

TOS SYSTEM



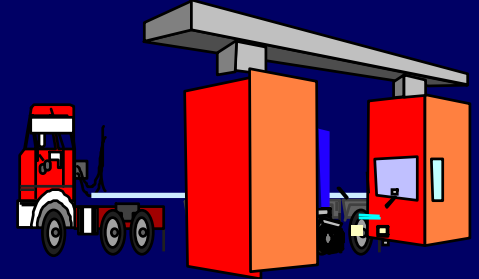
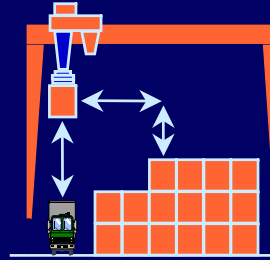
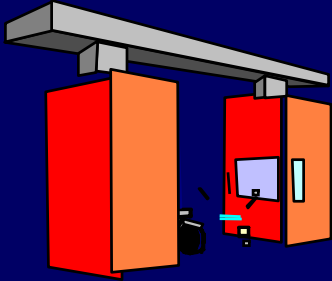
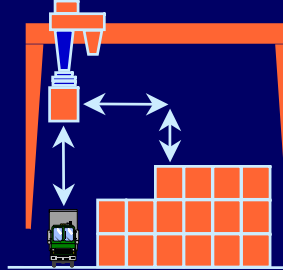
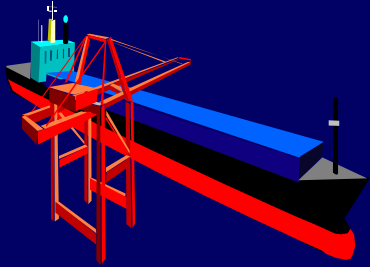
Terminal **O**perating **S**ystem

TARGETS:

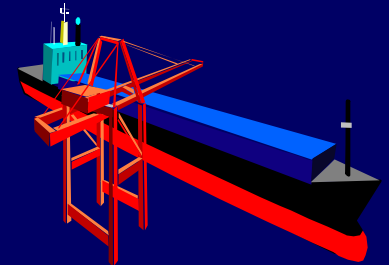
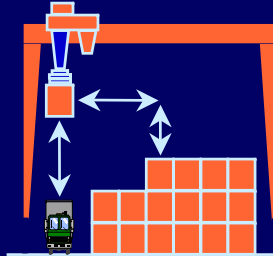
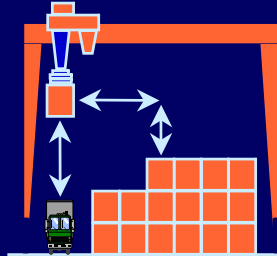
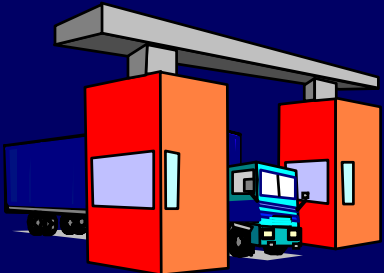


- Reduced vessel working hours: Improved service = more vessels.
- Waterfront management of the vessels.
- Direct contact between the port and the ship agent while operating the vessel.
- Greater utilization of port's equipment (i.e. shore cranes, tugs, yard etc.).
- Improved service to trailers / trucks.
- Technology of the 21st century – no papers and certificates – precision and professionalism.

