# Documentation

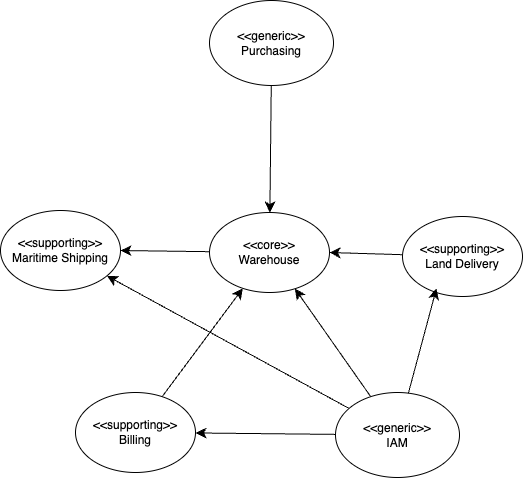
##### Name: Krystal Distribution Group

##### Author: Mykhailo Kruts

##### Description: Krystal Distribution Group (KdG) specializes in the efficient and seamless distribution of essential raw materials, including gypsum, iron ore, cement, petcoke, and slag. They want to renew their logistics system, as it is outdated and hard to change. They need a new system that can be adapted easily and makes data available for other systems.

## Subdomains:

* Warehouse :core
* Land Delivery :supporting
* Maritime Shipping :supporting
* Billing :supporting
* Purchasing :generic
* IAM :generic

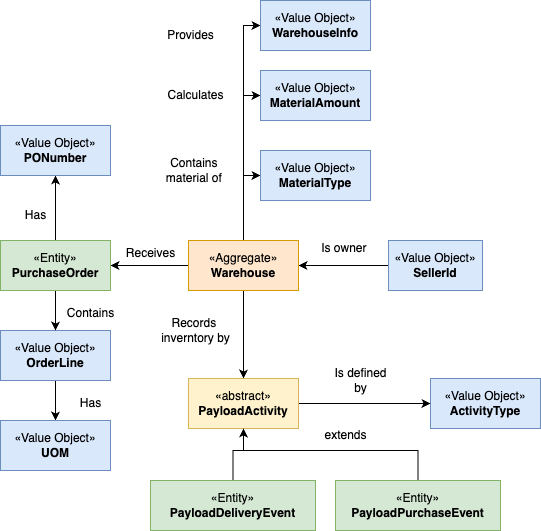


## Bounded Contexts:

1. Warehouse
2. Landside
3. Waterside
4. Invoicing

## Warehouse context:

#### Domain model:



#### Purpose:

* Manage warehouse information, including storage capacity and raw material stock levels.
* Maintain records of mineral types and quantities stored.

#### Entities:

* PurchaseOrder
* PayloadActivity
  + PayloadDeliveryEvent
  + PayloadPurchaseEvent

#### Value Objects:

* ActivityType
* MaterialType
* MaterialAmount
* OrderLine
* UOM
* WarehouseInfo

#### Aggregates:

* Warehouse
  + Seller
  + MaterialType
  + PayloadActitvity[]
  + WarehouseInfo

#### Commands:

* Project warehouse capacity change to landside
* Get all purchase orders statuses
* Get detailed information of every warehouse
* Process matching of Purchase order and Shipment order
* Send purchase order information to calculate commission fee

#### Events:

* Register delivery of payload
* Update payload delivery event weight amount
* Send delivered payload information to invoicing context
* Deduct material after all shipment operations are finished
* Purchase order created

## Landside context:

#### Domain model:

#### Purpose:

* Schedule truck arrivals to ensure efficient processing and avoid congestion.
* Maintain a log of scheduled and actual arrival times.
* Maintain a log of departures.
* Record the weight of trucks arriving and leaving the warehouse.
* Calculate the net weight of minerals delivered.

#### Entities:

* WarehouseInfo
* AppointmentActivity

#### Value Objects:

* ActivityType
* AppointmentStatus
* LicensePlate
* MaterialType
* PDT
* WBT
* TruckWeightRecord
* WarehouseNumber
* SellerId

#### Aggregates:

* Appointment
  + LicensePlate
  + MaterialType
  + AppointmentStatus
  + AppointmentActivity[]
* DaySchedule
  + Appointment[]

#### Commands:

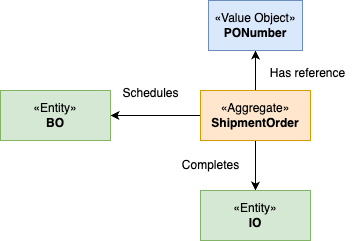
* Check truck arrival
* Register dumping of payload by truck
* Register truck weight on enter
* Get truck amount on site
* Calculate truck payload net weight on leaving by weighing bridge
* Send recorded weight to warehouse context
* Make appointment by seller
* Scan truck’s license plate at gate

#### Events:

* Inform warehouse of payload delivery event
* Truck driver receives WBT
* Receive projection update

## Waterside context:

#### Domain model:



#### Purpose:

* Track outgoing shipments.
* Track Inspection Operations, Bunkering Operation
* Match Shipping Orders with Purchase Orders

#### Entities:

* BO
* IO

#### Value Objects:

* PONumber

#### Aggregates:

* ShipmentOrder
  + BO
  + IO
  + PONumber (reference)

#### Commands:

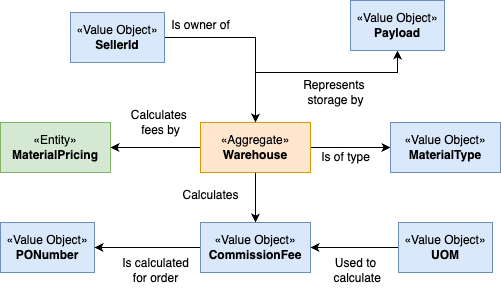
* Check if vessel can leave
* Complete vessel inspection
* Match SO with PO
* Plan bunkering operation
* Check all shipment arrivals
* Input Shipment order and vessel information

#### Events:

* Ship leaves port, as soon as all operations are finished

## Invoicing context:

#### Domain model:



#### Purpose:

* Calculate storage fee each day per customer
* Calculate commission fee each day per customer
* At request invoicing to customers (invoice outstanding credit)

#### Entities:

* MaterialPricing

#### Value Objects:

* SellerId
* Payload
* PONumber
* CommissionFee
* UOM

#### Aggregates:

* Warehouse
  + MaterialPricing
  + MaterialType
  + SellerId
  + Payload[]

#### Commands:

* Calculate storage fee
* Calculate commision fee

#### Events:

* Payload delivered to warehouse

## Context mapping:

* **Published Language** between 4 contexts:
  + Landside
  + Warehouse
  + Waterside
  + Invoicing