

Effective solutions for automating the Vessel and Railway operations of container terminals within a single IT ecosystem

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Who we are:

SOLVO is an international leading vendor of TOS, WMS and YMS solutions and systems integrator on the global markets.

We are a leading provider of high-end supply chain solutions to help and optimize the logistics and all cargo handling.



Our approach:

Not just development and implementation. We have the largest expertise in automating storage logistics and are ready to work on a turnkey basis, taking risks. We are a leading firm in providing quality and value to our customer.

Ready for new challenges. We take on the most complex and specific projects that are beyond the power of others.

Work for result. Any project that we carry out, we bring to the end.



26 years experience



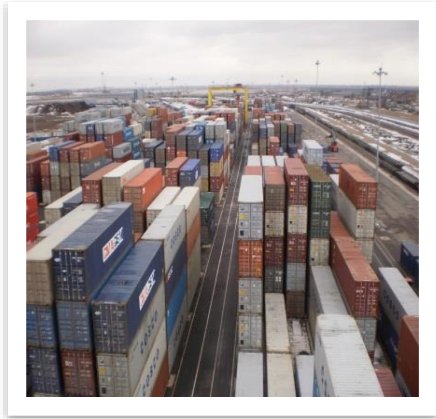
24/7/365 support



5 offices worldwide

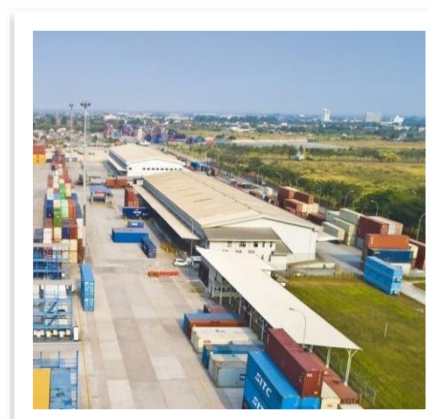


400+ projects



Solutions for ports and terminals

A leading Terminal Operating System for ports and terminals. An ultimate set of solutions for managing just any type of cargo: container, break bulk, Ro-Ro, general cargo, etc., including extra solutions as the VBS, AGMS, VGM.



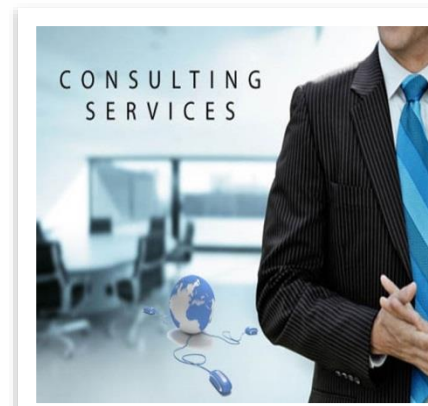
Solutions for managing yard

YMS helps to manage all the operations at the yards, including allocation and storage of different types of cargo, housekeeping, reefer and empty containers management, CFS management etc. Providing procurement of gate-entry/cargo pick-up permits for truck-drivers, trucks and cargo forwarders/transport companies.



Solutions for warehouse logistics

One of the leading software providers of SCE software. Solutions range from WMS to WCS, Yard, Billing, KPI and more for all verticals: production, retail and distribution, 3PL and pharmaceuticals.



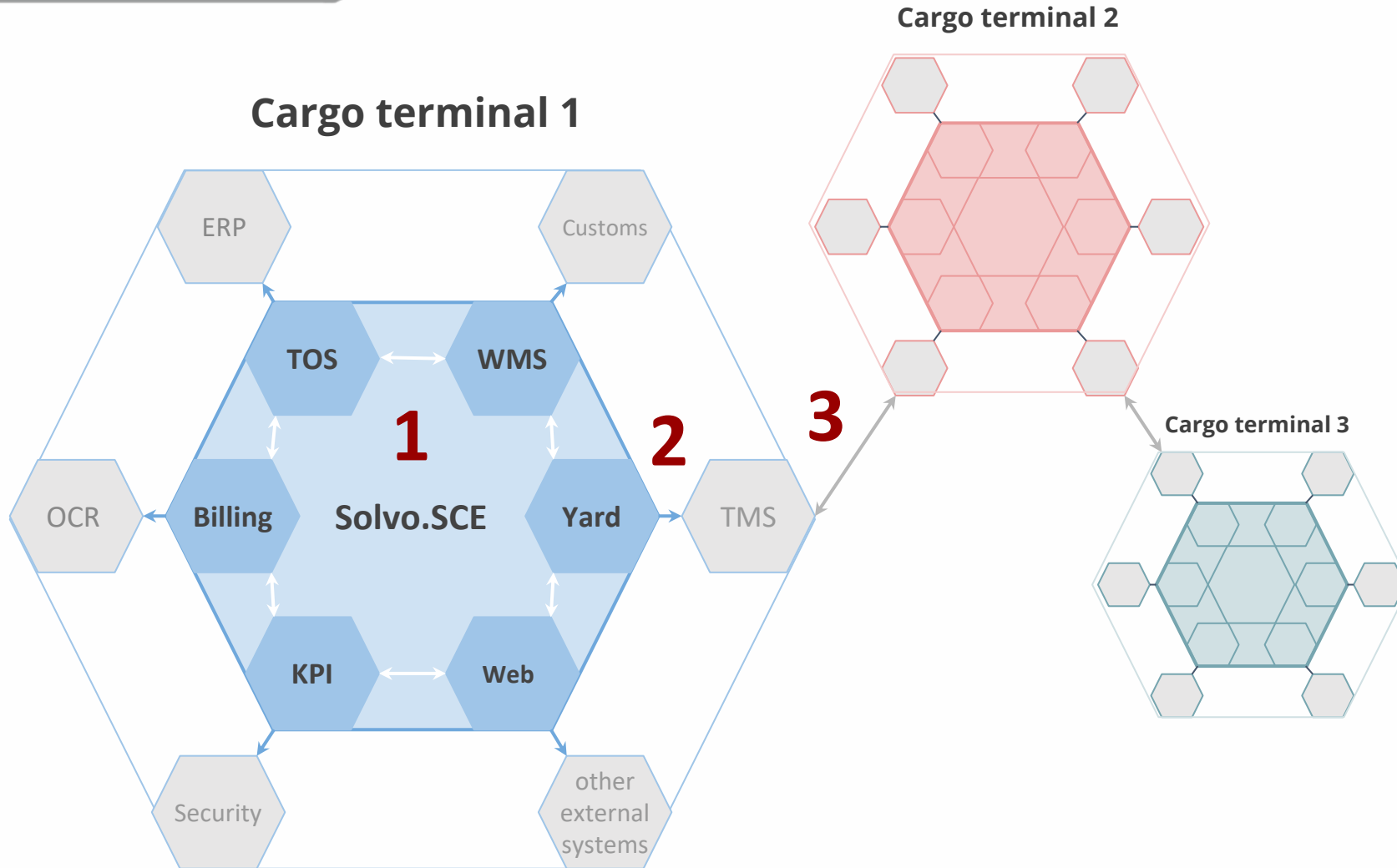
Consultancy in logistics and system integration

Logistics and Management consultants, including specializations for Project Management, Optimization, Engineering, Design and Procurement.

As well as training, seminars, webinars and other educational events.

