
LOGO

COMPANY NAM

Master Glossary

Software Requirement Specification

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1 INTRODUCTION

1.1 Purpose

This document aims at describing the general requirements, non functional requirements, and general section of SRS package of GSC system.

By using this document, project team, business support team and the other people can have an overview about the software requirement specification of the GCS application and business/power users can review this document to know how the requirements have been documented. This document also describes the requirement scope of each phase in the project.

1.2 Document Scope

This document only describes all general requirements and non functional requirements of GCS system. It does not include the detailed requirements for all processes of the system

1.3 Definitions, Acronyms, and Abbreviations

Term	Description
Shipping Agent	Cargo Operator, Freight Forwarder
GC Officer	General Cargo Officer
BRN	Booking Reference Number
MDS	Manifest and Document System
CTS	Container Management System
ETA	Estimated Time of Arrival
EP	Export Processes
IP	Import Processes
IMO Class	IMO Class for dangerous goods.
UN	Classification of dangerous goods For all modes of transport (sea, air, rail, road and inland waterways) the classification (grouping) of dangerous goods, by type of risk involved, has been drawn up by the UNITED NATIONS Committee of Experts on the Transport of Dangerous Goods (UN).
DT	Dubai Trade Portal
E/D	Export Declaration number
TBA	To be advice
B/L, BOL	Bill of Lading
BOA	Berthed On Arrival. A vessel is considered BOA if the Delay is less than a previously agreed value.
BOE	Bill of Entry
BTR	Berth Time Requested. This is the expected arrival time of a vessel
BRN	Booking Reference Number
CFS	Container Freight Station
Crane Intensity (CI)	Specifically related to the quay cranes, it is a measure of the number of containers that can be handled by a crane in an unit of time.

DO	Delivery Order
DDC	Direct Delivery Cargo
DPA	Dubai Port Authority
DPC	Documentation Processing Charges
Draft	The height of water table measured in meters.
EA	Export Application. EA number is also known as Booking reference.
EB	Export Booking
EBI	Export Bill
ETA	Estimated Time of Arrival
ETB	Estimated Time Berthing
FCL	Full Container Load. This term is used when you the customer wishes to send a Full Container Load. There are 20' and 40' containers available and sometimes without any additional charges depending on the freight line a customer can use a high cube. High cube means a container is just a little higher and gives you the customer more room without having a book an extra container.
IDC	Import Delivery Container
IDG	Import Delivery of General Cargo
LCL	Loose Container Load. This term is used when you the customer wishes to send a lesser amount than a Full Container Load
Line	A shipping line
MDS	Manifest & Documentation System
MRN	Manifest Registration Number
NOC	No Objection Certificate
PRC	Port Receiving Charges
SN	Shipping Note
SO	Shipping Order
SKU	Stock Keeping Unit Code
TEU	Twenty-foot Equivalent Unit. This is the standard unit for measuring the container volume. Standard containers are 20 feet, 40 feet and 45 feet long.
EB	Export Booking
IMO	International Maritime Organization

1.4 Business terms

Term	Description
Activity	An activity accommodates a certain class of vessels and uses certain consecutive sections
Ageing Cargo	
Allocation	A possible set of active activities
Auction Cargo	
Berth / section	A small portion of the wharf. A wharf or section may be created due to restrictions on crane availability, draft etc... or simply for ease of management.

Berth Template	A solution to the Home berth allocation problem. A berth template provides the 'ideal' berth locations for a set of vessels.
Throughput	A measure of the number of vessels or containers handled over a period of time.
Vessel	A ship
Vessel Closure	Show that vessel has loaded cargos and everything is ok
Vessel Delay	The time elapsed between when a vessel arrives at the port and when the vessel is moored at the berth.
Vessel Throughput	A measure of the number of vessels handled over a period of time.
Wharf	A Linear stretch of the terminal where vessels can moor.
Yard	Location where containers are temporarily stored.
Yard Crane	Cranes used in the yard to load or unload containers onto or from prime movers
Prime movers	Vehicles used for transporting containers.
Quay Cranes	Cranes used along the quay side to load or unload containers onto or from vessels. Many varieties of quay cranes may be available i.e. Long cranes, Tall cranes etc... and should be deployed depending on the vessel type
Scheduling policy	Dictates which allocation to use at any given time
Section	Smallest unit of space
Export Back Order	Reversal of cargo sent to the port for cases where the exporter decides to take back the cargo
Connectivity Cost	A measure of the effort expended in handling containers within the terminal
Container Throughput	A measure of the number of containers handled over a period of time. This is a standard measure for the productivity of a port and is measured in terms of TEU's
Crane Intensity (CI)	Specifically related to the quay cranes, it is a measure of the number of containers that can be handled by a crane in an unit of time.

1.5 References

No.	Reference document name
1	PROMIS_BRS_VO.GB_BerthPlanningGeneralCargo_L2_V1.3.doc
2	PROMIS_BRS_VesselDischargeLoadOperationGC_L2_V1.4.doc
3	PROMIS_BRS_VA.MA_VesselArrival_MA_Level2-Ver1.0.doc
4	PROMIS_BRS_VesselArrivalNotification_L2.doc
5	Load-DPW-VOP-GEN-003- Rev 3.doc
6	PROMIS_SRS_VO_GY_V02.doc
7	PROMIS_SRS_VO.GY_V.1.doc
8	PROMIS_SRS_VO.GO_V1.0 (final).doc
9	PROMIS_BRS_VesselArrivalNotification_L2.doc
10	PROMIS_BRS_ImportAuthorization_L2 v1.0.doc

11	PROMIS_BRS_ExportCargoReceiving_process_L2_Final.doc
12	PROMIS_BRS_ExportAuthorization_L2.doc

1.6 Document Overview

This document includes following sections:

- **1. Introduction:** Overview of purpose, scope, and reference information of this document
- **2. Overall Description:** Describe the overall of the whole system
- **3. Logical Database:** Describe the logical entity relationship and description of entity attributes.
- **4. Functionality Description:** Describe the detailed functional requirements of the system
- **5. Non-Functional Requirements:** Describe the non-functional requirements that the system should meet
- **6. Appendixes:** Describe all general format, templates... to be used in the system

