



## T2 PILOT PROJECTS

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**D.T2.2.1 Pilot project no. 1 Port of Bar - Final report**

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**03/2023**

#### **DISCLAIMER**

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## 1 ABBREVIATIONS

PCS	Port Community System
ICT	Information and Communication Technology
ToR	Terms of Reference
GUI	Graphical User Interface
NMSW	National Maritime Single Window
MRN	Movement Reference Number
IMDG	International Maritime Dangerous Goods (code)

## 2 INTRODUCTION

In accordance with EFINTIS objectives, the pilot actions in the Port of Bar intended to improve efficiency of the intermodal transport flows by improved ICT systems and further digitalization of the processes, ensuring optimal communication within the port community, including better planning and optimal use of available resources. These has been achieved with the extension of the existing PCS system and better use of available data in PCS, which is related to the implemented upgrades, as listed below:

- Connection with Customs Administration
- Improved BI reporting
- Full integration/implementation of the developed Android application
- Dangerous goods basic module
- Connection with NMSW
- Improved GUI
- Truck module enhancements
- Exchange of truck information with other ports

This document describes the final project results. This includes the list of all the activities implemented and the deliverables developed throughout the project cycle, an assessment of the degree to which the expected results were achieved and proposals regarding future needs of the Port of Bar in connection with the scope of the implemented contract.

### 3 IMPLEMENTED FUNCTIONALITIES

The existing port Community System has been extended with the new functionalities, as described below.

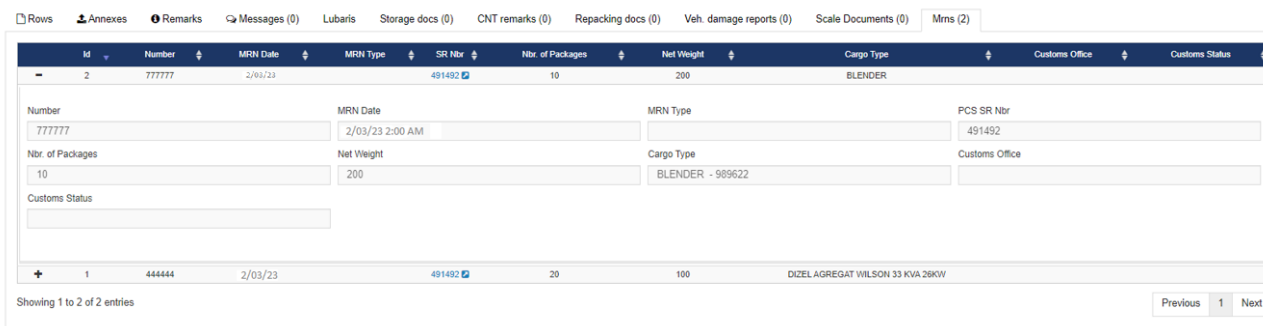
#### 3.1 Customs PCS module

Customs PCS module comprises capturing data in PCS that is required by Customs and the integration with the Customs Administration IT system. The integration has been achieved by defining the XML structure of the messages to be exchanged between the two IT systems. The content is then inserted into the XML structure, giving the message its meaning.

Service Request screen has been amended with the tab 'MRN' and tab 'Annexes', where user can insert MRN number and attach customs declaration documents.

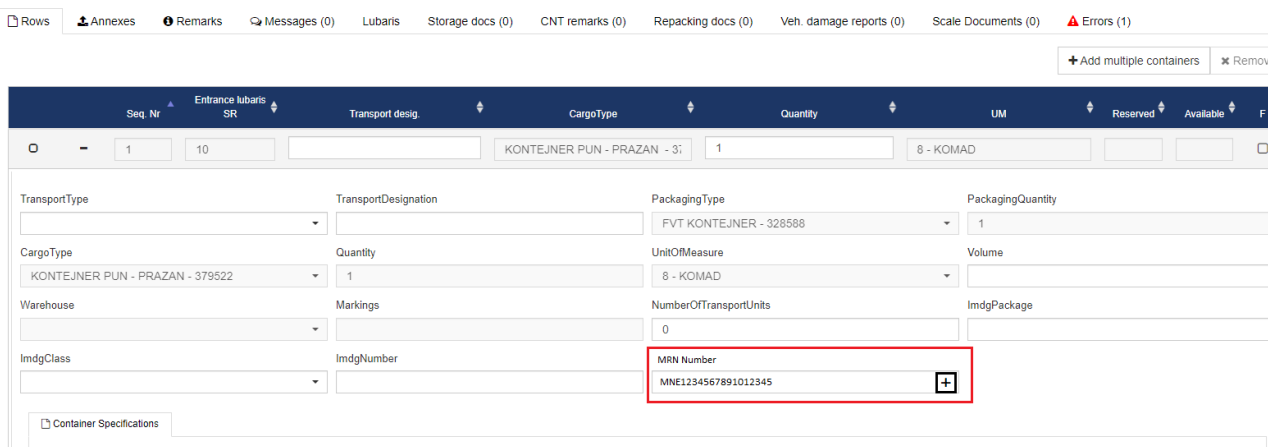
Business rules were introduced to determine whether a certain Service Request needs MRN number, depending on direction and customs status. MRN number can be entered per Service Request or per container or per vehicle. Multiple MRN numbers can be entered for the same Service Request (per its row), for the same container and/or for the same vehicle.

If MRN belongs to Service Request, it is entered within the MRN tab on the Service Request screen:



Id	Number	MRN Date	MRN Type	SR Nbr	Nbr. of Packages	Net Weight	Cargo Type	Customs Office	Customs Status
2	777777	2/03/23		491492	10	200	BLENDER		

The entered MRN number is also displayed within the Rows tab on Service Request.



Seq. Nr	Entrance Lubaris	SR	Transport design.	CargoType	Quantity	UM	Reserved	Available	F
1	10		KONTEJNER PUN - PRAZAN - 31	8 - KOMAD	1				

MRN number has been added as a searchable filed on the Service Request list screen, so a user can search through service requests containing particular MRN number:

**Service request list** Search Clear

ServiceRequestNumber	SR Lubaris number	Year	TypeCode
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
ManipulationCode	ContractId	Position	Date
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
StatusCode	WarehouseCode	VesselId	PayerCode
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
OrganizationUnitCode	DischargeConditionCode	MRN Number	
<input type="text"/>	<input type="text"/>	<input type="text"/>	
ForCancel	Internal	From Port Of Adria	Customs Not Cleared
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			Waiting for IOT
			<input type="checkbox"/>

Results

The MRN number can also be entered per container, which is possible within Annexes tab in the Service Request, by choosing annex type 'Container Specification'.

849 - Specifikacija kontejnera 0 Mar 02, 2023 10:38:35 AM Save Close

AnnexType: 849 - Specifikacija kontejnera BusinessPartner: AnnexNumber: 0 Date: Mar 02, 2023 10:38:35 AM

Attachment: + Add file

**Specifications** +Add Remove

SequenceNumber	RowNumber	ContainerNumber	CargoType	NetWeight	CustomCargoType
1					

ContainerNumber

ContainerSize

MRN Number  
MNE1234567891012345 +

ContainerType

ContainerTare

NetWeight

Container-ull  
☐

From location

To location

Booking

Seal

Temperature

ImdgNumber

ImdgPackage

ImdgClass

CustomCargoType

BillOfLading

Total container tare: Total net weight:

Showing 1 to 1 of 1 entries Previous 1 Next

Such MRN will be displayed within the Container specification section of a particular row in Service Request item.

Rows Annexes Remarks Messages (0) Lubaris Storage docs (0) CNT remarks (0) Repacking docs (0) Veh. damage reports (0) Scale Documents (0) Mms (2)

Seq. Nr.	Entrance tubaris SR	Transport design.	CargoType	Quantity	UM	Reserved	Available	F
1	256		KONTEJNER PUN - PRAZAN - 379522	1	8 - KOMAD	0	3	

TransportType

TransportDesignation

PackagingType  
FVT KONTEJNER - 328588

PackagingQuantity  
1

CargoType  
KONTEJNER PUN - PRAZAN - 379522

Quantity  
1

UnitOfMeasure  
8 - KOMAD

Volume

Warehouse

Markings

NumberOfTransportUnits  
0

ImdgPackage

ImdgClass

ImdgNumber

Number  
444444

MRN Date  
2/03/23 2:00 AM

MRN Type

PCS SR Nbr  
491492

Nbr. of Packages  
20

Net Weight  
100

Cargo Type  
DIZEL AGREGAT WILSON 33 KVA 26KW - 980366

Customs Office

Customs Status

The MRN number can also be entered per vehicle, which is possible within Annexes tab in the Service Request, by choosing annex type 'Vehicle Specification'.

AnnexType AnnexNumber BusinessPartner Date Save Close

878 - Specifikacija vozila 1 Mar 02, 2023 10:30:18 AM

AnnexType BusinessPartner AnnexNumber Date

878 - Specifikacija vozila 1 Mar 02, 2023 10:30:18 AM

Attachment

+ Add file

Specifications

+Add XRemove

SequenceNumber	RowNumber	VehicleChassis	CargoType
1	1		VOZILA SPECIJALNA - 318353

TransportDesignation

NumberOfTransportUnits  
0

NumberOfPlatform  
0

BillOfLading

PackagingQuantity  
0

Quantity  
0

PortOfDestination

TransportType

PackagingType  
VOZILA NA SOPSTVENI POGON - 328634

UnitOfMeasure  
8 - KOMAD

VehicleChassis

VehicleType

VehicleTypeName

VehicleTypeExternalCode

MRN Number  
MNE1234567891012345

Showing 1 to 1 of 1 entries

Previous 1 Next

The business logic within the PCS Truck module has been extended to use the status of MRN number of the cargo carried by the truck to enable truck procedures in accordance with customs and internal port procedures.

Besides entering MRN, user can also submit Customs Declarations within the Annexes tab in the Service Request, by choosing annex type 'Customs Declarations'.