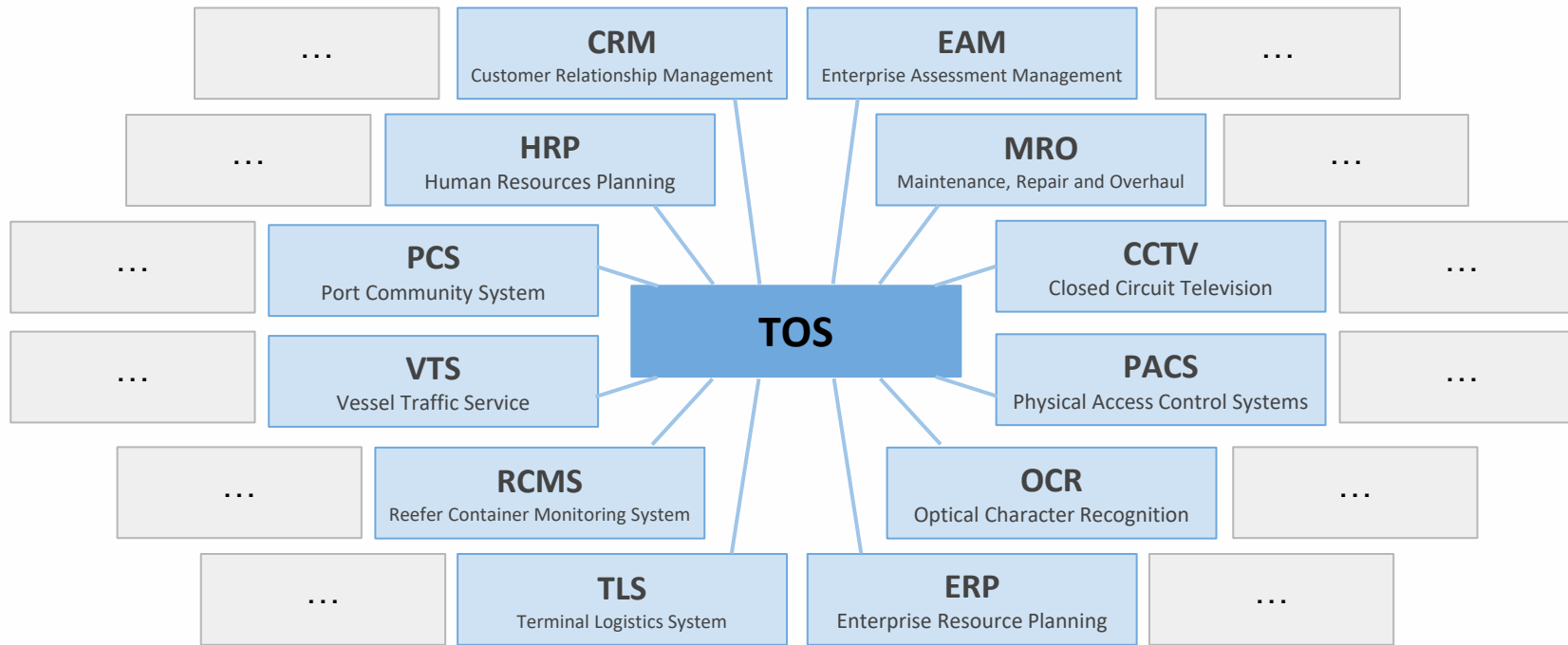
400+
projects



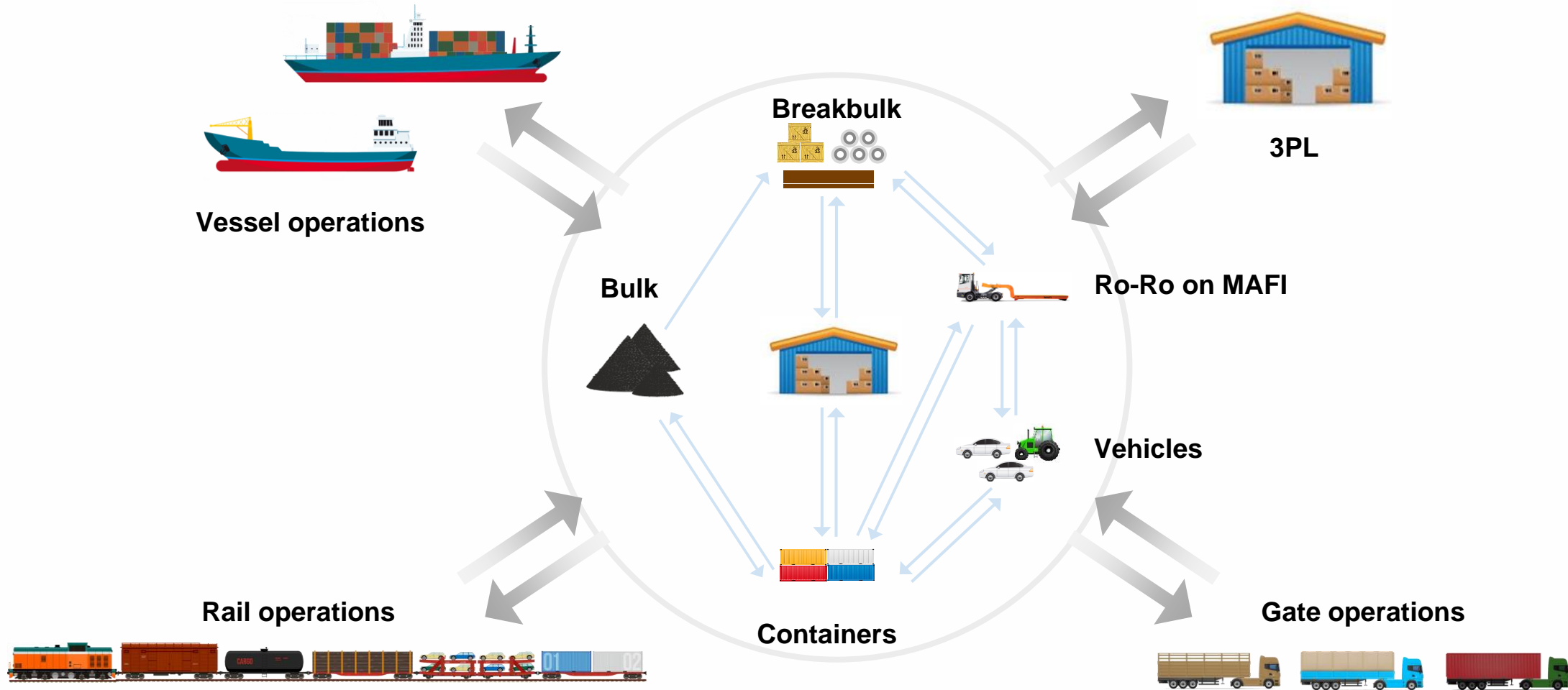


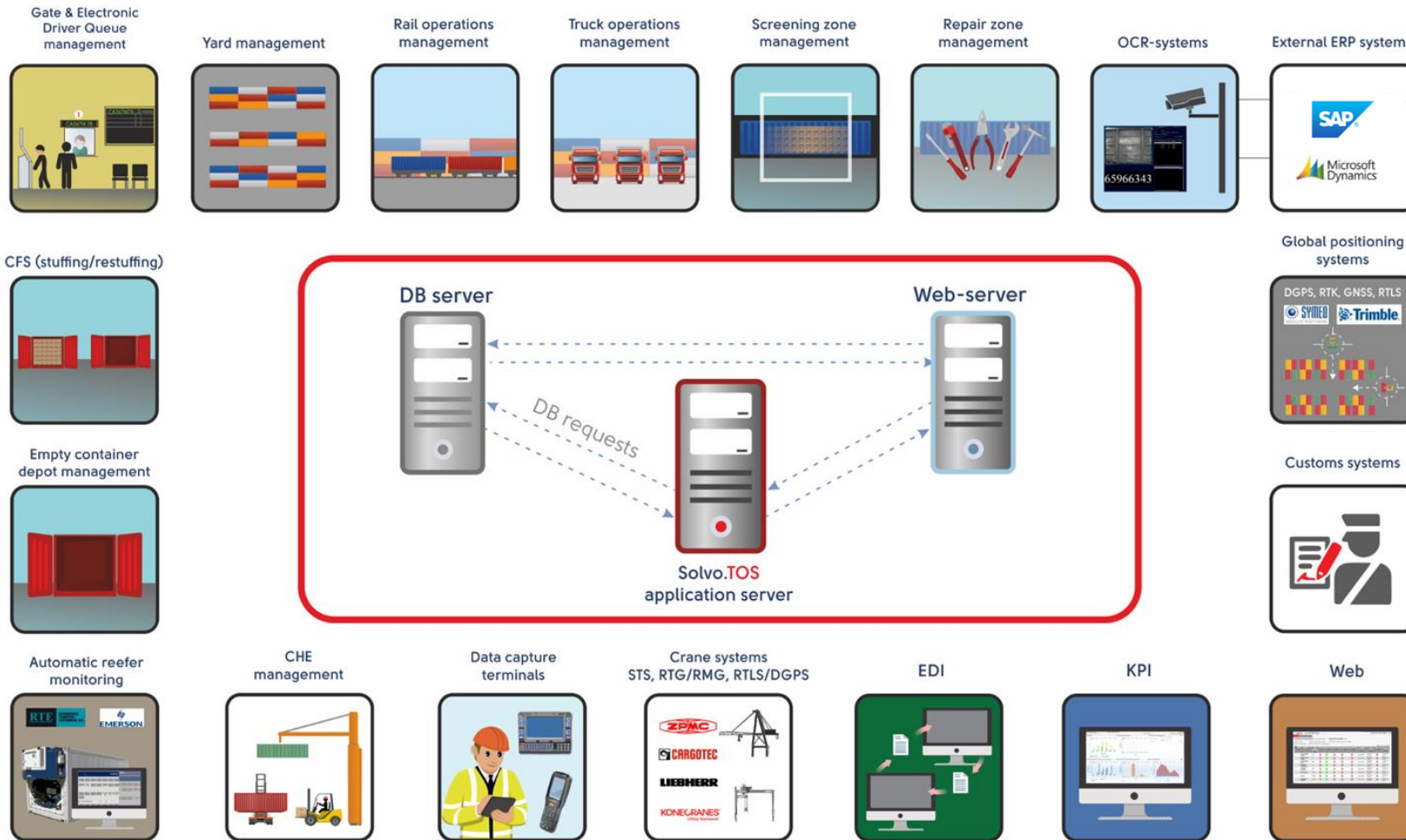
1. Solvo.SCE Platform based solutions (integration between Solvo products).
2. Integration between Solvo solutions and external software.
3. Integration between different logistics facilities or participants of the Global Supply Chain