2 OVERALL DESCRIPTION

2.1 System Overview

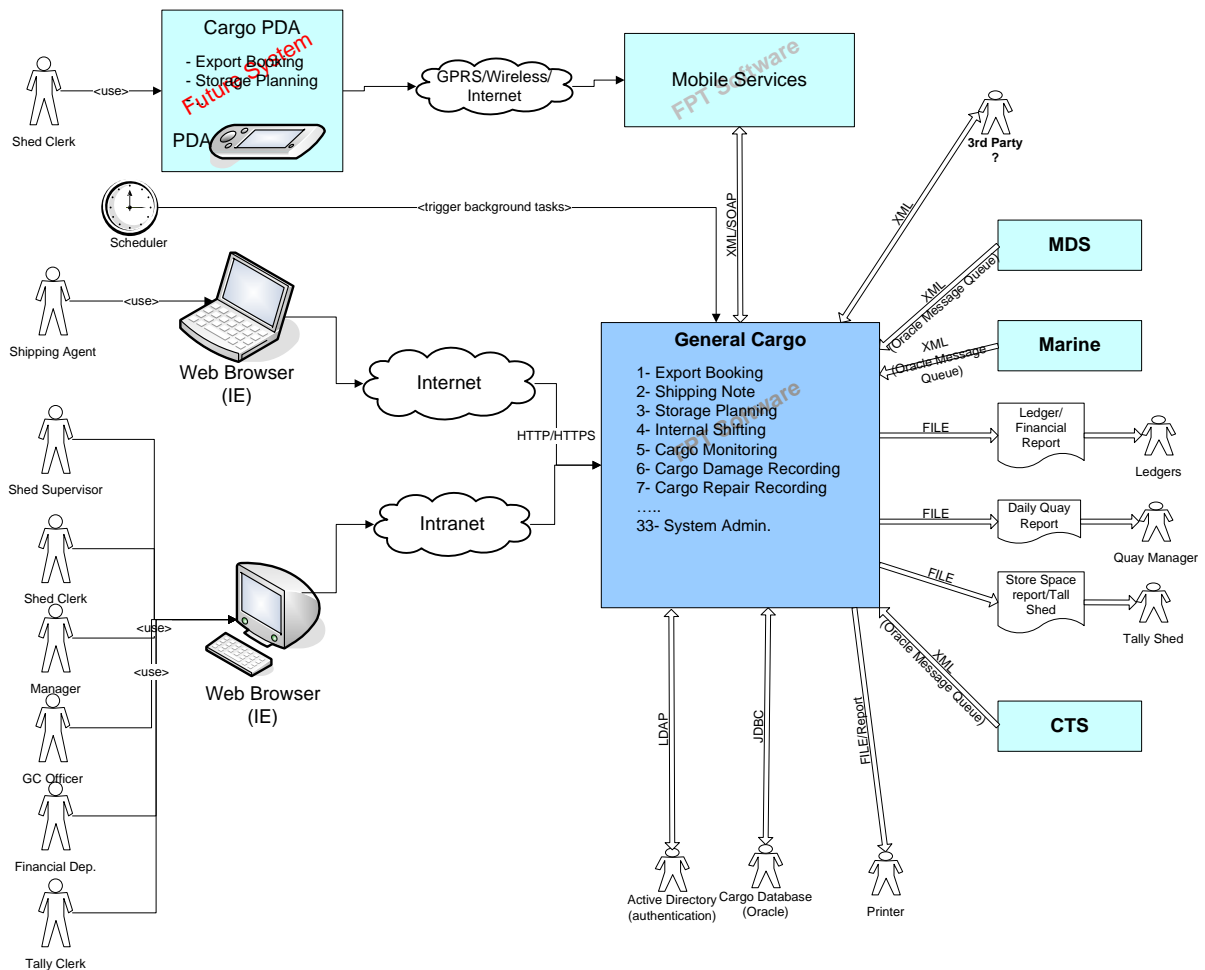


Figure 1: System Overview

<Description of System and the external integrated systems>

2.2 Core Business Process

The General Cargo System will have the following main functionalities. It will be developed in Java Web application.

Process name	Use Case Name	Use Case Description
Export Processes		
Export Booking	Create Export Booking	Allow Shipping Agent to create an Export Booking in GCS
	Update Export Booking	Allow Shipping Agent to update an Export Booking which has not been approved.
	Search Export Booking	Allow GC Officer and Shipping Agent
	Auto Update Export Booking	The system auto updates Export Booking from indirect loading to direct loading at cut off time if no cargo is received.
	Generate Report	Allow the user to get statistics of Export Booking
Shipping Note	Add Shipping Note	Allow the user to create shipping notes for an approved Export Booking
	View Export Booking	Allow the user to view detailed information of an Export Booking
Shut Out	Create Shut Out	Allow the user to create Shut Out when he/her consolidates cargo items before Cargo is loaded to Vessel
	Generate Report	Allow the user to get statistics for Export Bookings which has been shut out
Consolidation of Cargo	Notify Consolidation	The system notify Shipping Agent when the cut off time of Export Booking is 48 hours
	Search Consolidation	Allow the Shipping Agent to search all the Export Booking of a Vessel which has cut off time = 48 hours
	Notify Re-Consolidation	The system notify Shipping Agent & GC officer when the cut off time of Export Booking is 24 hours
	Re-Search Consolidation	Allow GC Officer to search all the Export Booking of a Vessel which has cut of time = 24 hours
Internal Shifting & Loading List	Manage Loading List	Allow Shed Clerk or Shed Supervisor manage shed loading list of Cargo
	Create Loading List	Allow GC officer to create loading list for Cargo
	Search Loading List	Allow Shipping Agent to query Loading List of Cargo
	Generate Loading List	Allow the user to print the loading list of Cargo to prepare for loading cargo to Vessel
	Manage Loading List	Allow the user to view/update an available loading list

Storage Receive	Cargo Receive Recording	<p>Tally Clerk can validate Storage Receipt based on information from:</p> <ul style="list-style-type: none"> - Export Booking - Storage Planning for intended location of cargo items - Master Data for the actual location of cargo items. <p>The activity of storage receiving can be taken by use of handheld device in the future. Recorded information of cargo and storage can be generated in forms of reporting.</p>
	Cargo Damage Recording	<p>Storage Clerk can verify and record cargo condition during the time cargo is in his storage area. The verification is based on:</p> <p>Existing cargo status before verification action.</p>
Cargo Monitoring	Monitor Storage of Cargo	Allow the user to check the status of cargo in Storage
	Monitor Internal Movement of Cargo	Allow the user to get statistics of cargo movement between locations in Dubai Port
Cargo Damage Repairing	Search Damaged Cargo	Both Shipping Agent and GC Officer will keep track of Damaged Cargo by logging on in the System, querying on information of Damaged Cargo and taking any action when needed.
	Create Repairing Request	Once a Damaged Cargo needs repairing, Shipping Agent will have to create a Repairing Request for the Cargo and then submit the Request to GC Officer for review and approval.
	Shut out	Once cargos have been stored and marked as damaged, they can be shut out by either Shipping Agent or GC Officer before ETA.
	Search Repairing Request	GC Officer and Shipping Agent can monitor Repairing Requests by logging on in the System, querying on information of Repairing Request.
	Approve Repairing Request	Once receiving a Repairing Request, GC Officer will have to be in charge of reviewing, approving of or rejecting the request.
	Reject Repairing Request	Only GC Officer can reject a Repairing Request. Any rejection will only be made before ETA.
	Cancel Repairing Request	Only Shipping Agent can cancel a Repairing Request. Any cancellation will only be made before ETA.
	Update Damaged Cargo	Once Damaged Cargos are repaired, GC Officer will update the status of the Cargos.
Hold & Release Cargo	Hold Cargo	GC Officer/Shipping Agent/Customs can hold the cargo when there is any appropriate reason
	Release Cargo	Shipping Agent can release the cargo when all hold reasons are cleared
	Request to Release Cargo	Shipping Agent request to release cargo that held by GC Officer after he clear all hold reasons
	Search On Hold Cargo	Shipping Agent can search for On hold cargo to request to release cargo
	Update GCS	MDS update information to GCS automatically
	Generate Report	GC Officer can view/print a summary report of hold/release cargo

