

OMS: Distributed Inventory Management (DIM)

Etail Vantage Platform

Order Management System (OMS)

Distributed Inventory Management (DIM)

The process and activities associated with the publishing of inventory to multiple sales channels from multiple source locations.

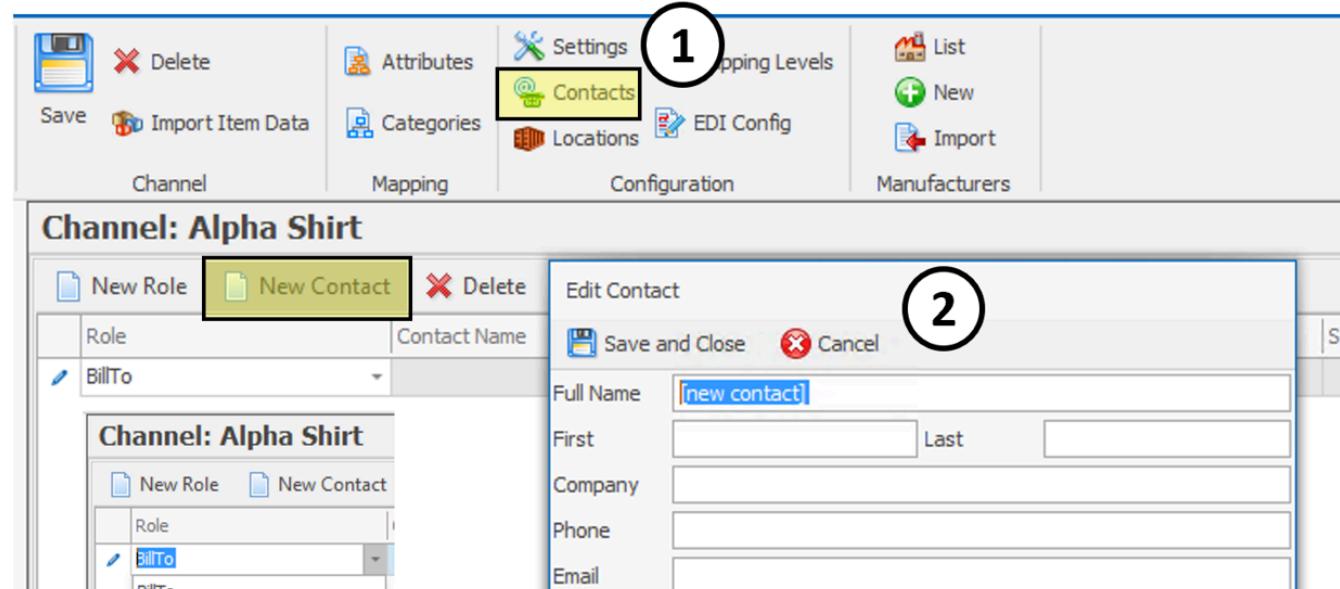
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DIM01: Contacts

Contacts

A Contact allows you to organize a combination of roles of individual s or departme nts associate d with a channel. The most important

aspect of contact is their role but more importantly, their address which allows the EVP solution to build a Geolocation model of all the nodes in the inventory network



DIM02: Channel Location Model

Channel Location Model

The core foundation of the Distributed Inventory Engine is a channel with one or more locations that can support inventory processing via one or more order fulfillment methods. An inventory source channel could be an Etail stock location, Supplier warehouse location, 3PL warehouse location, or, on occasion, a Business System location.

1. These settings control the behavior of the Channel within the Distributed Inventory model.
2. On the Supplier Channel, you can define one or more ship-from locations where they stock inventory.

