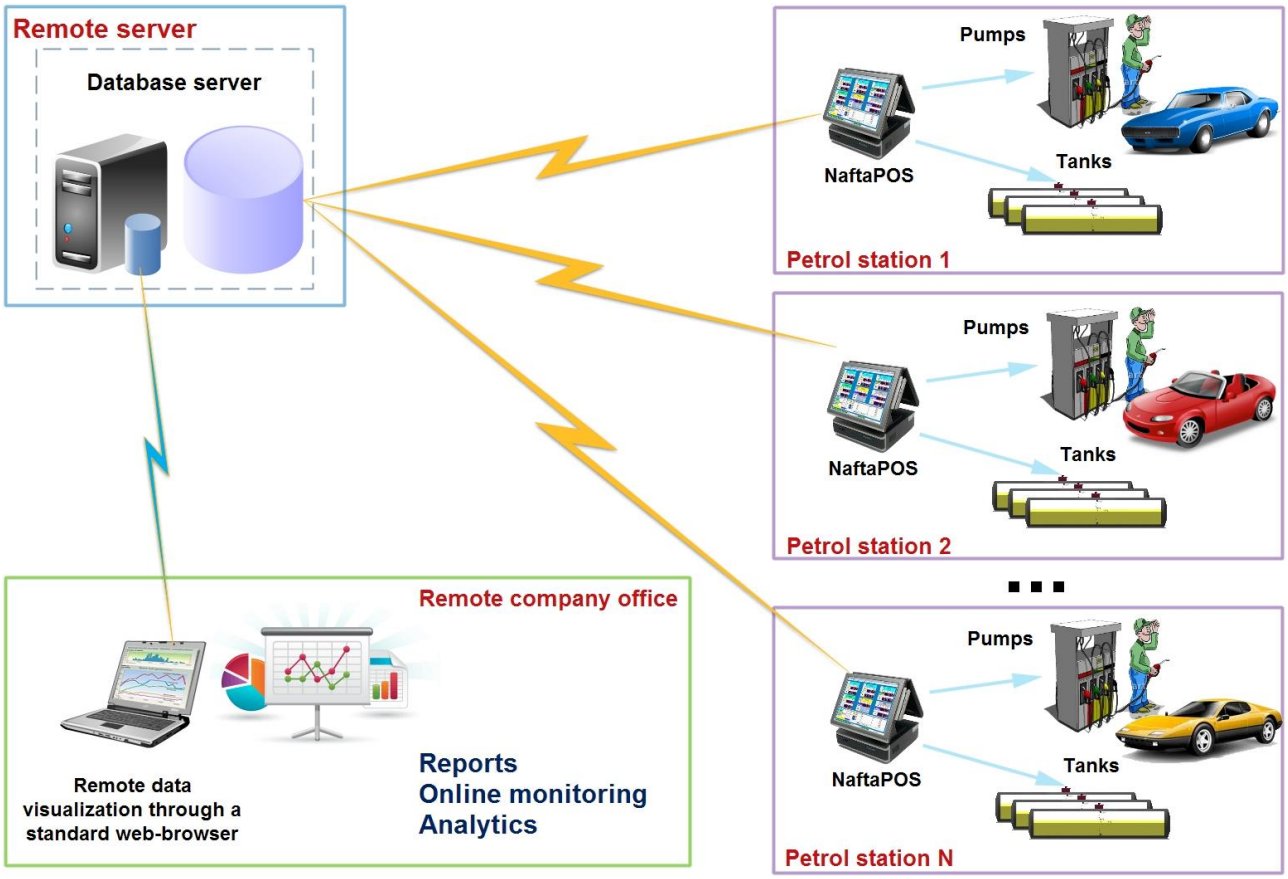
NaftaPOS software leads a database, where it stores all the sales and operations (see section "*NaftaPOS database structure*" below). Using its data it is possible to monitor the petrol station remotely.

NaftaPOS can be used together with NextReports Server web-server application (please read more on http://www.next-reports.com/products/nextreports-server.html), which allows to have a web portal with following possibilities:

- review of NaftaPOS operation online
- review of NaftaPOS reports
- adding new reports and charts
- schedule reports to be automatically delivered via E-mail, FTP, SSH, Windows Share or WebDAV to your business contacts in most popular file formats like HTML, EXCEL, EXCELX, PDF, DOCX, RTF, CSV, TSV, TXT or XML
- supervision over users and their actions on the web-portal

Having access to databases of several installed NaftaPOS systems allows to gather into one server all data from the petrol stations network to provide:

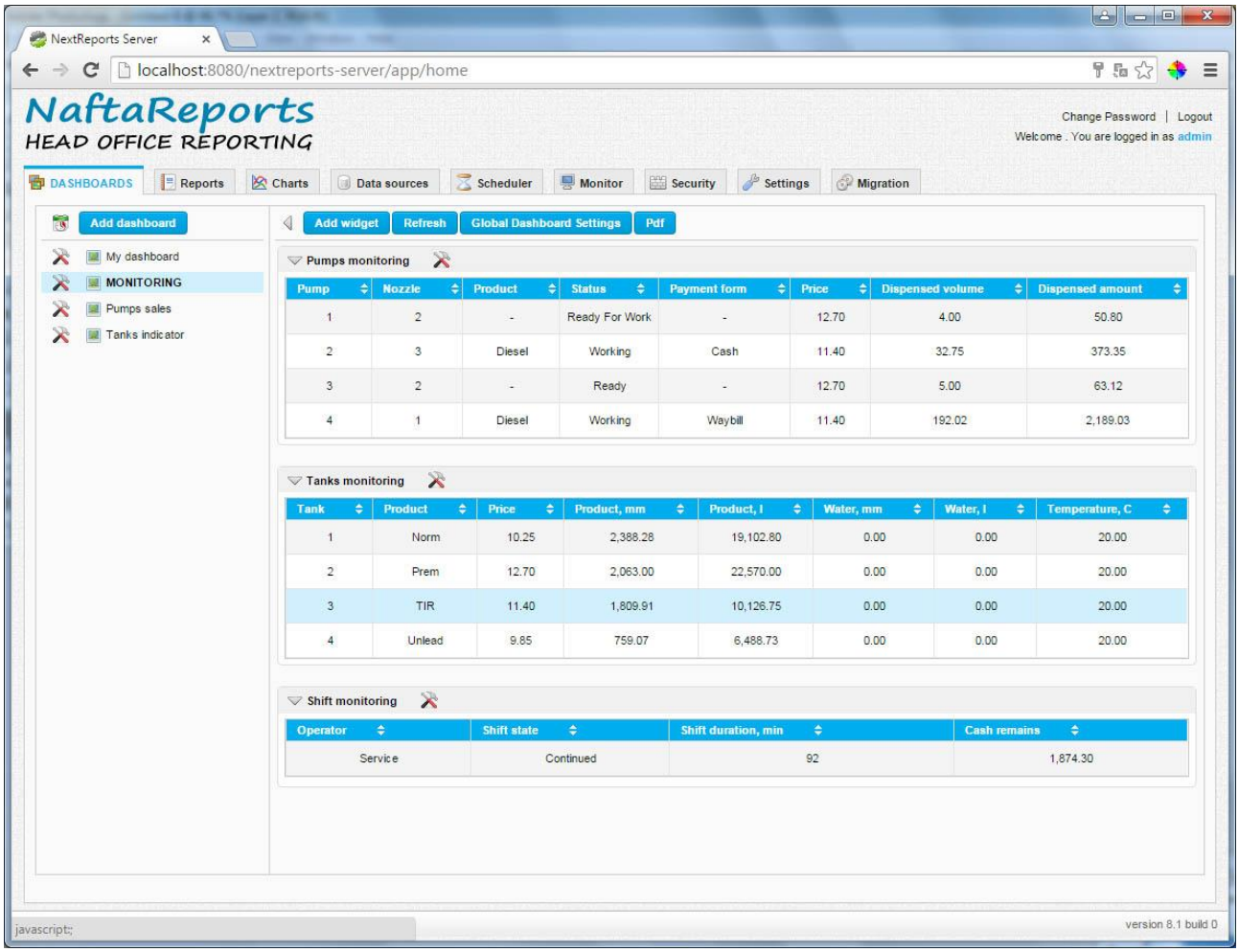
- formation of reports on operation of all petrol stations in various views for analytics and statistics of petrol stations activity to provide decisions for optimization of petrol stations operation;
- online monitoring of each petrol station activity (fuel dispensers operation, remains and parameters of fuel in tanks, current working shift operations) to provide control over personnel at petrol station and security;



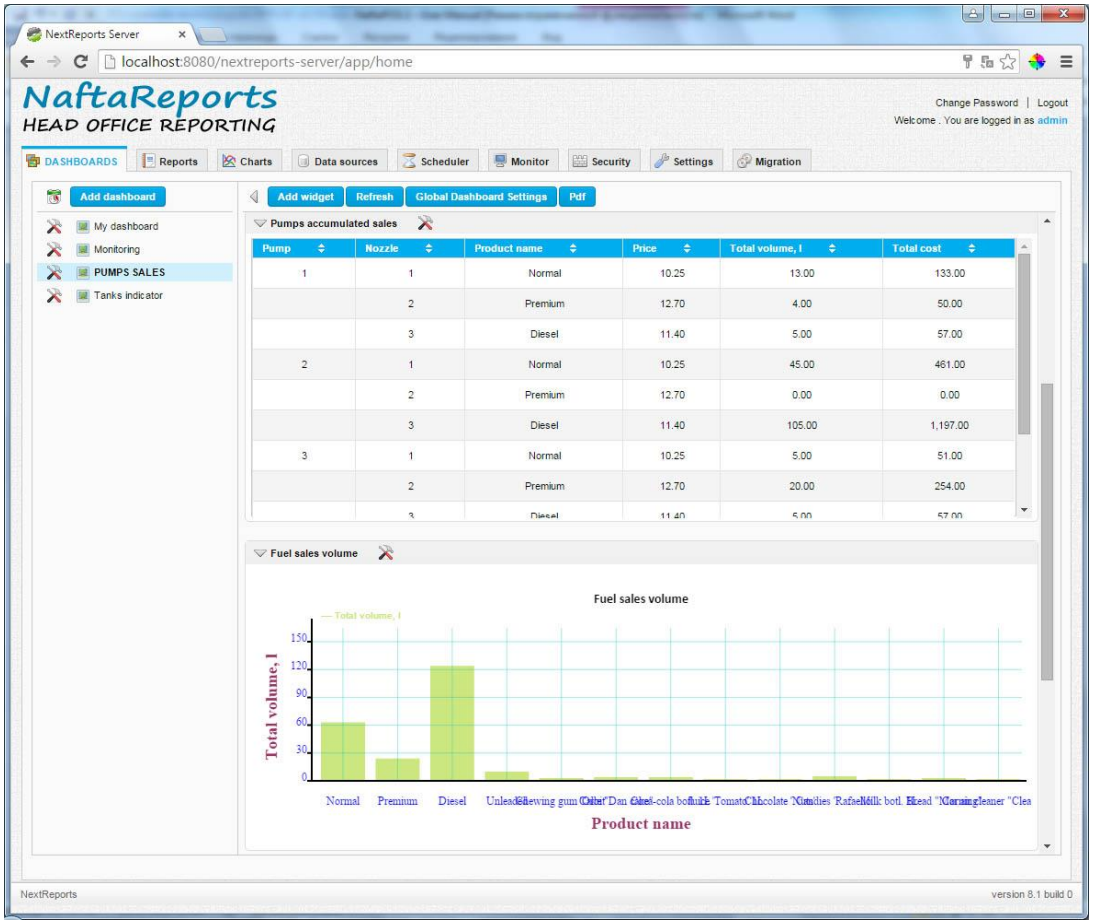
Operation of web reporting system for collection of data from NaftaPOS systems

