6.8. Inventory Optimization via Intersite Transfers

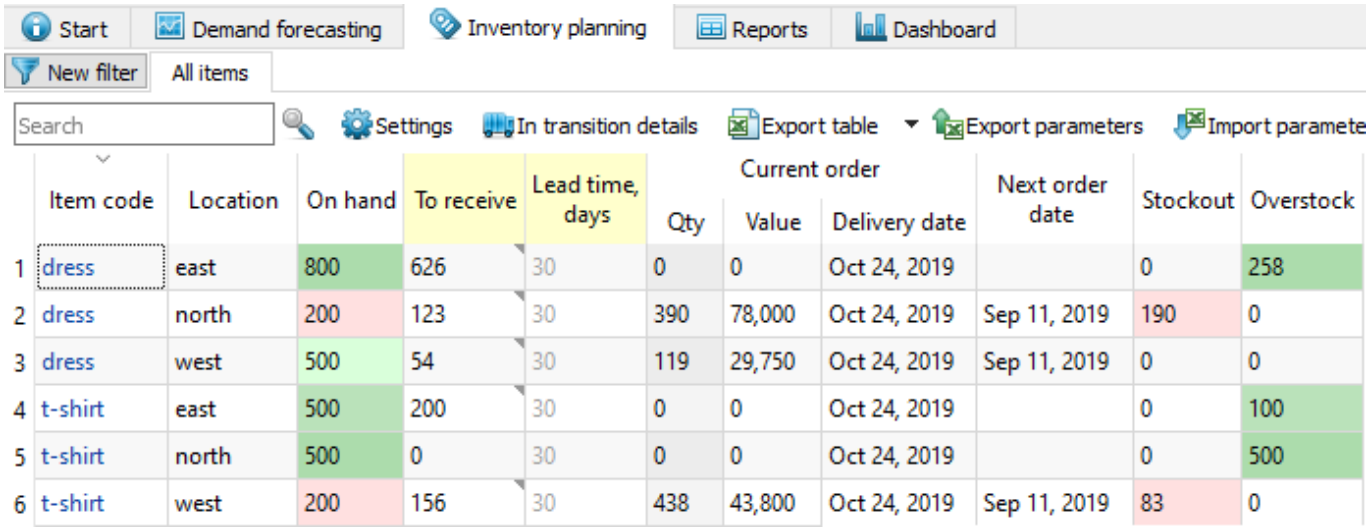
Streamline is able to optimize your inventory by releasing frozen capital internally, and replenish your locations using your own overstocks instead of making any more replenishment orders from your suppliers or distribution centers.

If your business is spread out over several separate regions so that each of them contains a set of locations where inventory transfers are allowed, Streamline can account for these constraints and generate transfers within the given areas.

In this article you will learn:

- How to enable intersite optimization feature.
- How Streamline generates intersite transfers and the delivery date for a transfer in particular.
- How to apply transfer region constraint.
- How to export prepared transfers into Excel or your database.

To demonstrate all of these, we use a little project based on a database source. We have only two products here, **t-shirt** and **dress** that are sold in three stores, **east**, **north** and **west** (see figure below).



	Item code	Location	On hand	To receive	Lead time, days	Current order			Next order date	Stockout	Overstock
						Qty	Value	Delivery date			
1	dress	east	800	626	30	0	0	Oct 24, 2019		0	258
2	dress	north	200	123	30	390	78,000	Oct 24, 2019	Sep 11, 2019	190	0
3	dress	west	500	54	30	119	29,750	Oct 24, 2019	Sep 11, 2019	0	0
4	t-shirt	east	500	200	30	0	0	Oct 24, 2019		0	100
5	t-shirt	north	500	0	30	0	0	Oct 24, 2019		0	500
6	t-shirt	west	200	156	30	438	43,800	Oct 24, 2019	Sep 11, 2019	83	0