Solvo.TOS Integration Opportunities

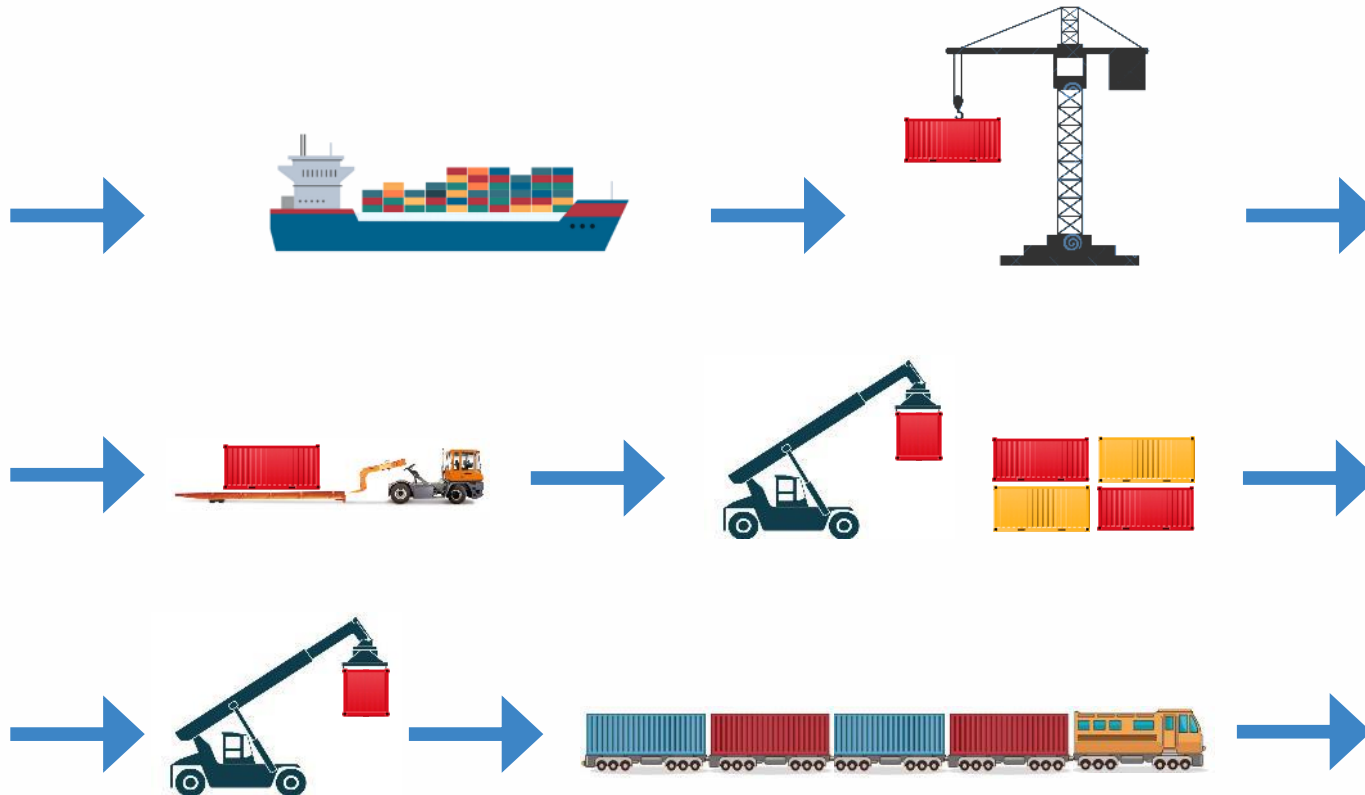


Solvo.API (Application Programming Interface) is divided into two modules: EDI (Electronic Data Interchange) for receiving and transformation data from external information systems and Notifier for preparing messages in the required format for external information systems when certain events occur. System receives a document with a message from the port system – integration platform - transfer it to the EDI module in various formats, which are then converted into the format required for the Solvo.TOS database. As a result, the user receives all this information online.





History of container handling operations



Container History Settings

Operation time	Type	Description
24.02.22 15:26	new_cont_change	M.A changed param. 'weighing requirements' of cont. ACU0100040 from 'No' to 'Yes'
24.02.22 15:26	work_create	M.A created job 1458386 type 'Weighing' with status 'Ready' for transfer container ACU0100040 from MAPLEEG to BL1 putaway rule # - routing rule # 31
24.02.22 15:27	new_cont_change	RS Driver D T O changed param. 'status' of cont. ACU0100040 from 'Available' to 'On loader'
24.02.22 15:27	update_status_work_cont	RS Driver D T O changed param. 'slot' of cont. ACU0100040 from 'MAPLEEG' to 'RS TORS'
24.02.22 15:27	new_cont_change	RS Driver D T O changed 1458389 'Weighing' status to 'Processing' for transfer container ACU0100040 from MAPLEEG to BL1
24.02.22 15:27	update_status_work_cont	RS Driver D T O changed param. 'status' of cont. ACU0100040 from 'On loader' to 'Available'
24.02.22 15:27	new_cont_change	RS Driver D T O changed param. 'slot' of cont. ACU0100040 from 'RS TORS' to 'BL1'
24.02.22 15:27	update_status_work_cont	RS Driver D T O changed 1458389 'Weighing' status to 'Processing' for transfer container ACU0100040 from MAPLEEG to BL1
24.02.22 15:27	update_status_work_cont	RS Driver D T O changed param. 'status' of cont. ACU0100040 from 'On loader' to 'Available'
24.02.22 15:27	cont_move	RS Driver D T O on RS TORS moved ACU0100040 from MAPLEEG 1 to BL1 to job 1458386
24.02.22 15:27	new_cont_change	RS Driver D T O changed param. 'wght' of cont. ACU0100040 from '7000.0' to '1000.0'
24.02.22 15:27	new_cont_change	RS Driver D T O changed param. 'weighing requirements' of rank. ACU0100040 from 'Yes' to 'No'
24.02.22 15:27	work_create	RS Driver D T O created job 1458389 type 'Weighing' with status 'Ready' for transfer container ACU0100040 from BL1 to NOTDEFINED putaway rule # 1 routing rule # -1
24.02.22 15:27	update_status_work_cont	CTMS changed 1458389 'Weighing' status to 'Reserved' for transfer container ACU0100040 from BL1 to NOTDEFINED
24.02.22 15:27	new_cont_change	RS Driver D T O changed param. 'status' of cont. ACU0100040 from 'Available' to 'On loader'
24.02.22 15:27	new_cont_change	RS Driver D T O changed param. 'slot' of cont. ACU0100040 from 'BL1' to 'RS TORS'
24.02.22 15:27	update_status_work_cont	RS Driver D T O changed 1458389 'Weighing' status to 'Processing' for transfer container ACU0100040 from BL1 to NOTDEFINED
24.02.22 15:27	new_cont_change	RS Driver D T O changed param. 'status' of cont. ACU0100040 from 'On loader' to 'Available'
24.02.22 15:27	new_cont_change	RS Driver D T O changed param. 'tier' of cont. ACU0100040 from '1' to '2'
24.02.22 15:27	new_cont_change	RS Driver D T O changed param. 'slot' of cont. ACU0100040 from 'RS TORS' to 'AA01 2 7'
24.02.22 15:27	update_status_work_cont	RS Driver D T O changed 1458389 'Weighing' status to 'Done' for transfer container ACU0100040 from BL1 to AA01 2 7
24.02.22 15:27	cont_move	RS Driver D T O on RS TORS moved ACU0100040 from BL1 to AA01 2 7 to job 1458389

