



implico

# Business Automation

Rapid Processing

OpenTAS<sup>®</sup> VOM-R

**The complete integrated solution for optimal  
planning, loading and booking of railbound transport**





## Management of Rail-Based Vehicles – a System for all Demands

In principle, the loading of rail-based vehicles such as tank railcars is quite easy: the right product goes into the right railcar at the right time, as quickly and cheaply as possible. But it's as difficult in practice as it is simple in theory. Countless rules and restrictions and constant changes turn this highly critical task into a daily logistical feat. While it's true that most refineries and terminals use countless applications and systems to handle the logistical tasks for rail operations, the work with heterogeneous IT systems – combined with the paper, pencil, and manual effort involved – often makes it cumbersome, error-prone, and slow in practice.

Implico has now extended their OpenTAS® product family with a new, ultra-modern and complete system for the administrative and operational areas of rail-based vehicle logistics. OpenTAS® Vehicle Operations Management Railcar, or OpenTAS® VOM-R for short, is a suite of modules integrated into the OpenTAS® standard software. The solution covers all demands of refineries/terminals concerning the planning, disposition, loading/unloading, and dispatching of rail vehicles. OpenTAS® VOM-R offers you exactly the amount of system support that you specifically require. You determine the degree of automation yourself, adjusted to match your specific working conditions.

OpenTAS® VOM-R provides the components needed for an integrated Supply Chain Management (SCM)

solution. ERP systems such as SAP®, Oracle®, and PeopleSoft® can now be linked to the operations world. In particular, the ability to integrate with SAP's SCM offers new possibilities for optimizing the IT landscape. A single, highly integrated application is all that is required to take orders, control product flows, conduct reliable detailed planning, and quickly and safely handle loading. If desired, the results automatically flow back into the ERP system and can immediately be processed further.

OpenTAS® VOM-R offers you numerous advantages and opens up countless practical, business, and strategic possibilities.



### Advantages:

- simple setup and administration
- maximum flexibility
- as much automation as you need
- high availability without compromise
- high performance and data safety
- standardised product
- process optimisation
- modern and future-oriented



### Basic Data and Contract Fundamentals

Every loading operation requires a whole series of basic information, e.g. dangerous goods regulations, routing restrictions, or special features of rail stations. For every rail vehicle, countless pieces of information exist such as licensing and loading data, leasing relations, technical data, dangerous goods licenses, or custom classifications. It would not be efficacious to enter this information every time loading occurs. OpenTAS® VOM-R incorporates the data once, supplements and manages it, and automatically provides the necessary information for each processing step. In addition to the usual entry fields, the system offers areas in which you may individually enter, process and structurally represent additional data, for example a customer-specific purpose for particular railcars.

OpenTAS® VOM-R allows data to be imported from your legacy system. In addition, general data provided by third parties, such as rail-station data administered by transportation service providers, can be periodically integrated via an updating mechanism. The basic data needed for RID-compliant handling are provided by Implico as part of the system during customising.

#### Basic data:

- tank railcars (technical configuration, dangerous goods data, technical inspection deadlines, leasing relations)
- locations (rail stations, routes, track systems, loading and unloading points)
- business processes (load IDs, quotas)

- terminal technical configuration (meters, scales, filling platforms, products)

### Contract Fundamentals and Quota Processing

OpenTAS® VOM-R can optionally manage the contract data on which a loading operation is based. Data on past release orders relevant to a business relationship are stored: who to whom, invoice and goods consignees, route and destination. The tedious compilation of information can be skipped. The data can be input either via an interface from a superordinate (ERP) system or manually. OpenTAS® VOM-R supplements and manages this data autonomously for further processing. The result is an integration of the data, which for example might have been transmitted within the context of a supply or delivery order. Additionally, nomination, transport orders, quotas, and service agreement handling are supported. This supports the logistician during controlling. Compliance with contractual rules for customers and with national reserves requirements are therefore possible at an operational level.

#### Contract references/quota processing:

- load IDs
- nomination
- transport
- contracts
- quotas
- service agreements
- hierarchical representation



## Planning

The planning function of OpenTAS® VOM-R is distinguished by its unique, comprehensive data foundation: when desired, the system imports product movements planned in the ERP system and combines them with the internal planning based on stored contracts and basic data, as well as on internal and external route-tracking data.