Berth Booking	Create Berth Booking	Vessel Agent can submit Berth Booking that contains information of Vessel and Cargo to book a berth for incoming vessel
	Search Berth Booking	Berth Planner can search for Berth Booking to approve/reject/hold the booking Vessel Agent can search for Berth Booking to request for cancellation of bookings
	Approve Berth Booking	Berth Planner can approve/reject/hold the Berth Booking
	Update Berth Booking	Vessel Agent can update On hold Berth Booking
	Cancel Berth Booking	Vessel Agent can request for cancellation of Berth Booking
	Accept Berth Booking Cancellation	Berth Planner can accept the request to cancel Berth Booking from Vessel Agent
	Auto-reject On hold Berth Booking	The system will automatically rejects all On hold Berth Booking at cut of time 48

2.3 Project scope

The current phases of the project will deliver import/export processes which have the above functionalities listed in "[Core Business Process](#)" section. These functions will be implemented in J2ee Web application.

2.4 General Business Rules

2.4.1 Cargo Item Status

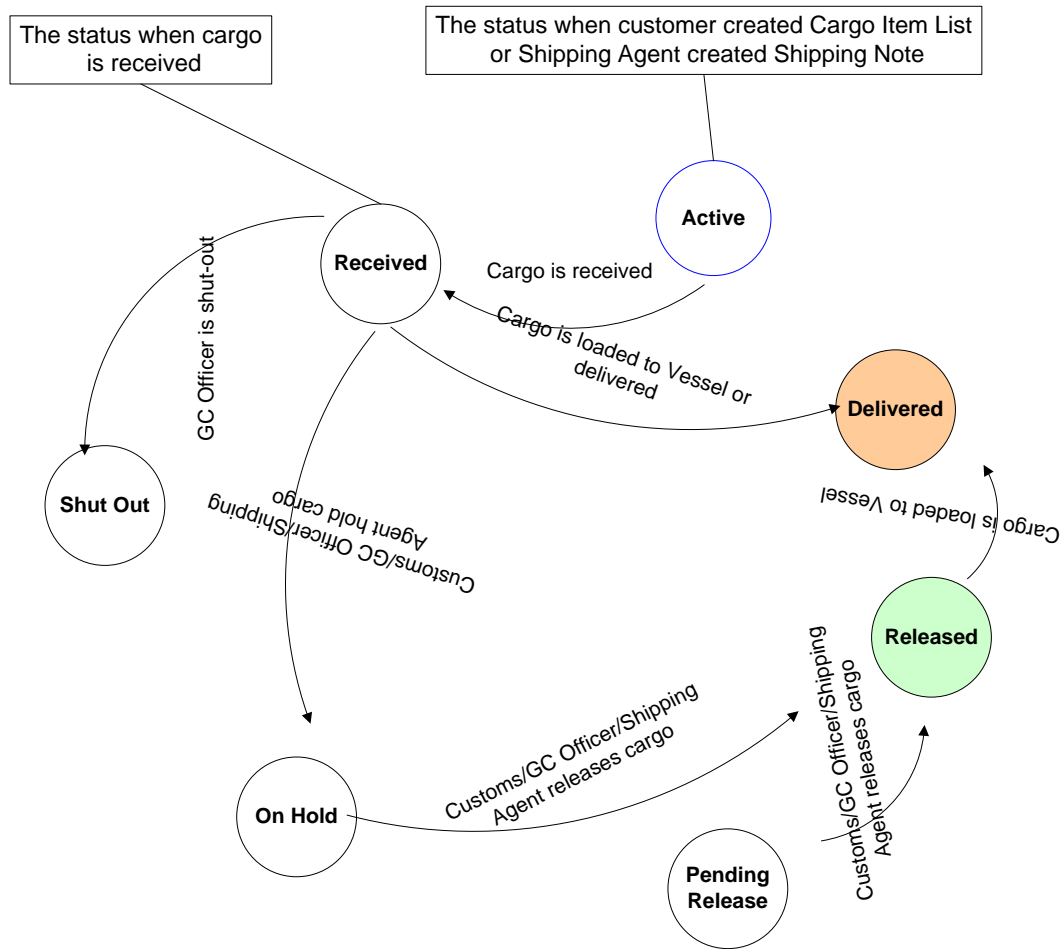


Figure 2: Status Diagram of Cargo Item

	Status	Description
	Active	The initial status of cargo item when it is added to Shipping Note
	Shut Out	Cargo item has been shut out
	Delivered	Cargo item of Export Booking have been loaded or cargo item of Storage Order is delivered
	Received	Cargo items have been received.
	Pending Release	Shipping Agent requests for releasing when all hold reasons are cleared.
	Released	Cargo item has been released by Customs, GC Officer, or Shipping Agent

2.4.2 Export Booking Status

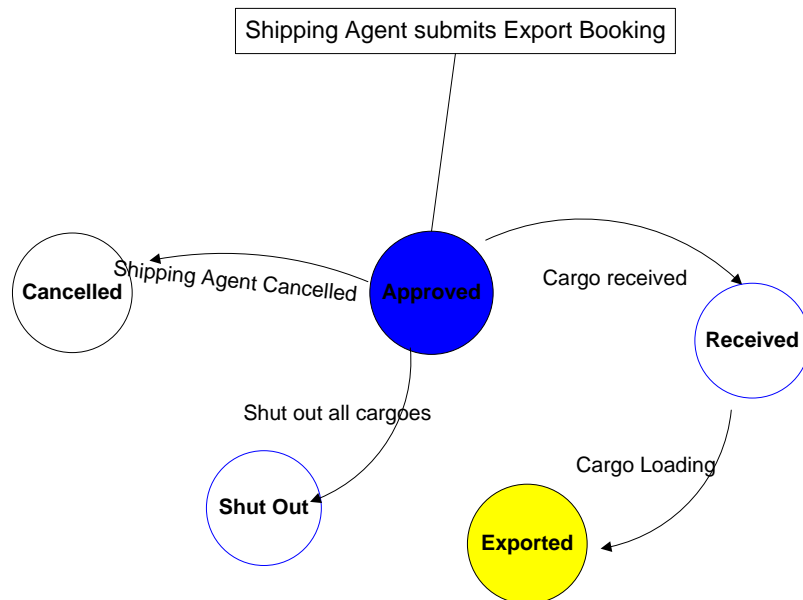


Figure 3: Status Diagram of Export Booking

	Status	Description
	Approved	The initial status of Export Booking when Shipping Agent submits Export Booking
	Cancelled	Export Booking is in cancelled status when Shipping Agent cancels Export Booking
	Shut Out	Export Booking is changed to this status When all cargo items in Export Booking are shut out
	Exported	All cargo items of Export Booking have been loaded to vessel.
	Received	Cargo items have been received.

2.5 Security Matrix

See GCS_SecurityMatrix.xls document enclosed with SRS package

2.6 Constraints

Currently, Cargo, Tariff, and labor information is available in Dubai systems. GCS system needs to get this information from the available systems, not manage this information in GCS database.

