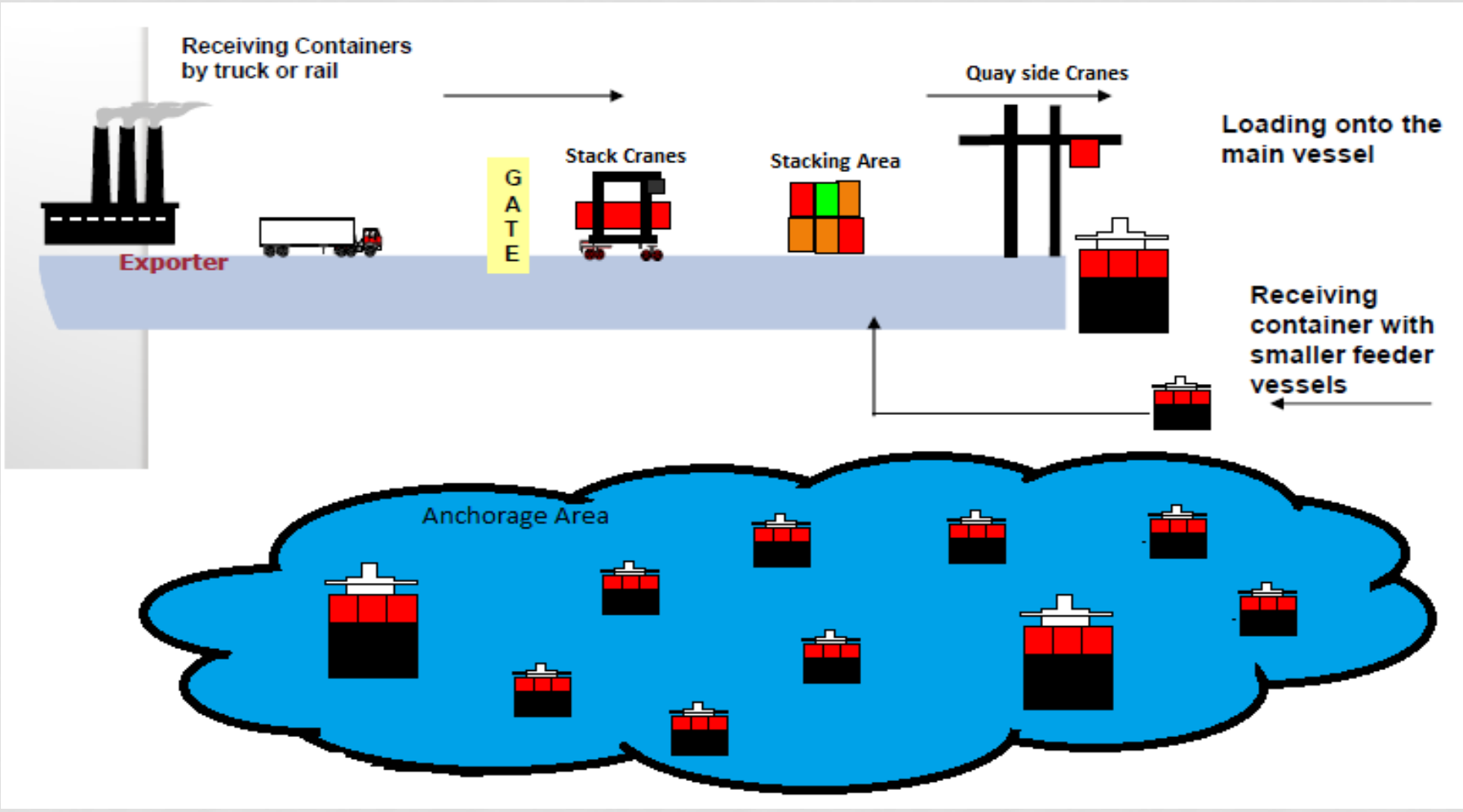
PROJECT PRESENTATION

HAMZA ZAFAR
KASHIF MUJEEB
MUHAMMAD FAROOQ

INTRODUCTION

- Container Terminal Management
- Interesting issue because the cost per day may be $65000 of Container Ship.
- Whole domain is divided into three parts
  - Land System
  - Sea System
  - Container Terminal System
- Focus on Container Terminal Resource Management.

SYSTEM DIAGRAM



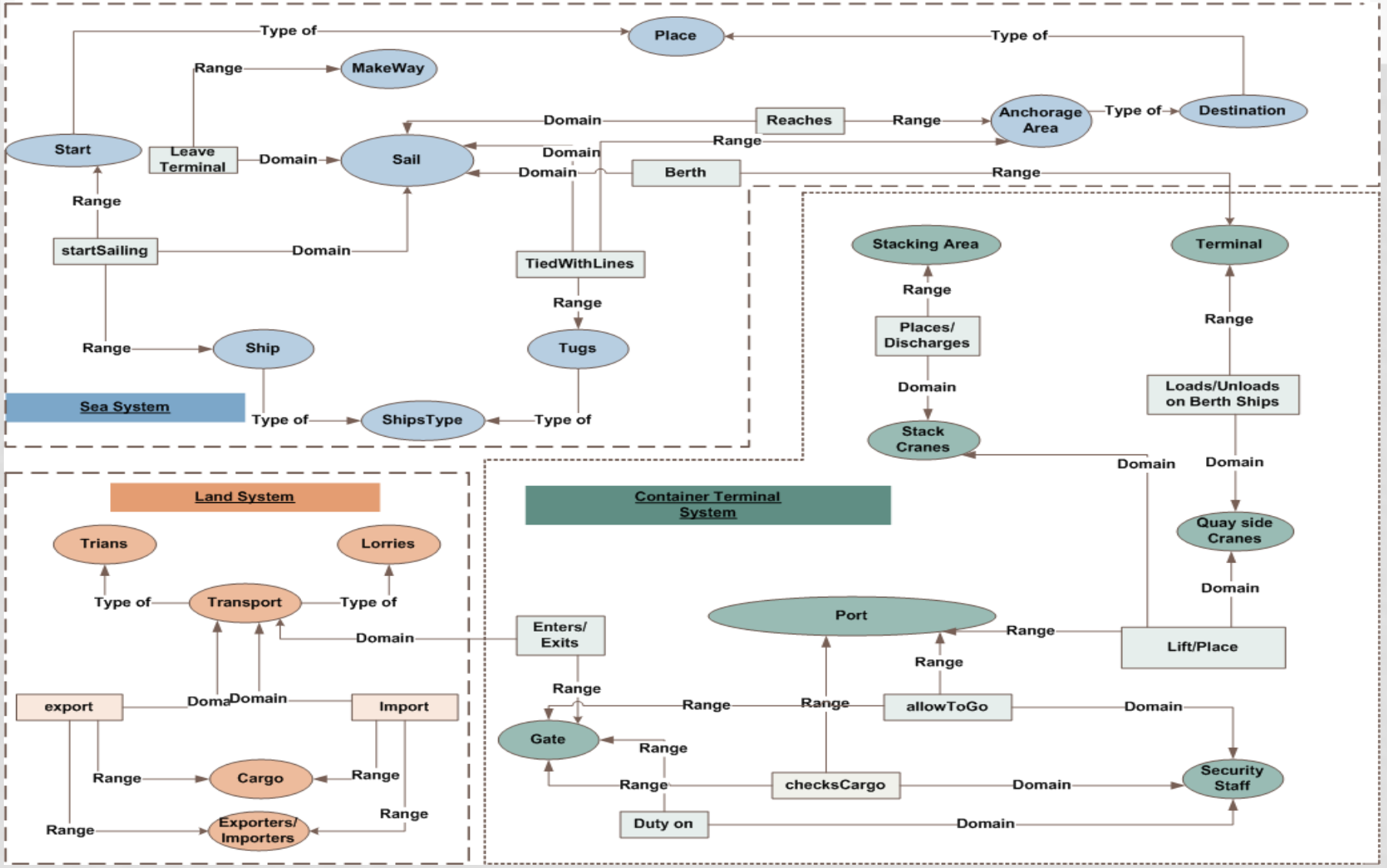
KARACHI INTERNATIONAL CONTAINER TERMINAL