Thus using a standard web-browser it is possible to receive reports on operation of NaftaPOS systems at petrol stations and also to online monitor their activity:

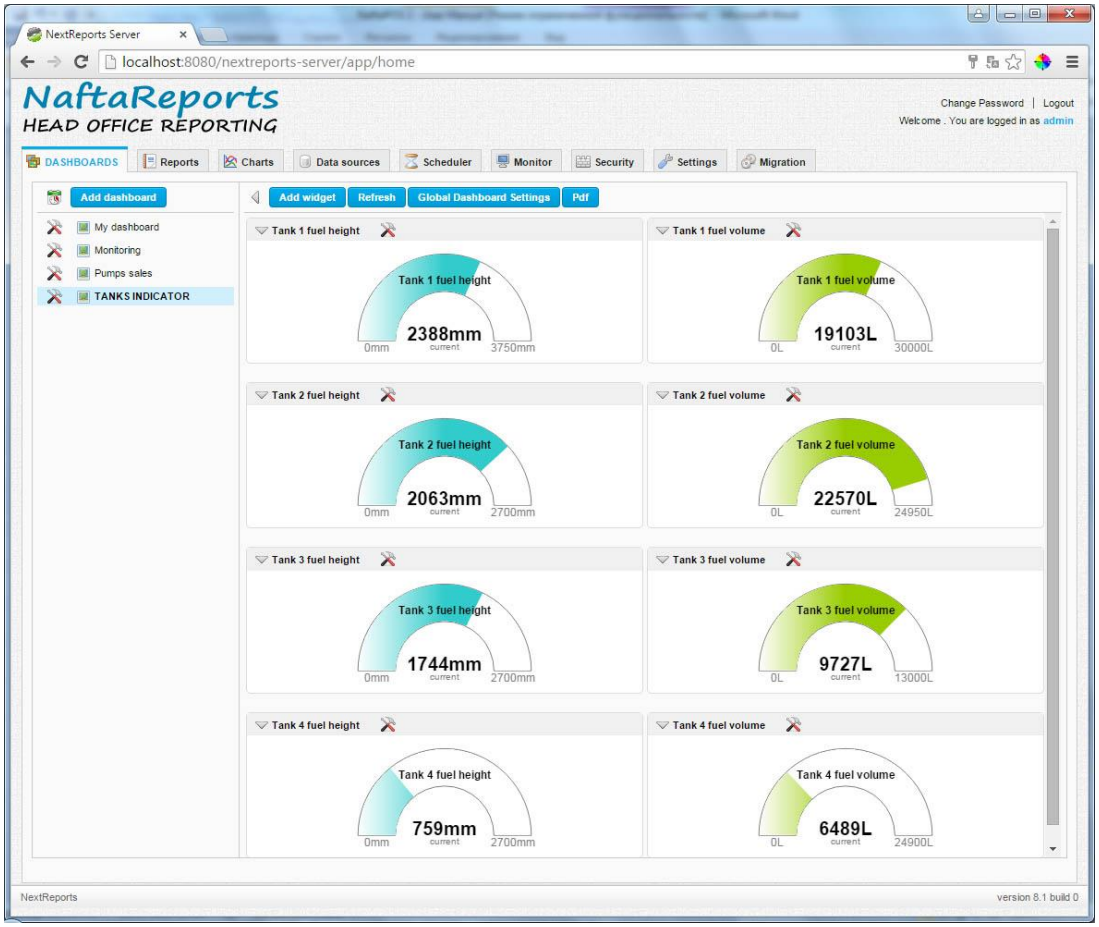
NextReports system – login page



NextReports system – online monitoring over petrol station operation: pumps, probes and shift