Co-factors

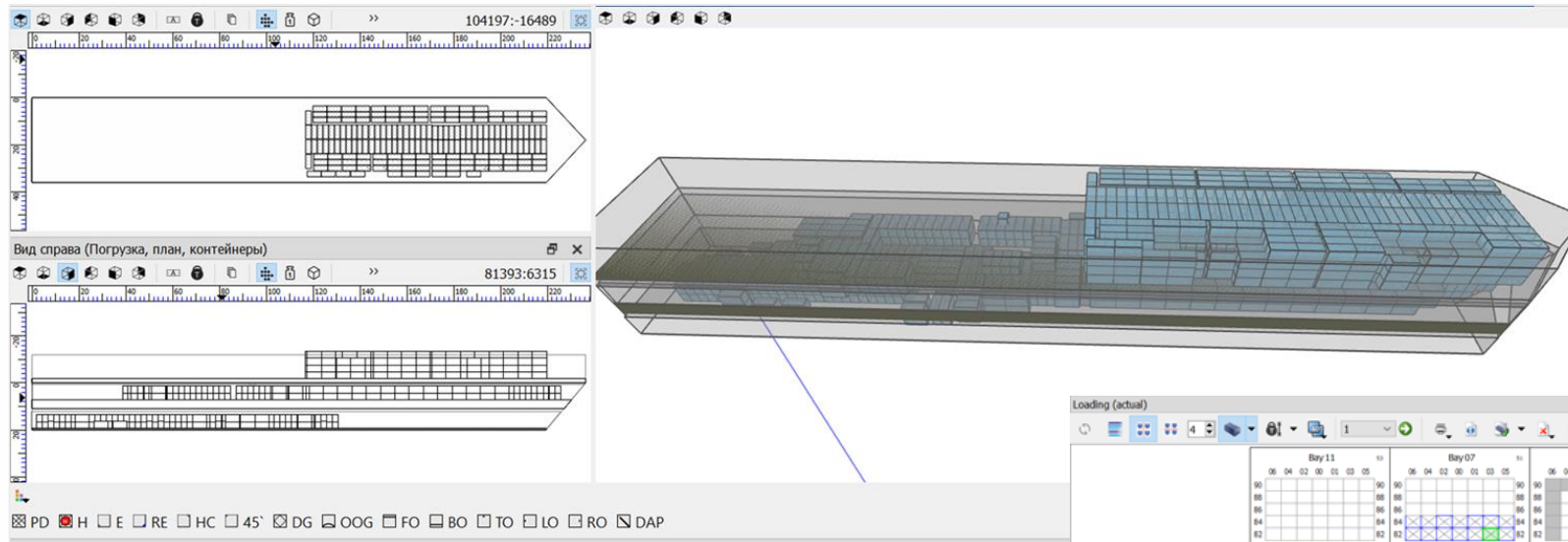
Cont: Detailed Settings

Number	EPCR1803204	Status	Done
#	406401	Receiving date	18.03.22 11:54
Onboard date		Departure date	21.03.22 16:44
Direction	Import	Current direction	Import
Location	OUT OF CT	Shipping line	A
Forwarder		Agent	A
Ownership type	Line	Delivery forwarder	
Cargo description	A		

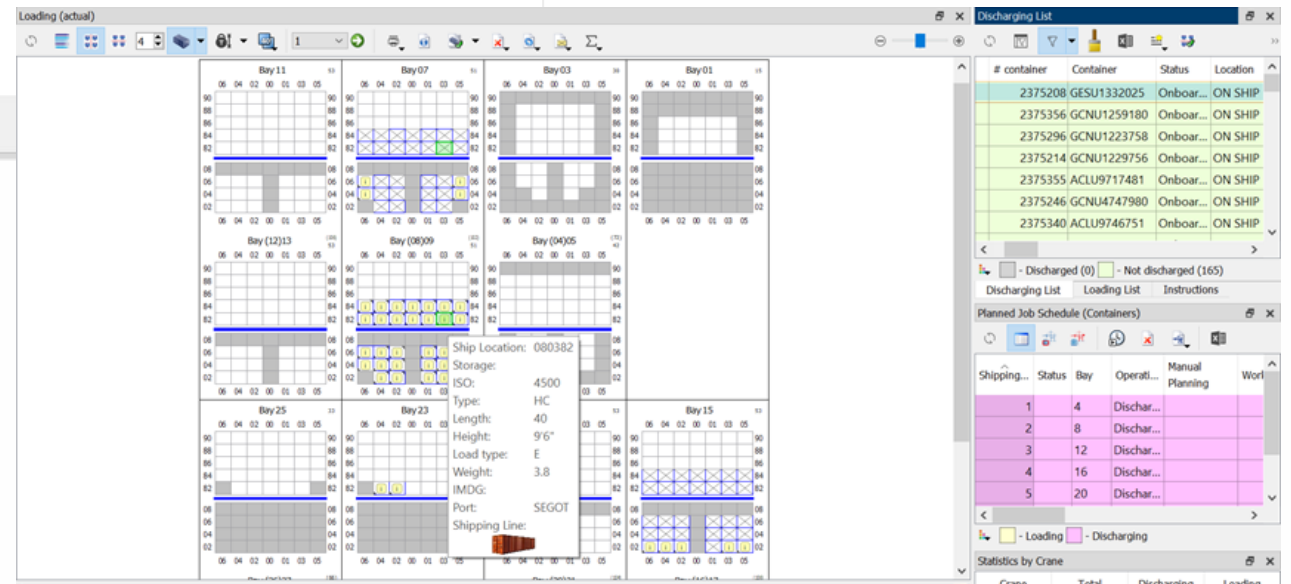
Documents Certificates Parameters VSM Certificates Operations Attachment Requests for negotiation Settings

Document	Document Address	Created	Number	Date	#	Creates/Minimization	Identifier	State	Date/Date
Rel of Loading	Ready	18.03.22	EPCR1803204	18/03/22	176947	FATK	YSC/TOS/VES/Status/176947		
Rail Car Mentoring	Initial	21.03.22	EPCR1803204	21/03/22	2539	FATK	YSC/TOS/VES/Status/2539		
Report document in		18.03.22		18/03/22	57485	SCHEI			
Loading		21.03.22		21/03/22	266237	LFTLH			
Reception		18.03.22		18/03/22	266234	LFTLH			
Forwarder Nomination	Nominat	21.03.22	EPCR1803203	21/03/22	14441	FATK	Nomination with release YSC/TOS/VES/ForwarderNomina/14441		
Rail Transport Order	Ready	21.03.22	EPCR1803204	21/03/22	13720	FATK	YSC/TOS/VES/Orders/13720		
Customs Permission CD	Approve	21.03.22	10702070/109211/707070	21/03/22	40481	FATK	YSC/TOS/VES/Customs/Permission/40481		