Rows	Annexes	Remarks	Messages (2)	Lubaris	Storage docs (0)	CNT remarks (0)	Repacking docs (0)	Veh. damage reports (0)	Scale Documents (0)	Mms (0)
------	---------	---------	--------------	---------	------------------	-----------------	--------------------	-------------------------	---------------------	---------

AnnexType	AnnexNumber	BusinessPartner	Date
846 - CARINSKA DEKLARACIJA	OM-47		7/18/22 2:35 PM

AnnexType	BusinessPartner	AnnexNumber	Date
846 - CARINSKA DEKLARACIJA		OM-47	7/18/22 2:35 PM

Attachment

Showing 1 to 1 of 1 entries

Previous 1 Next

Within Annex tab on Service Request user can view all types of Annexes that have been submitted for that Service Request:

LUKA BAR

Service request - 886891

Logged as: System Build: 1 English

Formulari reporti ISD Specifikacija reporti ISD Reporti

PCS Number	886891	Lubaris number		Contract	77 - 107 - 2002 - Upravljajnik, ind. Prekovali danka	Position	PH BR 883
Manipulation	3348 - Otkladanje	Type	882 - DISPODIOJA - Transiti	Contract created date	12/07/02 1:00 AM	Contract agent	107 - JADRAGADENT
Status		Warranty		Contract year	2002	Contract Owner	100 - RAZDI KUPCI
Organization	01 - TC "Branjenje i koordinacija"	Warehouse	200 - DKL 8 MATRIJE	Payor		Import/Export	100 - RAZDI KUPCI
Year	2002	Shore		Charging/Discharging location	770 - TOROJA	Discharge/Condition	10 - FOS
Water		Release/Amountment	116 - 8298129 - 13.05.2002	Customer			
From Port Of Origin		Freight Direction					
No							
CreatedBy	Zoran Vujacki	CreatedDate	3/12/23 6:59 PM	Signer		ReleasedServiceRequest	
ModifiedBy	Zoran Vujacki	ModifiedDate	3/12/23 6:59 PM	Customs approved by		Customs approval date	

Annexes

AnnexType	AnnexNumber	BusinessPartner	Date
846 - CARINSKA DEKLARACIJA	TCD-D-4		3/12/23 6:59 PM

Attachment

TCD-D-4 PDF

Download

AnnexType	AnnexNumber	BusinessPartner	Date
846 - CARINSKA DEKLARACIJA	TCD-D-0		3/12/23 6:59 PM
848 - Specifikacija korporene	2		3/12/23 6:59 PM
848 - Specifikacija korporene	1		3/12/23 6:57 PM

Showing 1 to 4 of 4 entries

Previous 1 Next

Service Requests (SR), containing the requested cargo manipulation, have been extended with checking the status of the required MRN number within the Customs system before proceeding with the submission of the Service Request. Based on the received MRN status, certain actions on SR are allowed or not and SR processing can be stopped or continued. This feature is configurable, so it could be decided in the later stages whether to allow or ban further manipulations with the cargo.

The XML structure includes all necessary data fields in order to get the appropriate response from the Customs systems. These are declaration type, declaration date, customs procedure type etc., including the error segment with type and description of the error, in case of any errors encountered.

**The structure and code of the MRN messages as sensitive data are delivered to the Port of Bar and are not part of this report.**



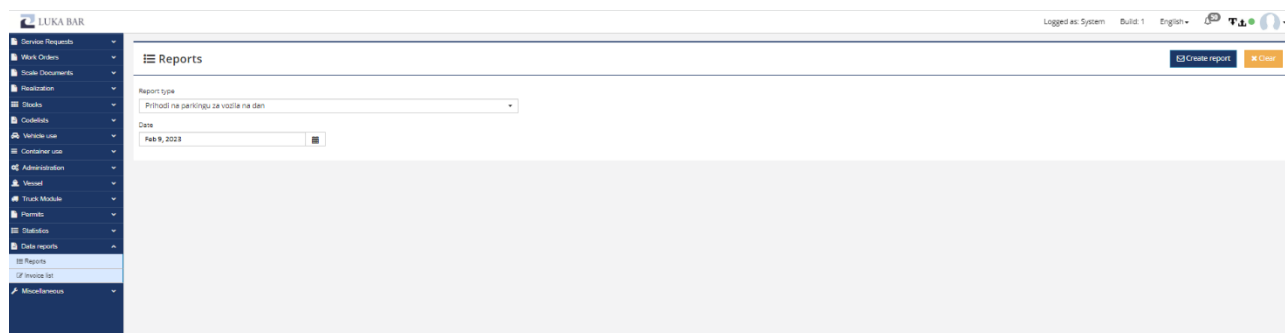
### 3.2 Improved BI reporting

The existing data, as well as new data resulting of the PCS extensions, has been made available to the authorized users for searches within the PCS database and included in the various reports. The searchable data has been made available as filters, upon which resulting reports are created.

Here are some examples of the improved reports on offer:

### 3.3 Truck arrivals on the particular date

Report parameters (type of the report and requested date) for truck arrivals can be chosen as shown on the screen:



The screenshot shows the LUKA BAR Reports interface. The 'Report type' dropdown is set to 'Prihodi na parkingu za vozila na dan'. The 'Date' field is set to 'Feb 9, 2023'. The left sidebar contains a menu with various report categories, and the top right shows the user is logged as 'System'.

The resulting truck arrivals report for 9.2.2023 is then shown as follows:

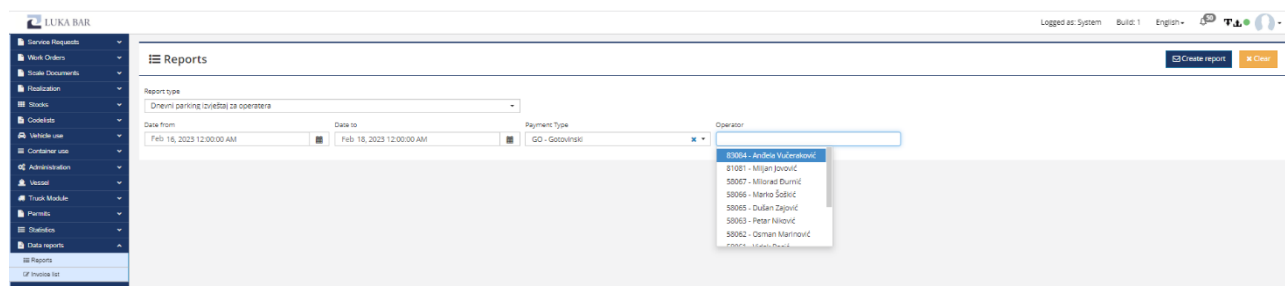
**LUKA BAR** Datum Štampe: 10/02/2023 08:11

**Prihodi na parkingu za vozila na dan**  
09 / 02 / 2023

Tip voz.	b.voz. (1)	GOTOVINSKI		ukupno b.voz. (2)+(3) (4)	BEZGOTOVINSKI		ukupno b.voz. (5)+(6) (1)+(4)	UKUPNO		saobrać. (3)+(6) (2)+(3)+(5)+(6)	UKUPNO
		parking (2)	saobrać. (3)		parking (5)	saobrać. (6)		parking (2)+(5)	saobrać.		
PA	0	0	0	0 0	0	0	0 0	0	0	0	0
MK	0	0	0	0 0	0	0	0 0	0	0	0	0
VK	0	0	0	0 0	0	0	0 0	0	0	0	0
<b>UKUPNO:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0 0</b>	<b>0</b>	<b>0</b>	<b>0 0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

### 3.4 Daily parking income report

Report parameters (type of the report, time period, payment type and operator) for daily parking income can be chosen as shown on the screen:



The screenshot shows the LUKA BAR Reports interface. The 'Report type' dropdown is set to 'Dnevni parking (izveštaj) za operatera'. The 'Date from' and 'Date to' fields are both set to 'Feb 16, 2023 12:00:00 AM'. The 'Payment type' dropdown is set to 'GO - Gotovinski'. The 'Operator' dropdown is set to '83004 - Andrija Vučković'. The left sidebar contains a menu with various report categories, and the top right shows the user is logged as 'System'.

The resulting daily parking income report will be created as follows:



LUKA BAR

Datum štampe: 20.02.2023

### GOTOVINSKI RAČUNI U PERIODU

16.02.2023 00:00 - 18.02.2023 00:00

VRSTA PLAĆANJA: Gotovinski  
OPERATER: Anđela Vučeraković

Strana: 1

Izlaz	Račun	Reg.oznaka	Vlasnik	Iznos (EUR)
Ukupno gotovinsko:				0.0

### 3.5 Vehicle diary report

Report parameters (type of the report, time period, vehicle type and permit type) for vehicle diary can be chosen as shown on the screen:

Service Requests  
Work Orders  
Scale Documents  
Realization  
Stocks  
Codelists  
Vehicle use  
Container use  
Administration  
Vessel  
Truck Module  
Permits  
Truck Announcements  
Statistics  
Data reports  
Reports  
Invoice list

#### Reports

Report type  
Dnevnik vozila za period

Date from: Mar 1, 2023 12:00:00 A Date to: Mar 16, 2023 12:00:00

Tip vozila  
PA - Putnički automobil ☒ MK - Mali kamion ☒ VK - Veliki kamion ☒

Tip dozvole  
Bez dozvole, ulaz sa parkinga ☒ UGBR - Dozvola za ograničen broj ulazaka ☒ PADO - Dozvola za ograničen broj ulazaka ☒  
JEDN - Dozvola za jednokratni ulaz ☒ PERI - Dozvola za neograničen broj ulazaka za period ☒

Create report Clear

The resulting vehicle diary report for the period 01-16.03.2023 is shown below. Sensitive data has been masked due to GDPR regulations.

LUKA BAR

SISTEM BEZBJEDNOSNE ZAŠTITE - ISPS

**DNEVNIK VOZILA (KAPIJA)**

01/03/2023 / 00:00 - 16/03/2023 / 00:00

Shodno zahtjevima: Procedura LB/SBZ-16; Identifikacija vozila u zoni lučke odgovornosti

LB/SBZ-16

Dat. štampe:

Broj ulaza: 2

Strana: 1

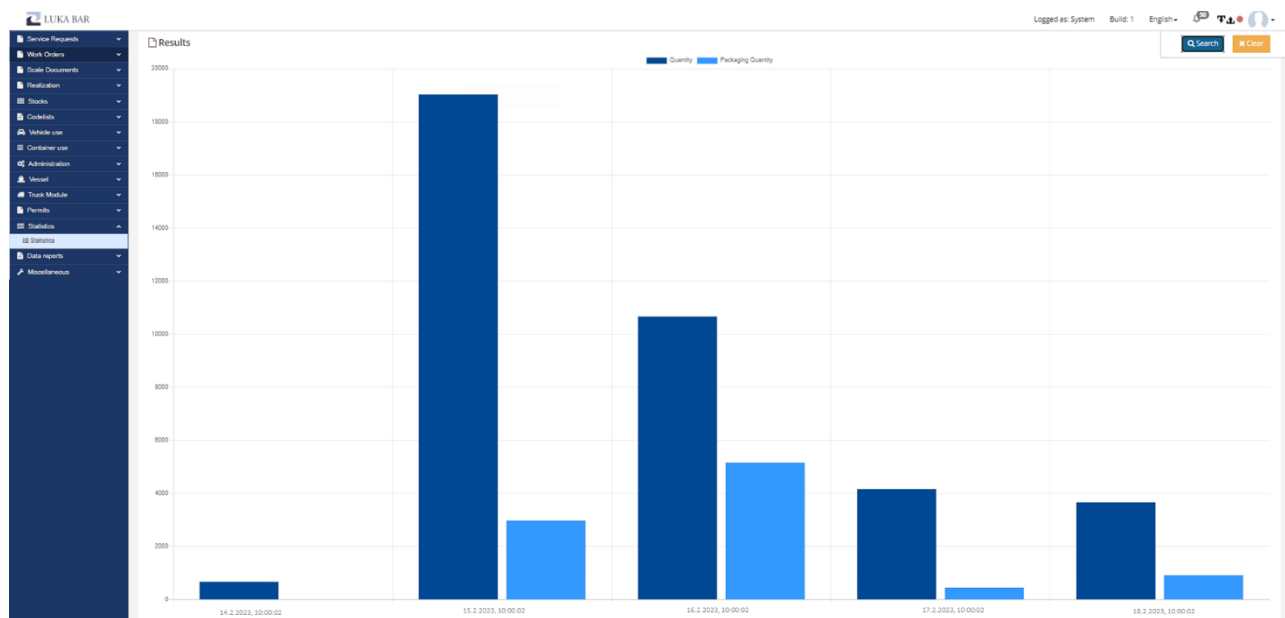
Id posj.	Tip doz.	Tip voz.	Reg.oznaka	Vozač	Razlog ulaza	Vrijeme ulaska	Operator na ulasku	Vrijeme izlaska	Operator na izlasku
44044	UGBR	PA	[Masked]	[Masked]	[Masked]	15/03/2023 11:22	[Masked]	15/03/2023 11:23	[Masked]
44045	UGBR	PA	[Masked]	[Masked]	[Masked]	15/03/2023 11:24	[Masked]	15/03/2023 11:25	[Masked]