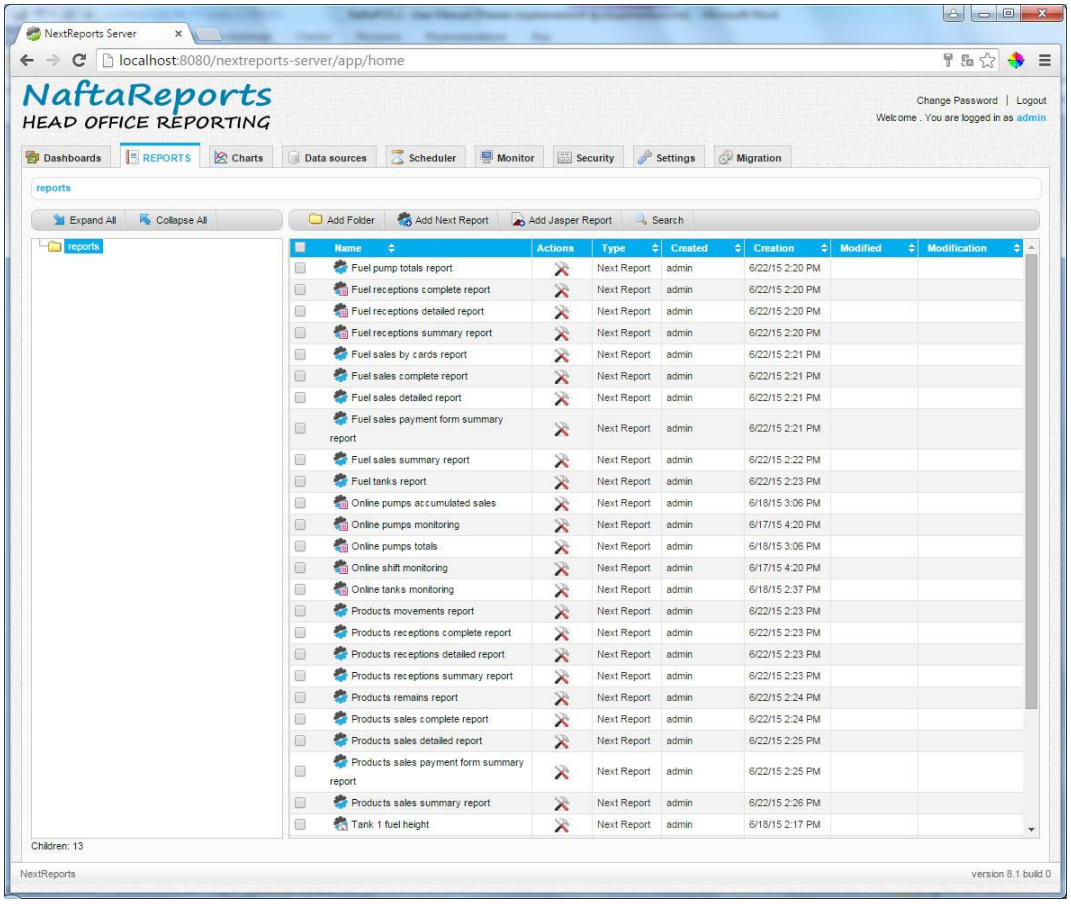


NextReports system – online monitoring over petrol station operation: pumps sales

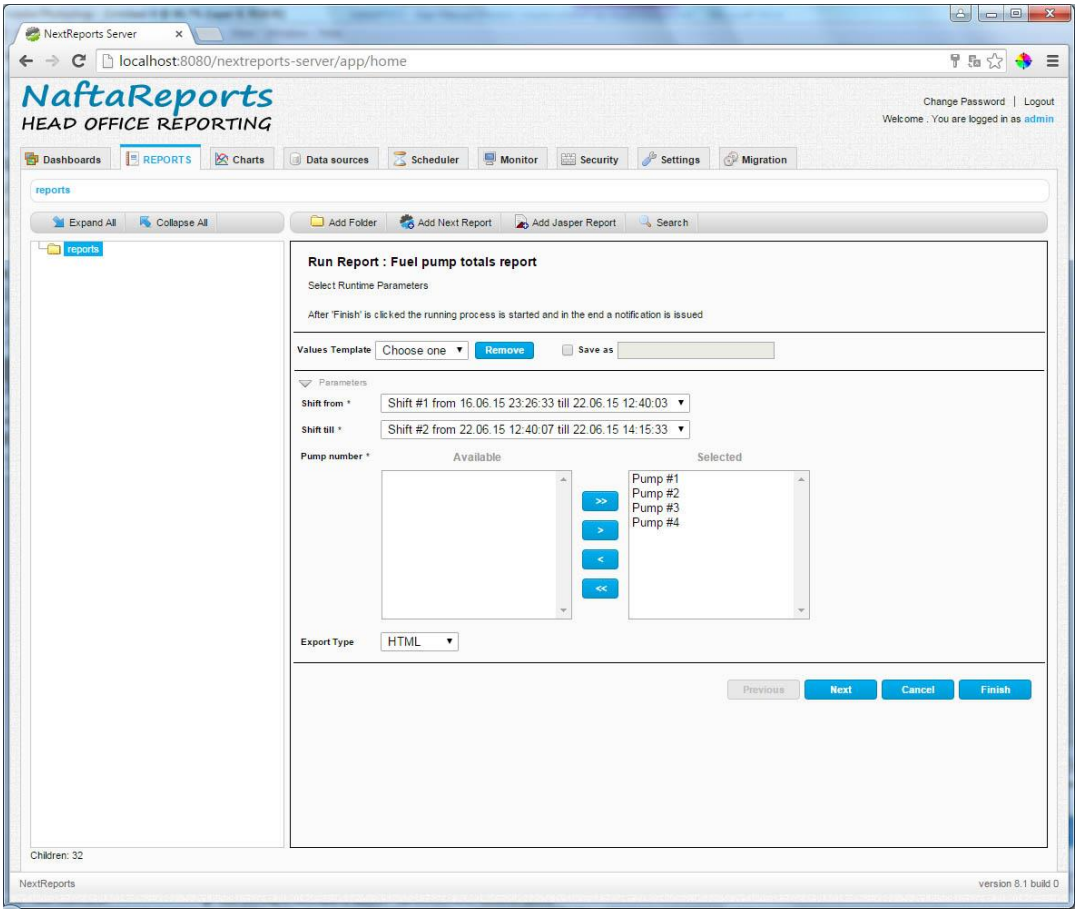


NextReports system – online monitoring over petrol station operation: tanks fuel level and volume