3. For each location, you can assign one or more allocation rules
4. If needed, you can assign an inventory override setting for a supplier that does not provide an inventory feed
5. On the Etail Channel, you define all the locations where you will hold/process stock that you own even if not in your physical possession, i.e., FBA or 3PL

Location Edit

Save and Close		Cancel	Delete
<input type="radio"/> General <input type="radio"/> Latency <input type="radio"/> Fulfillment Methods <input type="radio"/> Shipping <input type="radio"/> Package Types <input type="radio"/> Max Dropship Orders			
Code:	CN	<input checked="" type="checkbox"/> Default	Allocation: Immediate
Name:	Fresno CA	<input type="checkbox"/> Use Inventory Source	
Display Group:	Supplier	Source: [Not Linked]	
Stock Group:	(none)	<input type="checkbox"/> Include Partial Unit Availability	
<input checked="" type="checkbox"/> Allow Purchase From <input checked="" type="checkbox"/> Allow Sales From <input type="checkbox"/> Allow Ship From <input checked="" type="checkbox"/> Allow Receive To <input type="checkbox"/> Allow Order For		<input checked="" type="checkbox"/> Allow Fulfillment Reassignment <input checked="" type="checkbox"/> Assign Hold Codes <input type="checkbox"/> Allow Replenishment From <input checked="" type="checkbox"/> Allow Work Order Processing	
		Tier: 2	Priority: 1
		Limit Item Cost: <input type="text"/>	

Each location can have many different configurations and settings organized by tabs. The **General Tab** defines high-level configuration value and how the location should be managed within the EVP Solution.

Code and Name – represent the location's name as defined in the inventory feed and at a human-readable level.

Display Group is used to control in which general bucket the inventory in the location belongs for display purposes, i.e., Supplier, FBA, and Stock.

Stock Group allow a client to associate a location to a user-defined stock group, i.e., their Texas warehouse has four stocking locations to handle different types of inventory so they could define a Stock Group call ‘Texas Warehouse’ to show the total stock level for all 4 locations, another example could be to assign all cross-dock supplier location to a stock group

Allocation is used to control when inventory allocation occurs when order fulfillment is associated with the location:

- **Immediate** is the value that should be used 99% of the time
- **None** and **Shipment** are for exception cases based on how open demand is represented in the locations inventory feed

Use Inventory Source and **Source** is used in particular scenarios where the location does not have its inventory feed but can leverage a feed from another location. Typical us of this is when a supplier can ship cross-dock or dropship, but they charge a different price for each fulfillment mode; therefore, two suppliers channel need to be set up to all different costs but only need one inventory feed as the inventory quantity is shared.

Tier and **Priority** are used to control when a location is considered as a source of inventory – this topic is discussed in more detail later in this section

Limit Item Cost is an exception scenario feature to limit the Item Cost used for pricing when inventory cost for an item is lower than replacement cost. For example, a merchant may receive a batch of samples at little or no cost. The inclusion of these items in inventory would drive down the average cost, which is used by the pricer. If populated, the PriceItem update process will limit the value of the item cost when the Source Channel is Etail to the highest of either the actual Etail cost or the lowest supplier cost * this factor.

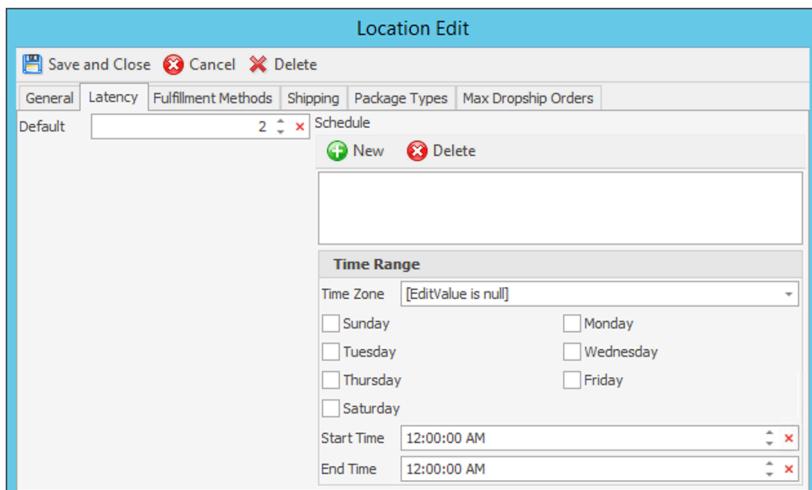
Multiple checkboxes control how the location will be used within the inventory model