The use of diverse data-sources and its intelligent preparation allow for reliable planning and make OpenTAS® the central tool for logistic processes.

The loading/unloading plan module gives you optimal use of your loading capacity. The system assists you with distributing orders among the various loading points or platforms (loading-platform planning); assigning railcars, personnel and tracks; and planning unload operations.

OpenTAS® covers the demands for administering multi-trains (various products and customers), from combined loading and unloading processes (in a single railcar pass) to direct loading.

The comprehensive data foundation provides planners in the dispatch location with completely new flexibility. The system can be fine-tuned and adapted specifically to the local technical and human-resource circumstances and to the tasks at hand. Thus everything is possible, from spontaneous planning without additional dependencies to long-term, strictly defined, fully automatic processes.

## Planning:

- nominations
- transport
- loading plan
- unloading plan
- railtrack planning



## Vehicle Tracking

Vehicle tracking is a highlight of the system. During internal tracking, OpenTAS® VOM-R provides information about the state and position of railcars within a location and answers questions such as: Which railcars are on which track, at which position? Are they full or empty? Which product was loaded or unloaded last? Have they been purged? Are they damaged? Have all inspections (main inspection, tank check) been performed?

Internal vehicle tracking allows for tracking within the dispatch location and brings transparency into your fleet. External vehicle tracking, a module (OpenTAS® Vehicle Trace Management) within the OpenTAS® product family, provides additional functions for administration of processes outside of the dispatch location/refinery. These include: How much time did the railcar require, when was it at which location, where is it now, and where should it go? Besides detailed information on the handling status of a given railcar, vehicle tracking also delivers information about leasing relationships, for example. There's no danger of being overwhelmed by an excess of data: OpenTAS® VOM-R lets you set the depth of information according to your individual needs.

Combining the internal and external tracking provides additional, considerable benefits. The data from the external tracking are employed for entrance handling. The dispatch location/refinery is thus able to see beyond its borders and to know exactly which railcars will be available in which state. Vehicle tracking is a

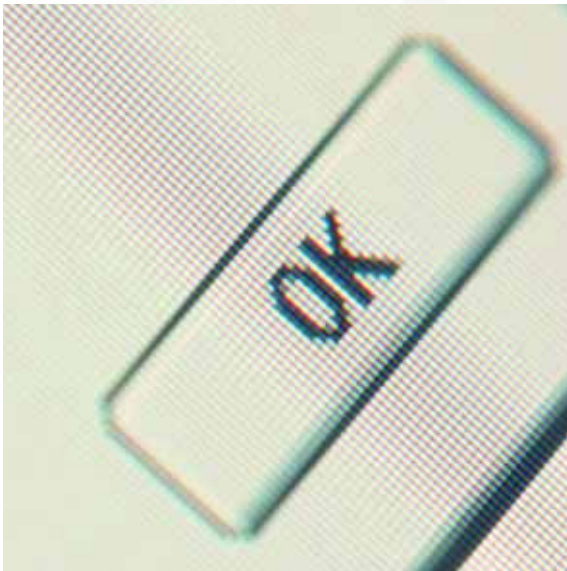
decisive instrument for optimal planning and administration. It helps you minimize empty railcars and adhere to delivery deadlines and the most favorable times. But OpenTAS® not only gives information on the future or current situation, but also on the history: When did I have which railcar, which product did it get, how long did it take? The statistics can be freely defined.

With OpenTAS® VOM-R you enjoy complete freedom in composing your trains. Normally trains are composed before loading. But in the rush of daily business, or due to terminal-specific logistics, it's often not possible to compose a train before the actual processing – the train is assembled spontaneously. OpenTAS® VOM-R provides maximum flexibility in this area: the train can be arbitrarily composed; fixed plans such as “recurring trains” are supported as well. The distribution can also occur after loading – while retaining full accounting traceability.