Vessel	Voyage	ETA	ETD	Type	Load	Discharge	ImporterID	Importers	ExporterID	ExporterDistance	Exporters
HYUNDAI BANGKOK	045E	07-05-14 4:12	07-05-14 9:00	F	232	344	imp1	2035	exp1	13	9224
SAGAMORE	440	06-05-14 11:00	07-05-14 11:00	F	275	167	imp2	3881	exp2	14	4609
Y M OAKLAND	042E	04-05-14 16:18	06-05-14 14:30	F	362		imp3	2256	exp3	21	5603
HYUNDAI GENERAL	555E	01-05-14 0:30	02-05-14 15:24	F	121	292	imp4	2714	exp3	47	1348
NORTHERN PRELUDE	38	30-04-14 13:00	01-05-14 19:00	F	468		imp5	1785	exp4	28	8776
PAC ARIES	20	30-04-14 9:24	01-05-14 5:12	F		201			exp5	49	3592
OOCL NEW YORK	004E	27-04-14 22:24	30-04-14 5:30	F	460	245			exp6	23	7685
NORTHERN POWER	022E	27-04-14 20:30	29-04-14 8:42	F	250	310			exp7	40	8799
APL SEATTLE	86	24-04-14 20:12	26-04-14 7:18	F		80			exp8	43	3573
PAC ARIES	19	23-04-14 14:30	24-04-14 11:18	F	127				exp9	47	5556
COSCO KAWASAKI	021E	23-04-14 6:18	24-04-14 16:30	F	155				exp10	12	8181
SAGAMORE	439	22-04-14 11:48	23-04-14 3:12	F	106	357					
MOL DIGNITY	030E	20-04-14 19:30	22-04-14 8:06	F	492	37					
YM EMINENCE	043E	20-04-14 15:10	22-04-14 21:54	F	386	205					
APL SOKHNA	75	17-04-14 13:30	19-04-14 7:54	F		212					
APL SOKHNA	76	08-05-14 10:00	10-05-14 1:00	M	9800	6410					
EVER RESULT	039E	07-05-14 18:12	08-05-14 21:00	M	2976	11311					
PAC ARIES	21	07-05-14 15:50	08-05-14 6:00	M	3672	6280					
MOL DIRECTION	028E	04-05-14 17:48	05-05-14 23:12	M	14800	14785					
APL SYDNEY	177	01-05-14 13:42	03-05-14 11:12	M	6910	14131					
NORTHERN PRELUDE	038E	30-04-14 15:00	01-05-14 21:00	M	7034	5652					
HYUNDAI CONFIDENCE	527E	21-04-14 16:54	23-04-14 19:12	M	9916	14173					

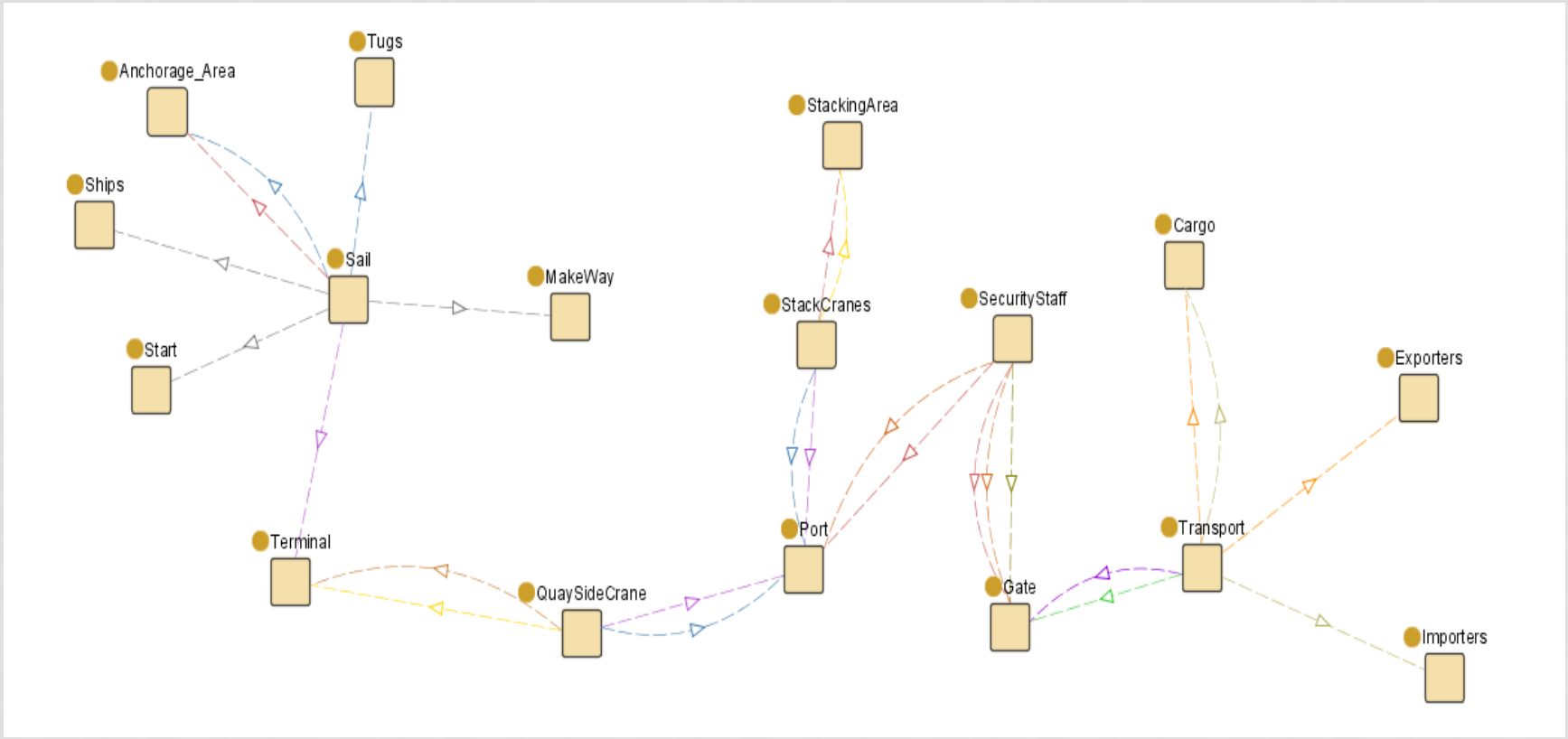
RESOURCES AVAILABLE

- Resources Available AT KITC
  - Berths--> 3
    - Mother Container --> 2
    - Feeder Container --> 1
  - Quay Side Cranes --> 11
  - Yard Tractors (inTransport) --> 68
  - Stack Cranes --> 39
  - Container Capacity --> 38576 TEU
  - Tugs --> 10