### 3.6 Statistics report - Manipulations per day

Time period and other parameters that can be chosen for the statistics report on daily manipulations is shown below:

The screenshot shows the LUKA BAR Statistics report interface. The sidebar on the left contains navigation options: Service Requests, Work Orders, Scale Documents, Realization, Stocks, Codebooks, Vehicle use, Container use, Administration, Vessel, Truck Module, Permits, Statistics, Data reports, and Miscellaneous. The main form is titled 'Statistics' and includes a search bar and a 'Clear' button. The 'Chart type' is set to 'Manipulations per day'. The 'Date from' is 'Feb 14, 2023' and 'Date to' is 'Feb 19, 2023'. Other filters include Organization Unit, Storage Document Type, Transport Type, Unit of Measure, Cargo Type, Packaging Type, Vessel, Customer, Country, City, Container agent, Import/Export, and Service Request Type.

The resulting statistics report for daily manipulations for the period 14-19.2.2023 is shown below:

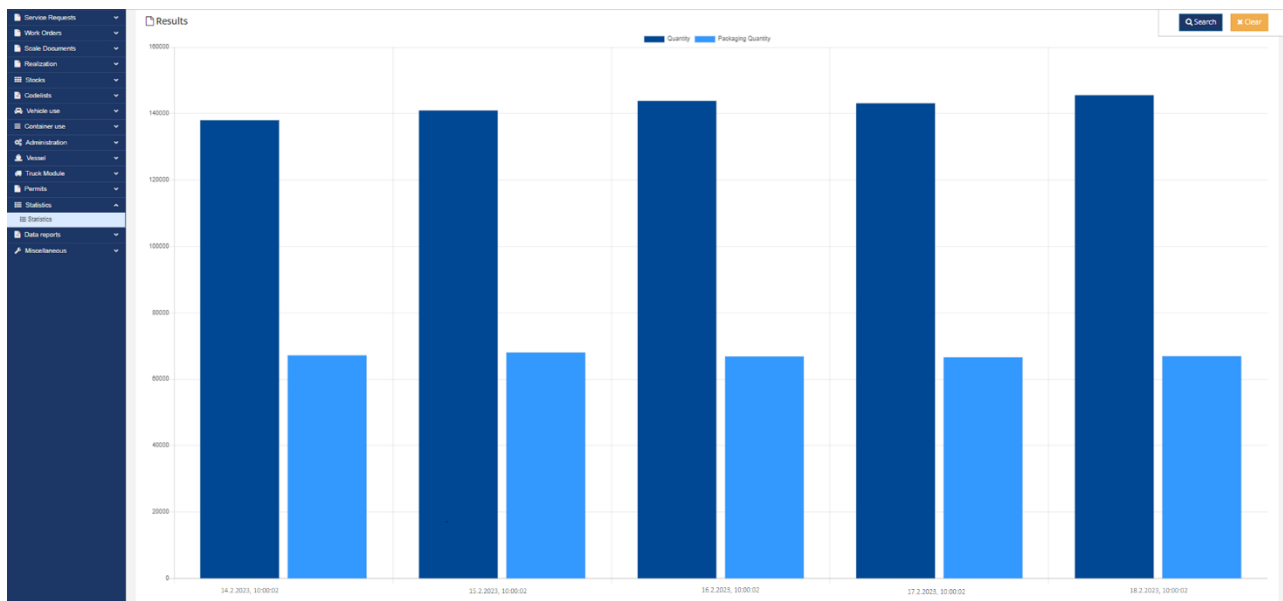


### 3.7 Statistics report – Stock records per day

Time period and other parameters that can be chosen for the statistics report on daily stock records is shown below:

The screenshot shows the LUKA BAR Statistics report interface. The sidebar on the left contains navigation options: Service Requests, Work Orders, Scale Documents, Realization, Stocks, Codebooks, Vehicle use, Container use, Administration, Vessel, Truck Module, Permits, Statistics, Data reports, and Miscellaneous. The main form is titled 'Statistics' and includes a search bar and a 'Clear' button. The 'Chart type' is set to 'Stock Records per day'. The 'Date from' is 'Feb 14, 2023' and 'Date to' is 'Feb 19, 2023'. Other filters include Owner, Cargo Type, Packaging Type, Unit of Measure, Manipulation, and Warehouse.

The resulting statistics report for daily stock records for the period 14-19.2.2023 is shown below:



### 3.8 Scale document report

A scale document list for certain period can be extracted in an Excel format from the PCS.

**Scale document list** [+ Create Excel Report](#) [Q Search](#) [X Clear](#)

SR Nbr:  Lubaris SR Nbr:  Licence Plate:  Trailer Licence Plate:

PCS WO Nbr:  Lubaris WO Nbr:  Customer:  Carrier Company:

Status:  Document Nbr:  Lubaris Created From:  Lubaris Created To:

Transaction Type:  Transaction Nbr:  Lubaris Completed From:  Lubaris Completed To:

Cargo Type:  Payment Type:  Driver First Name:  Driver Last Name:

**Results**

	Id	Lubaris Log Date	Transaction Number	PCS SR Nbr	Lubaris SR Nbr	WO Nbr	Lubaris WO Nbr	Status	Payment	Licence Plate	Trailer LP	Tare Weight	Gross Weight	Net Weight	Cargo Type	Customer	Organization	Driver	Completed Date
+	103286	7/5/23	257	930931	606	1025025 / 2	7447	KO	BG	BRBF423	BR332AA	14620	55940	41320	KONCENTRAT BAKRA	LOGICAR D.O.O. BAR	TRANS CARGO LOGISTIC GMBH	DZELJALJ DZENIC	
+	103284	7/5/23	254	930931	606	1025025 / 2	7447	KO	BG	NKCP512		16360	46200	29840	KONCENTRAT BAKRA	LOGICAR D.O.O. BAR	TRANS CARGO LOGISTIC GMBH	MIOORAG LUCIC	
+	103293	7/5/23	188	926942	598	1019069 / 1	7219	KO	BG	KONT_SEGU130681-7	KAMION 7	12160	35720	23560	KONCENTRAT OLOVINI	JADROAGENT	TRAFIGURA PTE LTD	LUKA BAR	
+	103292	7/5/23	192	926942	598	1019069 / 1	7219	KO	BG	KONT_TCKU182390-9	KAMION2	14320	38140	23820	KONCENTRAT OLOVINI	JADROAGENT	TRAFIGURA PTE LTD	LUKA BAR LUKA BAR	
+	103291	7/5/23	252	925928	576	1025036 / 1	7458	KO	BG	PNO63LS	AC304PN	13200	41140	27940	KONCENTRAT BAKRA	LOGICAR D.O.O. BAR	TRANS CARGO LOGISTIC GMBH	BORNO PETROVIC	
+	103290	7/5/23	251	925928	576	1025036 / 1	7458	KO	BG	PNO4SZU	AC118PN	12960	39800	26840	KONCENTRAT BAKRA	LOGICAR D.O.O. BAR	TRANS CARGO LOGISTIC GMBH	SVETLAN STANKOVIC	

The resulting Excel report for 01.03.2023 -02.03.2023 is shown below:

TRANS CARGO LOGISTIC GMBH

A	B	C	D	E	F	G	H	I	J	K	L	M
DATUM	PROJ_VAGARSKOG	DISPOZICJA	DNEVNI_NALOG	KAMION	PRIKOLICA	NETO	TARA	BRUTO	VOZAC	PREVOZNIK	NAZIV_PROIZVODA	VRIJEME_MIERENJA
01.03.2023	59	302 3654/2	PN03AAT	AB131PM		26080	13420	39500	TEST1	PREVOZNIK TEST 2	KONCENTRAT BAKRA	01.03.2023 07:53
01.03.2023	91	300 3652/1	KAMION 2	KAMION 2		39600	14800	54400	TEST2	PREVOZNIK TEST 3	KONCENTRAT BAKRA	01.03.2023 11:11
01.03.2023	74	302 3654/2	TT028OK///	AA235TT		25520	14480	40000	TEST3	PREVOZNIK TEST 4	KONCENTRAT BAKRA	01.03.2023 08:06
01.03.2023	96	300 3652/1	KAMION 3			32600	15400	48000	TEST4	PREVOZNIK TEST 5	KONCENTRAT BAKRA	01.03.2023 11:15
01.03.2023	76	302 3654/2	KV144UK	AE123KS		27200	12400	39600	TEST5	PREVOZNIK TEST 6	KONCENTRAT BAKRA	01.03.2023 08:08
01.03.2023	101	300 3652/1	BRBF423	BR332AA		41860	14720	56580	TEST6	PREVOZNIK TEST 7	KONCENTRAT BAKRA	01.03.2023 11:23
01.03.2023	98	1475 3530/1	BRCL741			26680	13980	40660	TEST7	PREVOZNIK TEST 8	JALOVINA	01.03.2023 11:24
01.03.2023	103	300 3652/1	KAMION 6			31380	15400	46780	TEST8	PREVOZNIK TEST 9	KONCENTRAT BAKRA	01.03.2023 11:32
01.03.2023	102	1475 3530/1	BRCS354			27690	17640	45340	TEST9	PREVOZNIK TEST 10	JALOVINA	01.03.2023 11:33
01.03.2023	104	300 3652/1	KAMION 2	KAMION 2		38520	14880	53400	TEST10	PREVOZNIK TEST 11	KONCENTRAT BAKRA	01.03.2023 11:36
01.03.2023	105	300 3652/1	KAMION 3			32440	15460	47900	TEST11	PREVOZNIK TEST 12	KONCENTRAT BAKRA	01.03.2023 11:44
01.03.2023	106	1475 3530/1	BRCR236	BRCR236		28720	13760	42480	TEST12	PREVOZNIK TEST 13	JALOVINA	01.03.2023 11:59
01.03.2023	107	300 3652/1	BRBF423	BR332AA		22680	15140	37820	TEST13	PREVOZNIK TEST 14	KONCENTRAT BAKRA	01.03.2023 12:01
01.03.2023	100	47 3404/2	nkcu547	NK949AA		29840	24580	54420	TEST14	PREVOZNIK TEST 15	ŽELJEZO STARO	01.03.2023 11:13
01.03.2023	108	1475 3530/1	BRCL741			27140	14000	41140	TEST15	PREVOZNIK TEST 16	JALOVINA	01.03.2023 12:13
01.03.2023	100	1475 3530/1	brck677			30030	13630	43660	TEST16	PREVOZNIK TEST 17	JALOVINA	01.03.2023 12:30