The NextReports web portal allows to import all reports and charts from NaftaPOS and to run them through a web-site with specification of all parameters:

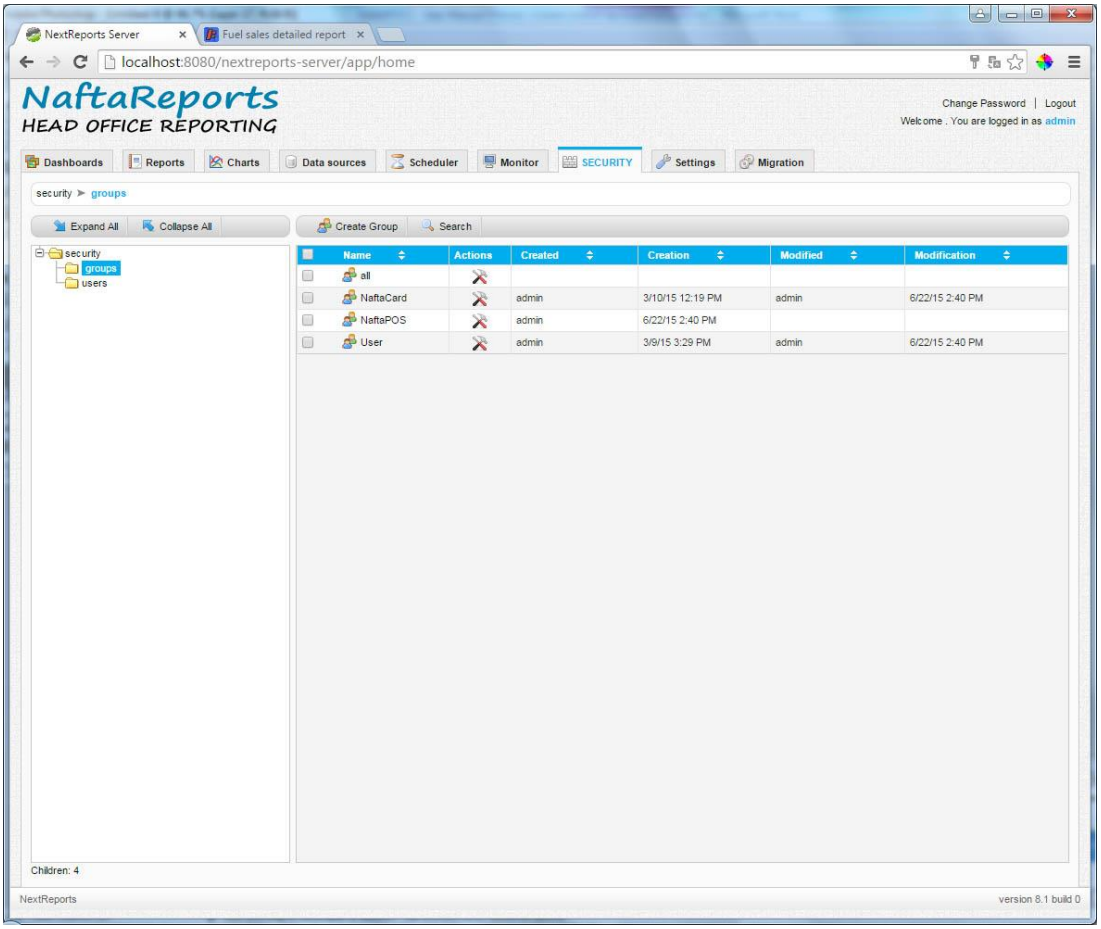