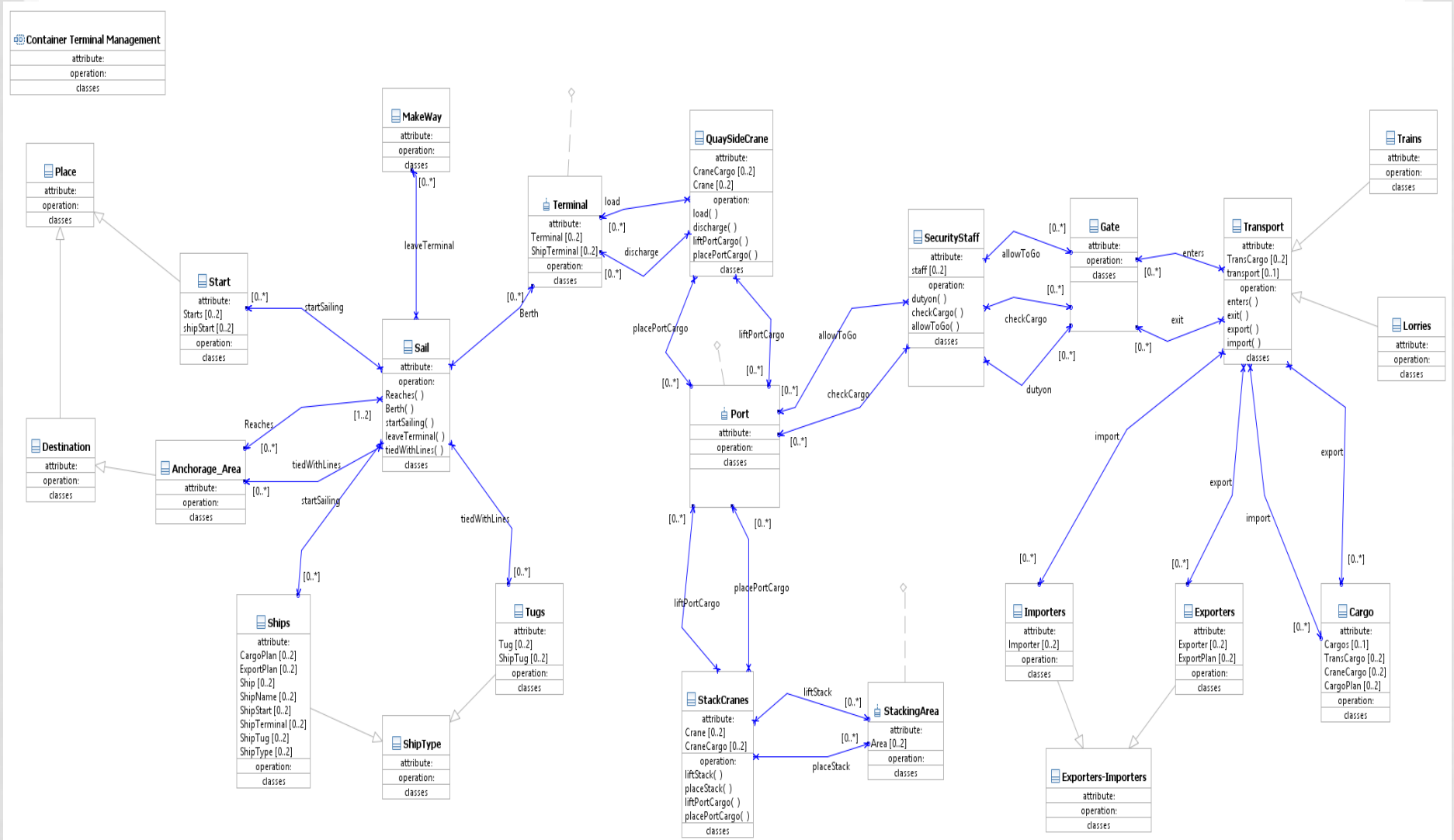
ONTOLOGY


Type of
Place
Type of
Range
MakeWay
Domain
Reaches
Range
Anchorage Area
Type of
Destination
Start
Leave Terminal
Domain
Sail
Domain
Domain
Range
Berth
Range
Range
startSailing
Domain
TiedWithLines
Range
Range
Ship
Tugs
Sea System
Type of
ShipsType
Type of
Stacking Area
Terminal
Range
Range
Places/ Discharges
Loads/Unloads on Berth Ships
Domain
Stack Cranes
Domain
Domain
Land System
Container Terminal System
Trians
Lorries
Quay side Cranes
Type of
Transport
Type of
Domain
Port
Enters/ Exits
Range
Lift/Place
Range
Range
export
Domain
Domain
Import
Range
Range
Range
allowToGo
Domain
Gate
Range
Range
Cargo
Range
Range
checksCargo
Domain
Security Staff
Range
Exporters/ Importers
Range
Duty on
Domain

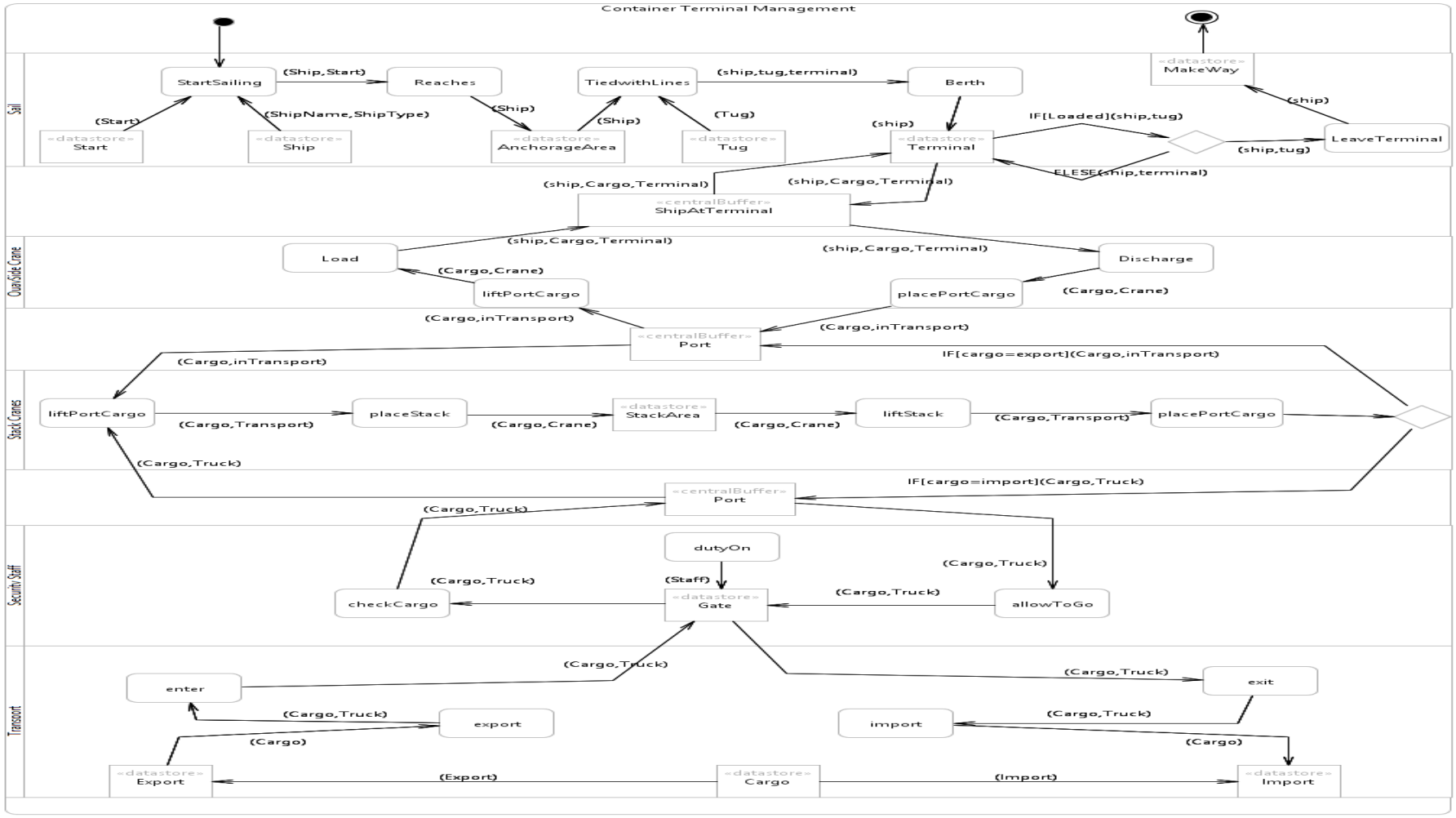
ONTOLOGY (PROTÉGÉ)