IMPORT



EXPORT

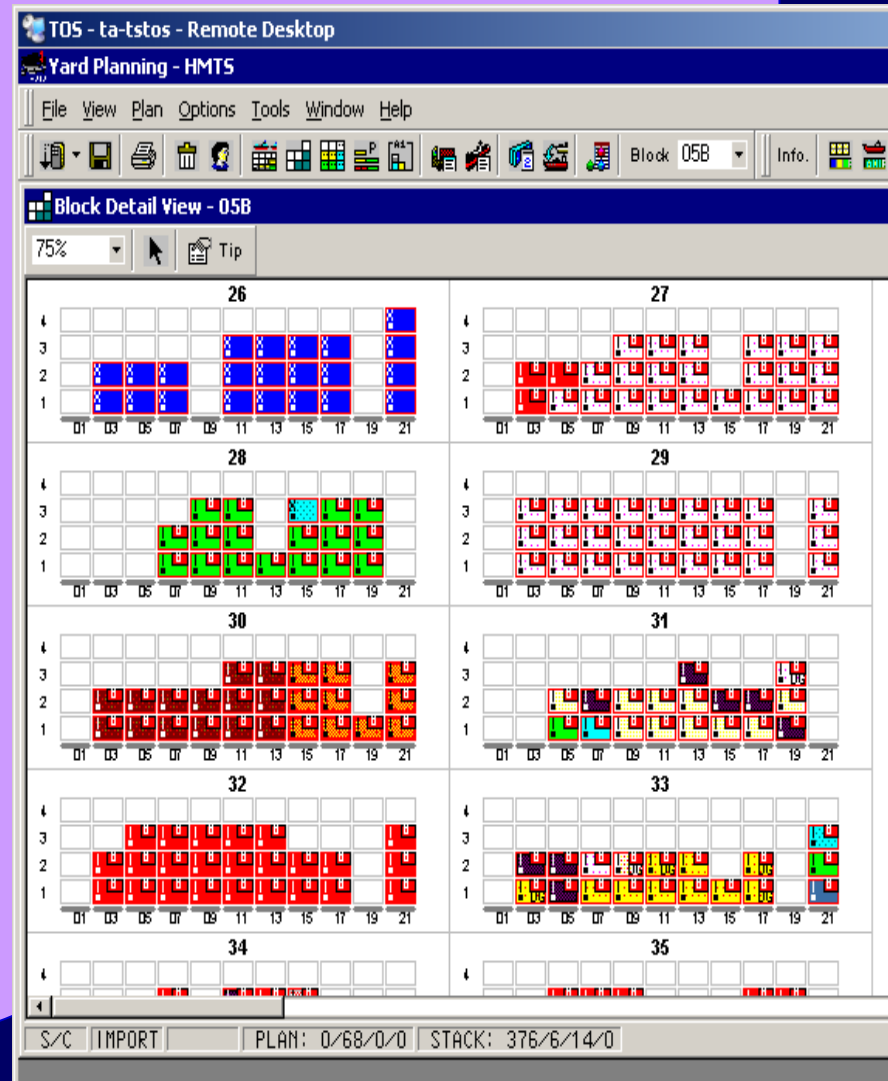


How the system operates?

- Yard Planning
- Gate operation
- Ship Planning and coordinating (waterfront)
- Vessel & Yard operation

Planning the Blocks

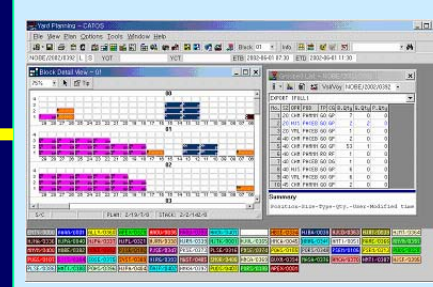
Planning
the
yard/blocks
by grouping
factors –
export
based on
booking,
Import by
yard layout



TOS system models:

[illegible]

**Gate
system:
trucks**



Yard planning

Precheck Gate 5

Sensor Data

Driver ID	012345678	
Front LPR	99-123-55	
Back LPR	11-999-22	
Container 1	MCLU1234567	Weight 2.4 (Ton)
Container 2	MCLU7654321	Weight 2.6 (Ton)
Biometric	Pass Total weight 9.4 (Ton)	

Container Information

Container	MCLU7654321	Port Of Origin	
Cargo Type	Dangerous		
Operation Type	Export		
Full/Empty	E		
ISO Code			
Size/Type	20RG		
Document No			
Weight	2.6 (Ton)		
Exporter			
Seal No			
CustomSeal			

Hazardous Information

IMDG 5.5 UNNo 1248

Pre-Advice

Export container list

Container No	S/T	Position	Container Status
☒ MCLU1234567	20RF	Y21-231	OK
☒ MCLU7654321	20RG	Y21-231	OK

Import container list

Container No	S/T	Position	Container Status
☐ MCLU2345671	20RF	Y21-233	OK
☐ MCLU2345699	20RF	Y21-233	OK
☐ MCLU2345555	20RF	Y21-233	Costum Hold
☐ Empty MSC QR	20RG	Y21-233	OK

Vessel Information

Vessel		Voyage	
Manifest		Line Code	
Shipping Company		POL	
Shipping Agent		POD	

Cargo/Storage Information

Customs Agent	
Booking Number	
Final Destination	
Customs Release Code	
Export Document No	

Stacking Information

Yard Position Y11-122-6-2 ☐ Direct Delivery

Driver
Picture

Truck
Picture

View
Pictures

Pass

Reject

Trouble

General
Cargo

LPR Status

OCR Status

Biometric Status

RFID Status

Scale Status

orecheck

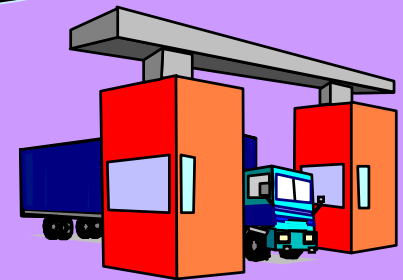
uck,
river,
tainer
ata.