### Vehicle tracking:

- entrance handling
- train/group composition
- internal tracking (location, technical status, filling/cleansing status, history, statistics)
- exit handling
- external tracking (rail station, technical status, history, statistics)

# Checks & dangerous goods

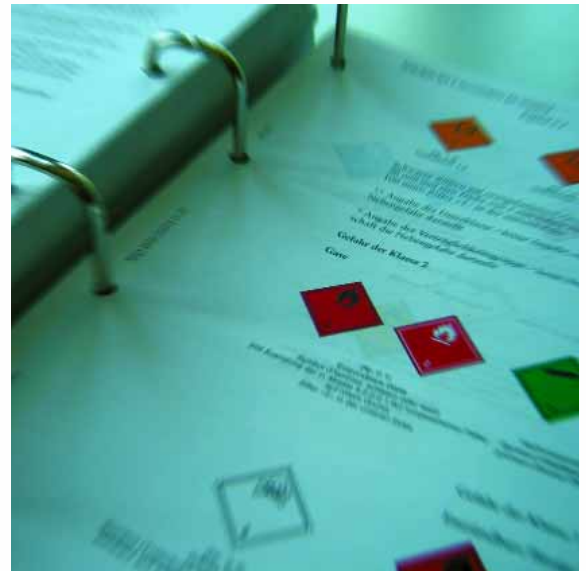


## Checks

OpenTAS® VOM-R provides you with maximum security during operations, in technical, legal, accounting, and financial terms. A wide range of checks running in the background assure that you know everything is OK – or, if a warning occurs, that the source of error can be quickly isolated and resolved. The checks too place a premium on flexibility and user-friendliness: you can freely define and set what is checked and what consequences apply, from ignoring a problem to interrupting loading.

A good example of intelligent system checks is the consistency check. Here, OpenTAS® VOM-R determines whether all the data needed for producing the necessary accompanying documents are available, which is especially important for exports and the associated export documentation. The advantage of this approach is that these checks are not performed after loading – when it might be too late – but during disposition or even during planning.

You determine which checks the system should execute. The standard checks offered include, for example, a check of the leasing relationship, technical and dangerous goods regulatory checks, and product compatibility according to RID tank code, derived by OpenTAS® VOM-R from the integrated RID master data. In determining maximum amounts, the system conservatively calculates – on the basis of the master data and, if possible, in combination with weighing the empty railcar – the amount which can be loaded. The post-loading overload check on the



basis of the actual measured amounts is also important. The applicable tolerances and limits are also derived from the master data and are freely definable.

## Overall checks:

- customs-relevant approvals/consistency
- export-relevant approvals/consistency
- completeness of data for producing reports
- leasing relation
- technical inspection deadlines

## Dangerous goods regulations checks:

- product compatibility according to previous product
- product compatibility according to railcar plates
- product compatibility according to gas mixture definition
- product compatibility according to RID tank code
- post-loading overload
- cleansing state

## Maximum amount determinations:

- according to technical equipment
- according to fill volume
- according to load limit by grid (target AND route)
- according to gas load limit
- according to route assignment for target station
- according to individual route assignment
- according to contract assignment/quotas/nominations/transport planning
- considering residual volume (even during disposition)
- considering prior loading



## Loading/Unloading

The way in which the OpenTAS® administrative system can be integrated into the existing depot equipment is the system's main strength. The different volumetric and gravimetric systems (PLCs, counters, and scales) are controlled automatically and receive the necessary data and releases. OpenTAS® records the measurement data from the technical systems and uses it for further processing. In addition to the technical systems (process-steering equipment) it is also possible to integrate available loading systems (loading computers). Thus, it is possible to have a system available above the process-steering equipment or the technical loading system. The advantages of this thorough integration become apparent in the day-to-day use. OpenTAS® helps you to optimise your administration processes and to use the capacity of your technical loading system to its full extent.

OpenTAS® VOM-R supports many special technical and logistical areas, such as gravimetric meters, the continuation of interrupted loading and mixing different product lines (sequential and inline blending). OpenTAS® VOM-R also gives you the option to input and process measurement data offline (manually). In this way you are continually capable of operating, even when the automatic measurement data transferral breaks down or should your field periphery not yet be fully automated. This is a further advantage of the whole system: manually inputted information is also integrated into the homogenous data stream without affecting the processes which follow afterwards (reporting, checks etc.).

Automatically controlling the loading system increases the security. The system can be connected using industry standards for technical communication; it is also possible to use custom protocols.