2.7 Assumptions & Dependencies

1. GCS system will be integrated with Labor Management System (LMS) to get labor information and to update the Labor working status in LMS system.

Therefore, it is assumed that LMS will be available for integration before 15-Sep-2008. If LMS is delivered later on 15-Sep-2008, GCS will not be available for testing the gang functionalities.

2. GCS system will be integrated with MDS system to get the information of Cargo and Tariff schema.

3 ENTITY RELATION MODEL

3.1 Entity Diagrams

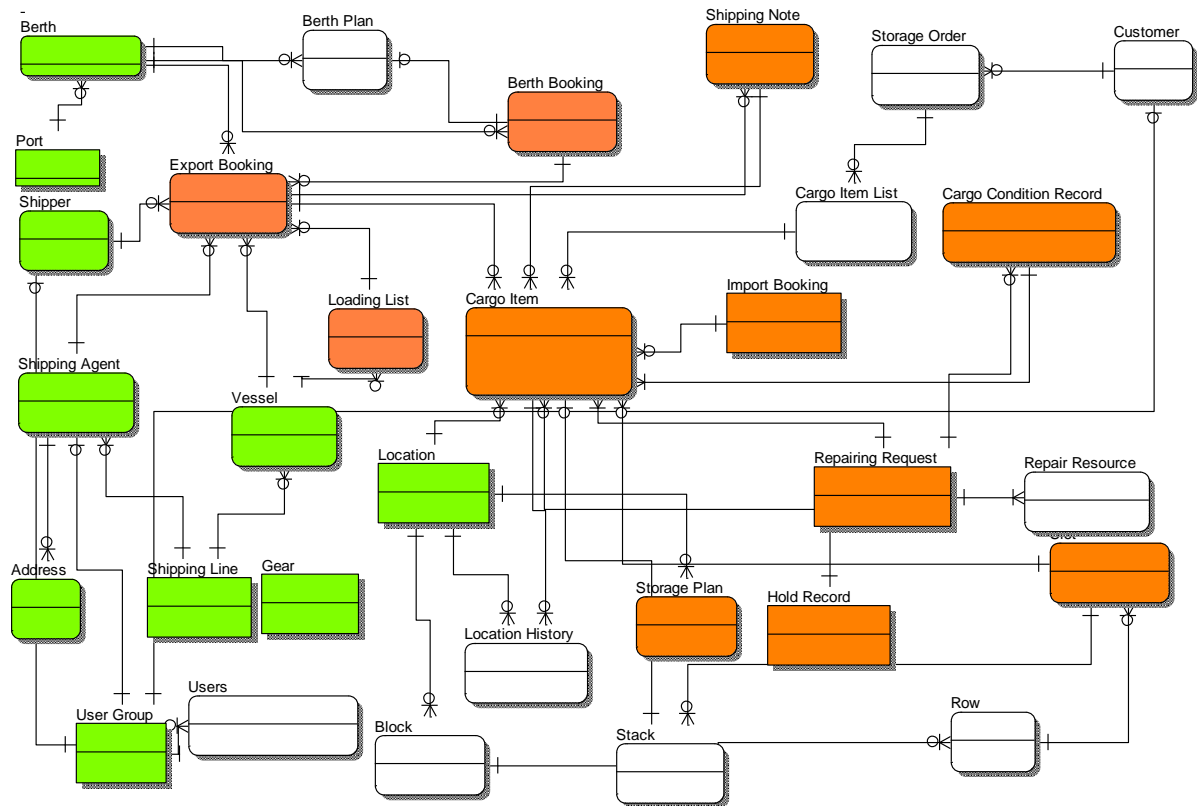


Figure 1: Logical View of Entity Relationship Diagram

#	Entity Name	Description
	User Group	User Group information
	Shipping Agent	Shipping agent information
	Shipper	Shipper's information
	Address	Address information of Shipping agent, Shipper.
	Export Booking	Export Booking information
	Shipping Note	Shipping Note & Tally Sheet information
	Cargo Item	Cargo item information
	Loading List	Information of Loading List of Cargo
	Vessel	Information of Vessel

	Shipping Line	Shipping Line attribute information
	Berth	Berth information of general cargo
	Berth Booking	Berth Booking information of general cargo
	Berth Planning	Berth Planning information of general cargo
	Gear	Gear information of general cargo
	Hold Record	Hold Cargo record information
	Cargo Condition Record	History of cargo condition
	Import Booking	Import Booking information of general cargo store
	Storage order	Storage Order information
	Cargo Item List	Link entity between Cargo Item and Storage Order
	User	User Information
	Location	Information of store of general cargo
	Slot	Information of slot of general cargo
	Stack	Stack Information
	Block	Block information
	Location History	The movement information of Cargo
	Repair Resource	Resource information that is prepared for repairing cargo

3.2 Entity Details

3.2.1 User Group

	Attribute	Type	Mandatory	Description
	User Group ID	Number	PK, Y	The primary key auto generated by the system
	Group Name	String	Y	It can be GC officer, Shipping Agent, Shipper, Customer...
	Group Code	String	Y	
	Email address	String	Y	
	Telephone Number	String	N	
	Contact Mobile Phone Number	String	N	

3.2.2 Shipping Agent

	Attribute	Type	Mandatory	Description
	Shipping Agent ID	Number	PK, Y	The primary key auto generated by the system
	Agent Code	String	Y	Agent Refer No, This is unique number
	Agent Name	String	Y	
	Address	String	Y	Agent's address
	Email address	String	Y	
	Telephone Number	String	Y	
	Fax Number	String	N	
	Contact Person	String	Y	
	Contact Person Email	String	N	
	Shipper Company	String	Y	Shipper Name defines who are owner of cargos

3.2.3 Shipper

	Attribute	Type	Mandatory	Description
	Shipper ID	Number	PK, Y	The primary key auto generated by the system
	Shipper Name	String	Y	
	Address	String	Y	
	Email Address	String	N	
	Telephone Number	String	N	
	Fax Number	String	N	
	Contact Person	String	Y	
	Contact Person Tel No	String	N	

3.2.4 Address

	Attribute	Type	Mandatory	Description
	Address ID	Number	PK, Y	The primary key auto generated by the system
	City	String	N	
	Street	String	N	

	Country	String	Y	
	Post Code	String	Y	

3.2.5 Export Booking

	Attribute	Type	Mandatory	Description
	Export Booking ID	Number	PK, Y	The primary key auto generated by the system
	BRN	String	Y	Booking Reference Number. It is used for Shipping Agent. It is a unique key
	Agent Code	String	Y	It links to Shipping Agent entity. It shows which agent has submitted the Export Booking.
	Vessel Name	String	Y	
	Rotation No	Number	Y	It is unique for every Voyage No
	Date of Creation	Date	Y	The submitted date of Export Booking
	Approved Date	Date	N	The approval date of Export Booking
	Status	String	Y	It can be Approved, Cancelled, Received, Exported, or Shut Out
	Gross Volume	Number	Y	Total volume of all cargo items
	Gross Weight	Number	Y	Total weight of Cargos in Exporting Booking
	Port of Loading	Number	FK, Y	Link to Port Entity
	Port of Discharge	Number	FK, N	Link to Port Entity
	Port of Final Destination	Number	FK, Y	Link to Port Entity
	Direct Loading?	String	Y	Y/N
	Cargo Description	String	Y	
	Package Type	String	Y	It can be BDL, BLT, SKID, COLLI, PKG, CRT, UNIT ...