- **Allow Purchase From** checkbox is used to control if inventory in the location is available to be a source location for a Purchase Order
- **Allow Sales From** checkbox is used to control if the location can have sales orders assigned to it for fulfillment
- **Allow Receive To** checkbox is used to control if inventory can be received into the location from a Purchase Order, i.e., should not be set on supplier drop ship location as the supplier is responsible for this function, but must be set up on a Cross-dock or stock location
- **Allow Order For** checkbox is used to control if inventory can be ordered for a sales order in this location
- **Allow Cross-dock Processing** checkbox is only available on an Etail channel location and is used to control if sales orders assigned to this location will be processed via cross-docking
- **Allow Fulfillment Reassignment** checkbox is used to control if sales orders assigned to this location can be reevaluated and moved to a different location or fulfillment process
- **Assign Hold Codes** checkbox is used to control if sales orders assigned to these locations will be processed based on hold codes, typically this almost always set to true and is left unchecked for particular scenarios or for locations that will never be used for sales order processing, i.e., Return to Supplier.
- **Allow Replenishment From** checkbox is used to control if inventory in the location is available to be used by the Replenishment Planning Engine when generating Purchase Orders
- **Allow Work Order Processing** checkbox is used to control if the location can be used as the source or destination location for a work order. Work Orders are used for internal stock processing such as FBA Inbound Shipment processing

The **Latency Tab** is used to define what is the order processing time for an order that is fulfilled from this location. For drop-ship locations, this is usually one day, same for a stock location, but for cross-dock

The **Fulfillment Tab** is used to control what order fulfillment methods can be used to process a sales order that is assigned to a location.

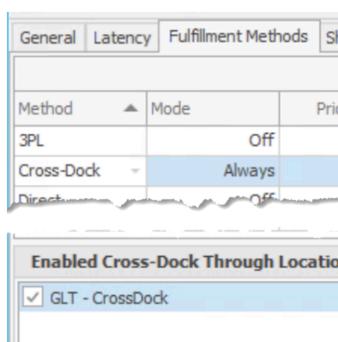
inventory, it will be 2-4 days. The schedule feature was initially used for controlling latency associated with Prime shipping, but this capability is now handled by Dynamic Shipping Templates.



Method	Mode	Priority	Overhead Cost		Shipping	
			Per Item	Per Order	Cost Model	US Only
3PL	Off	0			<input type="checkbox"/>	
Cross-Dock	Off	0			<input type="checkbox"/>	
Direct	Off	0			<input type="checkbox"/>	
Dropship	Available	0			<input type="checkbox"/>	

Method	Mode
3PL	Off
Cross-Dock	Always
Direct	
Dropship	Available

3PL-WMS – is used to indicate that the location is used to manage a 3PL or WMS controlled warehouse; these subsystems will communicate to EVP using messages and do not need a Purchase Order created to request shipping of an order as the inventory is already owned by the organization. Other fulfillment methods should not be set for this location when 3PL is enabled



Cross-Dock – is used to indicate that the location will process assigned sales orders via cross-dock fulfillment by generating bulk purchase orders from one or more suppliers. A supplier location can be configured to support both cross-docking or drop shipping. A location should not be configured as supporting Cross-Dock and Direct. If a supplier location is being set up to be used for Cross Dock fulfillment, the user will also need to indicate which Etail Cross dock location should be associated with it. This allows a single supplier to support multiple cross-dock locations from different warehouses. If an Etail Cross Dock location is being set up and the Inbound Shipment cross-dock mode is enabled the user will also be prompted to provide details of the exceptions locations to be used when performing cross-docking

Direct – is used to indicate that sales orders assigned to this location will be a pick, packed, and shipped from stock

Dropship – is used to indicate that sales orders assigned to this location can be fulfilled by sending a dropship purchase order to the supplier associated with the location

The **Mode** drop-down is used to control the setting for each fulfillment option. **Off** indicates that the method

should not be used, **Available** means that the method should be used only if the supplier location has inventory and **Always** means that this method should be used irrelevant of what inventory is available in the supplier location

Priority is used to sub-sort different fulfillment methods within a location.

Overhead Cost (Per Item and Per Order) is used to assign additional cost that should be considered when repricing or when making an order fulfillment decision

Cost Model is used to assign a single shipping cost model to a fulfillment method, should be left blank if the plan is to use rate shopping to assign shipping cost.