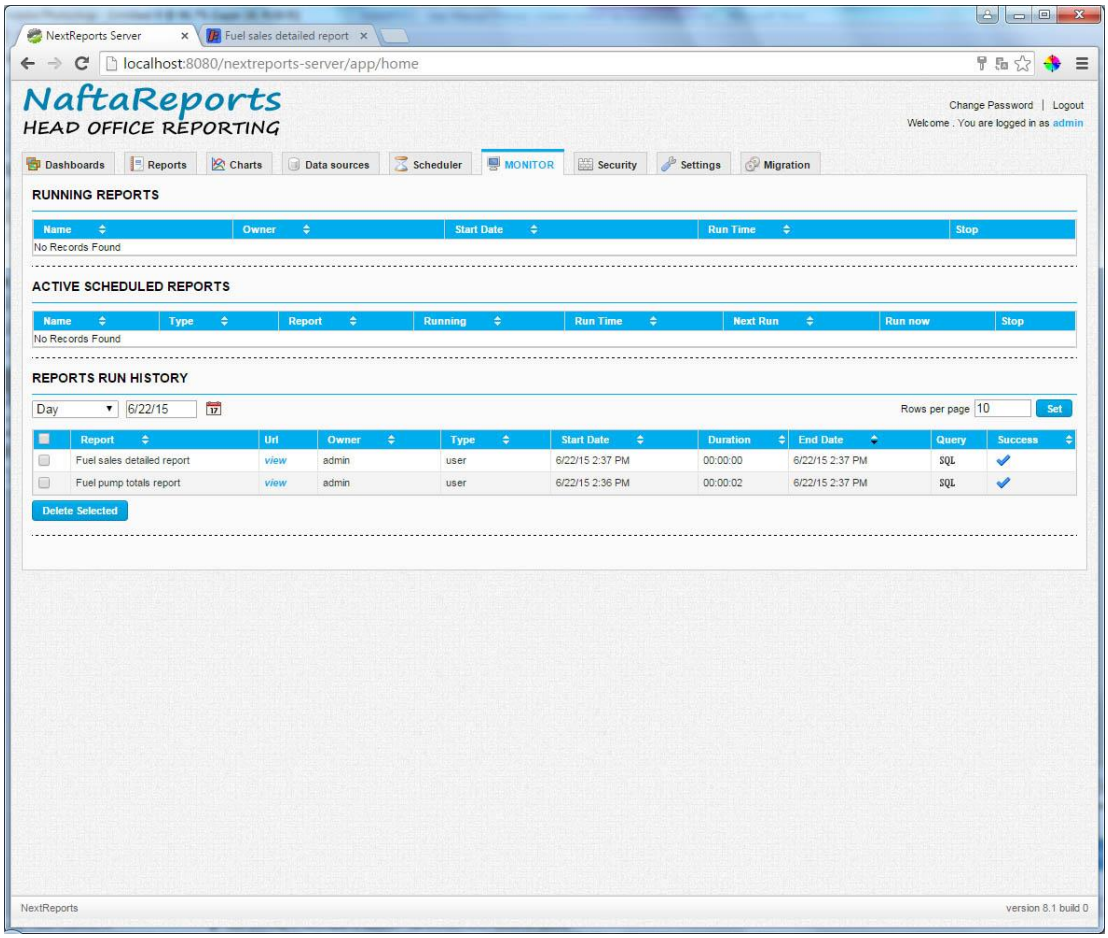
NextReports system – list of available reports



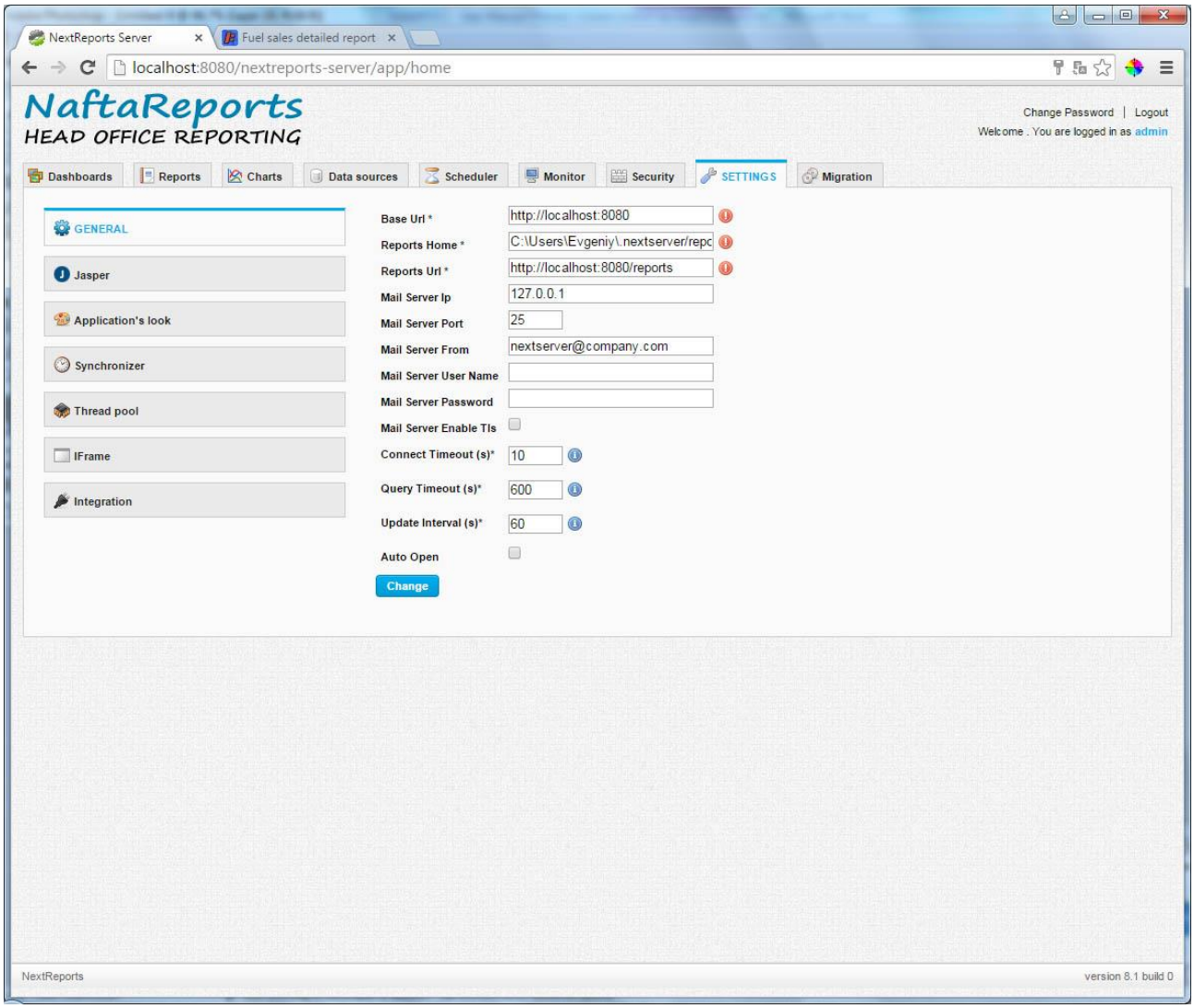
NextReports system – setting generated report parameters