GATE – main gate

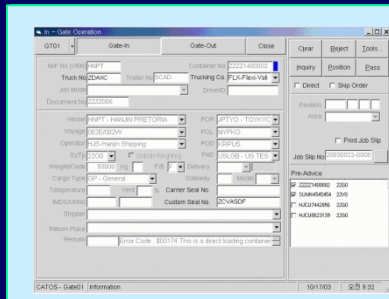
**Seal
Damage
IMDG**

**Checking
actual data of
driver, data,
container**

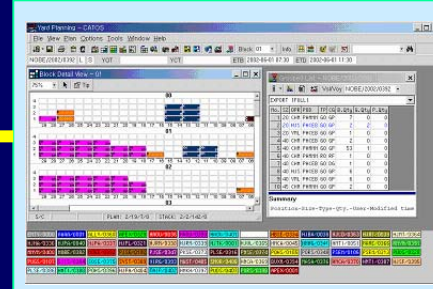
Reject option



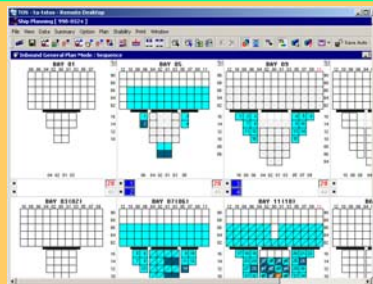
מודולים ועקרונות במערכת TOS



Gate
system:
trucks



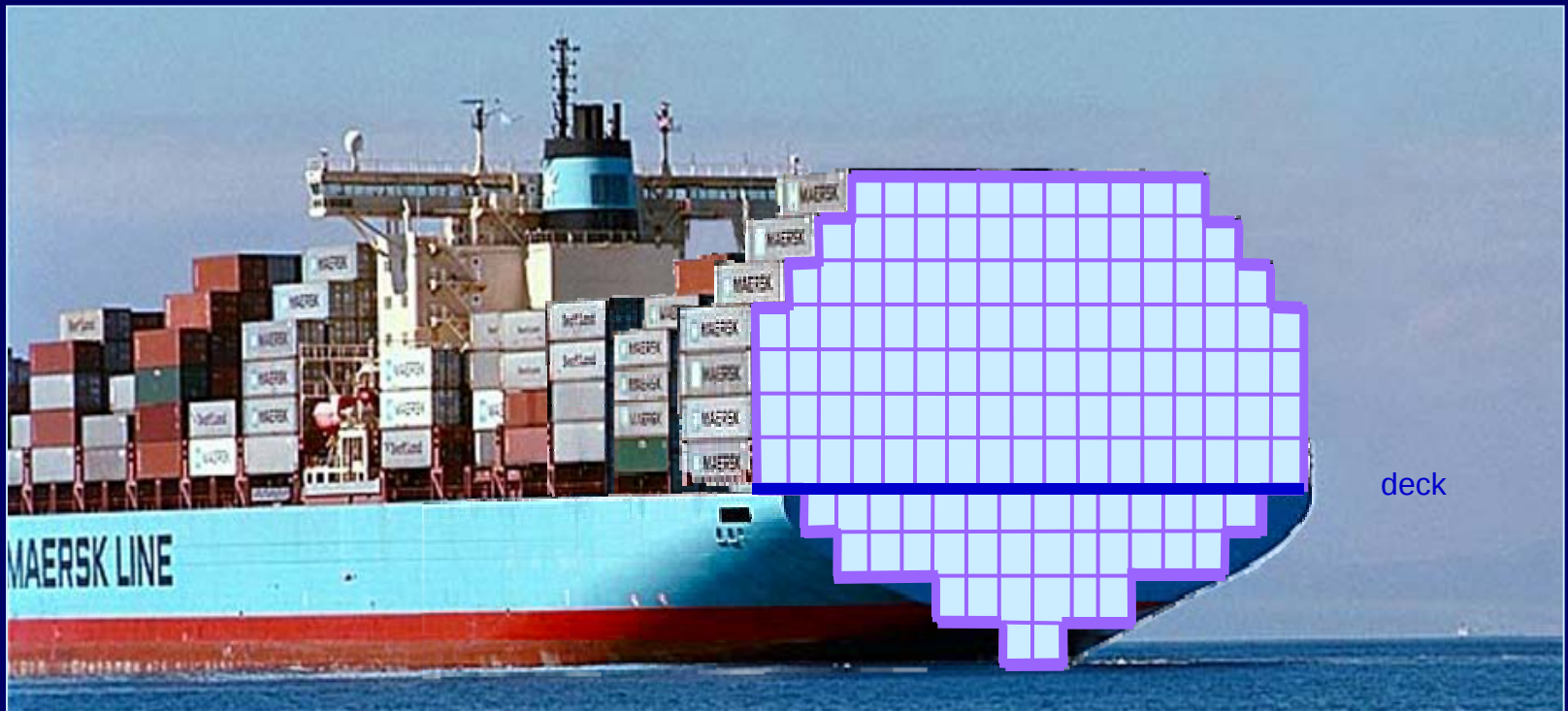
Yard
planning



Ship
planning

0. Vessel definition – Technical and physical data of all vessels: Holds, Hatches, stability, weight capacity etc.

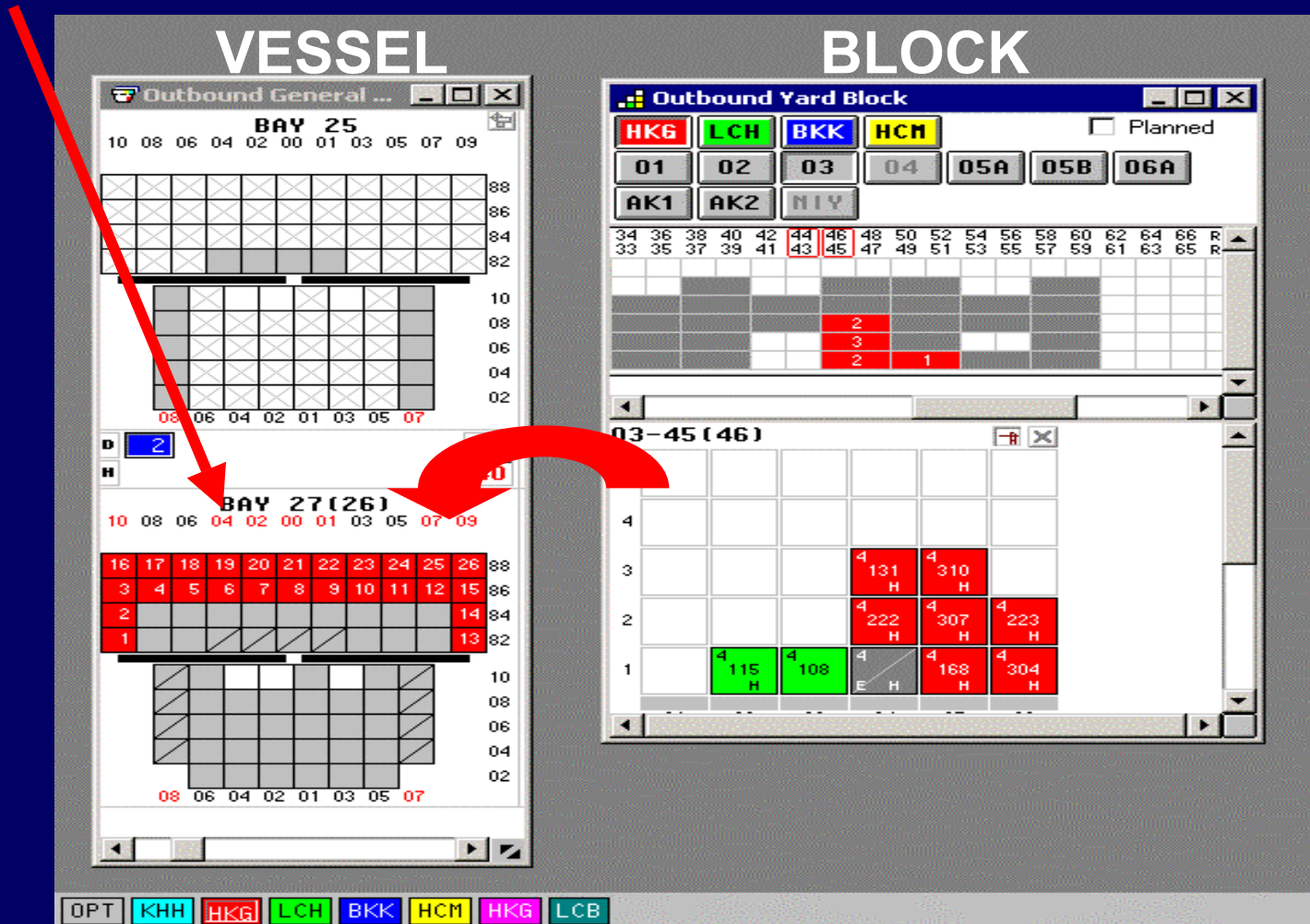
Ship planning



2. Planning the loading –Determining the loading sequence.

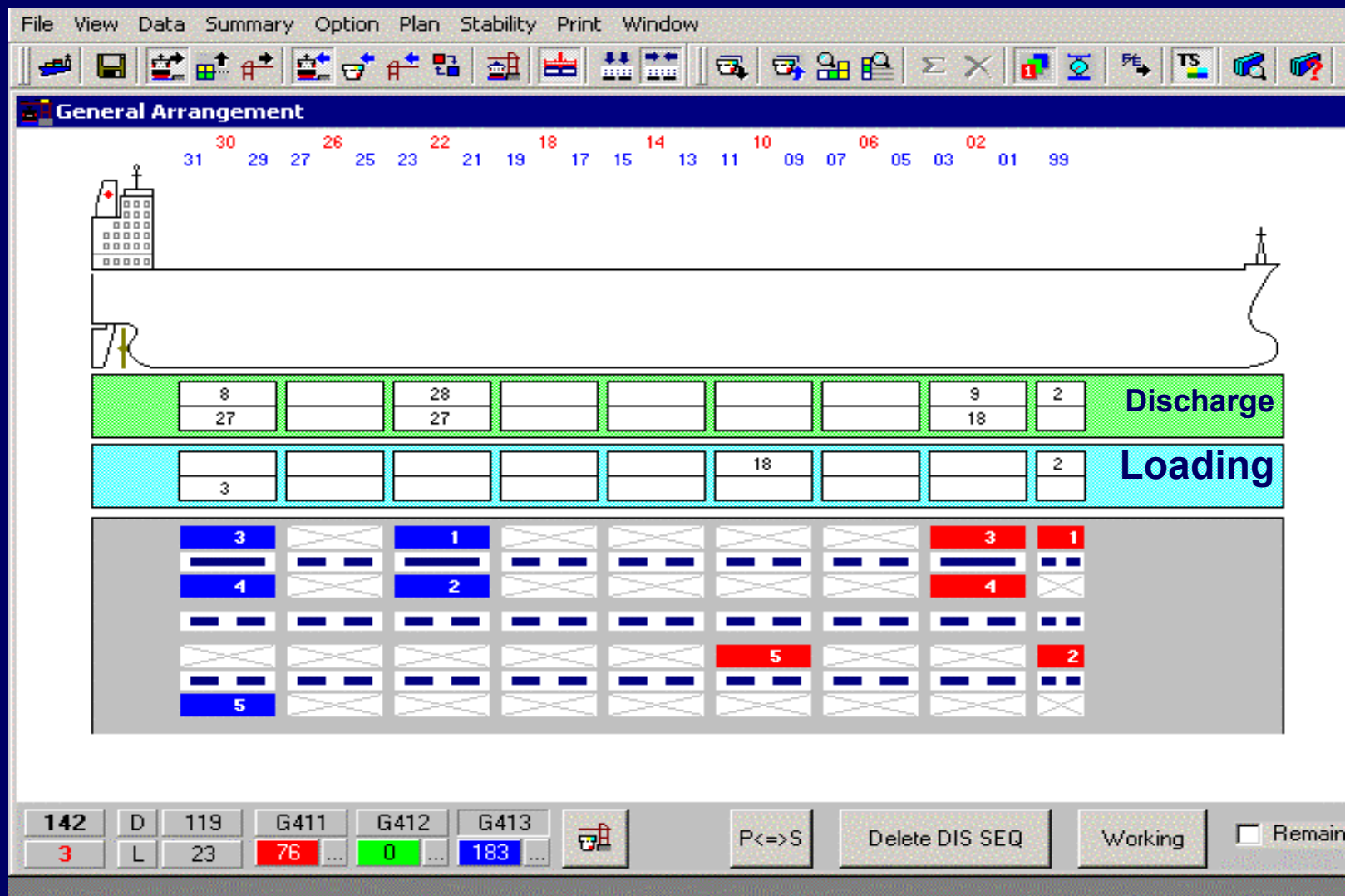
Ship planning

Ship planner will place containers from the yard to the specific slots in the vessel. This is how the loading sequence is determined for each bay.