### Technical loading/unloading:

- automatic/manual disposition
- pump control
- meter control
- weighbridge control
- measurement data transfer meter
- measurement data transfer scales
- offline-measurement data processing
- additives/dyes
- sequential/inline blending

### Further Processing Methods

The system supports all processing methods and automatically generates the necessary paperwork.

### Further processing methods:

- repair dispatch
- empty dispatch
- returns
- service
- direct loading
- pre-loading

# Booking & quantity accounting



## Booking Logic

The booking logic of OpenTAS® VOM-R adheres to the principles of proper bookkeeping and proceeds in a traceable and standardized manner. Integrated business-process and contract referencing facilitate further processing within the ERP system.

### Booking logic:

- contract referencing
- dispatch location planning
- disposition
- booking
- cancellation
- new charge

## Quantity Accounting

Only OpenTAS® VOM-R offers integrated quantity accounting during handling. This works in the background, based on posted receipts and dispatches and, for refineries, on the integrated calculation of net production. Shared storage is of course supported.

Integrated, virtually real-time quantity accounting provides for convenient and, above all, quick results. Reports can be easily supplemented by custom analyses using the Report Generator.

The capability of integrated quantity accounting is also indicated by the fact that even handling of biofuel additives is supported, using the module “OpenTAS® Biobalance”.

## Quantity accounting:

- quantity pre-deduction at disposition (product-/depositor-/tank-specific)
- quantity deduction at posting (product-/depositor-/tank-specific)
- verification of national reserves and depositor stocks
- verification of minimum quantity
- additive rebooking
- VRU booking
- handling of biofuel additives
- analyses/statistics
- integratable net production

## Monitoring Mechanisms for Booking Completeness

It is important to assure that bookings are complete, not only for customs and tax reasons. Yet, due to the number of daily operations, monitoring is often neglected or requires great effort. OpenTAS® checks the data for gaps by comparing cumulative gauge levels against the cumulative booking amounts. If these checks encounter anomalies, the error can quickly be identified. Additional completeness checks include voucher-note monitoring and the monthly inventory (in OpenTAS® Standard).

### Monitoring booking completeness:

- meter reconciliation, scales reconciliation
- automatic meter-level queries
- voucher-note monitoring
- inventory



## Reporting

OpenTAS® VOM-R automatically checks which papers are needed for dispatching, assembles all the data, and prints the processing reports. This includes the documents for the goods consignee (dispatch note) and the carrier (freight papers, European standard), as well as the customs and tax authorities.

The increasingly important electronic formats are supported. For example, the module “Communication Outbound/Inbound” can produce an electronic transportation order in EDIFACT format.

### Dispatch reports:

- rail freight-papers: printable
- full/empty dispatch national/international, multi-trains
- rail freight-papers: electronic (e.g. electronic transportation order in EDIFACT)
- dispatch documents for consignees (dispatch note, etc.)
- dispatch documents for customs (AAD, etc.)
- pro forma invoice (customs)
- quality certificates, analysis certification

## Customs, Taxes, Export

The system allows for complete customs and tax handling based on the stored data. Required documents such as customs lists or tax forms are provided by OpenTAS®. The declarations can be optionally output on paper or electronically, e.g. onto disk.

### Customs, taxes, export:

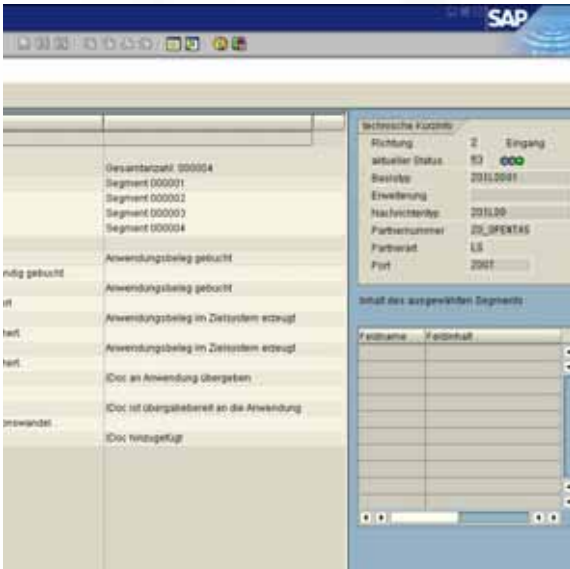
- customs lists
- tax declarations
- trade statistics reporting (Kobra)
- domestic statistics reporting
- foreign statistics reporting
- biofuel additives

### Extensive Reporting

With its configurable Report Generator, OpenTAS® delivers not only a variety of informative, standard analyses, but also custom-defined reports.