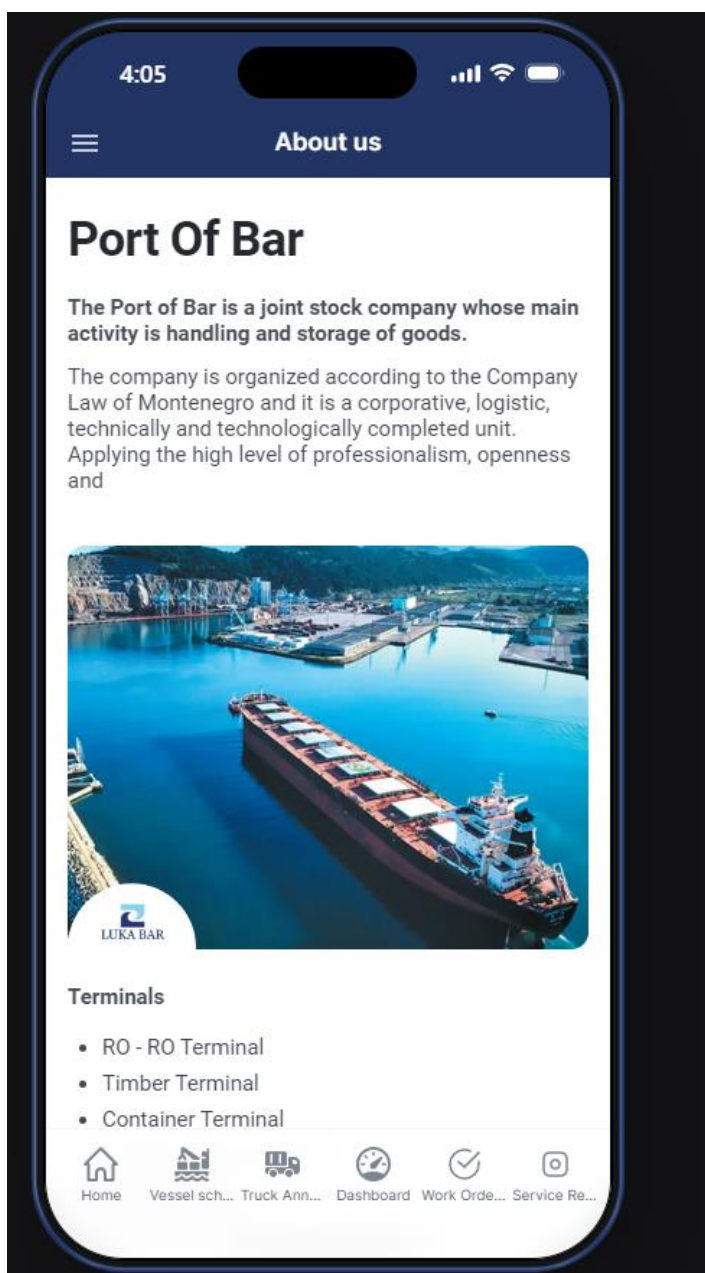
### 3.9 Implementation and integration of the Android application

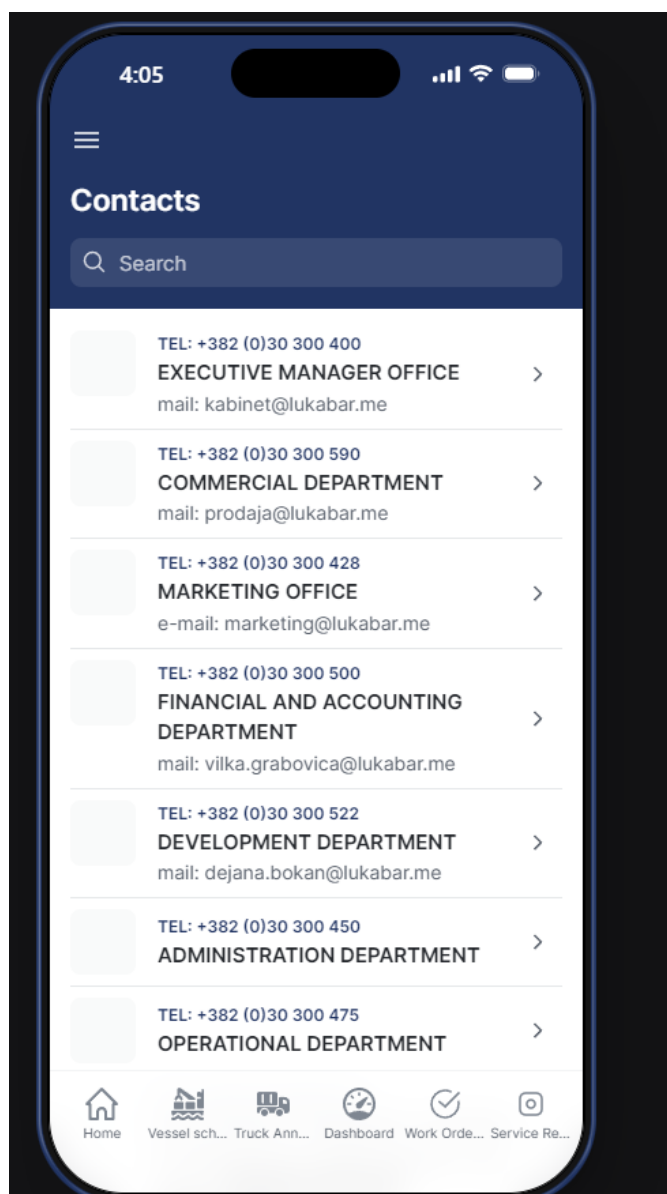
All the existing and new functionalities were developed also for Android devices, taking care of the responsive design for better user experience. This includes MRN checks and truck pre-announcements.

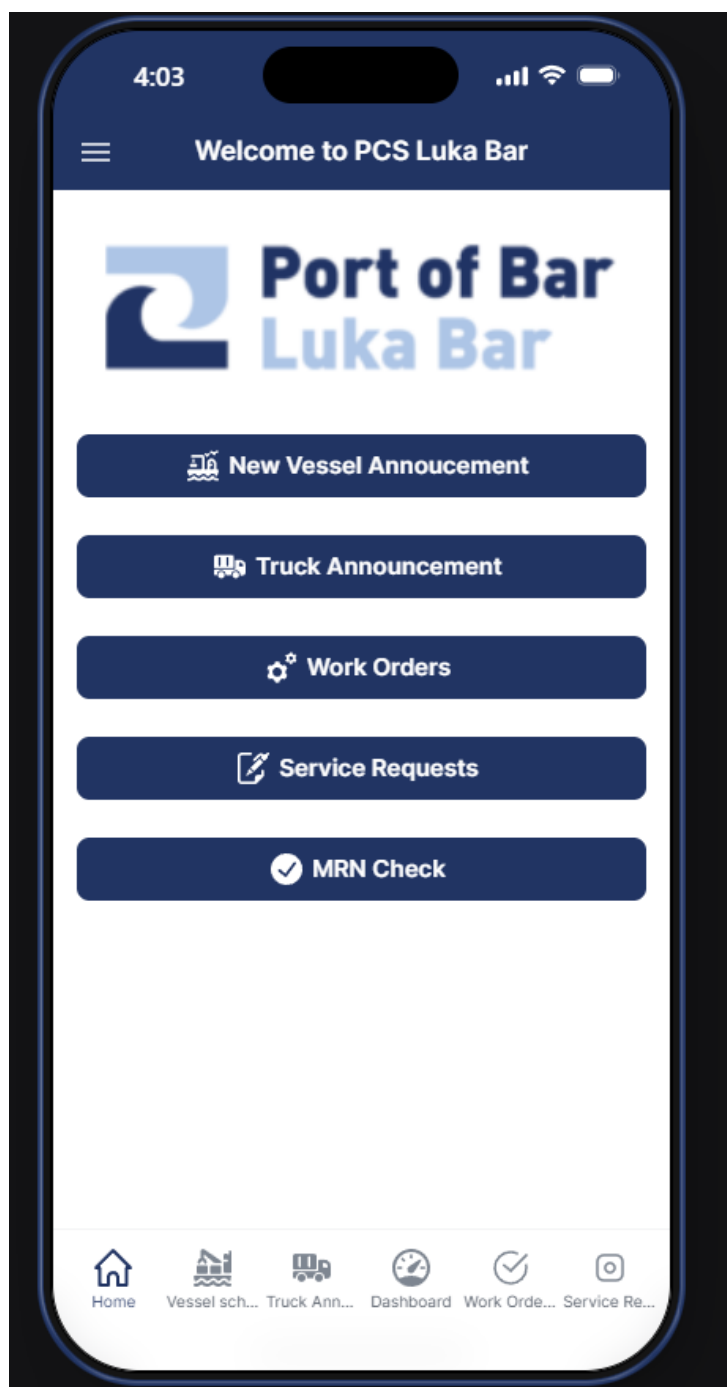
The functionalities available on Android are:

- Vessel announcements
- Truck announcements
- Work orders
- Service Requests
- MRN Checks