CLASS DIAGRAM



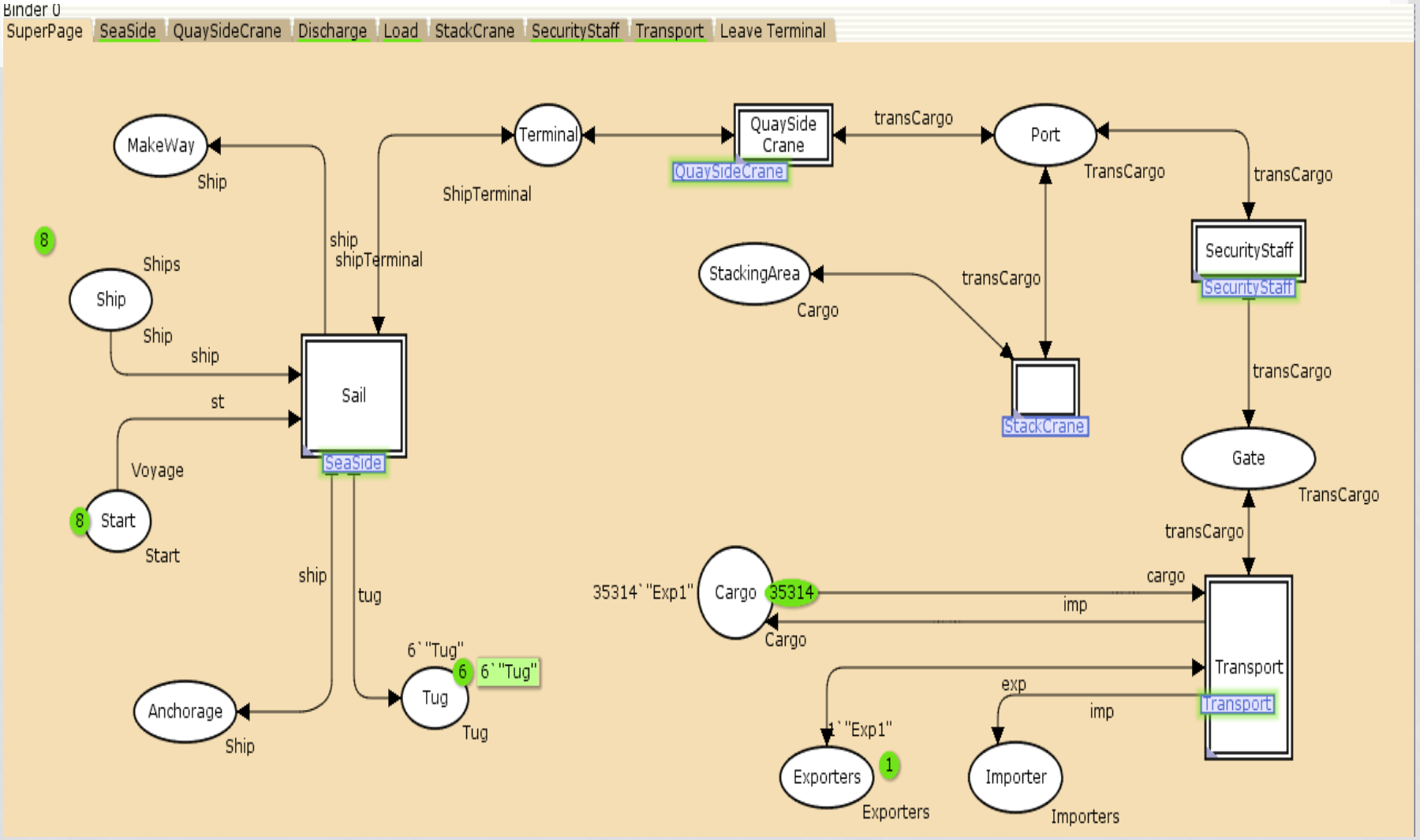
ACTIVITY DIAGRAM



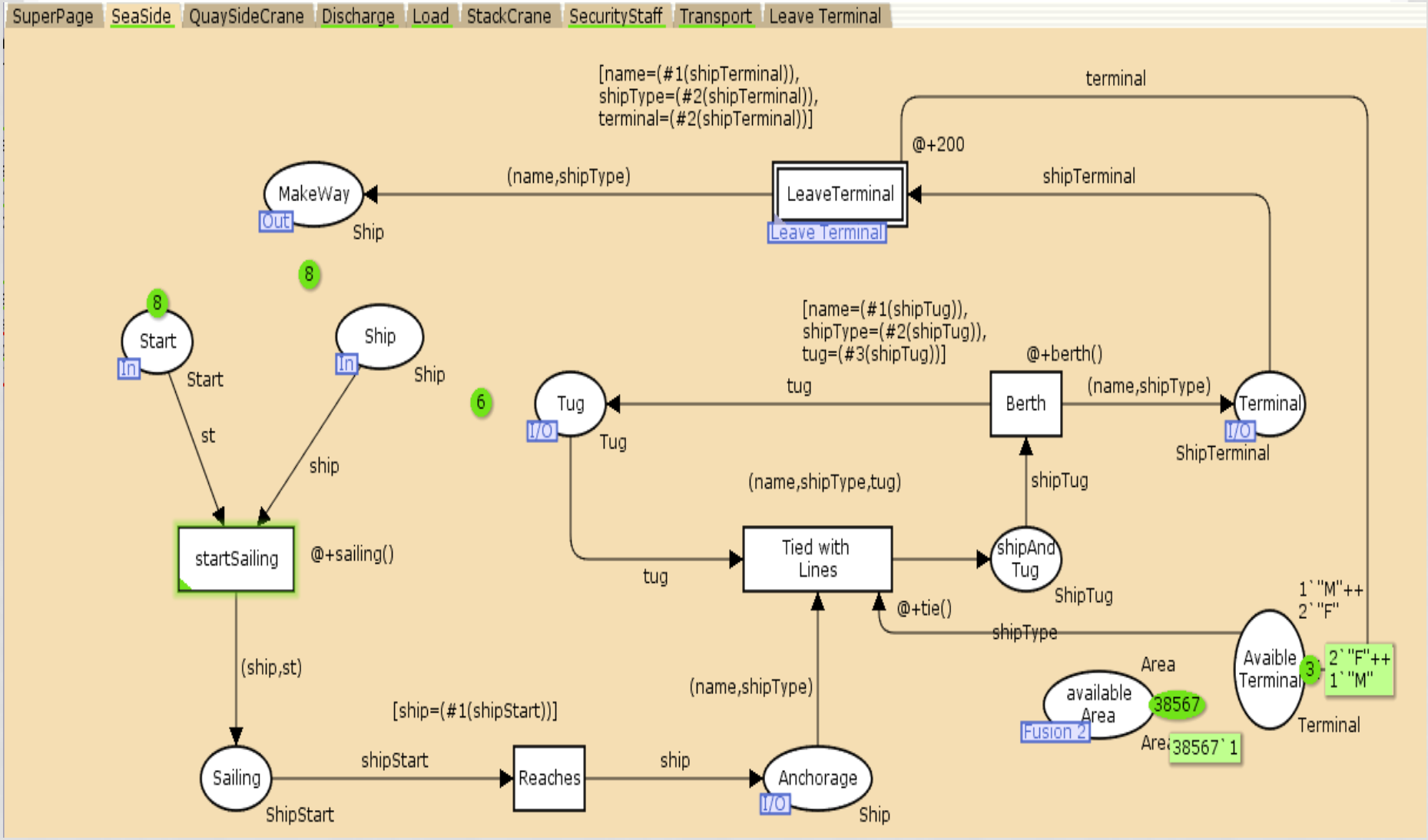
SYSTEM MULTIPLE VIEWS

- The Three view of System Engineering is kept in mind
  - The Ontology and CPN Super Page shows the System view
    - The Sub Pages and Object properties are made; That represents Operational view
      - Sub pages of sub pages are made for the Technical views