Administrators of the system can create users and give them permissions (assign users to groups with specific rights) and also to monitor activity of each user:





NextReports system is easily configured:



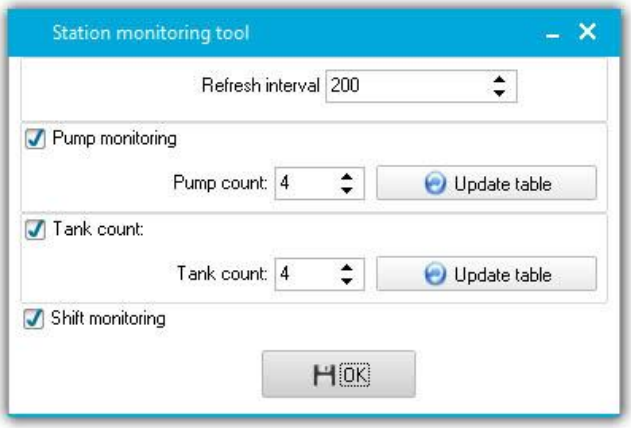
NextReports system – settings

For monitoring of a petrol station remotely a petrol station with NaftaPOS software should have a static IP-address to allow web-server access its database remotely and get required data. In case if there is no static IP-address available it is possible to use dynamic DNS from such service providers (for more details as an example visit a web-site www.noip.com).

Monitoring of the NaftaPOS system operation is done using a plug-in "*Station monitoring plugin*" for online monitoring of petrol station:

- fuel dispensers activity
- tanks
- working shift

The plugin creates 3 tables in the database for each of the monitored essences "*pumpmonitor*", "*tankmonitor*" and "*shiftmonitor*". In order to make this table get data – it is necessary to activate them in plugin configuration (plugin is adjusted In NaftaPOS configuration on tab "*Additional modules*"):



Station monitoring plugin configuration

Checkbox "*Pump monitoring*" selects should the "*pumpmonitor*" table be filled with data or no. Enable this checkbox to have the table be constantly updated with data.

Field "*Pump count*" sets quantity of pumps to monitor.

Checkbox "*Tank monitoring*" selects should the "*tanlmonitor*" table be filled with data or no. Enable this checkbox to have the table be constantly updated with data.

Field "*Tank count*" sets quantity of tanks to monitor.

Checkbox "*Shift monitoring*" selects should the "*shiftmonitor*" table be filled with data or no. Enable this checkbox to have the table be constantly updated with data.

Selector "*Refresh interval*" sets the period in milliseconds how often data in the tables should be updated.

Buttons "*Update table*" bring the modifications made to the tables.

Monitoring plug-in automatically changes the tables when configuration of NaftaPOS is changed, so it does not require manual correction in case if NaftaPOS configuration is changed.

Structure of table "*pumpmonitor*":

NO.	NAME	DESCRIPTION
1	**Id**	Primary key
2	**PumpId**	Pump identification number
3	**StatusId**	Pump status identification number
4	**StatusName**	Pump status name
5	**NozzleId**	Nozzle identification number currently taken up on fuel point
6	**TankId**	Tank identification number to which a nozzle is linked
7	**ProductId**	Fuel product identification number
8	**ProductName**	Fuel product name
9	**PayFormId**	Payment form identification number
10	**PayFormName**	Payment form name
11	**IsDispensing**	Flag showing whether dispensing process is on
12	**DispVolume**	Volume of fuel being currently dispensed (if IsDispensing flag equals true), or volume dispensed in last transaction and being displayed on the pump (if IsDispensing flag equals false)
13	**DispAmount**	Money amount of fuel being currently dispensed (if IsDispensing flag equals true), or money amount0 dispensed in last transaction and being displayed on the pump (if IsDispensing flag equals false)
14	**DispPrice**	Price of product displayed on the pump in accordance with taken up nozzle currently or in previous transaction
15	**LastVolumeTotalValue**	Last value of volume total counters on the dispenser (updated in the end of every transaction)
16	**LastAmountTotalValue**	Last value of money amount total counters on the dispenser (updated in the end of every transaction)

Structure of table "*tankmonitor*":

NO.	NAME	DESCRIPTION
1	**Id**	Primary key
2	**TankId**	Tank identification number
3	**ProductId**	Fuel product identification number
4	**ProductName**	Fuel product name
5	**TankHeight**	Total height of tank in mm
6	**TankVolume**	Total volume of tank in liters
7	**ProductHeight**	Current height of fuel product in tank in mm
8	**ProductVolume**	Current volume of fuel product in tank in liters
9	**WaterHeight**	Current height of water in tank in mm
10	**WaterVolume**	Current volume of water in tank in liters
11	**Temperature**	Current temperature of fuel product in tank in degrees Celcium
12	**TempCompVolume**	Current temperature compensated volume (15 degrees Celcium) of fuel product in tank in liters
13	**Density**	Current density of fuel product in tank in kg/m3 units
14	**Ullage**	Current volume of empty space in tank in liters
15	**IsDelivery**	Flag showing whether delivery of fuel product into tank is going

Structure of table "*shiftmonitor*":

NO.	NAME	DESCRIPTION
1	**OperatorId**	Operator (cashier) identification number
2	**OperatorName**	Operator (cashier) name
3	**ShiftStateId**	Current state of a working shift (0 - closed, 1 - opened, 2 - blocked, 3 - continued)
4	**ShiftStateName**	Current state of a working shift
5	**ShiftDuration**	Duration of current working shift from beginning in minutes
6	**CashRemains**	Cash received during a current working shift

NaftaCards fuel card system for petrol stations

Application of the payment and discount loyalty card system is a good way for any petroleum company to attract new customers to its services and keep old and existing customers constantly customers with it. With application of the discount system a petroleum company gains a possibility to attract customers for a long term, stabilize groups of loyal customers and increase turnover of the company.