US Only is used to limit a fulfillment method to be the US only, i.e., international orders can be cross-docked as the manifesting system in the organization's warehouse can handle international shipping but need to be checked if the supplier cannot ship internationally

General	Latency	Fulfillment Methods	Shipping
Method	Mode	Priority	
3PL	Off	0	
Cross-Dock	Available	0	
Cross-Dock Process Locations			

Location Edit

Save and Close		Cancel	Delete			
General		Latency	Fulfillment Methods	Shipping	Package Types	Max Dropship Orders
<input type="button" value="Add"/>	<input type="button" value="Remove"/>					
Addresses Ship To: 101 Space Park North Ship From: 101 Space Park North			Defaults (used for pricing) Service Level: Standard Mileage: 999.00000			
Carrier Service Level <ul style="list-style-type: none"> FedEx/FedEx One Rate Extra Large Box ... FedEx/FedEx One Rate Legal Envelope Expr... FedEx/FedEx Ground® US Post Office/USPS – First Class FedEx/FedEx Ground No Dims US Post Office/USPS – Priority MFR Large Box FedEx/FedEx One Rate Small Box 1 Express FedEx/FedEx One Rate Envelope Express 		Cost Model <ul style="list-style-type: none"> FedEx - One Rate - Express Saver - Ex.Large Box 1 FedEx - One Rate - Express Saver - Legal Envelope FedEx Ground USPS - First Class Mail - Packages FedEx Ground-No Dim Items USPS - PM Flat Rate - Large Box FedEx - One Rate - Express Saver - Small Box 1 FedEx - One Rate - Express Saver - Envelope 	ORM-D			

The **Shipping Tab** is used to configure how carrier rate shopping is performed to assign the lowest shipping cost for an item.

Ship To Contact is an optional field

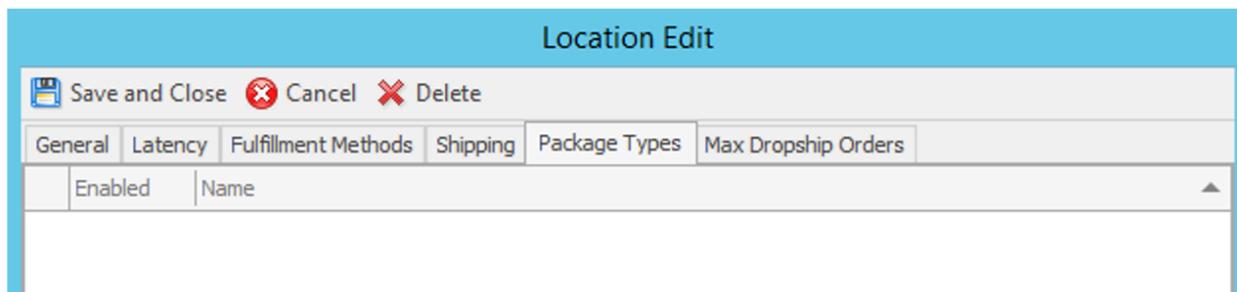
Ship From Contact is a mandatory field that must have a

contact assigned so the address can be used to geolocate the location

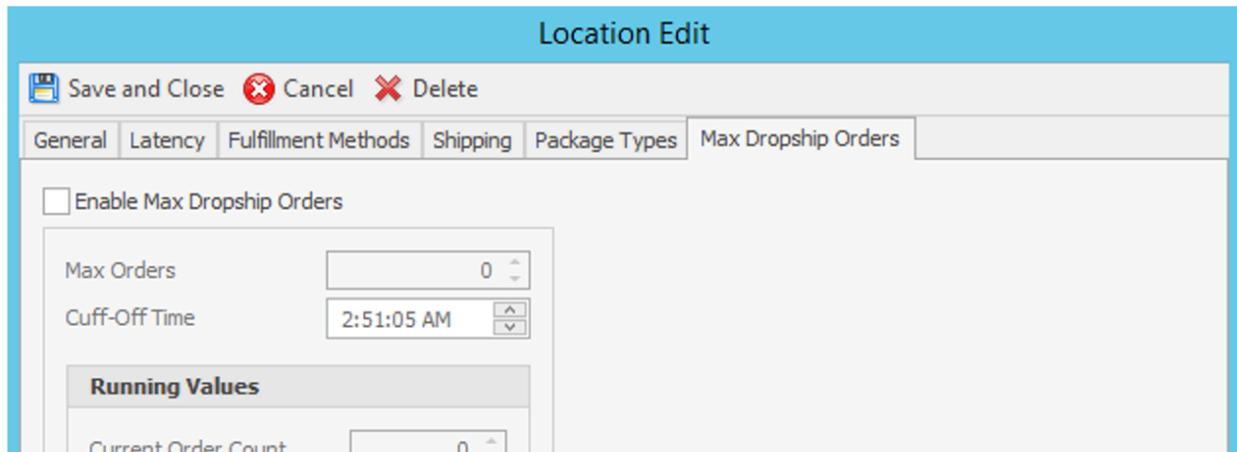
Service Level and **Mileage** is used to control which service level and the zone is used when performing a rate shop