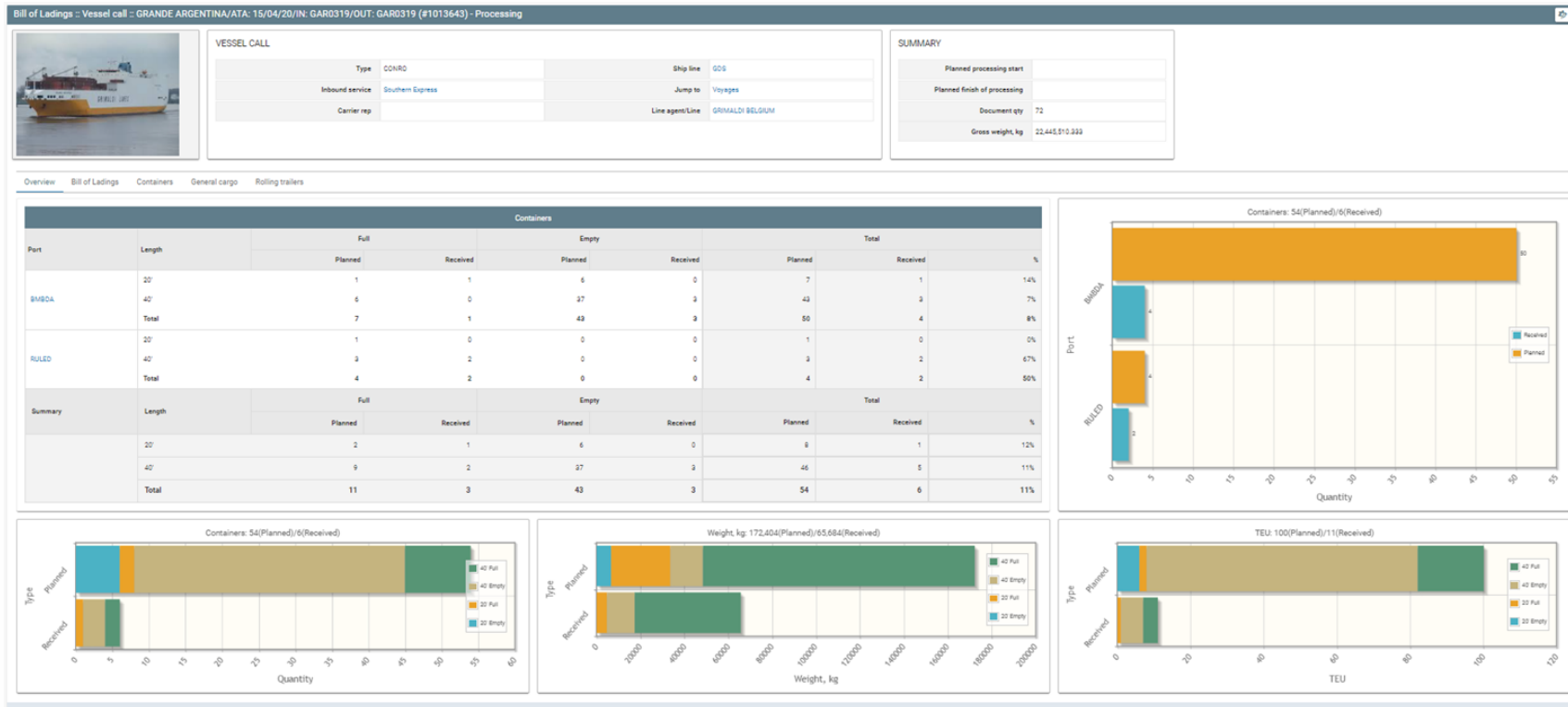
Advanced Vessel planning capabilities



The system has a wide range of options for planning vessel arrivals. With the help of tools such as the Cargo Planner and the Universal Vessel Planner it is possible to plan the loading and unloading of containers in the required order, taking into account the container characteristics and specifications. Once at the terminal, the container is recorded in the system and all of its further movements are registered in the system.



Speeding up document flow processing



Information about the container is taken from documents uploaded in advance, such as bills of lading, bookings and service orders.

Further work on loading and unloading is based on the data obtained from these documents.

The system also allows to visualize statistical data and present them as graphs and charts.

Personnel & equipment productivity

References > Work shifts

Calendar List

Current Date August 2021

Sun	Mon	Tue	Wed	Thu	Fri
1	2	3	4	5	6
31.07 20:00-08:00 01.08 08:00-20:00 01.08 20:00-08:00	02.08 08:00-20:00 02.08 20:00-08:00	03.08 08:00-20:00 03.08 20:00-08:00	04.08 08:00-20:00 04.08 20:00-08:00	05.08 08:00-20:00 05.08 20:00-08:00	06.08 08:00-20:00 06.08 20:00-08:00
8	9	10	11	12	13
07.08 20:00-08:00 08.08 08:00-20:00 08.08 20:00-08:00	09.08 08:00-20:00 09.08 20:00-08:00	10.08 08:00-20:00 10.08 20:00-08:00	11.08 08:00-20:00 11.08 20:00-08:00	12.08 08:00-20:00 12.08 20:00-08:00	13.08 08:00-20:00 13.08 20:00-08:00

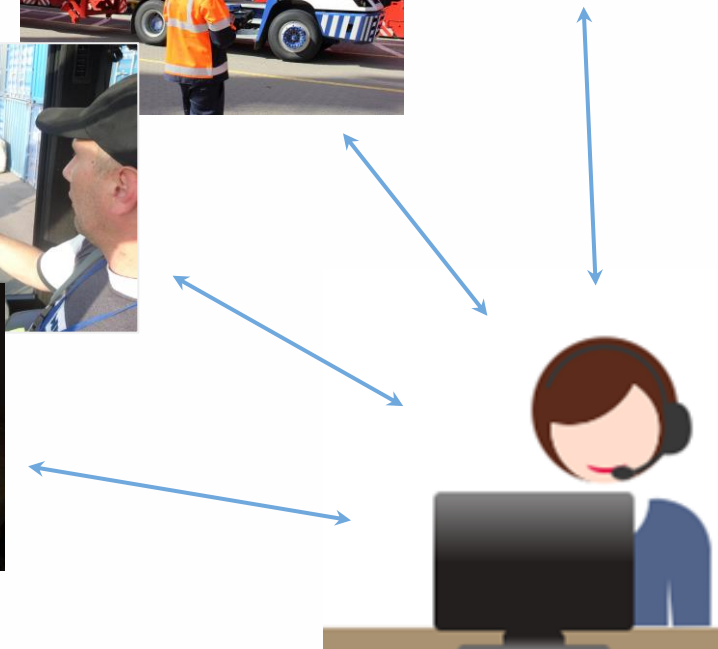
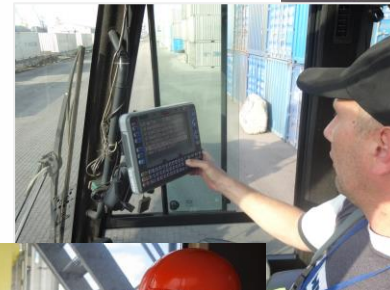
Work shifts schedule: Equipment issuance

10/08/21 Today

	Monday 9 August 2021			Tuesday 10 August 2021			Wednesday 11 August 2021						
	12:00	16:00	20:00	00:00	04:00	08:00	12:00	16:00	20:00	00:00	04:00	08:00	
AP1214 Toyota, 5 TH													
AP1215 Toyota, 5 TH													
XILIN													
DIMA200819													
TEST1													
TEST2													
AP1215 Toyota, 3.2 TH													
FL1						WORKER WORKER WORKER							
Shifts	09:00 08:00-20:00	09:00 20:00-08:00		10:00 08:00-20:00			10:00 20:00-08:00			11:00 08:00-20:00			
	12:00	16:00	20:00	00:00	04:00	08:00	12:00	16:00	20:00	00:00	04:00	08:00	
	Monday 9 August 2021	Tuesday 10 August 2021			Wednesday 11 August 2021								

EQUIPMENT ISSUANCE: WORK SHIFT:

The dispatcher controls the execution of the work-order using an interactive terminal map and data received in real time from radio terminals mounted on vehicles or held by tallymen.



Supported types of equipment



#	Name	Type	System type	Job Type	Status
3664	STS8	STS crane	STS crane	n/d	Not available
3672	STS7	STS crane	STS crane	n/d	Not available
18511	RS20	RS	RS type (s)	n/d	Not available
18512	RS24	RS	RS type (s)	n/d	Not available
18513	RS25	RS	RS type (s)	n/d	Not available
18514	RS26	RS	RS type (s)	n/d	Not available
18516	RS27	RS	RS type (s)	n/d	Not available
18517	RS28	RS	RS type (s)	n/d	Not available
18518	RS29	RS	RS type (s)	n/d	Not available
18519	TR206	Trailer	n/d	n/d	Not available
18520		Trailer	n/d	n/d	Not available
18521		Trailer	n/d	n/d	Not available
18522		Trailer	n/d	n/d	Not available
18523		Trailer	n/d	n/d	Not available
18524		Trailer	n/d	n/d	Not available

RDT serial number	RDT	GPS
00		3664
0		3672
RS20		18511
RS24		18512
RS25		18513
RS26		18514
RS27		18516
RS28		18517
RS29		18518
206		18519
207		18520
208		18521
209		18522
210		18523
401		18524

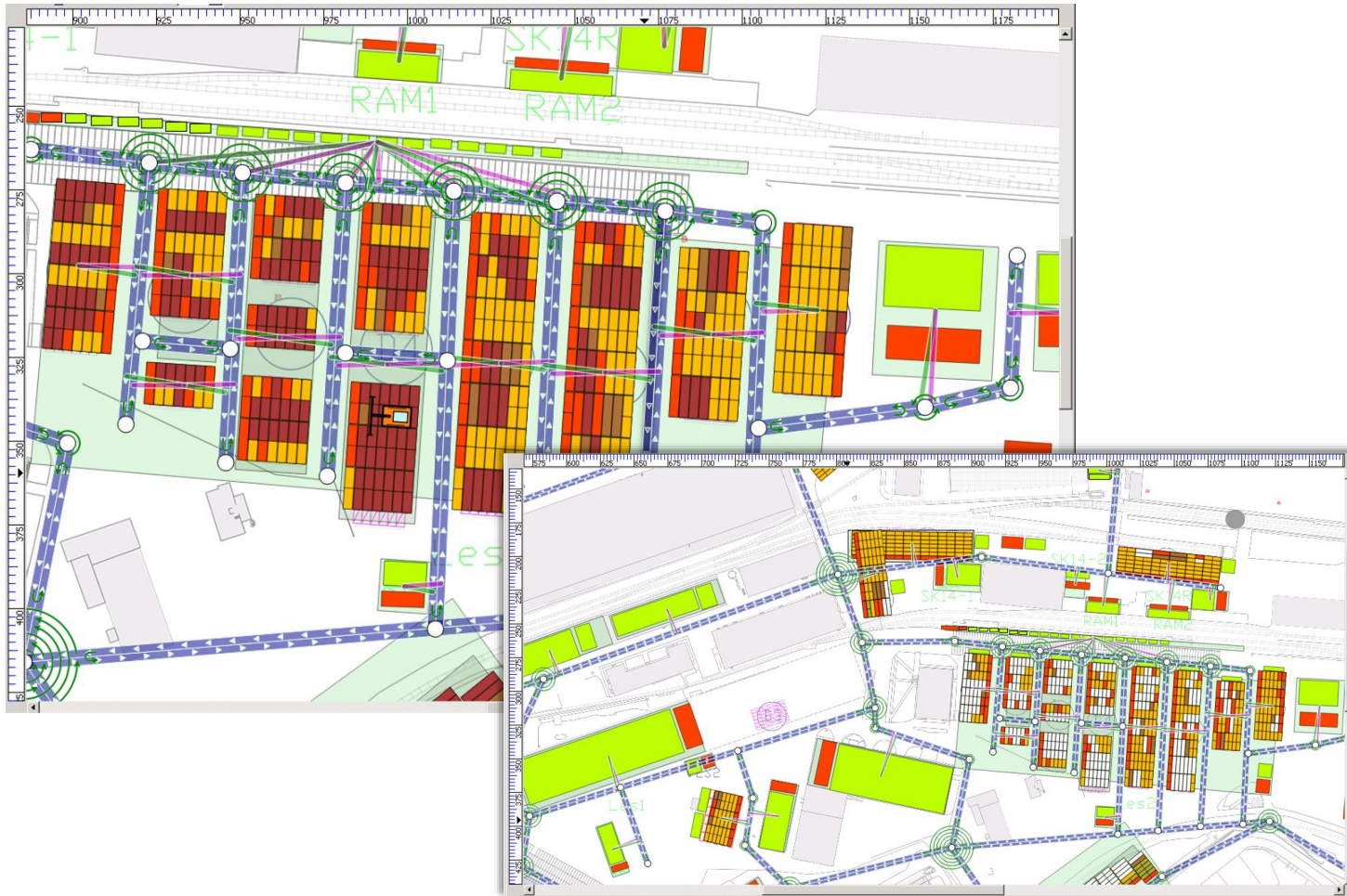
References > Loaders > TR206 (Edit)