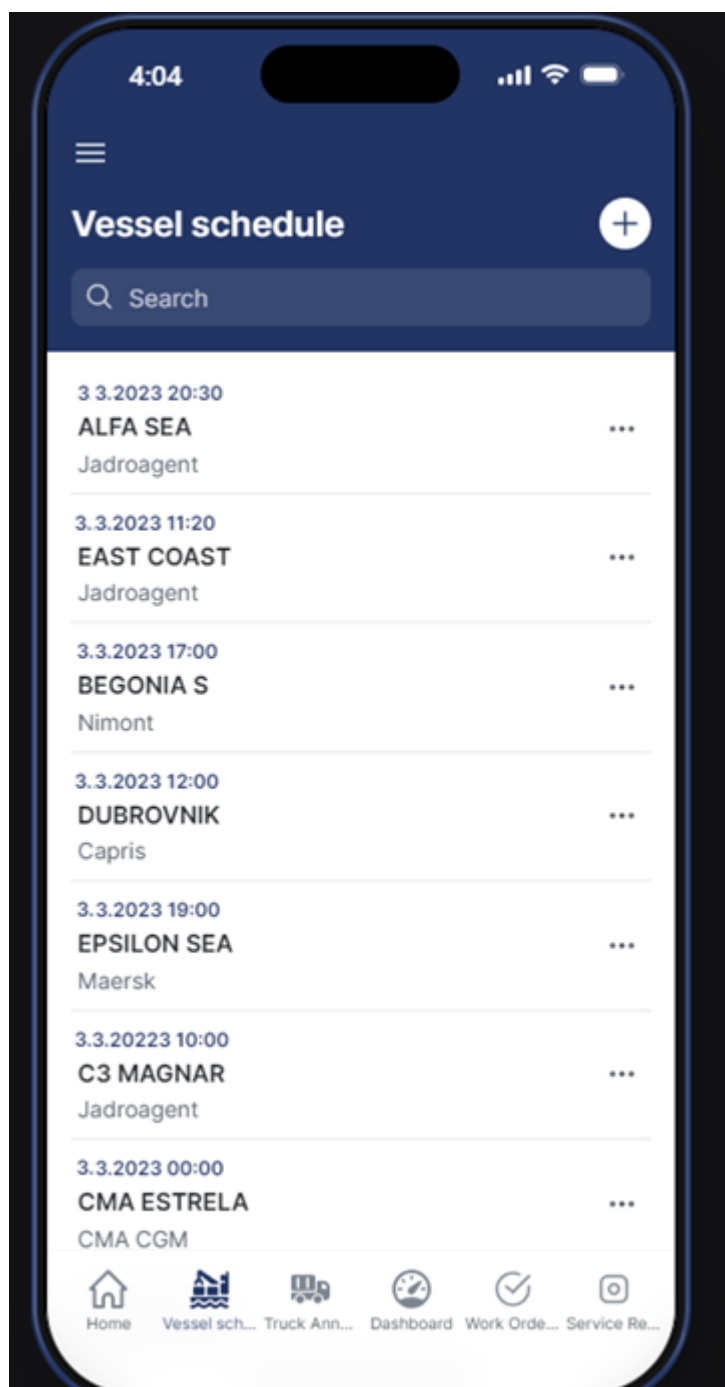
Following are the main Android application GUIs, which were developed and integrated into the PCS.

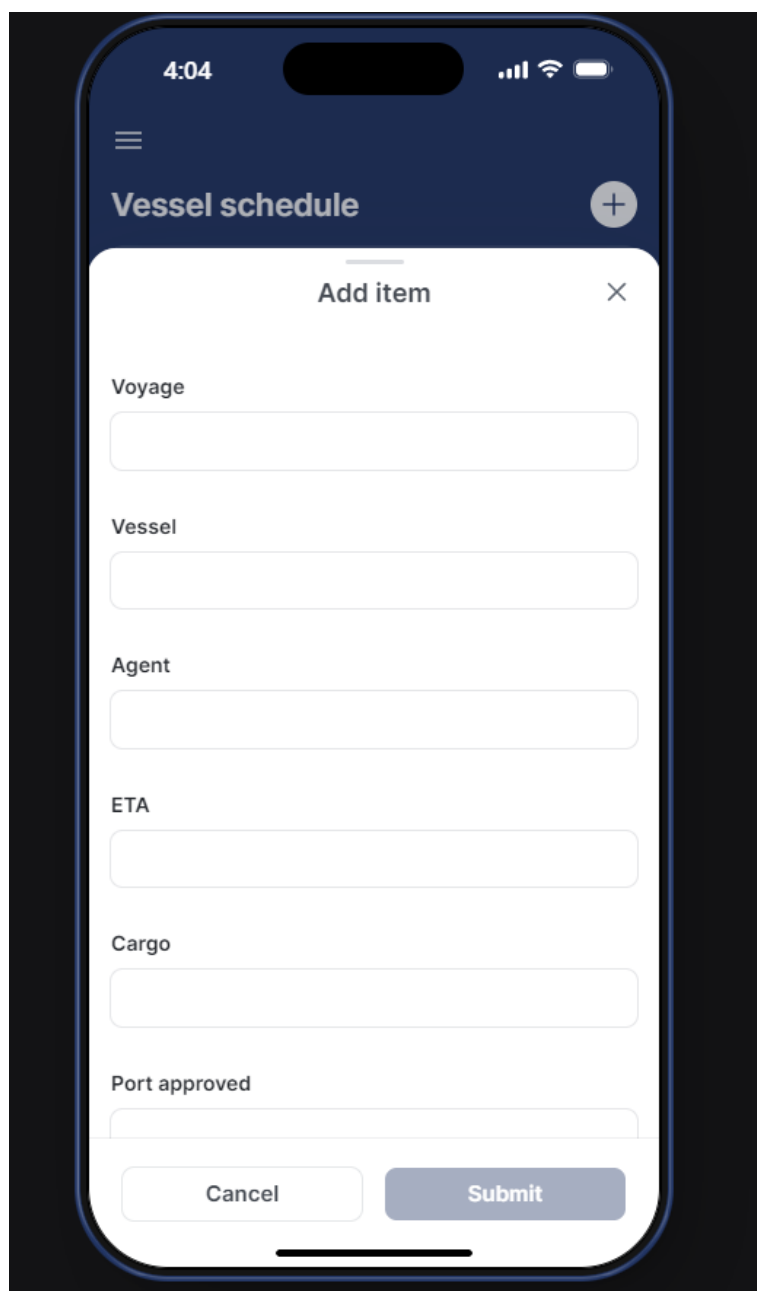












The image shows a mobile application interface for 'Vessel schedule'. At the top, the status bar displays the time 4:04, signal strength, Wi-Fi, and battery icons. The app's header is dark blue with a hamburger menu icon on the left and a plus icon on the right. Below the header, the title 'Vessel schedule' is displayed. A white modal form titled 'Add item' with a close 'X' button is open. The form contains six text input fields labeled 'Voyage', 'Vessel', 'Agent', 'ETA', 'Cargo', and 'Port approved'. At the bottom of the modal are two buttons: 'Cancel' and 'Submit'.