It is then possible to add multiple carrier service levels and cost models to indicate which are possible shipment options support by this location. The ORM-D checkbox indicates if the carrier service level can be used for these types of shipment

The **Package Types** Tab is used to assign one or more shipment packages to a location, i.e., Box 5x5x5 or Box 10x10x10. These options will be displayed on the EVP manifesting screen



The **Max Dropship Orders** Tab is used for controlling how many sales orders can be sent to the supplier location each day. This is used to throttle capacity to make sure the regional demand for an order does not overload a single warehouse, i.e., Rockford IL warehouse is closer to Chicago than the Lafayette IN warehouse by default so all orders would be sent to Rockford. With this feature enable once say 500 PO has been sent to Rockford the remaining will go to the Lafayette warehouse until its limit is reached



DIM03: Location Allocation Records

Location Allocation Records

The Location Allocation Record is used to control if the inventory in a location should be considered when publishing a sales quantity to a specific sales channel and what safety stock should be considered.

Sales Channel
dropdown is used

to select the sales channel that is being associated with the location.

Percent is used to indicate how much of the available inventory should be assigned to the sales channel, i.e., if the location had 43 in stock and the allocation was 90% the result

The screenshot shows the SAP Fiori Channel: Etail application. On the left, there's a table of locations with columns for Code, Name, and Is Default. On the right, there's a panel for 'Availability' with fields for Specified, Mode, Amount, Minimum, Maximum, and Latency. Below this is a table of allocations with columns for Sales Channel, Allocation Percent, Direct, Dropship, and Special. A specific row for 'Amazon_US' has an allocation of 100.00000. A modal dialog titled 'Sales Channel Allocation' is open, showing the location as 'GLT - Stock' and the sales channel as 'Amazon_US'. The allocation percent is set to 100, and the shipping cost model is set to '(Use Supplier Cost)'.

would be 38.7 so 38 would be considered for publishing

Min Qty is used to indicate the minimum quantity that should be available before considering this location; if this value was set to 10, the location would publish $38-10 = 28$. If the quantity in the location goes down to 10, then 0 will be published.

Shipping Cost Model on a specific allocation record to be used on a sales channel is an exception scenario and is not typically used now we have rate shopping at the location level as the selection criteria for a Shipping Cost Model can consider which location or channel the rate shop is being performed for.

If an allocation record has zero % assigned but has stock, it will be considered when a fulfillment decision on a sales order is occurring. If the location should not be considered for the fulfillment, the allocation record should be deleted

Dropship Mode is considered when the location supports the drop ship fulfillment method. **Off** is the default value.