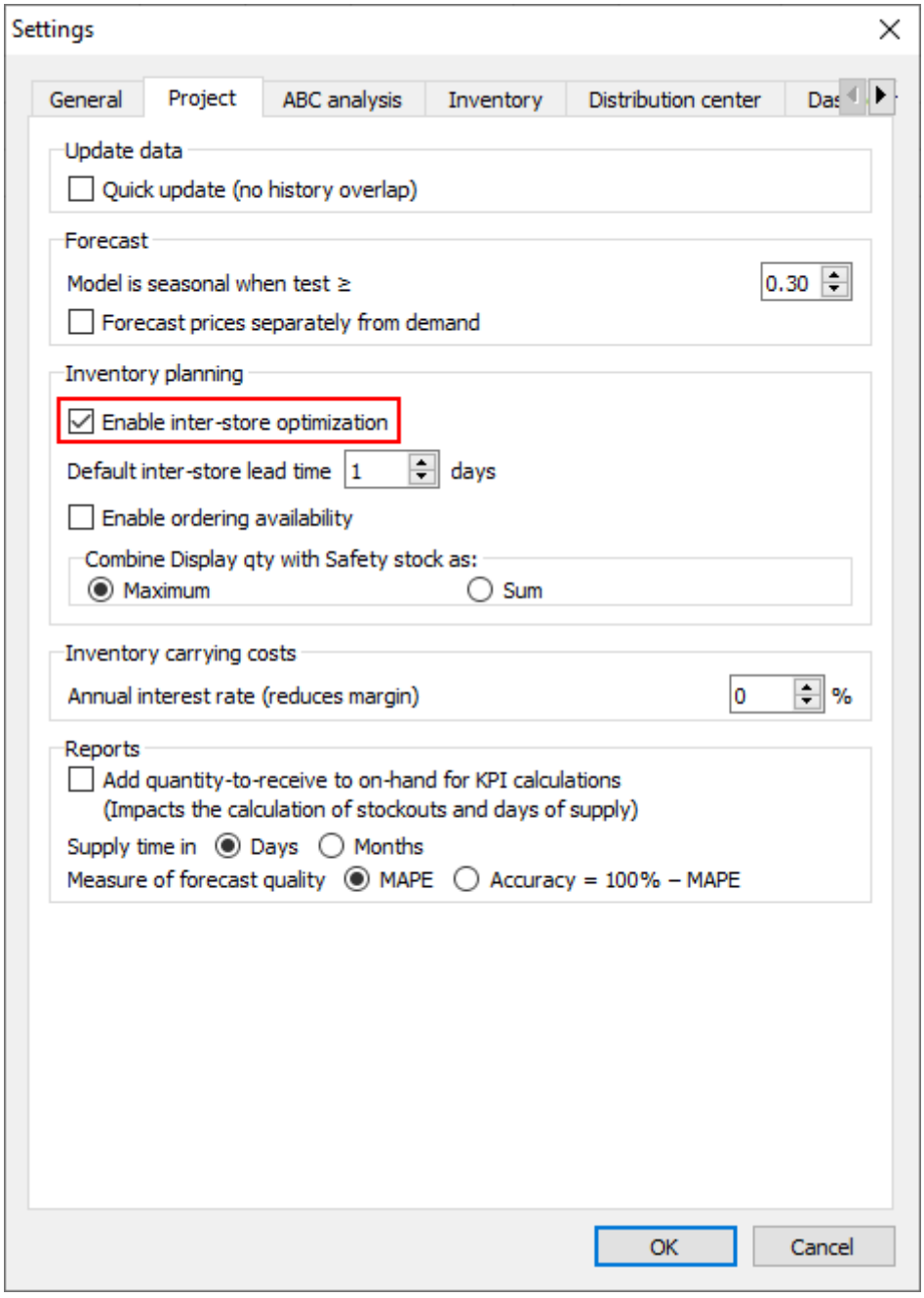
There are overstocks for three planning items, and, at the same time, two items have stockouts. Let's see, if Streamline can restock the required quantities using intersite transfers. By default, the intersite optimization feature is disabled. Let's enable it.

