Software overview

KONAL 2.0 is a truck loading management system for managing the truck loading process in oil terminals. KONAL 2.0 is currently installed and operating at Yaroslavl Oil Refinery, Russia

KONAL 2.0 include following basic subsystems:

Truck loading kernel subsystem
Loading monitor subsystem
Additives subsystem
Interface to Commercial Business Systems *(CBS)*
Database editor
Graphical editor
SCADA subsystem
Summary review
Calibration and metrological attestation

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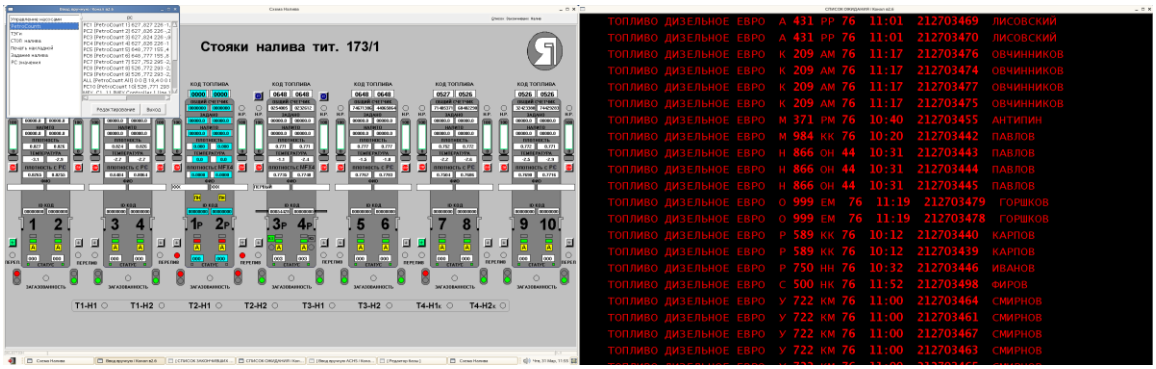
Truck loading kernel subsystem

The truck loading kernel subsystem provides the following basic functionality for managing the truck loading process:
Management of companies, users, trucks with compartments, truck drivers, products and additives, pump and **platform description**...
Loading orders management or downloading a list from the *Commercial Business Systems* (CBS)
System parameterization
Drivers registration **management**
Loading stream management
Pump management over SCADA system (automated startup and shutdown of product pumps based on current and expected loading orders).
Printing shipping documents
Reporting – daily, historical.

Loading monitor subsystem



The loading monitor subsystem provides the basic functionality for automating and supervising the truck loading process **as follows:**

Supports bottom loading or top loading with Loading Control Units such as Petrocount or MFX_4.
Controls truck driver access and **identity** on the loading place.
Checking the start conditions (ground, gases, overload...)
Graphic visualization of the entire process
Remote process control (emergency loading **interruption and completion)**
Alarm and event management and reporting

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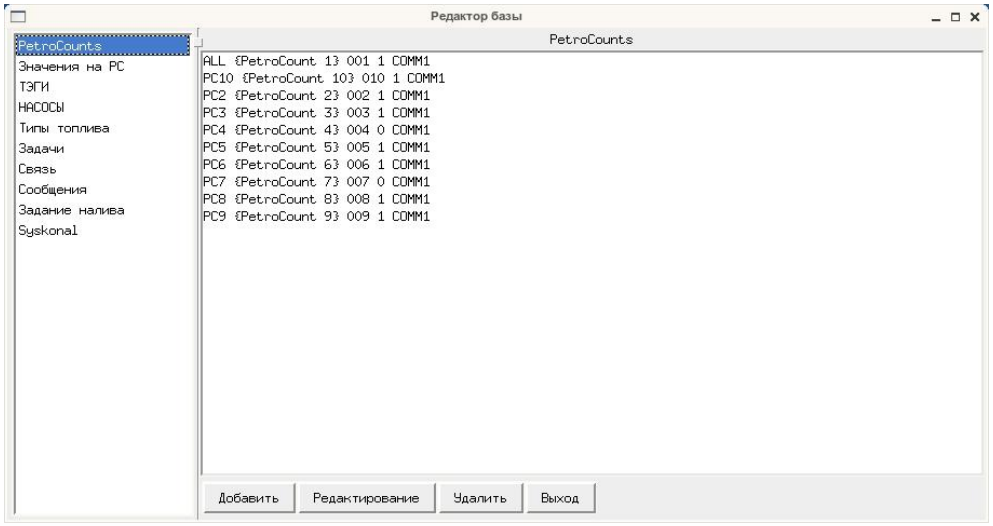
Additives Subsystem

Additive management and automation

Interface to Commercial Business Systems *(CBS)*

Import of loading orders from *Commercial Business Systems* (CBS)
Export of loading data to *Commercial Business Systems* (CBS)

Database editor



This editor **provides message content modification, system parameterization and global data base administration.**