Assign indicates that if the fulfillment decision indicates that a sales order be handled via the Dropship fulfillment method, the dropship supplier will be assigned, but no purchase order generated. These orders will have to be handled via the

Dropship screen to create the Purchase Order. This should be considered an exception the only option as every sales order will need to reviewed

Create indicates that if the fulfillment decision is that the sales order should be handled by a specific drop ship supplier location, the purchase order will be created, but the 'Send' checkbox on the PO will not be set to true. This is used to allow a user to create carrier labels

Sales Channel Allocation

Save and Close Delete

Location	Default		
Sales Channel	Amazon_US		
Allocation			
Percent	100	Min Qty	2
Shipping Cost Model	(Use Supplier Cost)		

DIM04: Shipping Policies

To be added

DIM05: Geolocated Network Model

Geolocated Network Model

<input type="checkbox"/> Include Partial Unit Availability
<input checked="" type="checkbox"/> Specify Fulfillment Cost for each Sales Channel
Default Cost Channel
Etail
Cost Mode: Average
Maximum Day for On Order: 90

Using the Ship-From address associated with each location, EVP builds a geolocation network model of where inventory is located, and what order fulfillment options are supported. On the Systems>Setup>Inventory Tab, there are several inventory settings, including:

Include Partial Unit Availability indicated if a supplier UOM is larger than the Sales Order UOM, should it be considered as an order fulfillment source, i.e., the item is sold in each and Supplier 1 ships in Each UOM, but supplier two ships in Case UOM and each cost is lower. It assumed the remainder of the case would be allocated to other sales orders or placed into stock for future use

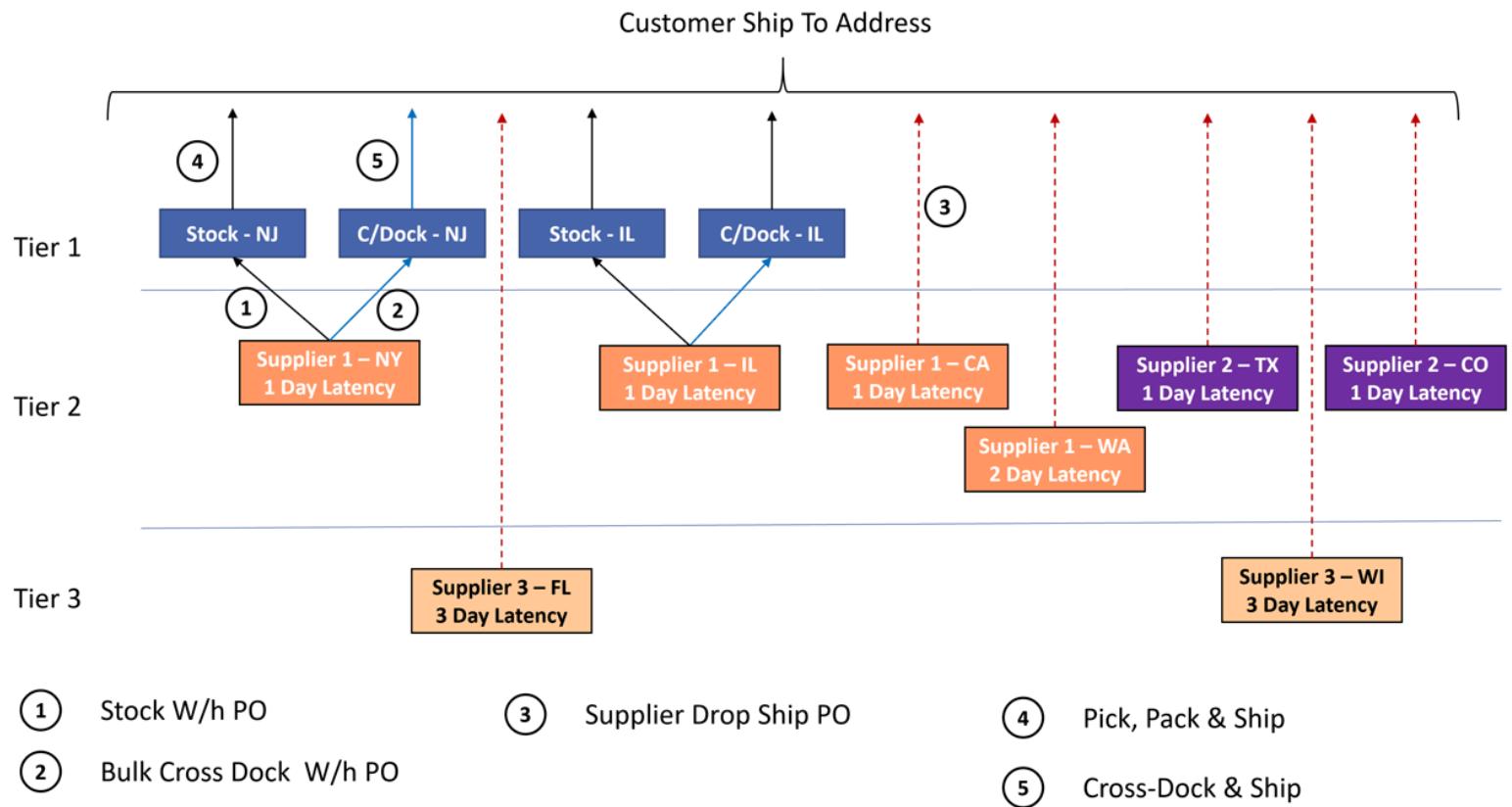
Specify Fulfillment Cost for each Channel – should always be set to true