Loaders - TR206 (#18519)

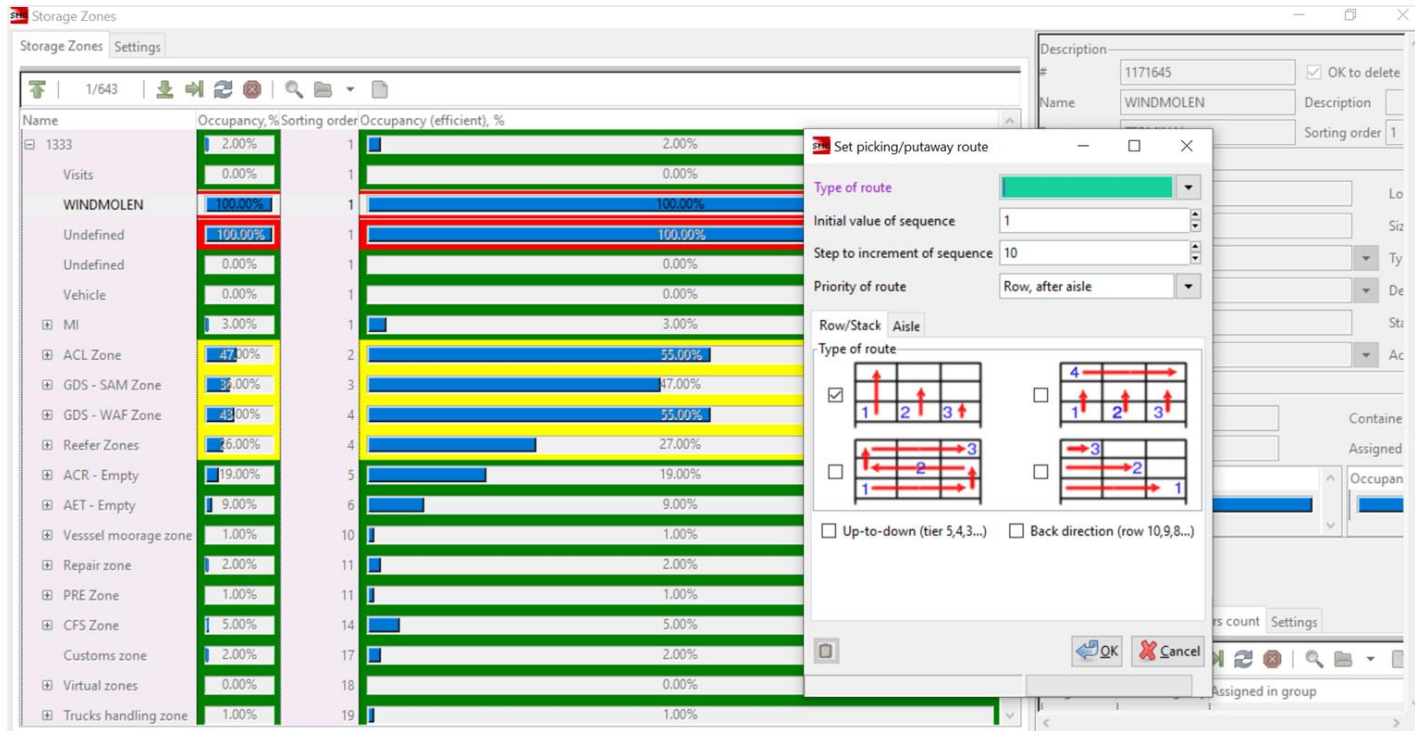
Name *	TR206	Type		System type *	Trailer
# in DS		Capacity *	2	RDT serial number	
External name	901650	Worker profile		Loader weight, kg *	5000.0
Storage	<input type="checkbox"/>	Job Type *	n/d	Speed limit *	30.0
Grab Sensor	<input type="checkbox"/>	Max container weight, kg *	4,000	Metric work queue	1.0
Release Sensor	<input type="checkbox"/>	Container processing time, sec	180	Metric moves	1.0
Autostop	<input type="checkbox"/>	Slot		Way capabilities	-1

Rollback Save Cancel

All terminal equipment can be managed by the system automatically according to the dynamic stacking rules and strategies. You can view the list of assigned jobs. The system initiates a job to vehicle operators to place the container in the specified location.

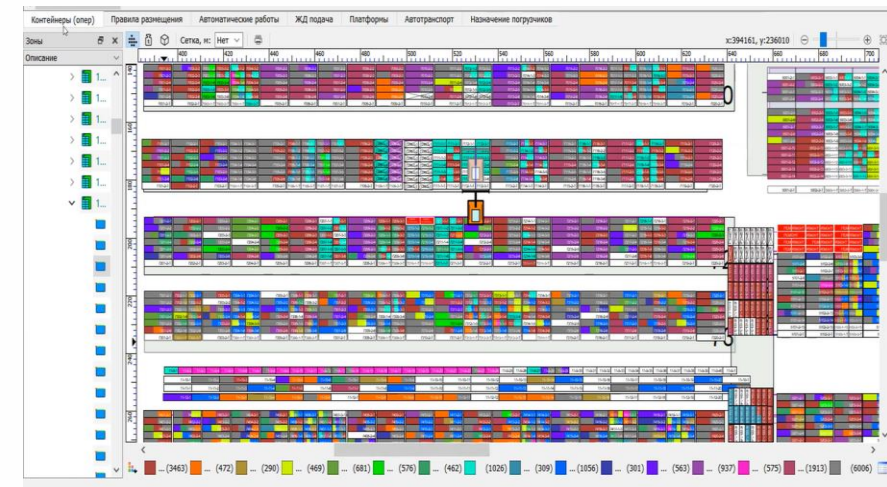


- The system analyzes the available data about the road network of the terminal and builds the optimal route for a MHE;
- The entry of road data is carried out through the roads editor function - part of the Real-time terminal layout viewer and editor;
- The user defines the key checkpoints, permitted turns and delays.
- The user can also then set the availability of a stack for processing from a selected road.



The core technology that the system uses to manage operations is automated work order generation based on predefined rules and strategies. There are hundreds of strategies available in the system that may take into account thousands of parameters to make sure the putaway process for example is efficient and housekeeping is minimal.

The system finds a stack for the container based on putaway rules. For example, all MSC containers are to be placed in zone 1 of the yard storage area, while CMA containers go to the stacks in zone 2.