4:04

Vessel schedule

Add item

Voyage

Vessel

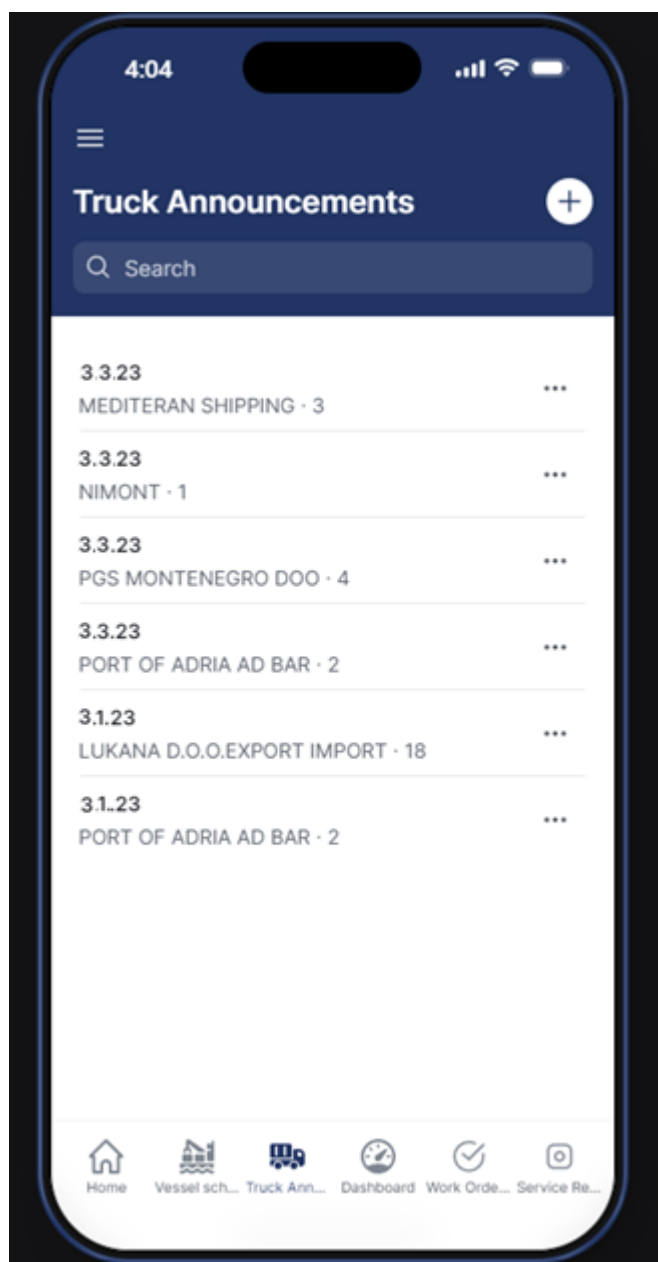
Agent

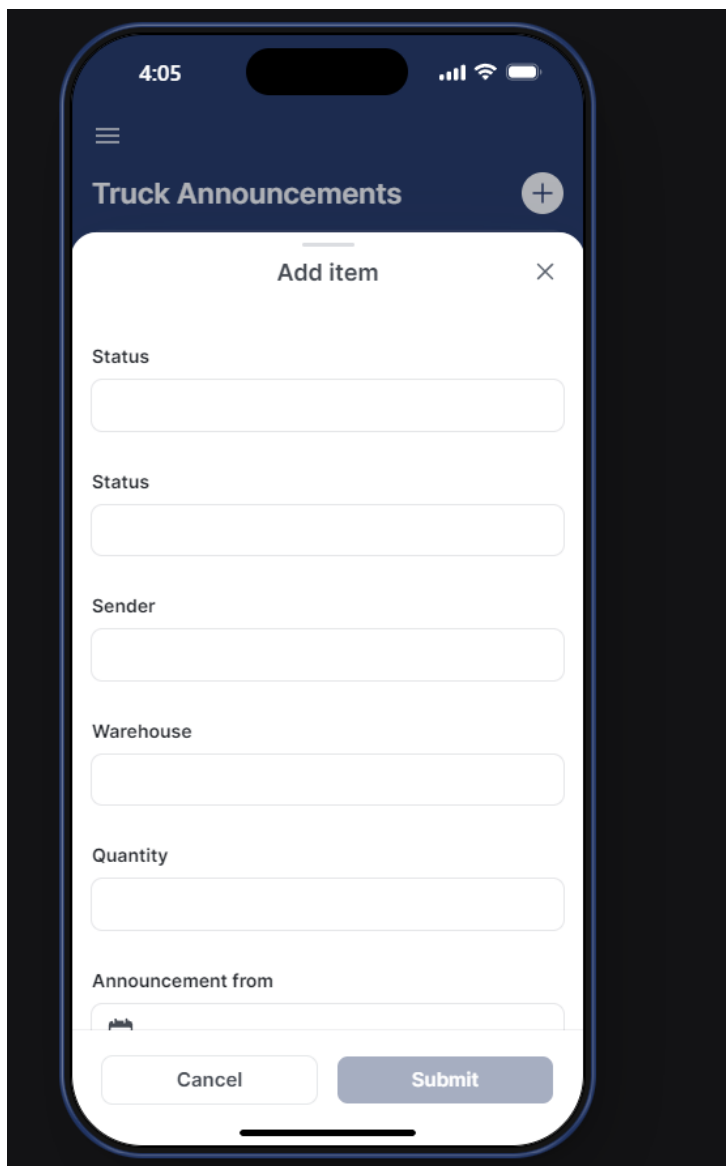
ETA

Cargo

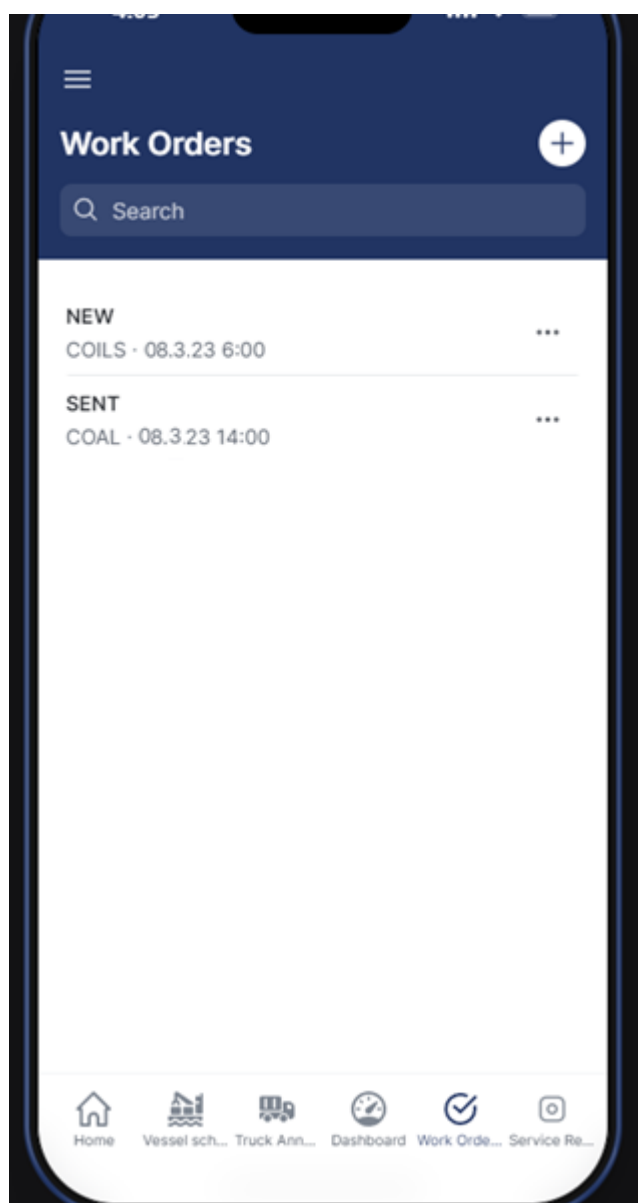
Port approved

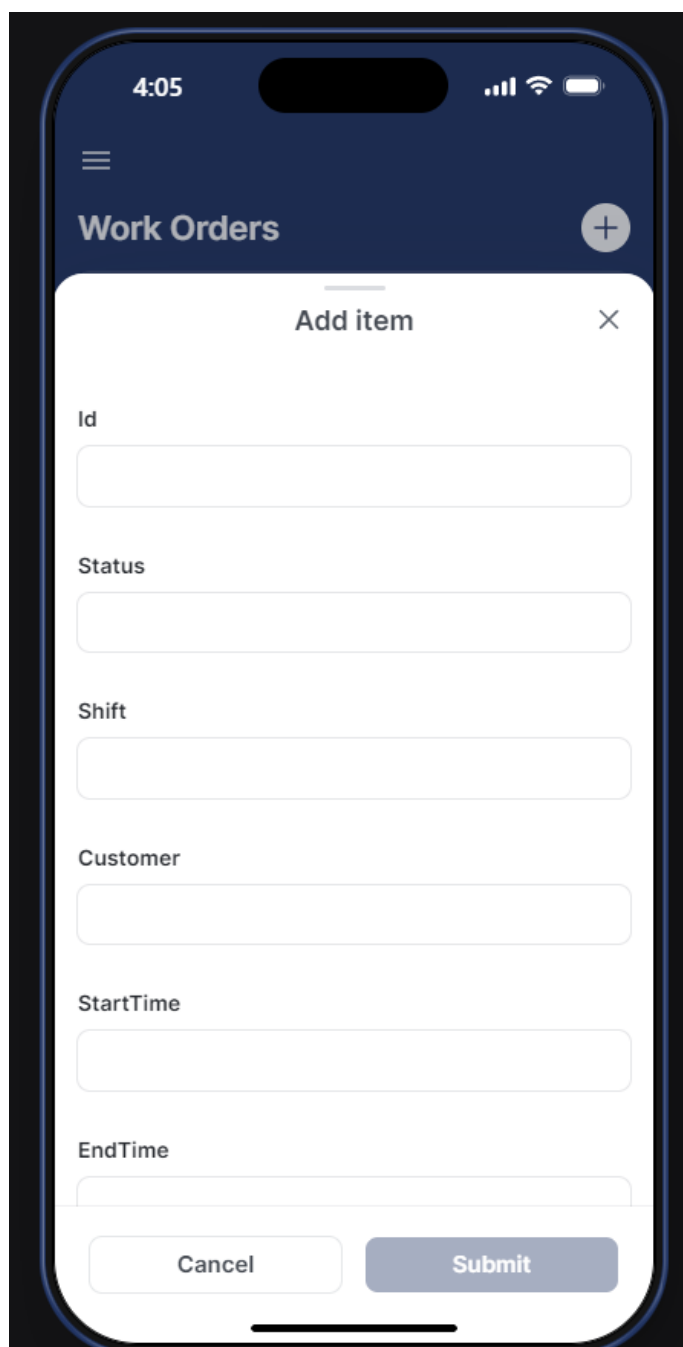
Cancel Submit





The screenshot shows a mobile application interface for 'Truck Announcements'. At the top, the status bar displays the time 4:05, signal strength, Wi-Fi, and battery levels. The app header is dark blue with a hamburger menu icon on the left and a plus icon on the right. Below the header, the title 'Truck Announcements' is centered. A white modal form titled 'Add item' with a close 'X' button is displayed. The form contains the following fields: 'Status' (with a dropdown arrow), 'Status' (with a dropdown arrow), 'Sender' (with a dropdown arrow), 'Warehouse' (with a dropdown arrow), 'Quantity' (with a dropdown arrow), and 'Announcement from' (with a dropdown arrow). At the bottom of the form are two buttons: 'Cancel' and 'Submit'.





The image shows a mobile application interface for 'Work Orders'. At the top, the status bar displays the time 4:05, signal strength, Wi-Fi, and battery levels. The app header is dark blue with a hamburger menu icon on the left, the title 'Work Orders', and a plus icon on the right. Below the header is a white modal form titled 'Add item' with a close 'X' button. The form contains six text input fields labeled 'Id', 'Status', 'Shift', 'Customer', 'StartTime', and 'EndTime'. At the bottom of the form are two buttons: 'Cancel' and 'Submit'.

4:05

Work Orders

Add item

Id

Status

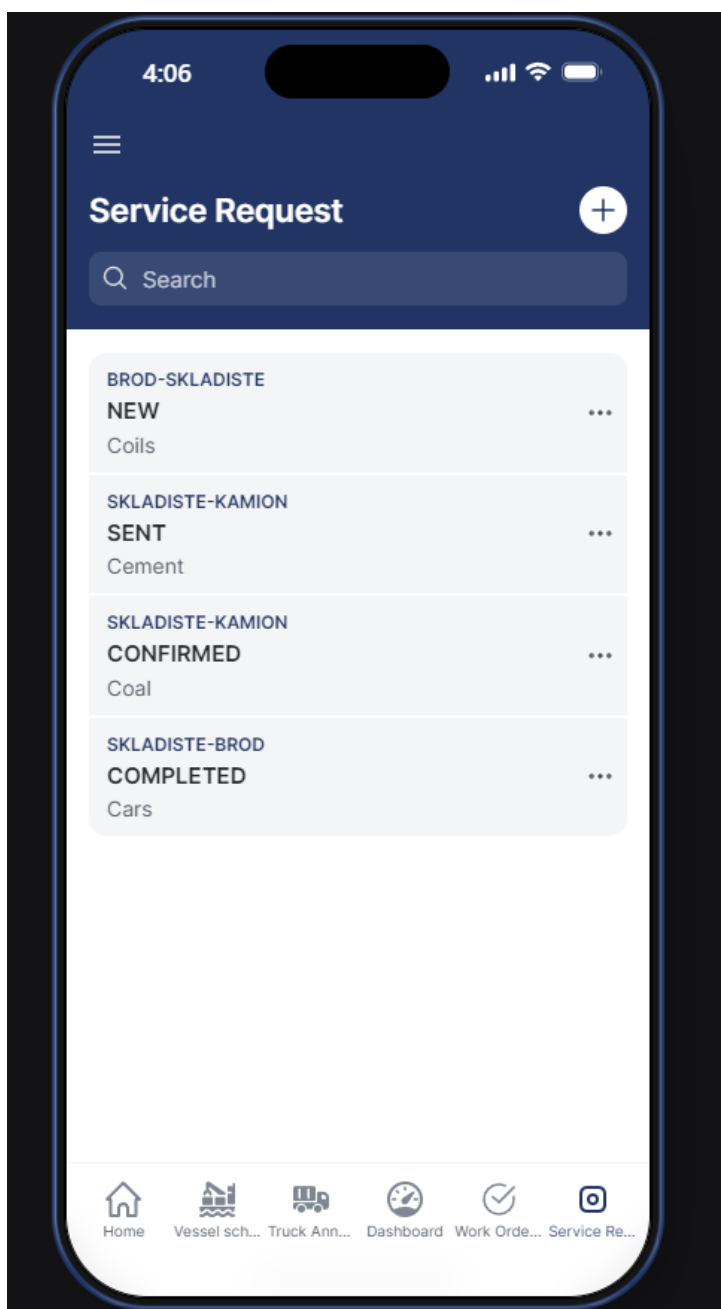
Shift

Customer

StartTime

EndTime

Cancel Submit



### 3.10 Dangerous goods basic module

Dangerous goods basic module has been implemented, containing advanced pre-notifications for all DG cargo arriving by sea or land, alert management, UN code list, reporting and IMDG history tool. The DG cargo notifications have to be submitted with all standard required data for dangerous cargo. Luka Bar terminal is going to receive email notifications every time DG cargo has been announced. The service request contains and displays DG cargo specific information.