3. Determining Crane working sequence:

Ship planning



General Arrangement

31 30 29 27 26 25 23 22 21 19 18 17 15 14 13 11 10 09 07 06 05 03 02 01 99

Discharge									
8		28					9	2	
27		27					18		

Loading									
					18			2	
3									

Crane Working Sequence									
3		1					3	1	
4		2					4		
					5			2	
5									

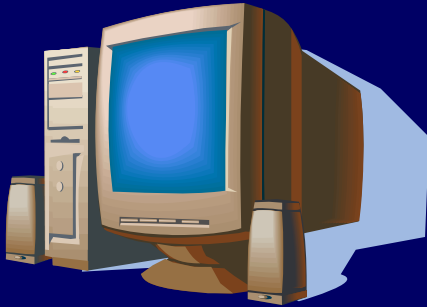
142 D 119 G411 G412 G413
3 L 23 76 0 183

P<=>S Delete DIS SEQ Working ☐ Remain



4. Master/Chief signature on the Discharging and loading plans.

Ship planning



מודולים ועקרונות במערכת TOS

Gate Operation

Gate-in: 0101 Gate-out: 0102 Close: 0103 Clear: 0104 Report: 0105 Tools: 0106

Truck No.: 0107 Container No.: 0108 Trailing Co.: 0109

Document No.: 0110

Vehicle: 0111 TTYD: 0112 TTYD: 0113