Enabling Intersite Optimization

To enable intersite optimization:

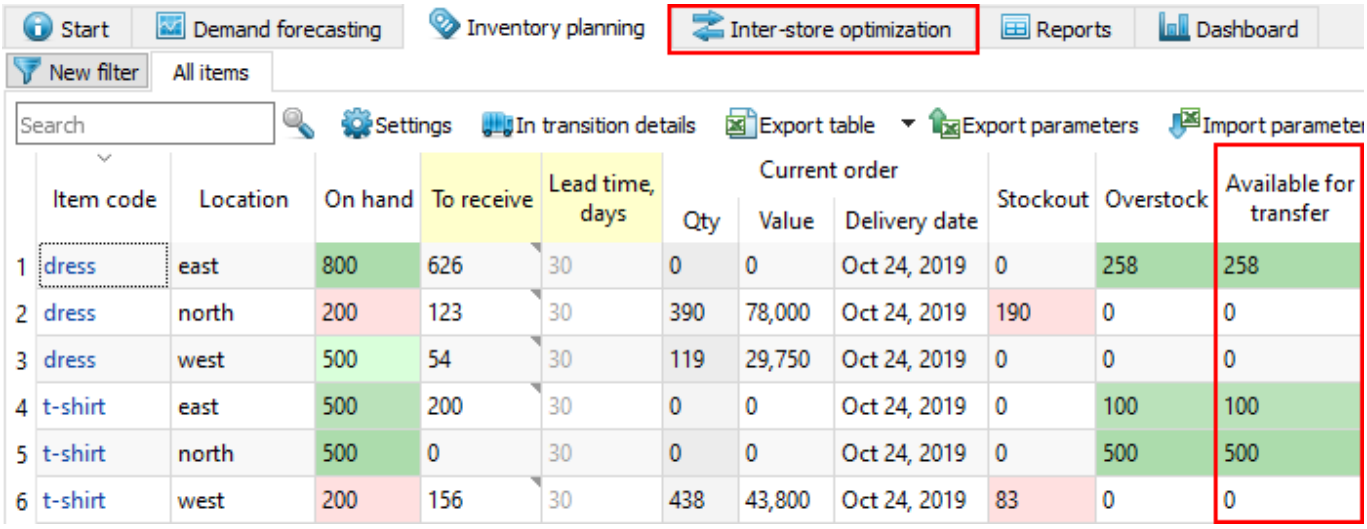
1. Go to the menu **File** > **Settings**.
2. Navigate to the **Project** tab of the **Settings** dialog.

3. Check the option **Enable intersite optimization** under the **Inventory planning** group (see figure below).



There is also a control for setting the default lead time for a transfer, in case the destination location is not supplied from a DC normally – **Default intersite lead time**. By default, it is **1 day**.

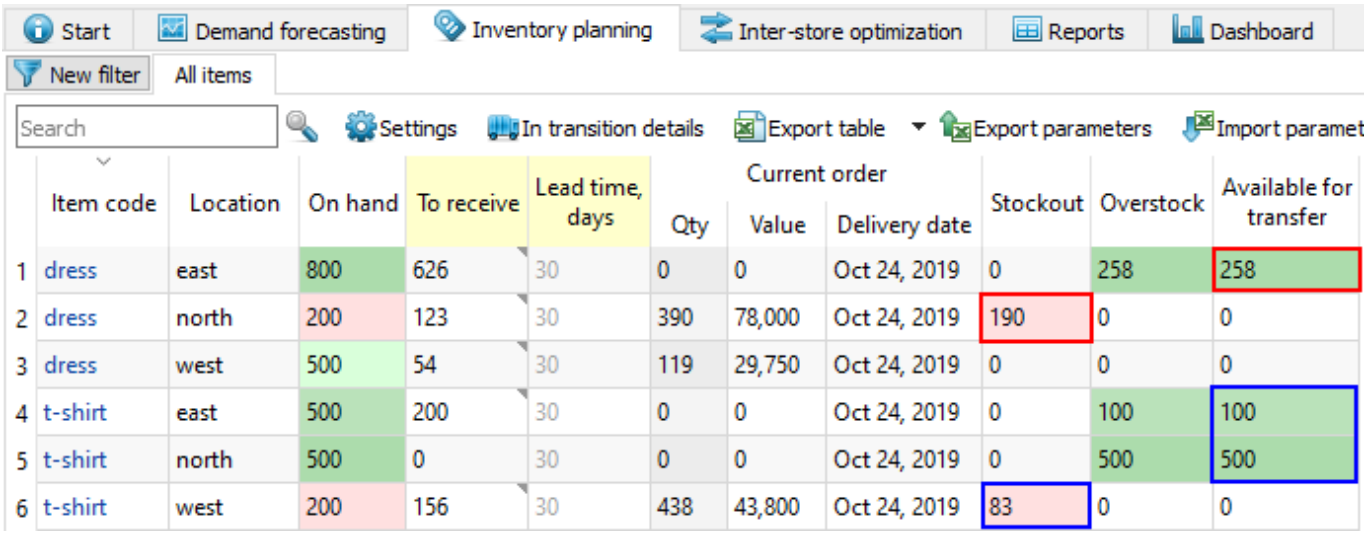
After we click **OK**, a new column **Available for transfer** has been added into the **Inventory planning** tab, and a new tab called **Intersite optimization** has been added into the set of application tabs (see figure below).