Dangerous cargo information is obtained from NMSW application, where agents need to submit FAL7 declaration, adding each DG item with all required fields (IMDG for container cargo, MARPOL for liquid DG cargo):

#### DANGEROUS CARGO LIST

Add

Classification *	Port of Loading	Port of Discharge	Marks & Numbers
Number of Packages	Type of Packages	EMS	Shipping Name *
Class	UN Number	Packing group	Subsidiary
Flashpoint (°C)	Marine Pollutant	Gross Mass *	UoM
Net Weight	Stowage Position *	Reference Number	
Additional Information			

A complete list of all DG cargo received from MSW is displayed below:

#### DANGEROUS CARGO LIST

Sequence number	Port of Loading	Port of Discharge	Stowage Position	Reference Number	Marks & Numbers	Number of Packages	Type of Packages	UoM	Shipping Name	EMS	DG Classification	Class	UN No.	Packing group
1	SIKOP-Koper	MTMLA-Valletta	asd	123	123	2	AE-Aerosol	M3-Cubic Meters	Aerosol	asd	IMDG	1.2	1234	II
2	SIKOP-Koper	MTMLA-Valletta	asd	123	123	2	AE-Aerosol	M3-Cubic Meters	Aerosol	asd	IMDG	1.2	1235	II
3	SIKOP-Koper	MTMLA-Valletta	asd	123	123	2	AE-Aerosol	M3-Cubic Meters	Aerosol	asd	IMDG	1.2	1236	II
4	SIKOP-Koper	MTMLA-Valletta	asd	123	123	2	AE-Aerosol	M3-Cubic Meters	Aerosol	asd	IMDG	1.2	1237	II
5	SIKOP-Koper	MTMLA-Valletta	asd	123	123	2	AE-Aerosol	M3-Cubic Meters	Aerosol	asd	IMDG	1.2	1238	II
6	SIKOP-Koper	MTMLA-Valletta	asd	123	123	2	AE-Aerosol	M3-Cubic Meters	Aerosol	asd	IMDG	1.2	1239	II

DG cargo list needs to be confirmed by the Terminal Operator before entering the specific port terminal.

Service Request has been amended with the DG information. Dangerous goods must be declared on the Service Request within all required IMDG fields (IMDG package, IMDG class, IMDG number), as shown on the GUI:



Service request - 886891

PCS Number: 886891, Location number: 116-528120-13.05.2023, Contract: 77-107-2022-Vogelov trg, ad. Pradolov sarda, Position: P108.303

Manipulation: 3948 - Obala-brod, Type: 862 - DISPOZICIJA - Tranzit, Contract created date: 2021/03/10 00:00, Container agent: 107-JADROAGENT

DischargeCondition: 10 - FIOS, Discharge location: 102 - RAZNI KUPCI, DischargeCondition: 10 - FIOS

Importer/Exporter: 130 - RAZNI KUPCI, Importer/Exporter: 130 - RAZNI KUPCI

CreatedBy: 116-528120-13.05.2023, CreatedDate: 9/12/2023 4:59 PM, Signer: [Redacted], Release/Invoicing request: [Redacted]

Modality: 116-528120-13.05.2023, ModalityDate: 9/12/2023 4:59 PM, Customs approval date: [Redacted]

Transport details:

Seq. No.	Transport type	Quantity	Unit	Remarks
1	862 - DISPOZICIJA - Tranzit	1	1000	

Transport details:

Seq. No.	Transport type	Quantity	Unit	Remarks
1	862 - DISPOZICIJA - Tranzit	1	1000	

Transport details:

Seq. No.	Transport type	Quantity	Unit	Remarks
1	862 - DISPOZICIJA - Tranzit	1	1000	

Transport details:

Seq. No.	Transport type	Quantity	Unit	Remarks
1	862 - DISPOZICIJA - Tranzit	1	1000	

Following the IMDG announcement on Service Request, an automatic email is generated from PCS and sent to the Terminal Operator. Recipient email addresses are configurable within the PCS. An example of the automatically generated email message for the abovementioned Service Request follows. Please note it is intentionally left in its original format, in local language.

**Subject:** Najava opasnog tereta na dispoziciji

**Date:** 7 March 2023 09:59:06 +0200

**From:** [pcs-info@lukabar.me](mailto:pcs-info@lukabar.me)

## Najava opasnog tereta (IMDG) na dispoziciji

### Podaci o najavi

Agent/Špediter



ServiceRequest Number 886891

Type 862 - DISPOZICIJA - Tranzit

Manipulation 3948 - Obala-brod

DischargeCondition 10 - FIOS

Importer/Exporter 130 - RAZNI KUPCI

Lubaris broj

## Podaci o opasnom teretu

KONTEJNER PUN - PRAZAN - 379522

ImdgPackage: III  
3092

ImdgClass: 1.

ImdgNumber:

Ovaj mejl je automatski generisan i poslat od strane PCS-a Bar 7.03.2023 9:59:06

Upon receiving the alert of arriving DG cargo, the terminal operator authorized user needs to confirm the DG cargo list in PCS, before DG cargo can enter the terminal.

### 3.11 Connection with NMSW

For the purpose of 'one time only' data entry, the existing manual entry of requested data into the existing PCS system (Vessel module) has been replaced by the integration with the new NMSW system, by means of the XML message exchange between the two systems.

### 3.12 Message structure for data exchange

Data is exchanged between systems in XML format based on a defined XSD schema. There are five types of messages defined:

- B2MSW – not used in this integration
- MSW2G
- RECEIPT
- RESPONSE
- REFERENCE

### 3.13 MSW2G

The message is intended to transmit MSW data to state authorities and relevant institutions, in this case the existing PCS system. It is allowed to send the message only in the direction of MSW to organizations. The message contains all the data types that the organization needs. The definition of receiving data types is defined at the organization level. An organization never receives a data type for which it is not authorized in the MSW system.

The message can contain data types:

- Metadata
- MAI
- NOA
- COA
- ETA
- ATA

- NOD
- ETD
- ATD
- SEC
- PAX
- HZA
- HZD
- VRQ

Metadata and MAI data types are always present and mandatory in every message.

PCS receives vessel arrival and departure related data from NMSW in a MSW2G type message. An example of the full message is given in chapter [An example of the XML exchange message](#).

PCS receives Dangerous goods information from the NMSW with the MSW2G type message, HZA data type on arrival.

The example of the DG segment within the message as a sensitive data is not part of the report but it is delivered to the Port of Bar.

### 3.14 RECEIPT

The message is intended for technical confirmation of receipt of other types of messages. These types of messages are issued by all systems that receive or send data to MSW, as well as by PCS itself. RECEIPT contains a data type that conveys information about how the message was received.

The message contains data types:

- Metadata
- REC

### 3.15 RESPONSE

The message is intended to convey the institution's response to the ship visit data received from the MSW. These types of messages are therefore only issued by institutions, including MSWs. They serve as feedback to the reporter. RESPONSE contains a data type that carries information about whether the ship visit data is accepted or rejected. In case of rejection, it also contains information about why the data was rejected and how to complete it. This is the information given by the user of the institution who has refused the data.

The message contains data types:

- Metadata
- RES

### 3.16 REFERENCE

The message is intended for the transmission of MSW codes to reporters and institutions. The message is static only. It contains a data type that carries all the necessary information for exchanging codebook data. The data type contained in REFERENCE is never part of other messages. Data type MSW is sent only at the

request of the reporter or institution. Technically, REFERENCE behaves similarly to RESPONSE, but for ciphers and vice versa.

The message contains data types:

- Metadata
- REF
- RRQ

### 3.17 Data types

For communication purposes, the data types have been defined, being a key part of each message. Data types are declared so that message content is unambiguously understood and reporting formalities are fully supported. By filling in the data in the data types, the message can be easily interpreted and the reporter can fulfill all the formality requirements that he has to report.

### 3.18 Business rules

The business rules are delivered to the Port of Bar.

### 3.19 An example of the XML exchange message

The example of the MSW2G type message is delivered to the Port of Bar.

### 3.20 Improved GUI

The GUI design has been optimized where possible, improving user experience. This includes minimizing the required number of user clicks, improving visual appearance and organization of data on the screens.

### 3.21 Adding hyperlinks to the documents in the grid

Storage documents

Search

Clear

TypeCode

Date

WarehouseCode

OrganizationUnitCode

PackagingType

StatusCode

Number

ServiceRequestNumber

Manipulation

CargoType

Internal

Results

Actions	SR number	Document number	Customer	Type	Status	Total quantity	Total p. quantity	Date
	<a href="#">8210</a>	1	LOGICAR D.O.O. BAR	POTVRDA O USKLADISTENJU	Certified	4	0	3/26/15
	<a href="#">8210</a>	1	LOGICAR D.O.O. BAR	POTVRDA O USKLADISTENJU	Certified	4	0	3/26/15
	<a href="#">8210</a>	1	LOGICAR D.O.O. BAR	POTVRDA O USKLADISTENJU	Certified	2	0	3/26/15
	<a href="#">8221</a>	1	JADROAGENT	POTVRDA O USKLADISTENJU	Certified	200	3000	3/31/15
	<a href="#">8221</a>	1	JADROAGENT	POTVRDA O USKLADISTENJU	Certified	150	4000	3/31/15
	<a href="#">140</a>	1	JADROAGENT	POTVRDA O USKLADISTENJU	Certified	10000	1000	4/1/15
	<a href="#">142</a>	1	JADROAGENT	POTVRDA O USKLADISTENJU	Certified	10000	1000	4/1/15
	<a href="#">8213</a>	1	LOGICAR D.O.O. BAR	POTVRDA O USKLADISTENJU	Certified	5	5	4/2/15
	<a href="#">8213</a>	1	LOGICAR D.O.O. BAR	POTVRDA O USKLADISTENJU	Certified	5	5	4/2/15
	<a href="#">8235</a>	1	LOGICAR D.O.O. BAR	POTVRDA O USKLADISTENJU	Certified	5	5	4/3/15

Showing 1 to 10 of 129 entries

Previous

1

2

3

4

5

...