### Extensive reporting:

- stocks
- movements
- analysis of internal tracking
- analysis of external tracking
- statistics
- freely definable reports (Report Generator)



### Interfaces – for Every Environment

Due to its flexible architecture, which reflects Implico's long-term experience with integration projects, the OpenTAS® "Communication Outbound/Inbound" module is at home in any environment.

Open interfaces assure the maximum degree of freedom in the import and export of data. OpenTAS® requires – except for the field equipment used – no other systems, but is able to cooperate with all existing solutions, even older ones.

In doing so, OpenTAS® VOM-R uses the technically optimal standard for communications so as always to achieve maximum performance and quality. The system supports formats such as IDOC, EDIFACT, and XML. The transmitted contents can include electronic transport orders, movement data, or other customer-specific data.

It is possible to link with any ERP system. Whether SAP®, Oracle®, PeopleSoft®, or others: the manufacturer doesn't matter, due to the unrivaled openness of OpenTAS®. Here, too, the system uses standards: for example, the SAP® interface has been certified by SAP.

The integrative possibilities of linking one's own systems to internal and external systems with different enterprises allow a consolidation of the heterogeneous IT world. The harmonisation of business processes among business partners fulfils the need for harmonized operations.

### Input interfaces/ automated data import:

- rail stations
- load IDs
- contracts
- nominations
- transport
- service agreements
- tank car location information
- tank car status information

### Output interfaces/ automated data export:

- contract-related transactions  
(to ERP systems; IDOC/XML, etc.)
- transaction data transmission
- electronic transport orders
- customer-specific data transmittals



### **The Functional Range and Intelligent Processes of OpenTAS® Offer Many Advantages:**

#### **Easy Setup and Administration**

OpenTAS® VOM-R can be quickly and easily set up, either by Implico or third parties. Installation proceeds without significantly hindering loading operations. The application is easy to use and to administer. You can freely define and adjust many of the settings.

#### **Maximum Flexibility**

The system adjusts to your needs. OpenTAS® imposes extremely slight boundaries and provides you with high flexibility, both in configuration and in daily use.

#### **As Much Automation as You Need**

OpenTAS® allow for extensive automation. You decide how much you want. The support provided by the system increases the quality of data: sources of error are minimized, checks assure completeness and correctness, and the use of a broad data foundation increases the reliability and efficiency of planning. Through optimized handling of administrative tasks you can go to the limits of your loading capacity.

#### **High Availability without Compromise**

OpenTAS® can be smoothly implemented, is cluster-capable, freely scalable in terms of its technical platform, and designed for continuous operation. The system can also operate without restrictions when,

for example, the ERP system is unavailable. You can always load.

#### **Performance and Data Safety**

OpenTAS® exhibits extremely high performance, because it is programmed close to the database. The data are maintained in an internal database for fast access.

#### **Standard Product**

On the one hand, OpenTAS® is a standard product, with all the advantages that entails. On the other, however, due to its flexible architecture and countless settings, OpenTAS® meets your requirements almost as exactly as a custom solution. The standard does not comprise the least common denominator, but rather is a combination of the best functionalities.

#### **Optimization of Processes**

Processes run more quickly, with fewer errors and at the highest level of quality. You can more frequently use the best departure times and minimize empty railcars. You reduce your logistic costs and improve your adherence to schedules and customer service.

#### **Modern and Future-Oriented**

Even today, OpenTAS® VOM-R covers the requirements of tomorrow. Whether it's product compatibility according to RID tank code, handling of biofuel additives or electronic freight papers – you are optimally prepared for coming demands.

OpenTAS® – the integrated solution

# Business Automation

## **Implico**

As an international consulting and software company, Implico has helped customers from different industries with the optimization of their business processes for more than 40 years.

Projects are being implemented with comprehensive industry know-how as well as in budget and on time.

Implico offers professional, integrated consultancy and implementation services from one source.

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