3.2.6 Shipping Note

	Attribute	Type	Mandatory	Description
	Shipping Note ID	Number	PK, Y	The primary key auto generated by the system
	Receive Date	Date	Y	
	Actual Received Date	Date	N	Define the actual received date of cargo

	Received Start Time	String	N	Define start time of cargo is received (format HH24:MM)
	Received End Time	String	N	Define end time of cargo is received (format HH24:MM)
	Number of Packages	Number	Y	The planned number of packages for Shipping Note
	Gross Weight	Number	Y	Total weight of cargo in Shipping Note
	Gross Volume	Number	Y	Total Volume of cargo in Shipping Note
	Actual Gross Volume	Number	N	Gross Volume in Tally Sheet
	Actual Gross Weight	Number	N	Gross value in Tally Sheet
	Actual Total of Packages	Number	N	Total of package of cargo in Tally Sheet
	Tally Sheet No	String	N	It is a unique number (?)
	Tally Remark	String	N	
	No. F/L	Number	N	
	Manpower	Number	N	
	Vehicle No	String	N	
	Direct Loading?	Boolean	Y	Yes/No

3.2.7 Cargo Item

	Attribute	Type	Mandatory	Description
	Cargo Item ID	Number	PK, Y	The primary key auto generated by the system
	Shipping Note ID	Number	FK, Y	Link to Shipping Notes
	Cargo Name	String	Y	
	Cargo Type	String	Y	
	BRN	Number	FK, Y	Links to Export Booking. It shows which Export Booking the cargo will be included
	Status	String	Y	Active, Shut Out, Received, On Hold, Pending Release, Released, Delivered.
	Number of Packages	Number	Y	
	Package Type	String	Y	
	Volume	Number	Y	
	Weight	Number	Y	
	Hazardous Cargo	String	Y	Yes/No. It shows the Cargo is dangerous cargo or not
	IMO Class	Number	N	Define IMO Class that Cargo is categorized. It only exist when Hazardous Cargo is dangerous
	UN Number	String	N	

	Required Temperature	String	Y	Required Temperature or not (Yes/No)
	Degree	Number	N	Define the minimum degree which Cargo required.
	Actual Receive Date	Date	N	Actual Date cargo received.
	Receive Start Time	String	N	There is no second in time format (HH24:MM)
	Receive End Time	String	N	There is no second in time format (HH24:MM)
	Actual Number of Package	Number	N	
	Actual Weight	Number	N	Received weight
	Actual Volume	Number	N	Received quantity
	Good Volume	Number	N	Total good volume of received cargo
	Slot Number	Number	N	
	Mark & Nos	String	N	
	Commodity Description	String	N	
	Location No	Number	N	
	Vehicle No	String	Y	Truck/Vehicle No

3.2.8 Loading List

	Attribute	Type	Mandatory	Description
	Loading List ID	Number	PK, Y	The primary key auto generated by the system
	Rotation Number	String	Y	
	Date of Creation	Date	Y	Define created date of Loading List
	Arrival Time	Time	Y	
	Arrival Date	Date	Y	
	Voyage No	String	Y	

3.2.9 Location

	Attribute	Type	Mandatory	Description
	Location ID	Number	PK, Y	The primary key auto generated by the system
	Location Code	String	Y	Unique codes for each store
	Location Name	String	Y	Store Name

	Location Type	String	Y	It can be Cool store, Cold Store, Open Shed, or Cover Shed
	Number of Slots	Number	Y	Slot of store
	Temperature	Number	N	Define the temperature for Cool Store and Cold Store
	Degree	Number	N	It is required when Store Type is "Cool Store" or "Cold Store"

3.2.10 Slot

	Attribute	Type	Mandatory	Description
	Slot ID	Number	PK, Y	The primary key auto generated by the system
	Slot Number	String	Y	Unique codes for each slot of a store
	Slot Name	String	Y	Slot Name

3.2.11 Vessel

	Attribute	Type	Mandatory	Description
	Vessel ID	Number	PK, Y	The primary key auto generated by the system
	Vessel No	String	Y	
	Vessel Name	String	Y	
	Shipping Line No	String	FK, Y	Link to Shipping Line entity
	Door Site	String	Y	Describe the vessel has door on the left or right...
	Vessel Type	String	Y	

3.2.12 Shipping Line

	Attribute	Type	Mandatory	Description
	Shipping Line ID	Number	PK, Y	The primary key auto generated by the system
	Shipping Line No	String	Y	
	Shipping Line Name	String	Y	
	Address	String	Y	

3.2.13 Berth

	Attribute	Type	Mandatory	Description
	Berth ID	Number	PK, Y	The primary key auto generated by the system
	Berth Number	String	Y	
	Berth Name	String	Y	
	Berth Side	String	Y	

3.2.14 Berth Booking

#	Attribute	Type	Mandatory	Description
	Berth Booking ID	Number	PK, Y	The primary key auto generated by the system
	Rotation Number	String	Y	This number is automatically generated by CTMS
	Berth No	Number	FK, Y	Berth Number links to Berth
	Status	String	Y	It can be Pending, Approved, Rejected, On-hold
	Shipping Agent Name	String	Y	
	Vessel Name	String	Y	Vessel Name, It can get from Vessel Master Data
	Voyage No	String	Y	Voyage No of Vessel
	ETB	Date Time	N	Estimated Time of Berthing
	Created Date	Date Time	Y	Date of Creation
	Time	Time	Y	HH:MM (estimated time of Arrival)
	Position	String	Y	It defines: Port Side, Starboard Alongside
	Connection Vessel	String	N	Define the connection vessel name
	Arrival Draft	Number	Y	The depth of Vessel
	Ancillary Services	String	Y	Includes: Water supply, Bunker supply, Lay-by
	General Info	String	N	
	Cargo Description	String	Y	Description of cargo information
	Dangerous Cargo Declaration	String	Y	Declaration of cargo information in case the cargo is dangerous cargo
	Gross Weight	Number	Y	Total weight of cargo stored in Vessel that can arrive
	Gross Volume	Number	Y	Total volume of cargo stored in Vessel that can arrive
	ETA	Date	Y	Estimated Time of Arrival

3.2.15 Berth Plan

#	Attribute	Type	Mandatory	Description
	Berth Planning ID	Number	PK, Y	The primary key auto generated by the system
	Berth No	Number	FK, Y	
	Start Date	Date	Y	
	End Date	Date	Y	
	Start Hour	Number	Y	
	End Hour	Number	Y	
	Rotation No	Number	Y	
	Berthing Side	String	Y	
	Vessel Name	String	Y	
	Quay No	Number	N	Consolidation area
	Location No	Number	Y	Storage No: Which location cargo is stored
	From Bollard Number	Number	Y	
	To Bollard Number	Number	Y	