Default Cost Channel this should always be Etail unless handling a unique scenario that will need further discussion before changing it to another channel

Cost Mode this should be Average unless handling a particular scenario that will need further discussion before changing it to Location

Maximum Day for On Order is used to indicate how long a stock Purchase Order should be considered as a source of sales order fulfillment

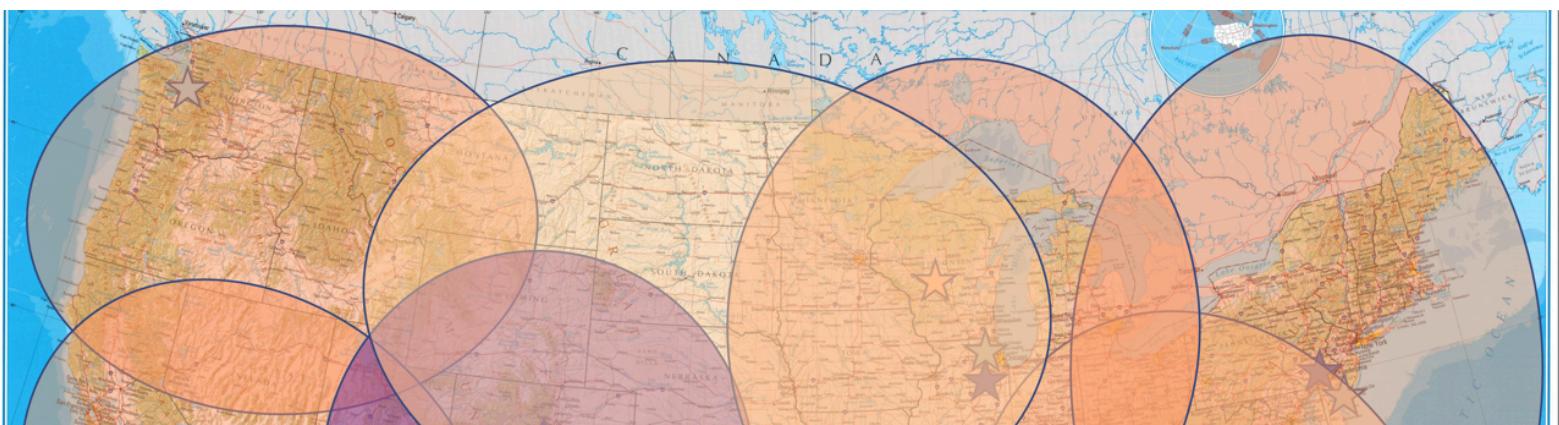
Once all locations are set up the EVP solution will have a tiered model of all the types of locations and how they can be used to handle sales order fulfillment processing



By geolocation encoding, the address EVP also understands the relative positioning of all locations to each other



Based on latency and shipping cost models associated with a location EVP can decide if a particular location can achieve the request shipping level on the sales order



DIM06: Location Selection Criteria Control

eDC4.5 Location Selection Criteria Control

To control which available locations

with stock are selected as the fulfillment location for a specific sales order fulfillment, EVP provides a system-wide ability to control the sequence of which factors are considered in which order. There is a similar control for which location should be considered for sellable inventory locations.