	Item code	Location	On hand	To receive	Lead time, days	Current order			Stockout	Overstock	Available for transfer
						Qty	Value	Delivery date			
1	dress	east	800	626	30	0	0	Oct 24, 2019	0	258	258
2	dress	north	200	123	30	390	78,000	Oct 24, 2019	190	0	0
3	dress	west	500	54	30	119	29,750	Oct 24, 2019	0	0	0
4	t-shirt	east	500	200	30	0	0	Oct 24, 2019	0	100	100
5	t-shirt	north	500	0	30	0	0	Oct 24, 2019	0	500	500
6	t-shirt	west	200	156	30	438	43,800	Oct 24, 2019	83	0	0

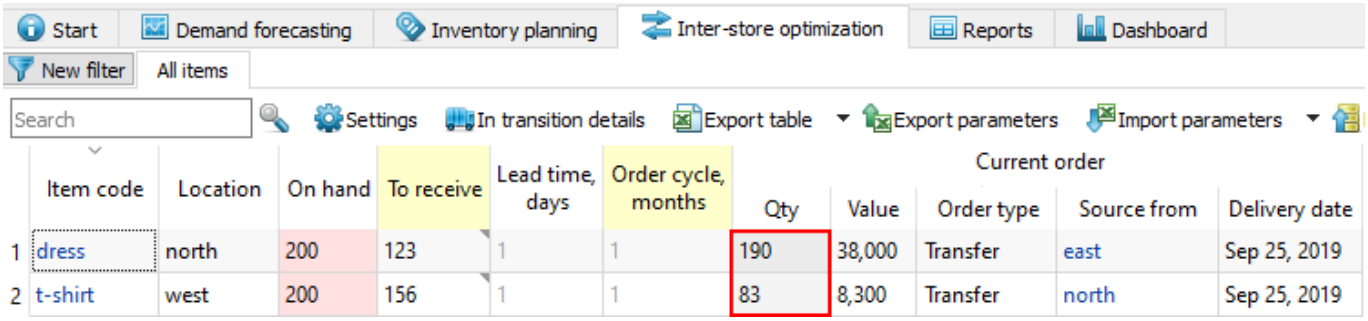
The **Available for transfer** column shows an overstock quantity that can be used to replenish other locations through intersite transfers. It indicates the minimal expected overstock amount during the **Lead time** (in our case, **30 days**).

As you see from the figure below, the available quantity is enough to cover both stockouts.