Operator: 0114 TTYD: 0115 TTYD: 0116

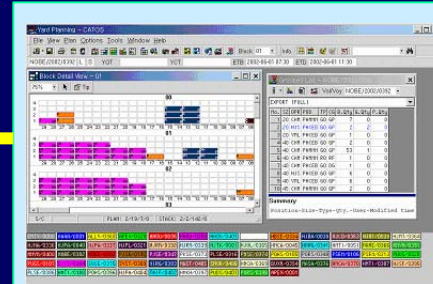
Gate: 0117 TTYD: 0118 TTYD: 0119

Temperature: 0120 TTYD: 0121 TTYD: 0122

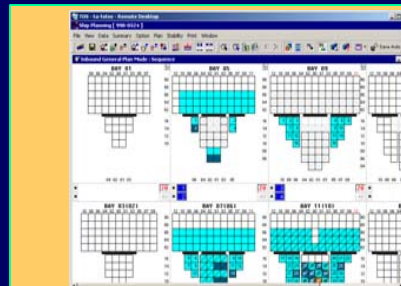
Custom Seal No.: 0123

Return: 0124 Error Code: 0125 This is a direct loading container

Gate



Yard planning



Checking data and Ship planning

operation

G/C No.: GC2 Vessel: NCAS-1999-0020

008 TRLU0263977 GL 01-01-82/D 22T0 PUS
YT2 X B2-43 (R4G3) ITC 01418,19,20

009 UTTU2411391 GL 01-02-82/D 22T0 PUS
YT1 X B2-43 (R4G3) 00904,905,906

Close Hatch Refresh Y/T No. ReCheck
Stop Search YT2 Seal No. Damage OK

operation



All port's equipment will be provisioned with wireless terminals.

The jobs will be sent to the wireless terminals from TOS system.

All working stations are dependant on each other.