3.2.16 Gear

#	Attribute	Type	Mandatory	Description
	Gear ID	Number	PK, Y	The primary key auto generated by the system
	Gear Number	String		
	Gear Name	String		

3.2.17 Port

	Attribute	Type	Mandatory	Description
	Port ID	Number	PK, Y	The primary key auto generated by the system
	Port Number	String	Y	
	Port Name	String	Y	
	Location	String	Y	

3.2.18 Hold Record

	Attribute	Type	Mandatory	Description
	Hold Record ID	Number	PK, Y	The primary key auto generated by the system
	Cargo Item ID	Number	Y	
	Hold Date	Date	Y	
	Release Date	Date	N	
	Hold By	String	Y	Define who has held cargo (Shipping Agent, Customs, or GC Officer)
	Reason	String	Y	There are two reasons for holding cargo

3.2.19 Customer

	Attribute	Type	Mandatory	Description
	Customer ID	Number	PK, Y	The primary key auto generated by the system
	Customer Name	String	Y	
	Email Address	String	N	
	Fax Number	String	N	
	Contact Phone Number	String	N	
	Address	String	Y	

3.2.20 Import Booking

	Attribute	Type	Mandatory	Description
	Import Booking ID	Number	PK, Y	The primary key auto generated by the system
	Import Booking No	String	Y	
	Date of Creation	Date	Y	
	Shipper Name	String	Y	

3.2.21 General Reference

	Attribute	Type	Mandatory	Description
	Code	Number	PK, Y	The primary key auto generated by the system
	Name	String	Y	

	Description	String	N	

3.2.22 Repairing Request

	Attribute	Type	Mandatory	Description
	Repair Request ID	Number	PK, Y	The primary key auto generated by the system
	BRN	String	N	Required if repairing request is for Export Booking
	Storage Order No	String	N	Required if repairing request is for Storage Order
	Location No	Number	Y	Link to Location Entity. It defines where the damaged cargo is
	Start Date	Date	Y	Repairing start date
	Time	Time	Y	Repairing start time
	Self Repair	String	Y	Yes/No: Define whether agent self repair for need port repairing cargo
	Remark	String	N	

3.2.23 Cargo Condition Record

	Attribute	Type	Mandatory	Description
	Cargo Condition Record ID	Number	PK, Y	The primary key auto generated by the system
	Cargo Item ID	Number	FK, Y	Link to Cargo Item
	Package Type	String	Y	
	Number of Packages	Number	Y	Quantity of cargo
	Volume	Number	Y	
	Weight	Number	Y	
	Status	String	N	Damaged, Good
	Location No	Number	N	
	Record Date	Date	Y	
	Reason	String	Y	The reasons for damaging cargo

3.2.24 Storage Order

	Attribute	Type	Mandatory	Description
	Storage Order ID	Number	PK, Y	The primary key auto generated by the system
	Storage Number	String	Y	It is unique for one Customer
	Cargo Description	String	Y	
	Cargo Type	String	Y	
	Hazardous Cargo	String	Y	Yes/No
	IMO Class	String	N	Required if Hazardous Cargo is "Yes"
	UN Number	String	N	Required if Hazardous Cargo is "Yes"
	Status	String	Y	Pending, Approved, Rejected, Received, Delivered, Exported
	Gross Weight	Number	Y	Define the total Weight of cargo in storage order
	Gross Volume	Number	Y	
	Package Type	String	Y	
	Receive date	Date	Y	

3.2.25 Cargo Item List

	Attribute	Type	Mandatory	Description
	Cargo Item List ID	Number	PK, Y	The primary key auto generated by the system
	Receive Date	Date	Y	
	Actual Received Date	Date	N	Define the actual received date of cargo
	Received Start Time	String	N	Define start time of cargo is received (format HH24:MM)
	Received End Time	String	N	Define end time of cargo is received (format HH24:MM)
	Number of Packages	Number	Y	The planned number of packages for Shipping Note
	Gross Weight	Number	Y	Total weight of cargo in Shipping Note
	Gross Volume	Number	Y	Total Volume of cargo in Shipping Note
	Actual Gross Volume	Number	N	Gross Volume in Tally Sheet
	Actual Gross Weight	Number	N	Gross value in Tally Sheet
	Actual Total of Packages	Number	N	Total of package of cargo in Tally Sheet
	Tally Sheet No	String	N	It is a unique number (?)

	Tally Remark	String	N	
	No. F/L	Number	N	
	Manpower	Number	N	
	Vehicle No	String	N	

3.2.26 User

	Attribute	Type	Mandatory	Description
	User ID	Number	PK, Y	The primary key auto generated by the system
	Account Name	String	Y	It is unique for the system
	First Name	String	Y	
	Last Name	String	Y	
	Description	String	N	
	External	Boolean	Y	Yes/No
	Group Code	String	Y	Code of Shipping Agent, GC Officer, GC Manager, Shed Clerk, Tally Clerk...
	Tel Phone Number	String	N	

3.2.27 Stack

	Attribute	Type	Mandatory	Description
	Stack No	Number	PK, Y	The primary key
	Slot No	Number	Y	

3.2.28 Row

	Attribute	Type	Mandatory	Description
	Row No	Number	PK, Y	The primary key
	Block No	Number	Y	

3.2.29 Block

	Attribute	Type	Mandatory	Description
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	Block No	Number	PK, Y	The primary key
	Location No	Number	Y	

3.2.30 Location History

	Attribute	Type	Mandatory	Description
	Cargo Item ID	Number	PK, Y	Link to Cargo Item
	From Location No	Number	FK, Y	Link to Location entity
	To Location No	Number	FK, Y	Link to Location entity
	Moved Date	Date	Y	
	Quantity	Number	Y	

3.2.31 Repair Resource

	Attribute	Type	Mandatory	Description
	Repair Resource ID	Number	PK, Y	The primary key auto generated by the system
	Repairing Request ID	Number	FK, Y	Link to Repairing Request
	Number of resources	Number	Y	Number of people or equipment that needs for repairing cargo
	Type of Resource	String	Y	Define resource is people or equipment
	Resource Name	String	N	Define name of resource

4 FUNCTIONALITY DESCRIPTION

4.1 Main Functionalities

Below is a list of SRS documents which describe the detailed functional requirements of all the processes

	Document Name	Description
	GCS_SRS_EP1&2-ExportBooking_v1.2.doc	This document contains functional requirements of Export Booking & Shipping Notes processes
	GCS_SRS_EP3-Shut out_v1.1.doc	This document contains functional requirements of Shut Out cargo process
	GCS_SRS_EP6-ConsolidationOfCargo_v1.1.doc	This document contains functional requirements of Consolidation of Cargo process
	GCS_SRS_EP13-Hold&Release_v1.1.doc	This document contains functional requirements of Hold & Release cargo process.
	GCS_SRS_EP7&8_LoadingList&InternalShifting_v1.1.doc	This document contains functional requirements of Loading List process and Internal Shifting process.
	GCS_SRS_EP15_Berth_Booking_v1.1.doc	This document contains functional requirements of Berth Booking process
	GCS_SRS_EP13-Hold&Release_v1.0.doc	This document contains functional requirements of Hold & Release cargo process
	GCS_SRS_EP5-EP11-StorageReceipt_v1.0.doc	This document contains functional requirements of storage receive process
	GCS_SRS_EP9_CargoMonitoring_v1.0.doc	This document contains functional requirements of cargo monitoring process
	GCS_SRS_EP12_CargoRepairingRecording_v1.0.doc	This document contains functional requirements of Damaged Cargo Recording process