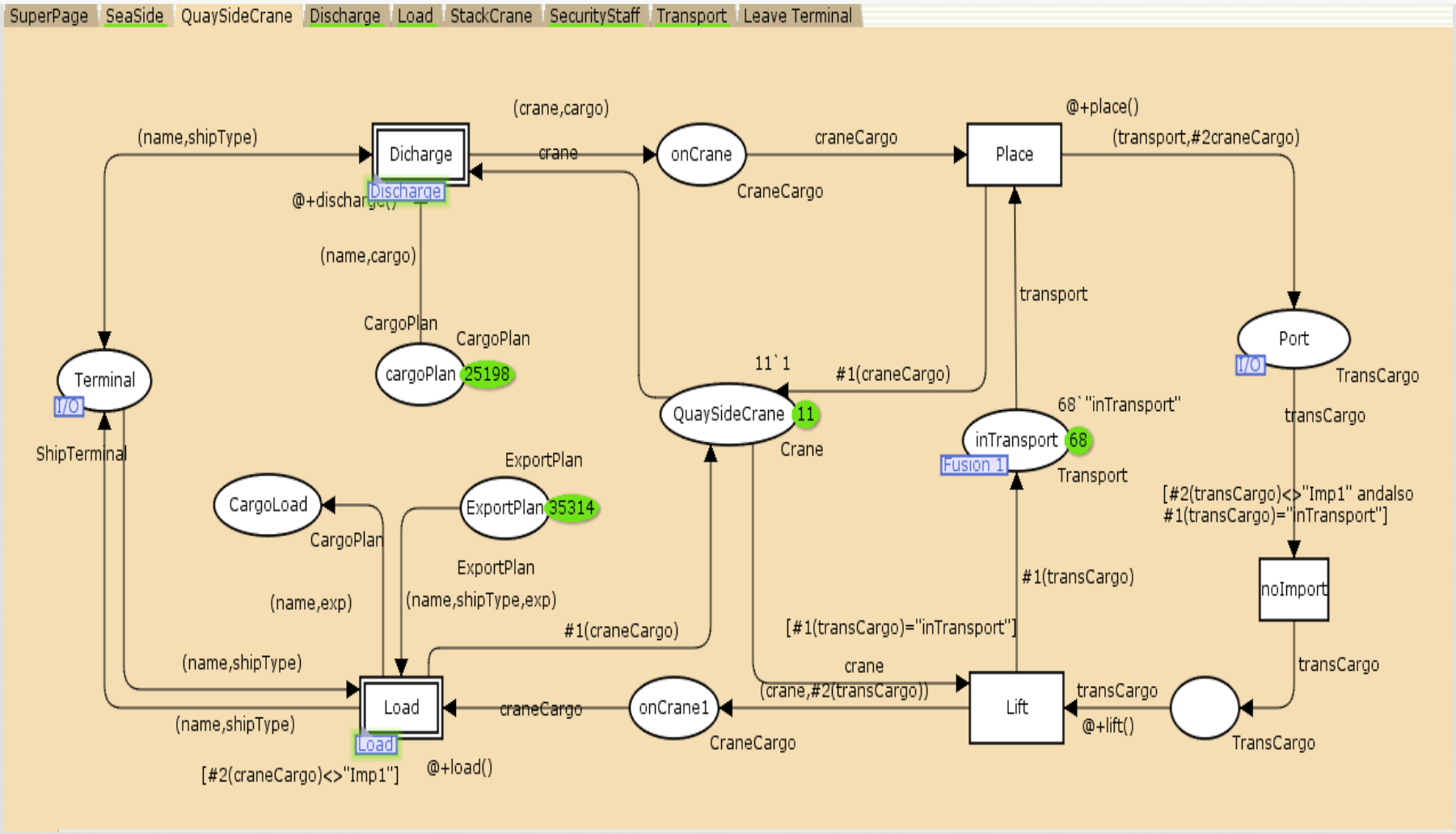
SYSTEM VIEW


Binder 0
SuperPage
SeaSide
QuaySideCrane
Discharge
Load
StackCrane
SecurityStaff
Transport
Leave Terminal
MakeWay
Ship
Terminal
ShipTerminal
QuaySide Crane
QuaySideCrane
transCargo
Port
TransCargo
transCargo
SecurityStaff
SecurityStaff
8
Ships
Ship
Ship
ship
ship
shipTerminal
Sail
SeaSide
st
Voyage
8
Start
Start
StackingArea
Cargo
transCargo
StackCrane
transCargo
Gate
TransCargo
transCargo
ship
tug
Anchorage
Ship
6`"Tug"
6
6`"Tug"
Tug
Tug
35314`"Exp1"
Cargo
35314
Cargo
cargo
imp
Transport
Transport
exp
imp
1`"Exp1"
Exporters
1
Exporters
Importer
Importers