CHECKER screen:

User	tsb	G232	ALL	DS	LO	1S	BF
Location	2907..0002	02	DS TRIU5645176 4310 Y32-262 T162 YT032/M				

1 GD [REDACTED] 4310 F 10-05-86D 140 8.2	▲
2 GD [REDACTED] 4310 F 10-03-86D 140 8.2	▲
3 GD [REDACTED] 4310 F 10-01-86D 140 8.2 /M	[0]
4 GD [REDACTED] 4310 F 10-00-86D 140 8.2 /M	(8)
GD MWCU6696838 4532 E 02-04-84D 140 MS 8.2	▼
	▼

06 04 02 00 01 03 05

86

84

82

10

08

06

02 00 01

←	YT030	YT031	YT032	YT033	YT034	YT025	YT026	→	☰
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Special	Keypad	Hatch	Stoppage	Refresh	Position Change	Yard View	Buffer
Order to YT	Undo	Info.	Prod.	GC Driver	Damage	Cones	1S

Yard crane/Forklift operator screen:

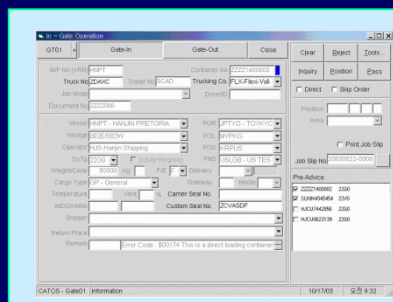
NAME	HMTS		TT16		PLC	OFF	DISP	BIK	BAY	
ALL	GF	GO	DF	LO	YF	YO	ES	04	77(78)	
GF CNTR8282828 222 20F 04-77-06-4 GP N ZIM C										4572
										5
										4
										[1]
										828 2828



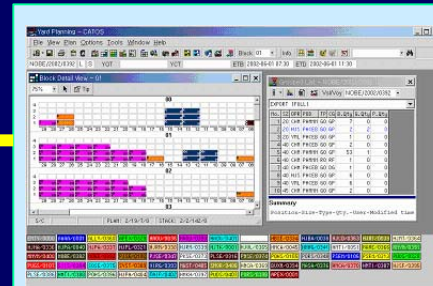
YARD TRACTOR SCREEN:

Equipment: YT548		TSB	
YARD: Y10-023			
KAMU2510490	20RG	F	[0]
GC: G231			
			
Close	Arrival	Confirm	

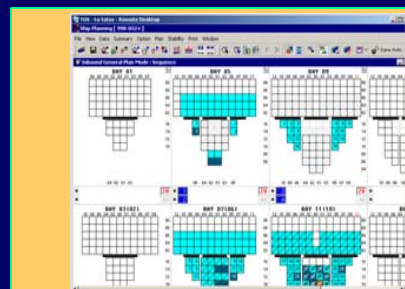
מודולים ועקרונות במערכת TOS



GATE



**Yard
planning**



**Checking
data and
Ship
planning**

**CONTROLLING
From TOS
room**



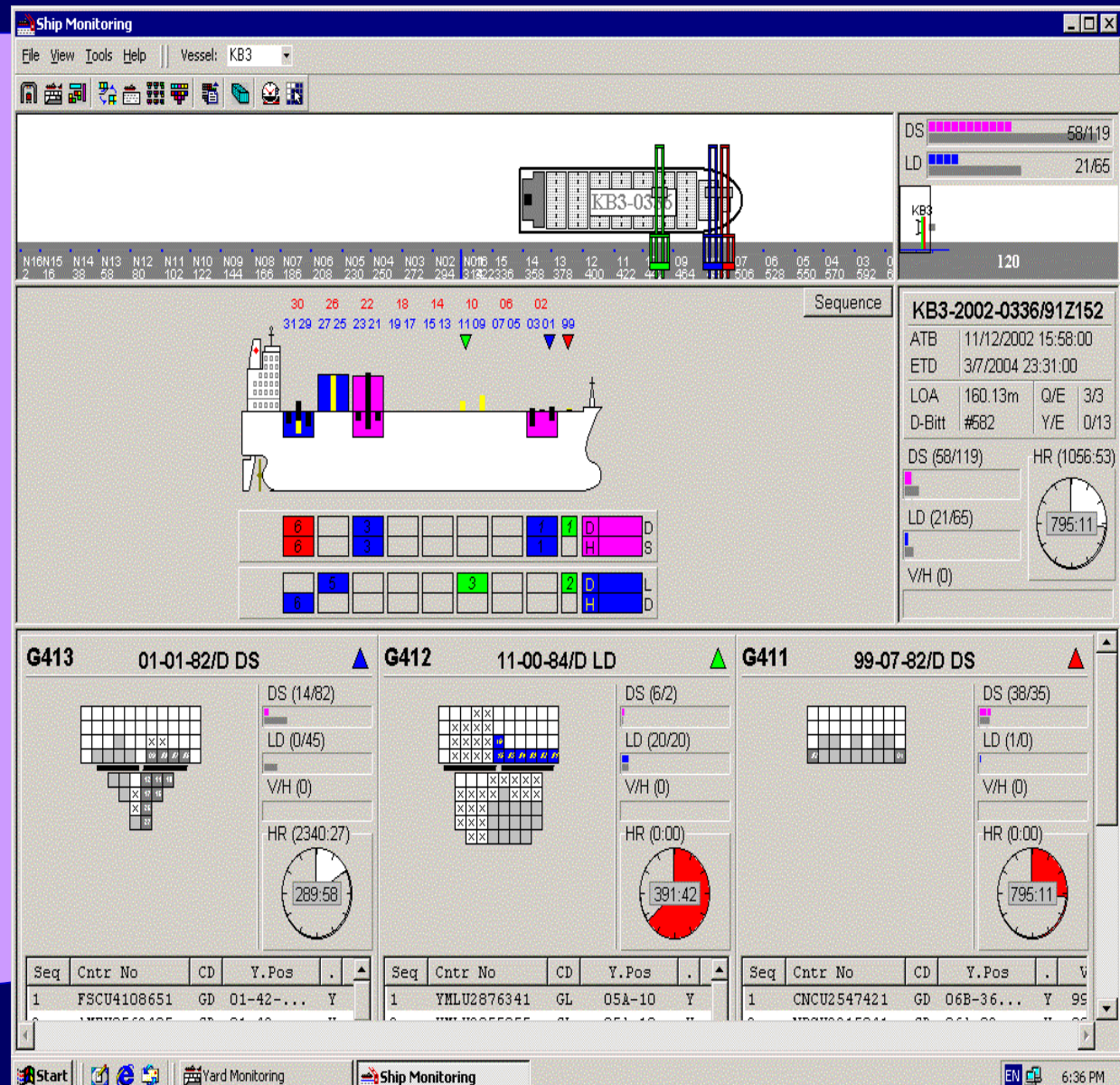
G/C No. : GC2		Vessel : NCAS-1999-0020	
008	TRLU0263977	GL 01-01-82/D 22T0 PUS	
	YT2 X B2-43 (RM43)	ITC 01418,19,20	
009	UTTU2413391	GL 01-02-82/D 22T0 PUS	
	YT1 X B2-43 (RM43)	00904,905,906,	
[1/5]			
Close	Hatch	Refresh	Y/T No.
Stop	Search	Seal No.	ReCheck
		Damage	OK