	Item code	Location	On hand	To receive	Lead time, days	Current order			Stockout	Overstock	Available for transfer
						Qty	Value	Delivery date			
1	dress	east	800	626	30	0	0	Oct 24, 2019	0	258	258
2	dress	north	200	123	30	390	78,000	Oct 24, 2019	190	0	0
3	dress	west	500	54	30	119	29,750	Oct 24, 2019	0	0	0
4	t-shirt	east	500	200	30	0	0	Oct 24, 2019	0	100	100
5	t-shirt	north	500	0	30	0	0	Oct 24, 2019	0	500	500
6	t-shirt	west	200	156	30	438	43,800	Oct 24, 2019	83	0	0

Let's proceed to the **Intersite optimization** tab and see the suggested transfers (see figure below).

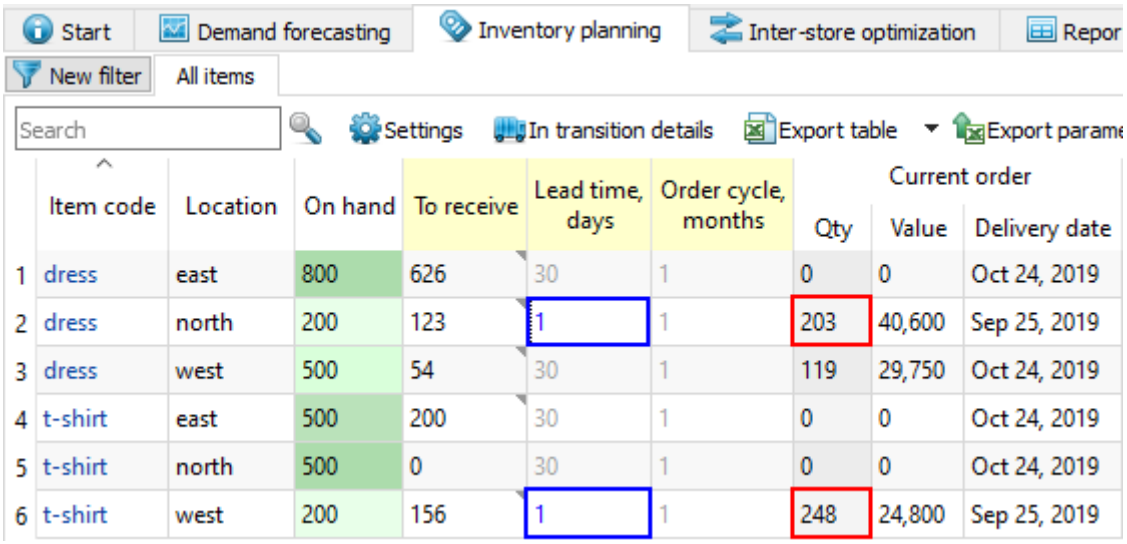


	Item code	Location	On hand	To receive	Lead time, days	Order cycle, months	Current order				
							Qty	Value	Order type	Source from	Delivery date
1	dress	north	200	123	1	1	190	38,000	Transfer	east	Sep 25, 2019
2	t-shirt	west	200	156	1	1	83	8,300	Transfer	north	Sep 25, 2019

We have two transfers here, each covers the required stockout at a particular location *completely*. Streamline uses a special method to generate intersite transfers. The quantity to transfer not always

equals to the **Stockout** amount. It is found as a minimum between replenishment quantity recalculated for the **Default intersite lead time** (or lead time from DC) and **Stockout**. In our example, the minimum drop to the **Stockout** for both transfers. Let's check this out.

To do this, we go to the **Inventory planning** tab and set **Lead time** to **1 day** for items with stockouts (see figure below).



	Item code	Location	On hand	To receive	Lead time, days	Order cycle, months	Current order		
							Qty	Value	Delivery date
1	dress	east	800	626	30	1	0	0	Oct 24, 2019
2	dress	north	200	123	1	1	203	40,600	Sep 25, 2019
3	dress	west	500	54	30	1	119	29,750	Oct 24, 2019
4	t-shirt	east	500	200	30	1	0	0	Oct 24, 2019
5	t-shirt	north	500	0	30	1	0	0	Oct 24, 2019
6	t-shirt	west	200	156	1	1	248	24,800	Sep 25, 2019

As you see, suggested quantities **203** and **248** are bigger than the corresponding stockouts **190** and **83**.