At considered creation of tariff policies it becomes profitable for the customer to purchase petroleum and services more often and in bigger quantities, which as a result makes a bigger profit to a petroleum company.

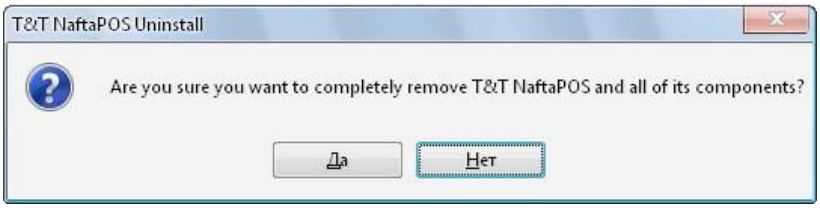
Loyalty card system can work as with RFID- cards, so as with cards with printed bar-code on it.

NaftaCards fuel cards system for petrol stations – hardware and software complex, appointed for provision and account of fuel sales at petrol station networks using fuel cards with fuel volume, money and discount wallets or their mixtures.

More technical information regarding NaftaCards fuel card system please find on its web-page: *http://www.technotrade.ua/fuel-card-system.html*.

NaftaPOS system uninstallation

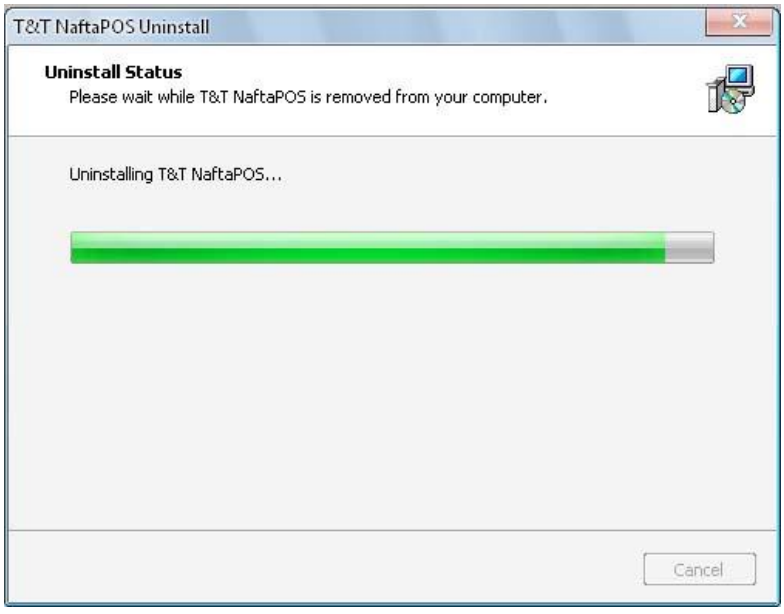
Uninstallation of NaftaPOS software is made either from Windows OS Control Panel in menu "*Add and remove programs*" or by running an uninstallation file /NaftaPOS/unins000.exe and following instructions, specified in installation wizard windows:



Uninstallation process – confirmation request

At removing the system it will propose to remove Guardant USB dongle drivers from the system:

Removing of Guardant USB dongle drivers from the system



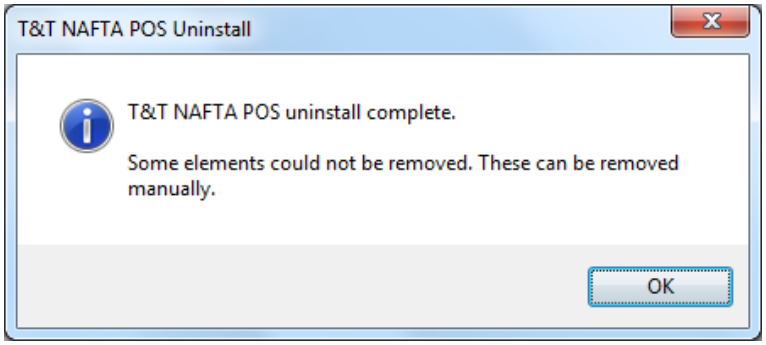
Removing of NaftaPOS files

During uninstallation process services required for NaftaPOS operation are removed:

- T&T database server
- T&T Scheduler
- MySQL

Removing of NaftaPOS services

In case if the wizard is unable to delete all NaftaPOS files – it will throw a warning that some of the remaining files should be deleted manually:



Completion of NaftaPOS system uninstall

Completion of NaftaPOS system uninstall

After the NaftaPOS system was uninstalled it is necessary to check that folder NaftaPOS with all including files is deleted from the drive, where NaftaPOS system was installed.

Also it is necessary to check that 2 branches in Windows OS system registry were deleted (delete them if they are present):

- HKEY_CURRENT_USER\Software\T&T
- HKEY_LOCAL_MACHINE\Software\T&T

Also it is necessary to check that NaftaPOS services are removed from the services list of Windows OS:

- T&T database server
- T&T Scheduler
- MySql