OPERATION

SHIP MONITORING

CONTROLLING
actual
Discharging and
Loading
operations as per
the sequence.

Monitoring the
productivity,
identifying and
solving
operational
problems





Resource monitoring

**Controlling
the jobs and
yard location**

**Identifying
equipment
location and
monitoring job
sequence**

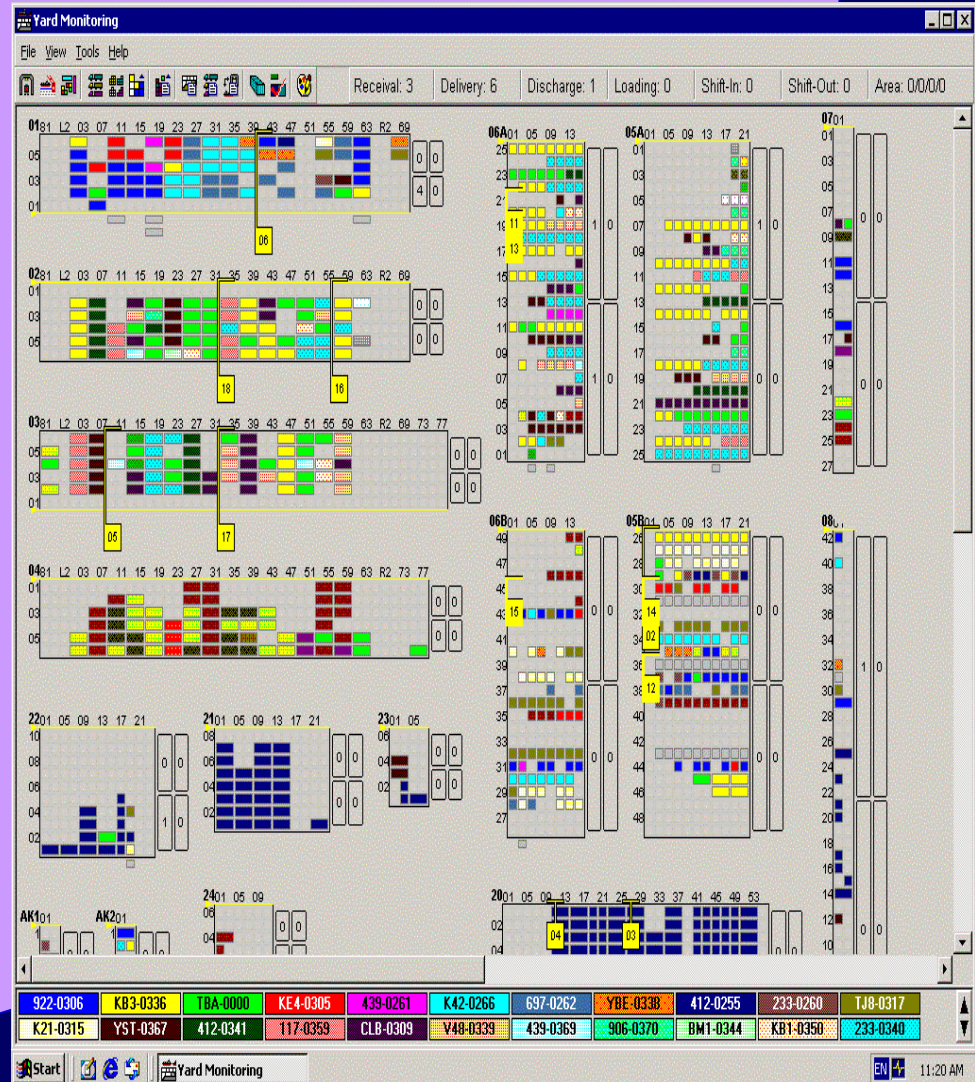


YARD MONITORING



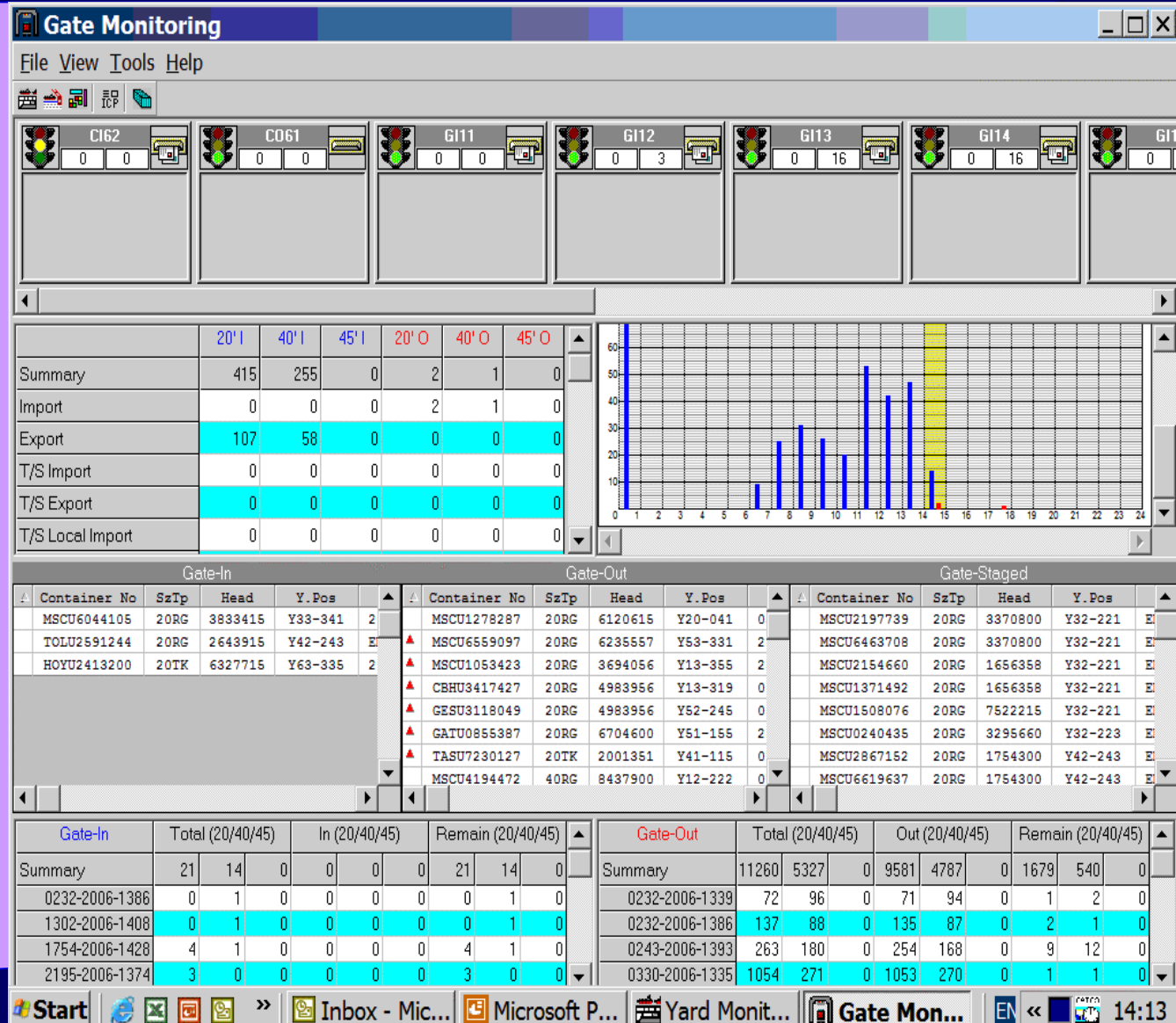
**REAL TIME
YARD
CONDITION**

**REAL TIME
DECISION
MAKING**



GATE MONITORING

REAL TIME OPERATION



SOME ASHDOD'S PORT STATISTICS



VESSELS IN 2010

2820 VESSELS

18.000.000 Tons divided into
charge and discharge:

*General charges (cars,
metals, fruits and
vegetables, wood, etc)*

*Bulk charges (sugar,
sulphur, phosphate,
concrete , etc.)*

Container charges

CONTAINER CHARGES

*(in TEU – Twenty Equivalent Units A
40 feet container = 2 containers of
20 feet)*

2009 = 893.080 containers

2010 = 1.017.480 containers

13,9% enlargement

***25 CONTAINERS CHARGING
AND DISCHARGING PER
HOUR IN AVERAGE***

INTELLIGENT AND OPTIMIZED PLANNING SYSTEM



NAVIS (USA)
200 PORTS

CATOS
(KOREA)
100 PORTS