4.2 Common Functionalities

4.2.1 UC C1.1 Search Vessel

4.2.1.1 Actors

Refer to Security Matrix

4.2.1.2 Pre-condition

Shipping Agent/internal users has been authorized to use GCS via DP Portal or internal SSO

4.2.1.3 Mock-up Screen & Data Fields

MOCKUP- Popup Screen

Vessel Name	Vessel Type
ACTIVE F	01

DATA FIELDS

Field name	Man dato ry	Control Type	Data Type	Length	Rules
Input					
Vessel Berthed	Yes	Text field	Text	100	
Output (The output will be show in grid with following columns)					
Vessel Name	Yes	Label	Text	100	
Vessel Type	Yes	Label	Text	50	

4.2.1.4 Main flows

Step	Action Description	Comment
1	The user clicks on search icon on parent screens	The user can navigates this function from 1. Create Export Booking 2. Update Export Booking 3. ...
2	The user enters vessel name and then clicks on Search button	
3	The system retrieves all vessels which match with search criteria	
4	The system displays search result on the screen	

5	The user selects one value on the search result	See alternative flow: A5.1 Close window button
6	The system closes the popup window and fills vessel name into the Vessel Name text field on the parent screen	

4.2.1.5 Alternatives flows

A5.1 Close window button

Step	Action Description	Comment
5.1.1	The user clicks on close icon on the top left popup window	
5.1.2	The system closes the popup window and no value is filled into Vessel Name field in parent screen	

4.2.1.6 Business rules

ID	Rule Description	Message ID
C1.1BR1	The Vessel Berthed needs to be entered partially or fully. The system allows width card search	MS06

4.2.2 UC C1.2 Search Shipping Agent

4.2.2.1 Actors

Refer to Security Matrix

4.2.2.2 Pre-condition

Internal users has been authorized to use GCS via internal SSO

4.2.2.3 Mock-up Screen & Data Fields

MOCKUP- Popup Screen



SEARCH AGENT

Agent Name: Agent Code:

Search

Close

Agent Code	Agent Name
1233505	M.V. CHARELLE V- 04
1233505	M.V. CHARELLE V- 04

DATA FIELDS

Field name	Man dato ry	Control Type	Data Type	Length	Rules
Input					
Agent Name	Yes	Text field	Text	50	
Output (The output will be show in grid with following columns)					
Agent Code	Yes	Label	Text		
Agent Name	Yes	Label	Text		

4.2.2.4 Main flows

Step	Action Description	Comment
1	The user clicks on search icon on parent screens	The user can navigates this function from 1. Generate Export Booking Report
2	The user enters agent name or agent code and then clicks on Search button	
3	The system retrieves all Shipping Agents which match with search criteria	
4	The system displays search result on the screen	
5	The user selects one value on the search result	See alternative flow: A5.1 Close button

6	The system closes the popup window and fills vessel name into the Vessel Name text field on the parent screen	
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4.2.2.5 Alternatives flows

A5.1 Close button

Step	Action Description	Comment
5.1.1	The user clicks on Close button on the popup window	
5.1.2	The system closes the popup window and no value is filled into Vessel Name field in parent screen	

4.2.2.6 Business rules

ID	Rule Description	Message ID
C1.2BR1	The Agent Name or Agent Code needs to be entered partially or fully. The system allows width card search	MS06
C1.2BR2	The system accepts all character types of Agent Code & Agent Name	

5 NON-FUNCTIONAL REQUIREMENTS

5.1 Availability

The GC system needs to be available 24x7, in line with the other related systems on DP World infrastructure

It must be available all the working time, and can be down in the off-time for maintaining. This section does not include the availability of network system and other things that GCS Servers depend on.

All the functional components must be available in the same time. Depend on the deployment topology; we will have the detail availability criteria.

5.2 Supportability

All predefined values (amounts, dropdown values) must be easy to maintain, i.e. change/update and delete/add (where applicable). All the dropdown values can be upgraded in the period of one day without any shutdown. All the changed dropdown values before one specific time (the midnight,...) can be displayed in the GUI after that time. Other should be done in the downtime.

As wordings are critical, all displayed text (error messages, labels, captions, information messages) must be easy to maintain, i.e. change/update and delete/add (where applicable). All the change for displayed text should be done in the downtime.

The software deployment and upgrade will be specified in the Installation Guide documents.

5.3 Performance Requirements

5.3.1 System Throughput

- The system must be capable of scaling up-to 200 users with the addition of faster or greater capacity hardware without software changes. It can support for 120 concurrent logged users into the system.
- The system must be able to process and still meet the response-time targets up-to a maximum of 10000 user-transactions per day for insert, update, & query transactions.
- The system must be able to process and still meet the response-time targets (see below) for up-to a maximum of 30 user-transactions per second for normal function and sustained for at least 5 minutes.

5.3.2 Response Time

All user commands and functions must complete and return control to the user within period defined in the following table. These requirements are defined for local network that has bandwidth ≥ 1 Gigabit/s and respond times are calculated base on one standard system; it does not include the time data transferred though network devices and wires.

	Function Type	Description	Response Time (seconds)
	Data Validation	The system validates data	2
	Simple	The function has < 2 transactions per request	3
	Medium	The function has >=2 and < 4 transactions per request	5
	Complex	The function has >=4 and < 6 transactions per request	8
	Very Complex	The function has >=6 and < 8 transactions per request	12

5.3.3 Data Volume

The system must support for the following data volume on the defined hardware

	Table Type	Description	Number of records/year
	Small table	Number of records in this tables < 10000	5000
	Medium table	Number of records in this table > 10000 and < 100000	20000
	Large table	Number of records in this table >100000 and <400000	100000
	Very Large table	Number of records in this table >400000 and <900000	300000

The system needs to support for the volumes of business entities

	Business Entity	Average number of new records/Day	Average Number of new records/year
	Discharge Tally Sheet	200	73000
	Loading Tally Sheet	200	73000
	Storage Receive Tally Sheet	200	73000
	Export Booking	200	73000
	Storage Order	200	73000
	Berth Booking	150	54750
	Loading List	200	73000
	Delivery Order	200	73000
	Import Manifest	200	73000

5.4 User Interface

All above performance requirement should guarantee for following client environment:

PC OS: Windows 2000, Windows XP SP2

Browsers: IE 6.0 and up. The screen design follows ITC's guideline in "Sample UI" provided by ITC and the system needs to be designed to support for the resolution of screen is 1024 x 768

5.5 Design Constraints

5.5.1 Date/Time Format

Default date format is dd-mm-yyyy For example: 10-05-2008
Default time format is HH24:MM For example: 17:23

5.5.2 Number Format

Decimal places of % is 1 For example: 25.7%
Decimal for volume and weight is 1 For example: 2.2
Currency format is ##,###,##0.00 (# is digit)

5.5.3 Multi Language

The system will be implemented to support for English only. The system should support for internationalization & multiple locations in future.