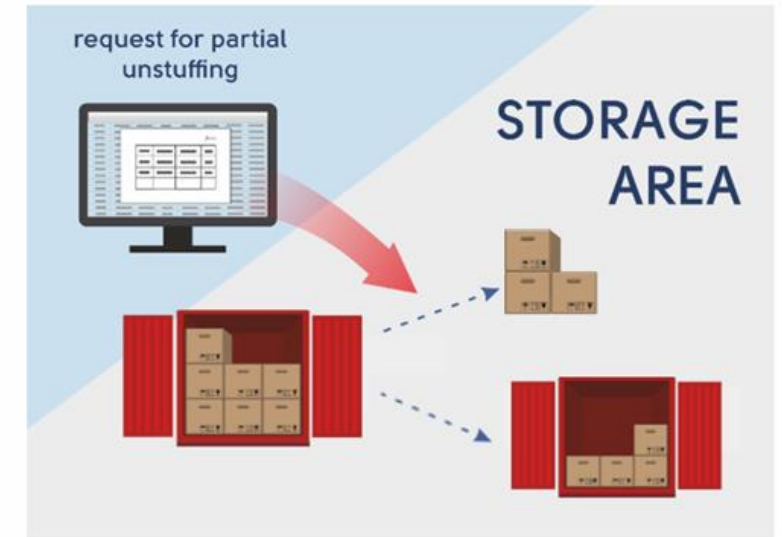




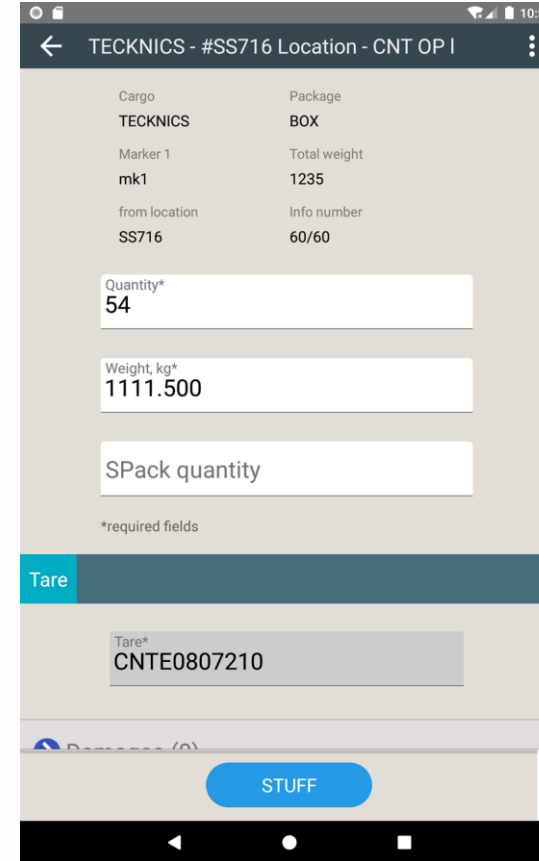
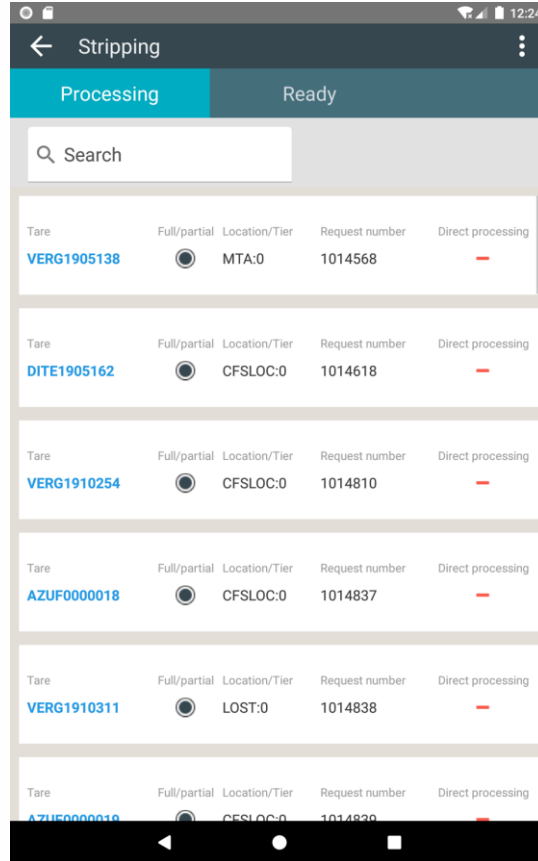
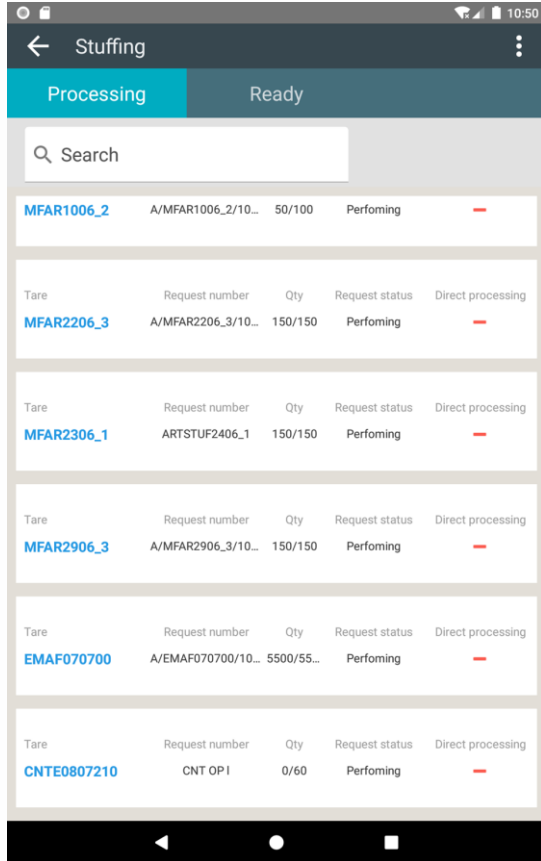
Performed based on requests. Requests can be filed by clients via the web-portal or by service-desk operators. The system supports partial container and GC + Ro-Ro stuffing/unstuffing.



Upon completion, the tallyman will register new seals via RDT and confirm job completion. The system will automatically create a stuffing/unstuffing certificate.



Based on requests from clients the system can automatically create and distribute work orders for **partial unstuffing of containers**. Information about how much cargo needs to be unloaded from the container is entered in the comment field, the information is for reference.



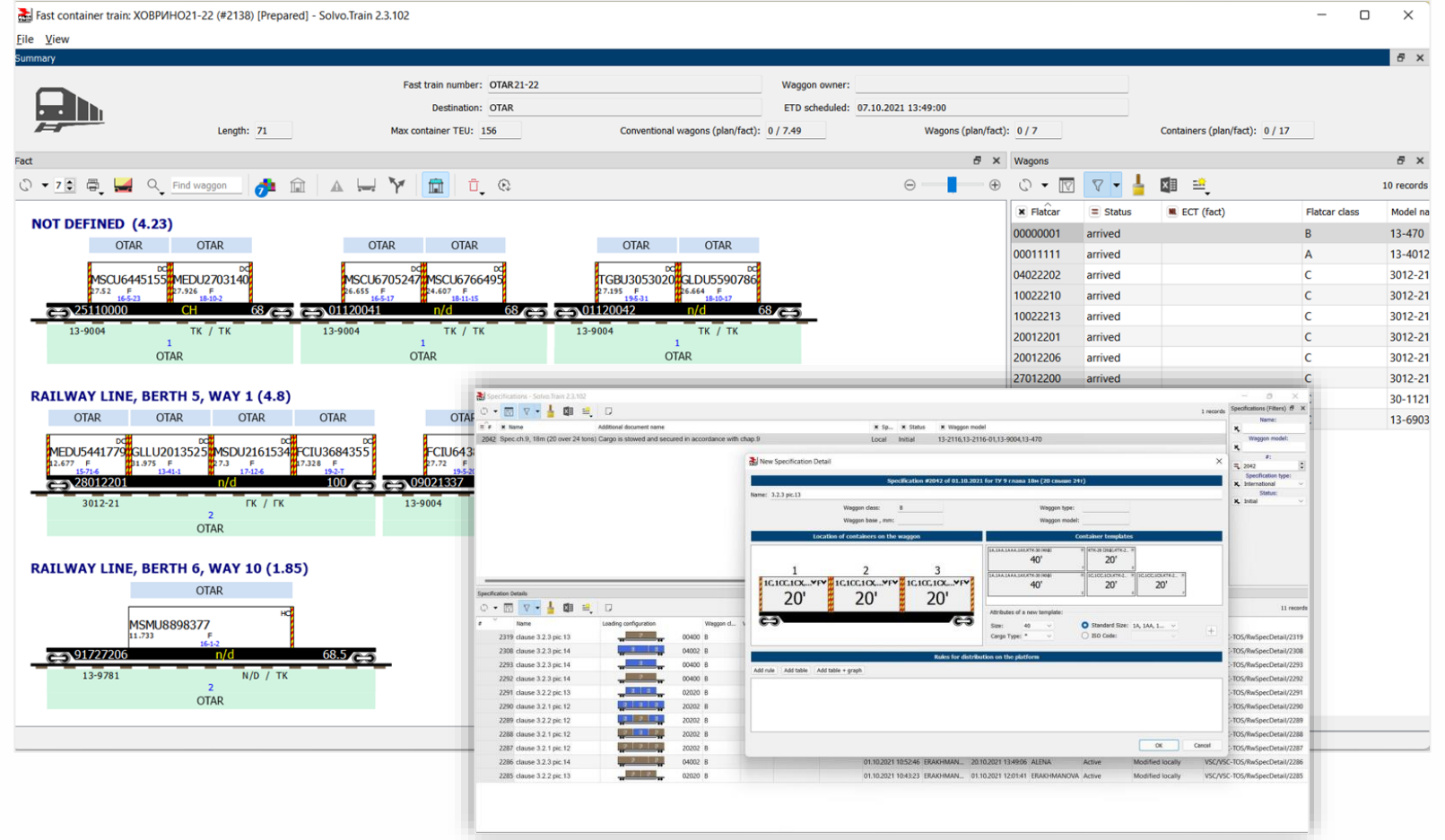
The system allows to handle special loads, such as paper reels. Such cargo can be stored at the terminal as general cargo, but containers are used for transportation.