13

Next

## Vehicle use list

Search

Clear

Status  VehicleType  Chassis  PackagingType

CargoType  UnitOfMeasure  Entrance lubaris SR number  FinalNode

Lubaris SR reserved for loading

Results

Actions	Id	Status	Customer	Entrance lubaris SR number	VehicleType	Chassis	Arrival date	Departed date
	10021	Announced	LOGICAR D.O.O. BAR	771		12231210		
	10020	Announced	LOGICAR D.O.O. BAR	771	ABCF DBCF	12231220		
	10019	Announced	LOGICAR D.O.O. BAR	771	ABCF DBCF	12231230		
	10018	Announced	LOGICAR D.O.O. BAR	770		12231211		
	10017	Announced	LOGICAR D.O.O. BAR	770	ABCF DBCF	12231221		
	10016	Announced	LOGICAR D.O.O. BAR	770	ABCF DBCF	12231231		
	10015	Canceled	LOGICAR D.O.O. BAR	770		12231241		
	10014	Canceled	LOGICAR D.O.O. BAR	770	ABCF DBCF	12231251		
	10013	Canceled	LOGICAR D.O.O. BAR	770	ABCF DBCF	12231261		
	10012	Canceled	LOGICAR D.O.O. BAR	770	ABCF DBCF	12231271		

Showing 1 to 10 of 63 entries

Previous 1 2 3 4 5 6 7 Next

## Container use list

Search

Clear

Status  OrganizationUnit  Position  Entrance lubaris SR number

ServiceRequestType  Manipulation  ContainerNumber  ContainerSize

ContainerType  ContainerAgent  ContainerOwner  CargoType

Lubaris SR reserved for loading  ContainerFull ☒ ContainerEmpty ☒

Results

Release selected CNT

Actions	Id	Customer	ContainerNumber	Status	ReleasedFor	ReleaseApprovalDate	Entrance lubaris SR number	Cargo type	CustomCargoType	ContainerAgent	ContainerOwner	NetWeight
	10020	SWIM	ECMU142617-4	Announced			78	KOMPJUTERI		INTERVIVOS	INTERVIVOS	212
	10019	SWIM	FSCU835529-0	Announced			78			INTERVIVOS	INTERVIVOS	
	11012	SWIM	MRKU701388-9	Announced			200	KOMPJUTERI		INTERVIVOS	INTERVIVOS	10
	11015	SWIM	GLDU945122-2	Announced			200			INTERVIVOS	INTERVIVOS	
	11016	SWIM	TCLU187794-4	Announced			200			INTERVIVOS	INTERVIVOS	
	11017	SWIM	TGHU845810-5	Announced			200			INTERVIVOS	INTERVIVOS	
	11018	SWIM	FSCU509957-5	Announced			200			INTERVIVOS	INTERVIVOS	
	12012	JADROAGENT	MRKU326128-0	Canceled			15			PACORINI MONTENEGRO	PACORINI MONTENEGRO	15

### Vessel announcement list

Search

Clear

Agent:  Vessel:  Status:  IdVesselAnnouncement:

LubarisNumber:  Arrival Date from:  Arrival Date to:  Waiting harbourmaster: ☐

Waiting berthing company: ☐

#### Results

Actions	Id	Status	Vessel	Lubaris number	Agent	Year	LK	FP
	60060	Sent	Juniper		INTERVIVOS	2019	<input type="checkbox"/>	<input type="checkbox"/>
	59059	Certified	Juniper	111	JADROAGENT	2019	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	58058	Sent	Juniper		UPRAVA CARINA CRNE GORE	2019	<input type="checkbox"/>	<input type="checkbox"/>
	57057	Saved	Juniper		UPRAVA CARINA CRNE GORE	2019	<input type="checkbox"/>	<input type="checkbox"/>
	56056	Sent	Sveti Duje		JADROAGENT	2019	<input type="checkbox"/>	<input type="checkbox"/>
	55055	Certified	Sveti Duje		UPRAVA CARINA CRNE GORE	2017	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	54054	Sent	Doli		UPRAVA CARINA CRNE GORE	2017	<input type="checkbox"/>	<input type="checkbox"/>
	53053	Certified	Lipe		LOGICAR D.O.O. BAR	2017	<input type="checkbox"/>	<input type="checkbox"/>
	52052	Sent	Doli		LOGICAR D.O.O. BAR	2017	<input type="checkbox"/>	<input type="checkbox"/>
	51051	Sent	Doli		LOGICAR D.O.O. BAR	2017	<input type="checkbox"/>	<input type="checkbox"/>

Showing 1 to 10 of 11,330 entries

Previous 1 2 3 4 5 ... 1133 Next

## 3.22 Moving 'eye' icons to the beginning of each grid item

### Service request list

Search

Clear

ServiceRequestNumber:  ServiceRequestLubarisNumber:  Year:  TypeCode:

ManipulationCode:  ContractId:  Position:  Date:

StatusCode:  WarehouseCode:  VesselId:  PayerCode:

OrganizationUnitCode:  DischargeConditionCode:  Customer:  Markings:

Packaging type:  Cargo type:  ForCancel: ☐ Internal: ☐

#### Results

Actions	Id	Number	Customer	Status	Manipulation	Type	Date	Warehouse	Vessel	For cancel	Internal
	204204		PACORINI MONTENEGRO	Saved	Skladiste-vagon	DISPOZICIJA - Transit	7/25/17			<input type="checkbox"/>	<input type="checkbox"/>
	191191		PACORINI MONTENEGRO	Sent	Repacking	DISPOZICIJA - Izvoz	3/29/17			<input type="checkbox"/>	<input type="checkbox"/>
	190190		LOGICAR D.O.O. BAR	Saved	Kamion-skladiste	DISPOZICIJA - Izvoz	2/27/17			<input type="checkbox"/>	<input type="checkbox"/>

### 3.23 Adding filters

New filters have been added to the Vessel Announcement list: Status, Id and Lubaris number:

**Vessel announcement list** Search Clear

Agent:  Vessel:  Status:  IdVesselAnnouncement:

LubarisNumber:  Arrival Date from:  Arrival Date to:

☐ Waiting harbourmaster  
☐ Waiting berthing company

**Results**

Actions	Id	Status	Vessel	Lubaris number	Agent	Year	LK	FP
	60060	Sent	Juniper		INTERVIVOS	2019	<input type="checkbox"/>	<input type="checkbox"/>
	59059	Certified	Juniper	111	JADROAGENT	2019	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	58058	Sent	Juniper		UPRAVA CARINA CRNE GORE	2019	<input type="checkbox"/>	<input type="checkbox"/>
	57057	Saved	Juniper		UPRAVA CARINA CRNE GORE	2019	<input type="checkbox"/>	<input type="checkbox"/>
	56056	Sent	Sveti Dujce		JADROAGENT	2019	<input type="checkbox"/>	<input type="checkbox"/>
	55055	Certified	Sveti Dujce		UPRAVA CARINA CRNE GORE	2017	<input type="checkbox"/>	<input type="checkbox"/>
	54054	Sent	D		UPRAVA CARINA CRNE GORE	2017	<input type="checkbox"/>	<input type="checkbox"/>

### 3.24 New style for the side navigation bar

Styling has been updated to match the colors of the Port of Bar logo sign. Graphical icons have been added preceding the menu titles.

Top navigation bar:


 Service Requests

Logged as: System Build: 490 English

Logon screen:


  
 LUKA BAR  
 Programme co-funded by the  
 EUROPEAN UNION

**PORT COMMUNITY SYSTEM**

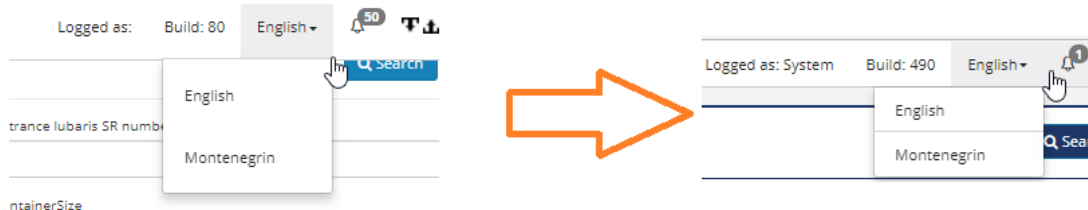
**Sign in**

© 2014 Copyright.

Colours of the buttons:



Styling for the language and profile dropdown selector:



### 3.25 Removing redundant whitespaces and improving borders

GUI screens have been optimized with white spaces and soft borders:

Results

Actions	Id	Number	Customer	Status	Manipulation	Type	Date	Warehouse	Vessel	For cancel	Internal
	204204		PACORINI MONTENEGRO	Saved	Skladiste-vagon	DISPOZICIJA - Trenzit	7/25/17			<input type="checkbox"/>	<input type="checkbox"/>
	191191		PACORINI MONTENEGRO	Sent	Repacking	DISPOZICIJA - Izvoz	3/29/17			<input type="checkbox"/>	<input type="checkbox"/>
	190190		LOGICAR D.O.O. BAR	Saved	Kamion-skladiste	DISPOZICIJA - Izvoz	2/27/17			<input type="checkbox"/>	<input type="checkbox"/>
	189189		LOGICAR D.O.O. BAR	Saved	Kamion-skladiste	DISPOZICIJA - Izvoz	2/27/17			<input type="checkbox"/>	<input type="checkbox"/>
	187188		LOGICAR D.O.O. BAR	Saved	Kamion-skladiste	DISPOZICIJA - Trenzit	2/9/17			<input type="checkbox"/>	<input type="checkbox"/>
	187187		LOGICAR D.O.O. BAR	Saved	Brod-terminal	DISPOZICIJA - Trenzit	2/9/17		Juniper	<input type="checkbox"/>	<input type="checkbox"/>
	186186		LOGICAR D.O.O. BAR	Saved	Brod-terminal	DISPOZICIJA - Trenzit	2/9/17		Juniper	<input type="checkbox"/>	<input type="checkbox"/>
	185185		LOGICAR D.O.O. BAR	Saved	Skladiste-kontejner	DISPOZICIJA - uvoz	11/18/16	SKLADISTE "MONTENEGROBONUS"		<input type="checkbox"/>	<input type="checkbox"/>
	184184		LOGICAR D.O.O. BAR	Saved	Kamion-skladiste	DISPOZICIJA - uvoz	9/7/16	SKLADISTE "CENTROPROIZVOD CG"		<input type="checkbox"/>	<input type="checkbox"/>
	181181		LOGICAR D.O.O. BAR	Canceled	Kamion-skladiste	DISPOZICIJA - Razvoz	6/7/16			<input type="checkbox"/>	<input type="checkbox"/>

Showing 1 to 10 of 254 entries

Previous 1 2 3 4 5 ... 26 Next

### 3.26 PCS truck module enhancements

The existing PCS Truck module has been extended with further data entry requirements, in order to connect it with the cargo carried by the trucks. Freight Forwarder creates a truck pre-announcement in PCS, related to the specific Service Requests, containing data of the specific cargo and the number of trucks carrying it. The system then assigns as many PINs as the number of trucks. Freight Forwarder then sends the created PINs to the carrier, in order for each truck driver to give his PIN to the gate operator upon exiting the parking. The operator then enters the respective PIN to the truck announcement in the PCS Truck Module. This way, the relation is established between the truck announcements and the newly introduced truck pre-announcement, which carries the information about the cargo in the truck and the related Service Request. The essence of this new functionality is that the port knows the reason why each truck is coming.



## 4 FURTHER PROPOSALS

Since PCS is constantly evolving around changing processes and new regulations, it is reasonable to expect that PCS is going to adopt to the new circumstances when they arise and implement amendments. PCS is designed in order to facilitate these changes as much as possible. There are many configurable parameters that can be used for this purpose. The database model and application code has been designed to be easily extendable. The connections with Custom and NMSW are prepared (NMSW will start on Feb 2024 and new Custom system will also start on 2024).