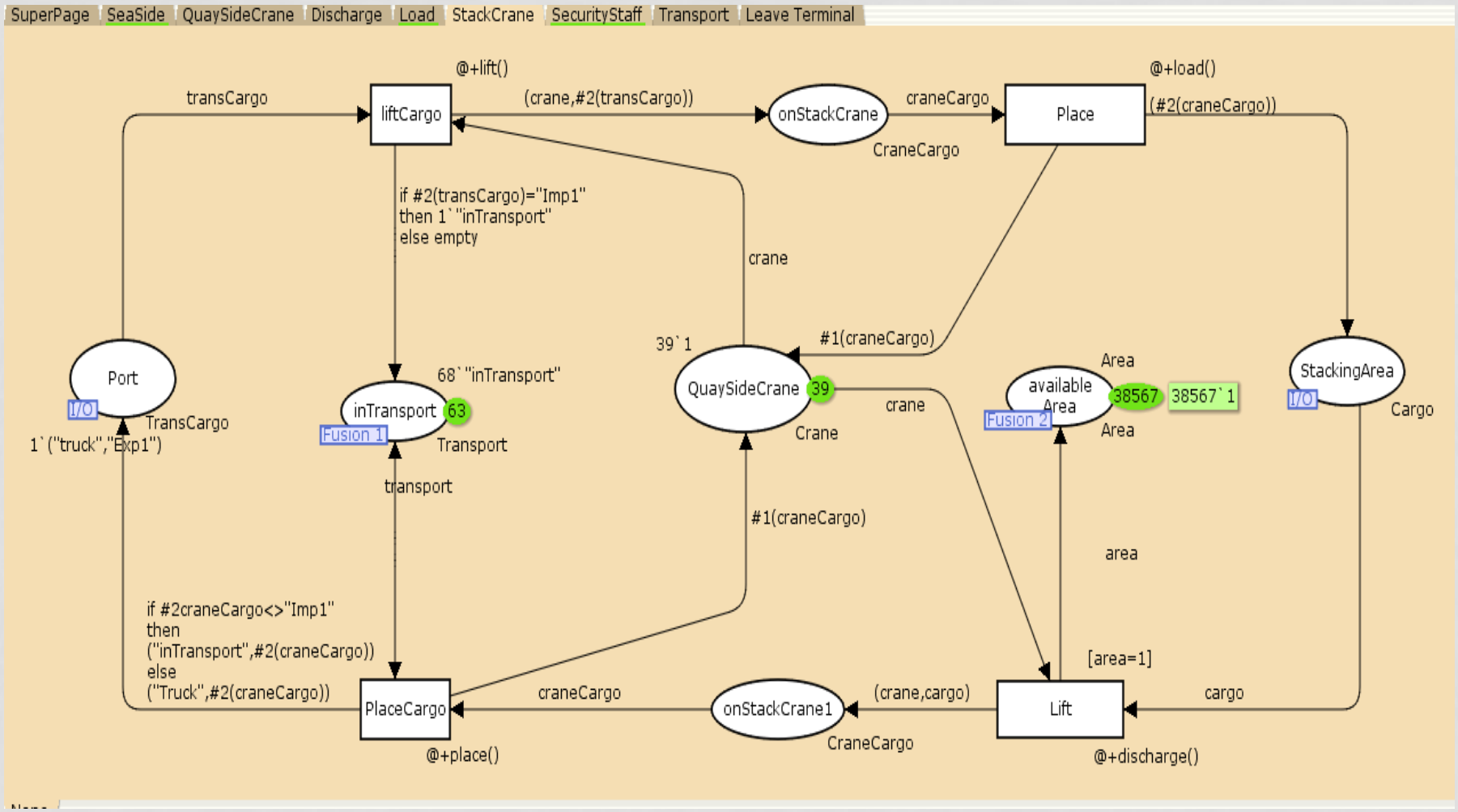
OPERATIONAL VIEW



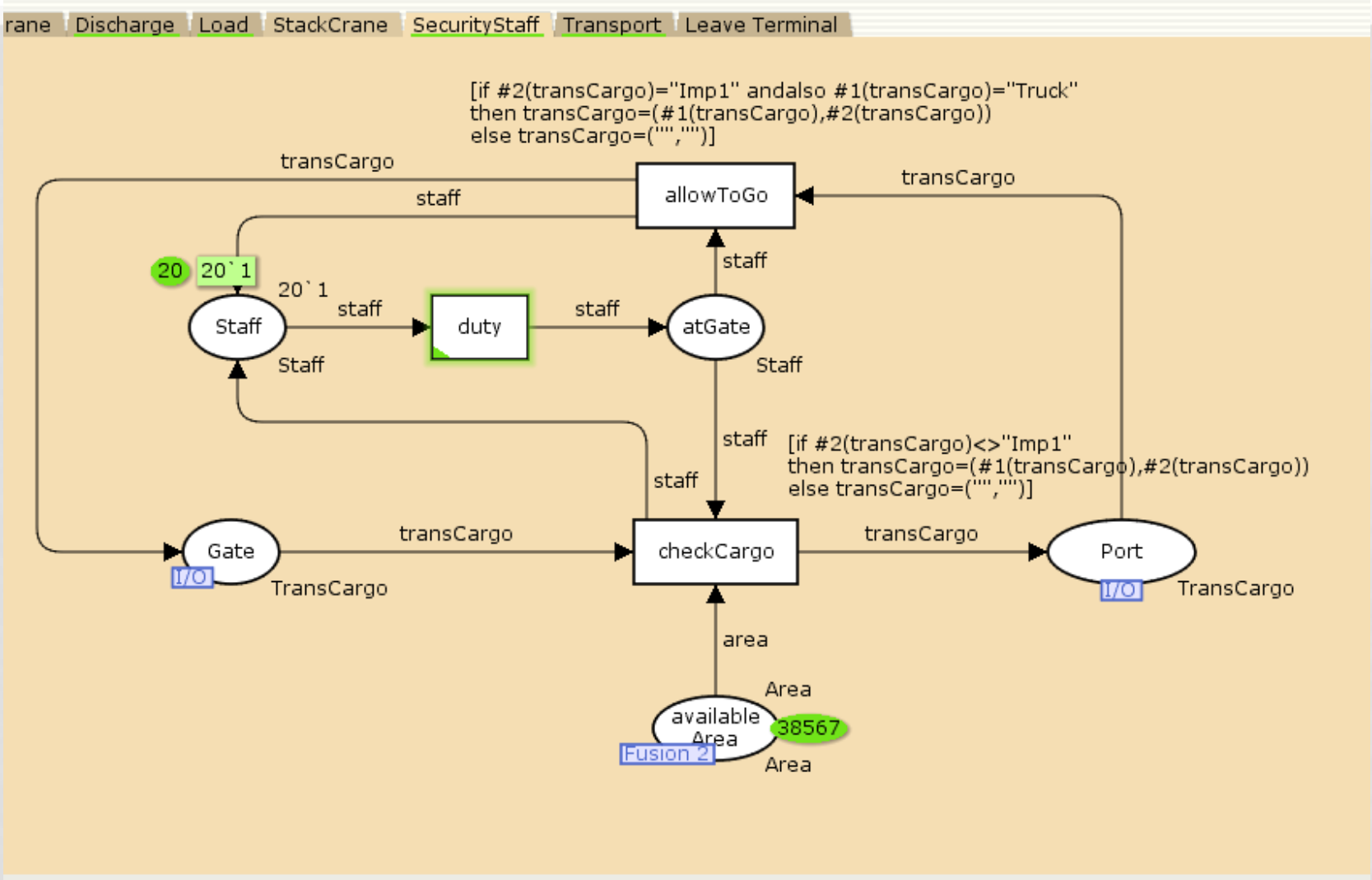
OPERATIONAL VIEW



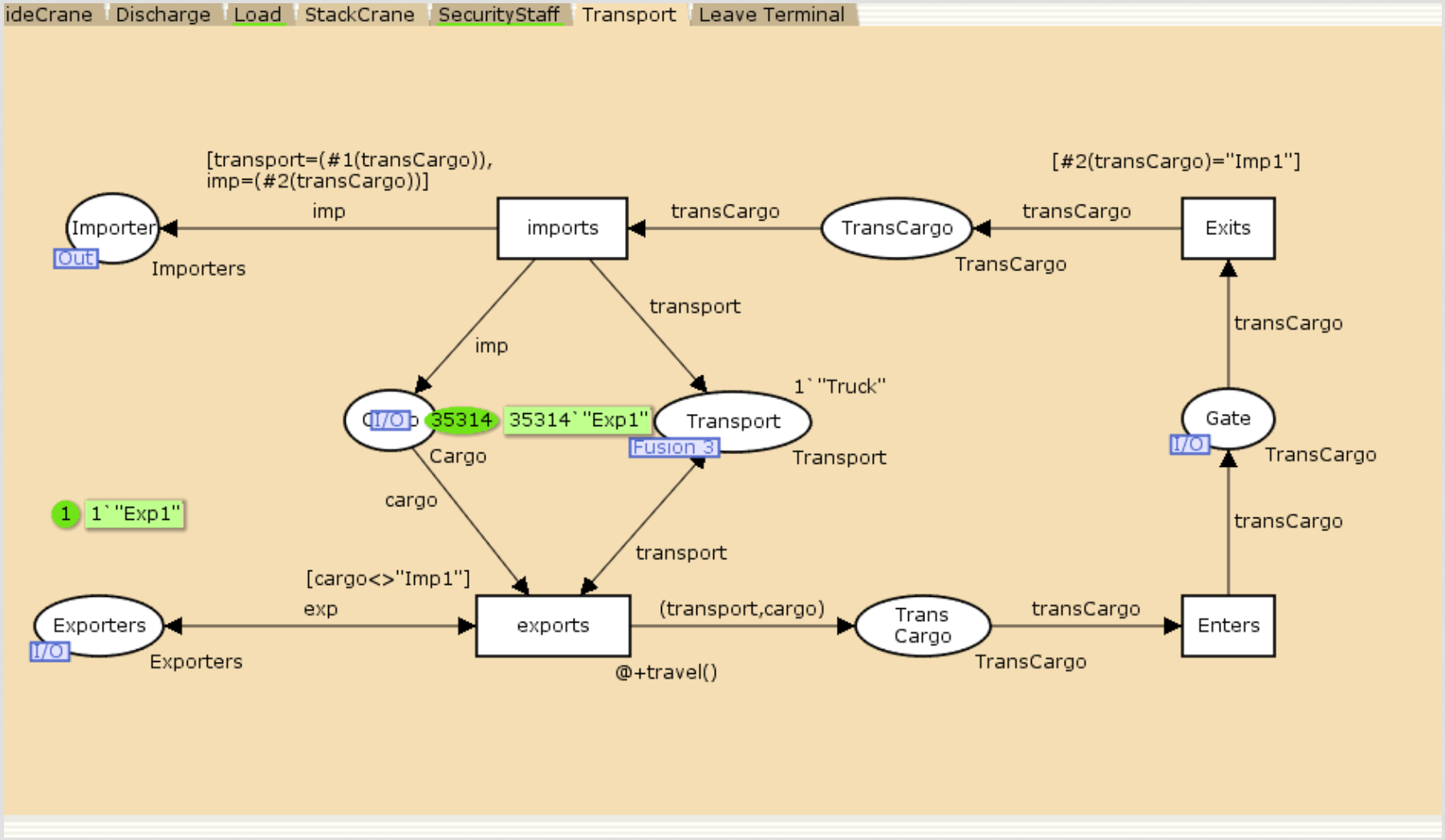
OPERATIONAL VIEW



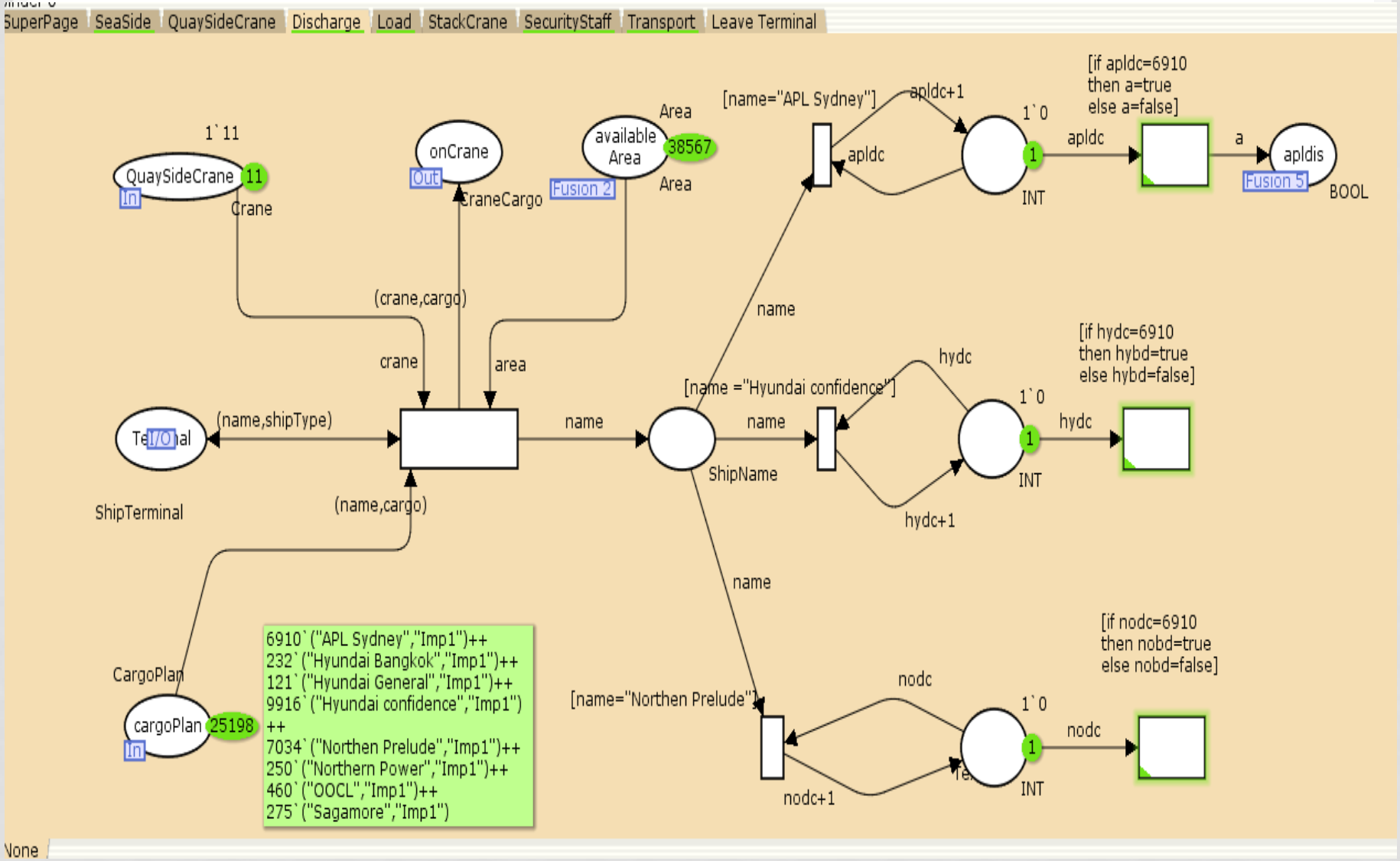
OPERATIONAL VIEW



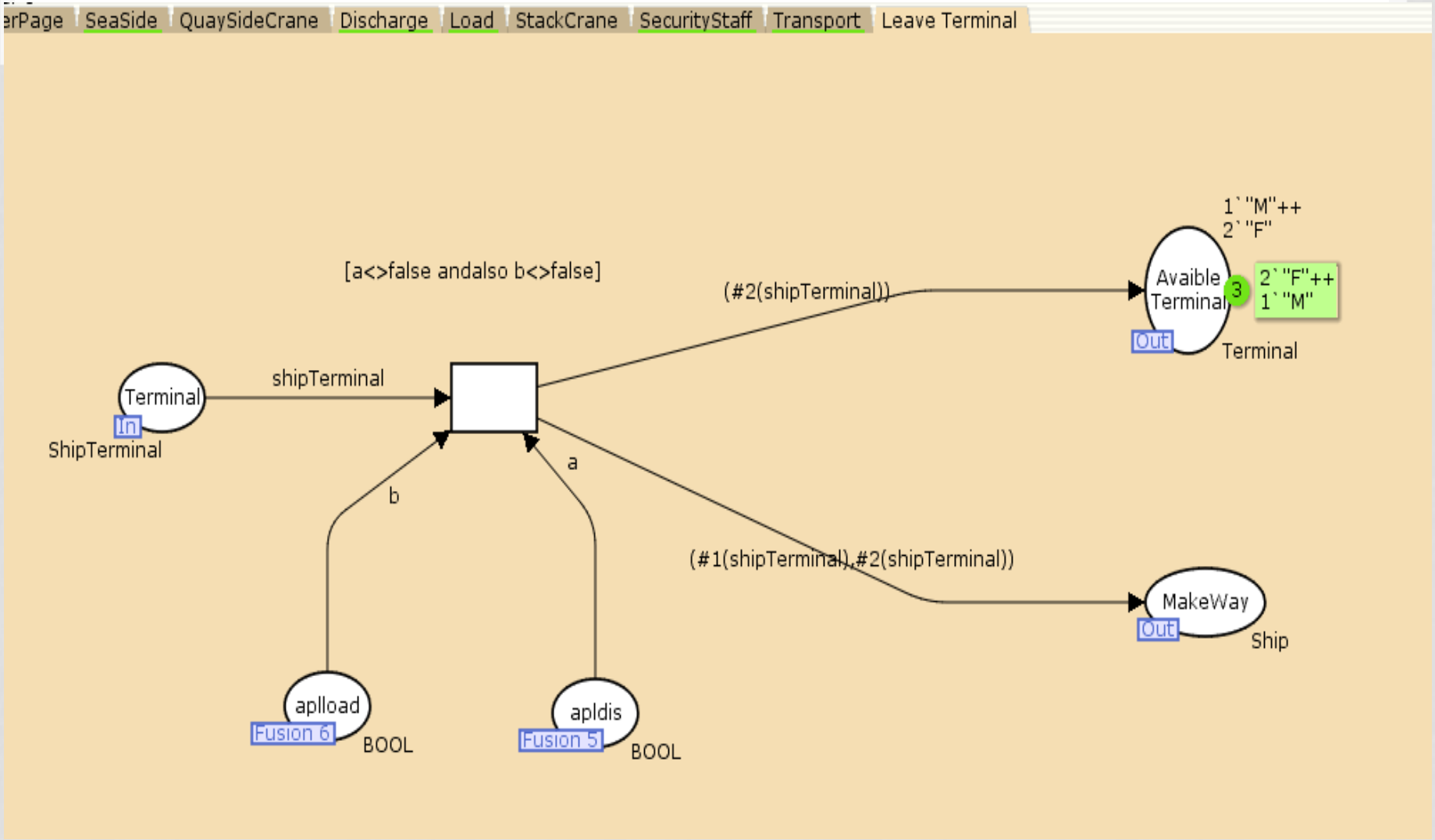
OPERATIONAL VIEW



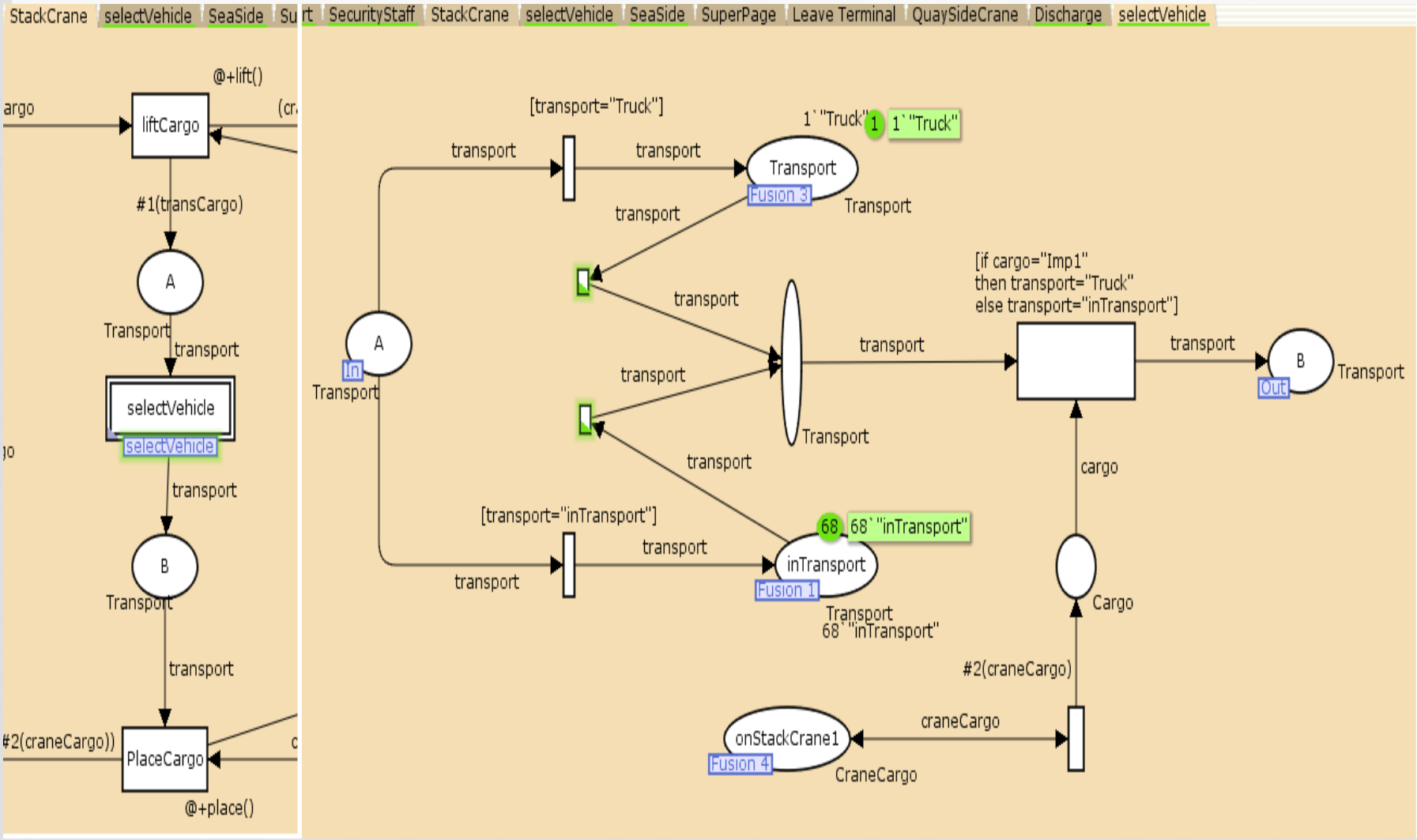
TECHNICAL VIEW



TECHNICAL VIEW

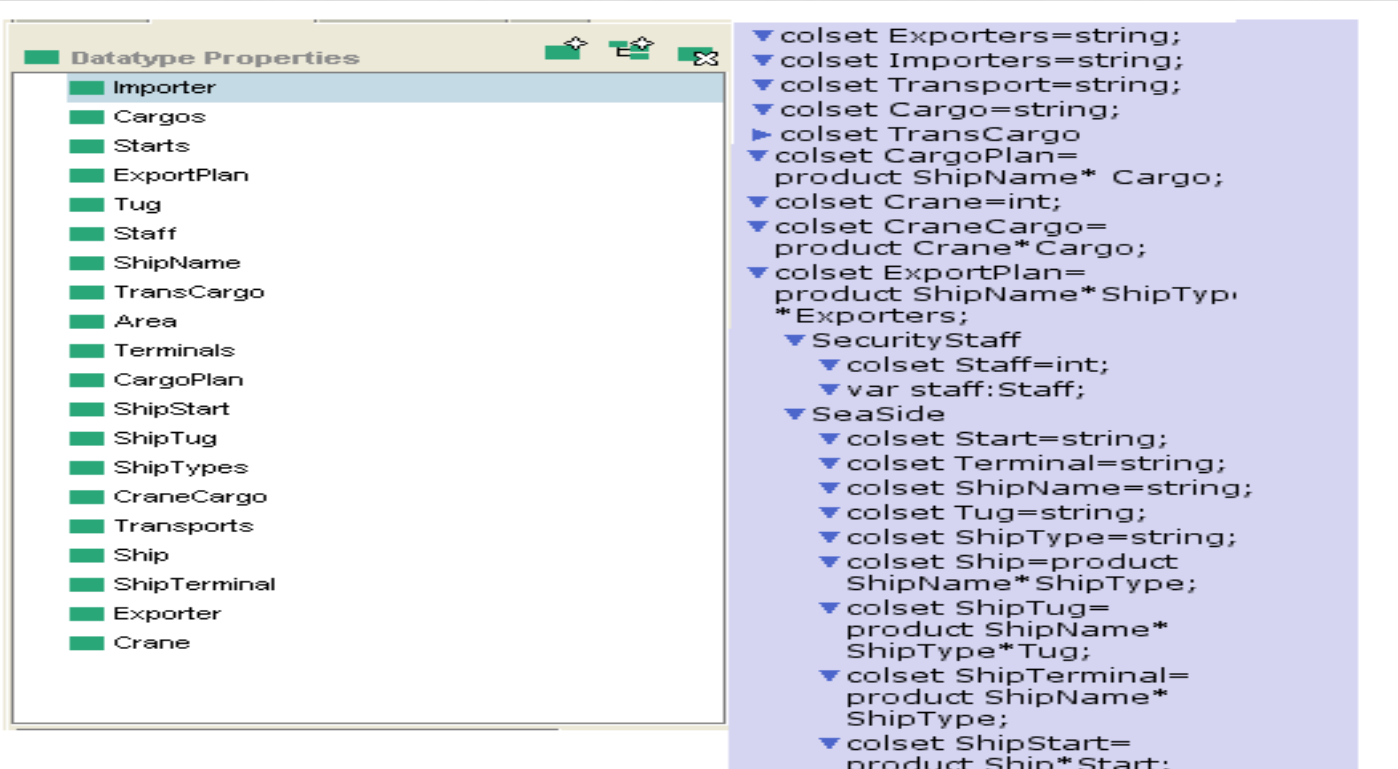


TECHNICAL VIEW



MAPPING

- Concepts Mapping