Tier is the default sort on both

The screenshot shows a software interface for configuring fulfillment rules. At the top, there are tabs for Features, Shipping, Inventory, Fulfillment, Restrictions, Planning, Buyers, and Item Weight Priority. The Fulfillment tab is active. On the left, there are sections for Custom Fulfillment Rules and Custom Dropship Rules, each with an 'Enabled' checkbox, 'Assembly:' dropdown, and 'Class:' dropdown. Below these is a checkbox for 'Rate Shop Shipping Cost'. On the right, there are two main sections: 'Fulfillment Selection Order' and 'Pricing Selection Order'. Each section has a list of factors with up and down arrows for reordering. In the Fulfillment Selection Order, 'Priority' is at the top with checkboxes for 'Cost', 'Distance', and 'Latency' below it. In the Pricing Selection Order, 'Cost' is at the top with checkboxes for 'Latency' and 'Tier' below it.

options, i.e., if there are 10 locations with required inventory and six are in Tier 1, and 3 are in Tier 2, and 1 in Tier 3, only the 6 Tier 1 locations will be considered by the next selection criteria

Priority is used to indicate which locations in a Tier should be considered ahead of other locations, i.e., if all locations have the same priority they will all move into the next selection criteria

Cost is the landed cost to fulfill the item from a location and will include Inventory Cost, Shipping Cost, and Overhead Cost. When using rate shopping the overall cost is the tie-breaker on which location to use as the distance to the ShipTo address will be different based on the milages, However, if a supplier is using a simple shipping cost model with no zones and is just using the weight of the item another selection criteria is needed, ie. Of the 6 Tier 1, location 2 has the same cost

Distance is used to indicate how far away from the ShipTo address on a sales order is from a ShipFrom location; typically the shorter the distance, the lower the shipping cost, i.e., Location A is closer to the customer than Location B so it will be used to fulfill the order

Latency is used as another tie-breaker when rate shopping is not being used, i.e., if the sales order is Prime, you would want only to consider the lowest latency location, however with rate shopping, the service level mapping will remove a location that does not support Prime.

Note: Rate Shop Shipping Cost is only in place for historical support purposes where an Integration channel was being used to communicate with an external shipping rate shopping application. Now the

DIM07: Demand and Allocation Driven Available for Sale Quantity

eDC4.6 Demand and Allocation Driven 'Available for Sale' Quantity

Inventory Levels									Inventory Events	Item History
		Update Allocation	Update Demand							
Stock	Location Name	Last Event Date	Quantity	Latency	Allocated	Demand	Available	On Order	Average Cost	
	Dropship	12/17/2019 3:17 AM	0	0	0	0	0	0	\$48.38	
	Order Assembly	2/9/2017 4:42 PM	0	0	0	0	0	0	\$43.00	
	Promax IL	12/6/2019 2:32 PM	0	0	0	1	-1	5	\$77.07	
	Promax MA	1/23/2017 7:05 PM	0	0	0	0	0	0	\$43.00	
	Promax NV	9/24/2019 10:19 PM	0	0	0	0	0	0	\$48.28	
Supply	Location Name	Last Event Date	Quantity	Latency	Allocated	Demand	Available	On Order	Supplier Cost	
	LOC9	3/1/2020 2:32 PM	17	0	0	0	17	0	\$77.07	
	Tifton, GA	3/1/2020 2:32 PM	12	0	4	2	10	0	\$77.07	
	Hurricane, UT	3/1/2020 2:32 PM	45	0	0	0	45	0	\$77.07	
	Sikeston, MO	3/1/2020 2:32 PM	25	0	0	2	23	0	\$77.07	
	Kilgore, TX	3/1/2020 2:32 PM	23	0	0	3	20	0	\$77.07	

To further refine how inventory in a location is evaluated as being a candidate for publishing for sale or fulfillment of a sale order EVP has three additional levels of inventory tracking. **Demand** is used to track sales orders that have not reached a staged where they can be released to the order fulfillment, i.e., pending payment. **Allocated** is used to track the quantity of inventory that is allocated to a sales order but is still represented in the on-hand location quantity. **On Order** is used to track the quantity of the item that is on an open Purchase Order that is reserved for the fulfillment of sales orders

Location Available to Sell Quantity = On Hand Quantity – Demand – Allocated