5.5.4 Auditing

The system needs to support for auditing sensitive data. The sensitive data will be defined by ITC/DW basing on logical model of Entity diagram

5.5.5 Page size

The system should be designed and developed to generate HTML page size less than or equal to 30KB, except for some special cases.

5.5.6 Modularity

The system should be designed into two (Dubai Trade, Back office) modules. The system needs to support for upgrading system module separately when one module is upgraded, it will not impact on the other modules.

5.5.7 Others

The system should be designed work irrespective of any settings on the client workstations in which IE6.0 or above has been installed and run properly.

5.6 Usability

Follow ITC's guideline of screen design in "Sample UI" provided by ITC

5.7 Reliability

The available time is approximately 99% and must be available 24 hours a day, 7 days a week. The GCS should be available in line with other related systems (DT, Custom, Database backend and Java servers) on Dubai Port World infrastructure.

5.8 Scalability

GCS system should be designed and developed so that system can be deployed in the clustering & load balancing servers – for database, business server and web server.

5.9 Security

The system uses Oracle Single Sign-On & Oracle JAAS framework for authenticating & authorizing. The authorization will base on **Security matrix** which will define the authorization & roles for the users to be provided by FPT and signed off by ITC/DPW after SRS has been completed.

Authorization and authentication need to be applied in every layers of application using data encryption and SAML token.

Database should provide the capability of data protection from unauthorized users and application. But this option can be done though the capability of Oracle Database 10g, 11g and DBA's configuration, so this option can be considered as out of scope for development.

GCS will be developed in J2EE Web Application so that it will not support for security at row data level on the screen. The authorization of the system will be at screen/feature level.

5.10 Archive & Purging

GCS will not support for the features for archiving & purging data. This task will be done by DBA. DBA will base on the actual data volume of the system to define the methodology to archive and purge data.

5.11 Hardware/Software Requirements

These hardware requirements are based on hardware requirements of Oracle Database and Oracle BPEL. The hardware requirements should be changed according to the actual through put of the system. The detailed information of hardware configuration will be described in Infrastructure Design.

Hardware/Infrastructure Requirements

#	Name	Configuration	Purpose
	Oracle Database Server	Cluster PC Servers CPU: Intel Xeon Dual Core >=3.0 * 4 RAM: >=8 GB	Database Server

		HD: >= 160GB (Type: SCSI), 7200 rounds/s and support raid level 5, Clustering	
	Oracle Application Server	Cluster PC Servers CPU: Intel Xeon Dual Core >=3.0 * 4 RAM: >=8 GB HD: >= 160GB (type SCSI), 7200 rounds/s and support raid level 5, Clustering	Application Server
	Network Bandwidth	>= 1.0Gbit/s	Local Network Infrastructure
	Network Card	Giga bit Ethernet	Network device

Software Requirements

#	Name	Version	Purpose
	Oracle SOA Suite 10G	10.1.3.1	Development Framework for the application
	Oracle Application Server 10G	10.1.2.1	Application Server for deploying the application
	Oracle Internet Directory	10.1.2.1	LDAP Server, User Management System
	Oracle Database Server 10G	10.1.2	Database Server
	Struts	1.2	Development & running framework
	Spring	2.0	Development & running framework
	Jasper	1.2	Report framework
	Apache Log4j	1.2.13	Log component for tracing
	Quartz Scheduler	1.5.2	Scheduler framework
	Jakarta Commons Validator	1.3.0	Data validation framework

5.12 Purchased Components

Name	Purpose
Oracle Suite 10G (Version Release 10.1.3.1)	Development Framework for the application
Oracle Application Server 10G (Release 10.1.2.1)	Application Server for deploying the application
Oracle Internet Directory	LDAP Server, User Management System
Oracle Database Server 10G(Release 10.1.2)	Database Server

5.13 Bugs and Defect Rates

The GCS will be implemented as the requirements defined in SRS documents. The ITC/DW sign off the project if the system passes the following criteria of defects rate when the system has been through UAT phase.

Type of Defect	Description	Number allowed
Fatal	Showstopper - tester cannot proceed with any tests e.g. system crash	0
Serious	Tester cannot proceed with any tests on one area of functionality	23
Medium	The bug does not stop testing - but limits it e.g. data validation wrong	60
Cosmetic	The defect is not business logic error, it can be typo text, field length... e.g. screen spelling or error message wrong.	30

6 INTERFACE DESCRIPTION

6.1 LMS Interface Description

6.2 CTMS Interface Description

7 APPENDIXES

7.1 Common Message Description

Message ID	Message Text	Note
MS01	Please input at least one criterion to do the search.	
MS02	<% Field Name %> is invalid date format.	
MS03	<% Field Name %> is invalid number format.	
MS04	<% Field Name %> should be greater than <% Field Name %>	
MS05	Are you sure you want to delete?	
MS06	<% Field Name... %> is required.	
MS07	Saved successfully.	
MS08	<% EB/SO ... %> has been approved.	
MS09	<% Field Name %> should be greater than <% Field Name %> and less than <% Field Name %>	
MS10	Please select at least one <% Field Name %>	
MS11	<% Field Name %> is invalid time format.	
MS12	No records found.	
MS13	<% Field Name %> should be greater than or equal to <% Field Name %>	
MS14	Updated successfully.	
MS15	Failed to update <% EB/SO... %>.	
MS16	<% EB/SO... %> has been rejected.	
MS17	<% EB/SO... %> has been accepted.	
MS18	You are not authorized to use this feature.	
MS19	Internal server error, please contact with administration at <%Email Address %>.	
MS20	<% Field Name %> should be less than <% value %>	
MS21	<% Value %> is duplicated.	
MS22	<% Field Name %> cannot be greater than <% value %>	
MS23	You cannot <% Shut out, Cancel, Delete %>.	
MS24	<% Field Name %> cannot be in the future.	

7.2 Classes of IMO

There is the following IMO Class for dangerous cargos:

- 1 - Explosives
- 2 - Gases: compressed/liquefied/dissolved under pressure
- 3 - Flammable liquids
- 4 - Flammable solids/substances liable to spontaneous combustion
- 5 - Oxidizing substances and organic peroxide
- 6 - Poisonous and infectious substances
- 7 - Radioactive substances
- 8 - Corrosives
- 9 - Miscellaneous dangerous substances

7.3 *Repairing Equipment List*

There are the following equipments for repairing damaged cargo

1. Forklift 3 T
2. Forklift 5 T
3. Forklift 12 T
4. Forklift 15 T
5. Forklift 32 T
6. Truck Crane 100T
7. Heavy Crane 100T
8. Mafi with tractor
9. Metal Trapping Machine
10. Ropes

7.4 *Repairing resources (people)*

There are the following resource types for repairing Cargo

1. Manpower
2. Carpenter
3. Mechanics