- Object Properties
- Data Type Properties



MAPPING

- SWRL AND IF Condition

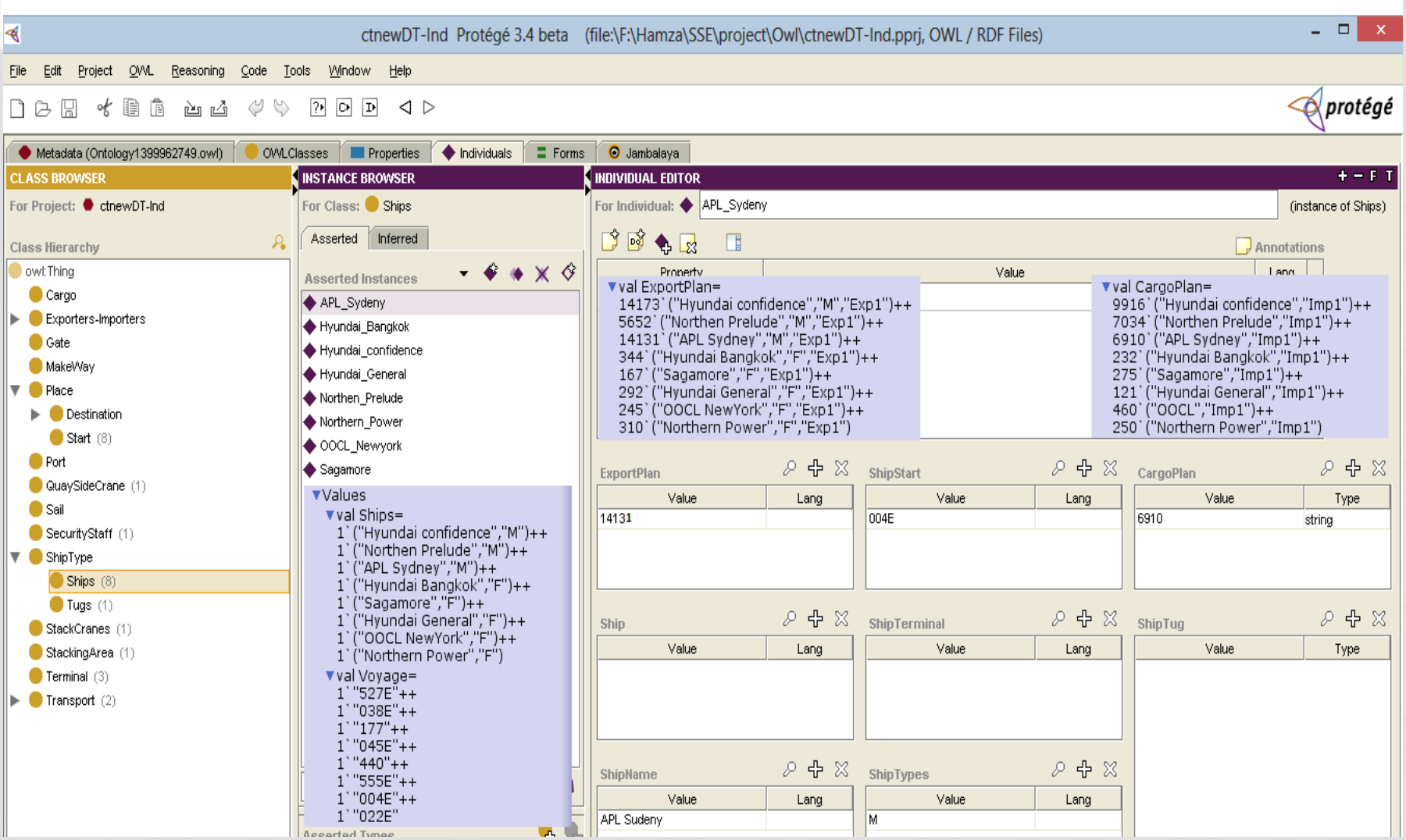
Cargo(?c) ∧
Transport(?t) ∧
allowToGo(?t, ?c) ∧
swrlb:equal(?c, "Imp1") ∧
swrlb:equal(?t, "Truck")
→ abox:setValue(?t, "Truck") ∧
abox:setValue(?c, "Imp1")

```
[if #2(transCargo)="Imp1" andalso #1(transCargo)="Truck"
then transCargo=(#1(transCargo),#2(transCargo))
else transCargo=("","")]
```

Cargo(?c) ∧
Transport(?t) ∧
checksCargo (?t, ?c) ∧
swrlb:equal(?c, "Exp1")
→ abox:setValue(?t, "Truck") ∧
abox:setValue(?c, "Exp1"

```
[if #2(transCargo)<>"Imp1"
then transCargo=(#1(transCargo),#2(transCargo))
else transCargo=("","")]
```

MAPPING (INSTANCES)



CONCLUSION AND FUTURE WORK

- Time is used but can not be evaluated.
- Technical view may be described more; having more swrl and if (guard) condition.
- The Resource e.g Cranes, Security Staff and Terminal Capacity may be simulated very well.