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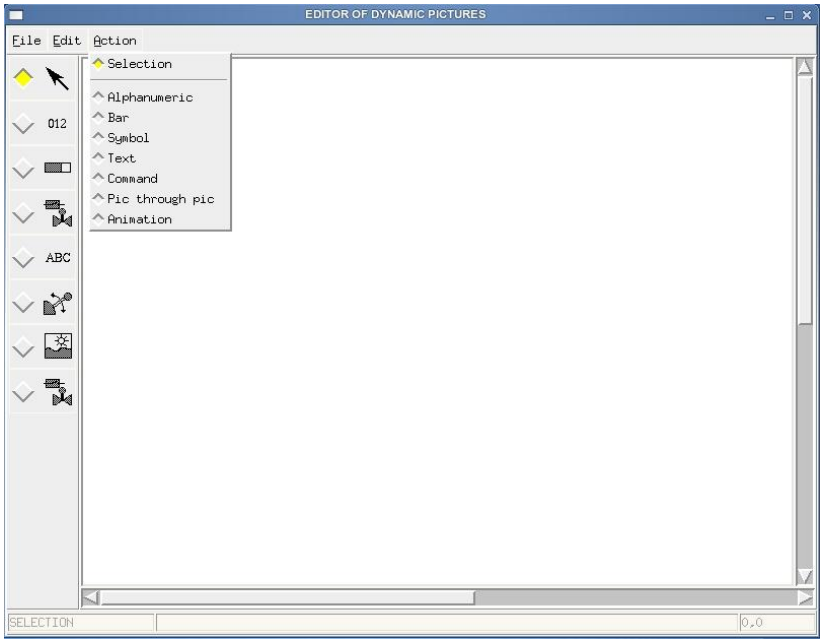
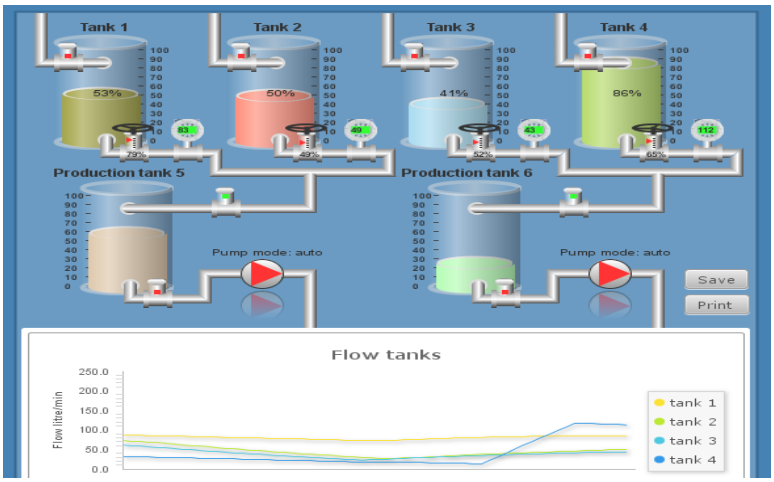
Graphical editor



Graphical editor is used for prepare graphic design monitoring applications.

SCADA subsystem



SCADA (Supervisory Control And Data Acquisition) for monitoring and control of station pumps, tanks and valves over WinCC Siemens subsystem:

Remote control of terminal tanks
Graphical display (mimic diagram) of terminal tanks
Trend charts of tank measurements
Remote control of pumps and valves
Event and alarm monitoring

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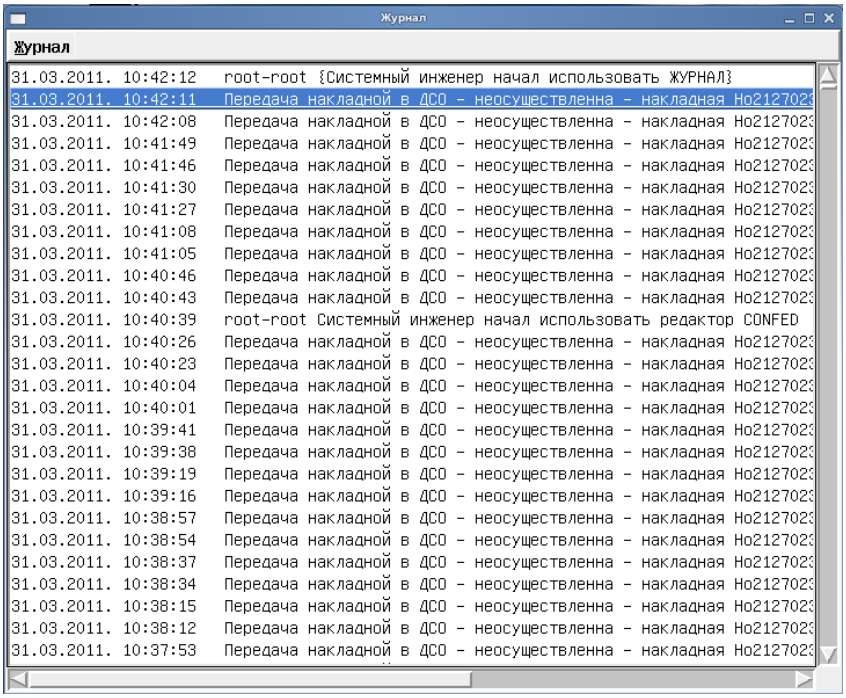
Summary review



Summary review of the following data:
- Loading Control Units start and end totalizers
- Daily deliveries and loadings rundown
- Modifications of oil terminal LCU parameters
- Totalizer continuity cross check
- Alarm monitoring and handling

Calibration and metrological attestation
Specific subsystem control software integrity and provides the conditions for calibration and metrological attestation.

Other features

Interface with card readers
- Truck driver information panel
- Dual server infrastructure (Fault-tolerant computer system)
- Unlimited number of workstations
- Interface with MS Excel for statistical analysis

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