For one of our customers we set up a customized stuffing and stripping procedure with the use of barcodes. So after receiving the request, the system automatically selects the right container for the procedure.

By using a barcode scanner, all information about the cargo packed in a certain container will be transmitted to the system and reflected in the history of container handling.

The system enables to automate:

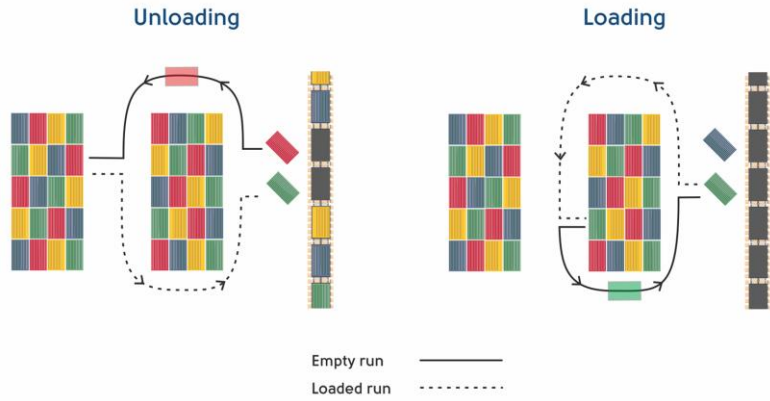
1. Planning of rail car staging.
 2. Registration of rail consignment notes.
 3. Registration of rail car arrival/departure.
 4. Loading/discharging planning.
 5. Train and cargo inspection.
 6. Train loading and unloading.
- Automatic planning of rail car staging increases personnel productivity.
 - Reduced number of errors when creating rail car plan.



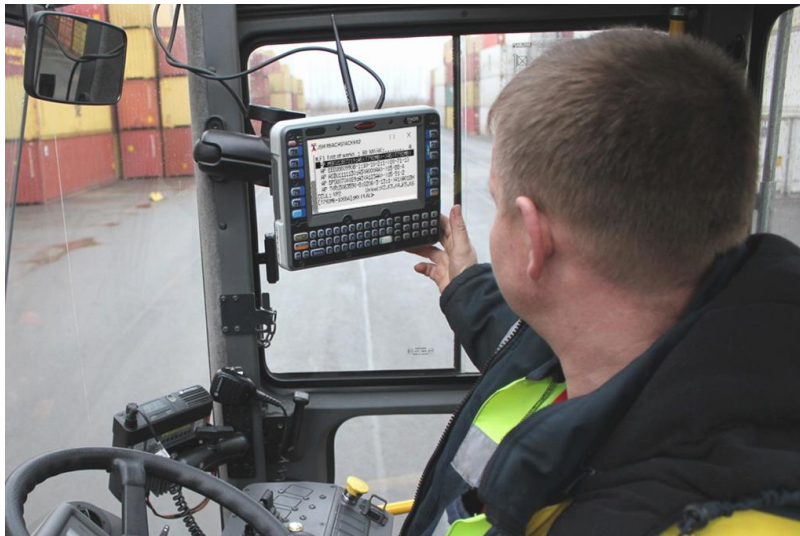
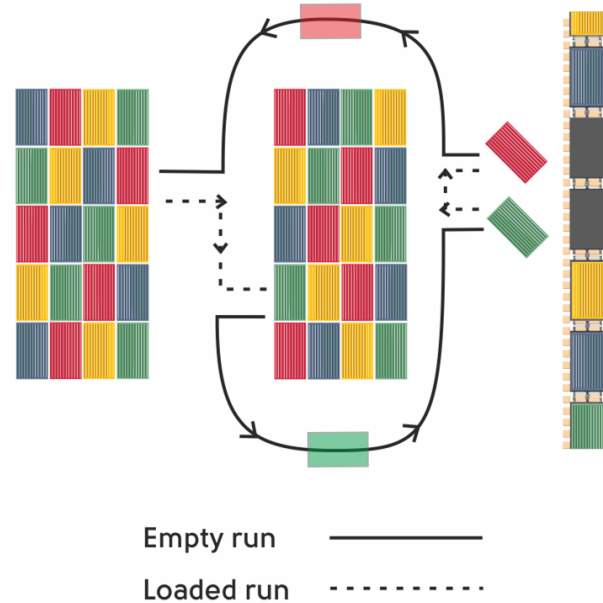
The screenshot displays the Solvo.Train 2.3.102 software interface. The main window shows a rail car plan for a fast container train (OTAR 21-22) with a length of 71 and a maximum container TEU of 156. The plan is divided into three sections: 'NOT DEFINED (4.23)', 'RAILWAY LINE, BERTH 5, WAY 1 (4.8)', and 'RAILWAY LINE, BERTH 6, WAY 10 (1.85)'. Each section shows a sequence of rail cars with their respective container numbers and statuses. A 'Wagons' table on the right lists the status of various flatcars. A 'Specifications' window is open, showing details for a specific wagon model, including its location on the wagon and container templates.

Flatcar	Status	ECT (fact)	Flatcar class	Model na
00000001	arrived		B	13-470
00011111	arrived		A	13-4012
04022202	arrived		C	3012-21
10022210	arrived		C	3012-21
10022213	arrived		C	3012-21
20012201	arrived		C	3012-21
20012206	arrived		C	3012-21
27012200	arrived		C	3012-21
				30-1121
				13-6903

Dual cycling or optimization of pickup for loading/unloading




Dual cycling



Containers > GCNU1217591

Container :: GCNU1217591 (#2296141) - Gone Actions



BASIC DATA

Number	GCNU1217591	ISO code	22G1	Type	DC
Length	20	Ownership type	Line	Line agent/Line	GRIMALDI BELGIUM
Ship line	GDS	Forwarder	DEFAULT	Direction (cur)	Import
Direction (rcv)	Import	Empty	<input type="checkbox"/>	Cargo description	
Commodity					

Overview Container data Processing Documents Printouts Container operations Cargo History Attachments

RECEIVING

Vessel call	Received	Actual time of arrival	Worker
GRANDE BRASILE/GBR0219	17/01/19 00:00	17/01/19 22:20	ENGELS

SHIPPING

Train visit	Loaded	Actual time of departure	Worker
JAGER/	25/01/19 16:04	25/01/19 09:38	36406

PARAMETERS

Gross weight, kg	19040.000	Cargo weight, kg	16720.000
Hazard class		UN hazard class	
Seals (doc)	WA343764	Seals (actual)	WA343764
Condition Code	DAM	VGM, kg	

CURRENT LOCATION

Warehouse	
Location	OUT OF CT:1
Last operation	25/01/19 16:04

Client services

Accelerated transport (truck, rail) processing at the terminal using preliminary data and time-slotting.

Enhanced customer-relationships with online, real-time data access.

Improved control with direct commands to vehicle-mounted radio data terminals.

Complete traceability with operator and CHE driver history logging.

Superior service quality for freight owners with up-to-date container information.

Operating costs

CHE optimization with predefined routes and proven stacking strategies.

Rational equipment labor utilization.

Elimination of unproductive moves, bottlenecks and decrease in empty runs and stowage errors.

Conservation of fuel and energy, reducing maintenance costs and increasing equipment lifespan.

Logistics

Streamlined and optimized mechanical processes involved in cargo flow at the terminal.

Complete control over cargo flow

Maximum space utilization, increasing from 5 to 20% (depending on area type).

Locate containers faster and with higher precision.

Optimized and pre-defined cargo stacking strategies to reduce reshuffles and costly moves.



**Thank you
for your attention!**