Now, let's explain how Streamline calculates the delivery date for transfer orders.

Transfer Order Delivery Date Calculation

Streamline determines the delivery date for a transfer following the logic:

- If the destination location is not tied to a DC, Streamline considers the transfer to arrive after the **Default intersite lead time**. For example, if the current date is **Sep 2, 2018**, and the **Default intersite lead time** is **1 day** (which is the default value), then Streamline determines the delivery date as **Sep 3, 2018**.
- If the destination location is normally supplied from a DC, it is calculated as:

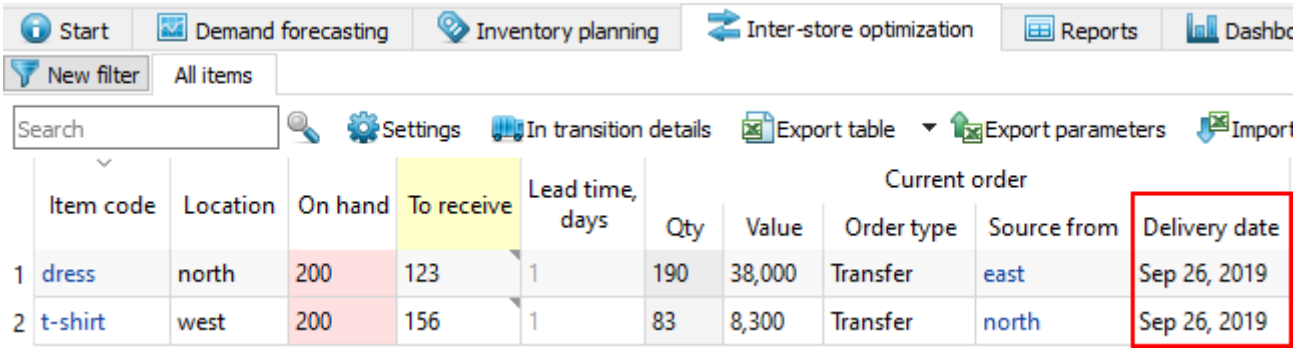
`Delivery date` = `Today date` + **`Lead time`**,

where:

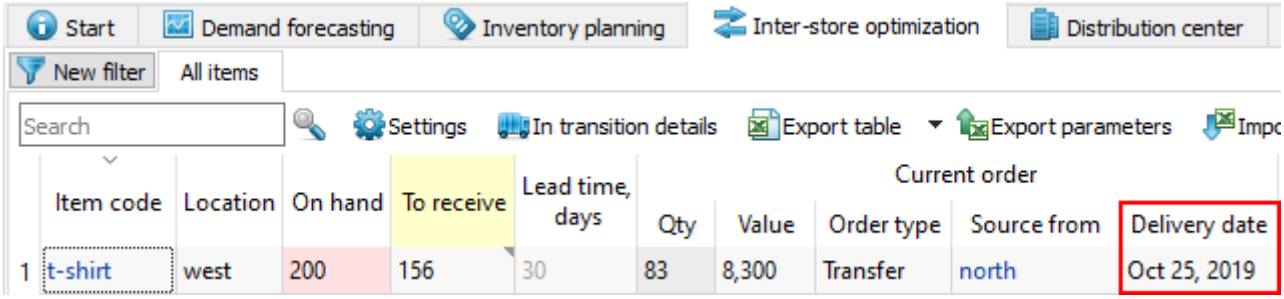
- **Lead time** – the interval of time required to deliver the item from the distribution center to the destination location.
- *Today date* – the current local date set in your operating system.

Let's demonstrate both situations.

Our example doesn't have a distribution center configured, it contains stores only. The today date is **Sep 25, 2019**, thus, Streamline determines the delivery date as **Sep 26, 2019** and shows it in the **Delivery date** column (see figure below).



To illustrate the second case, we have enabled distribution center and set it to the **east** location. The **Lead time** is **30 days**. Now, the delivery date is **Oct 25, 2019** (see figure below).



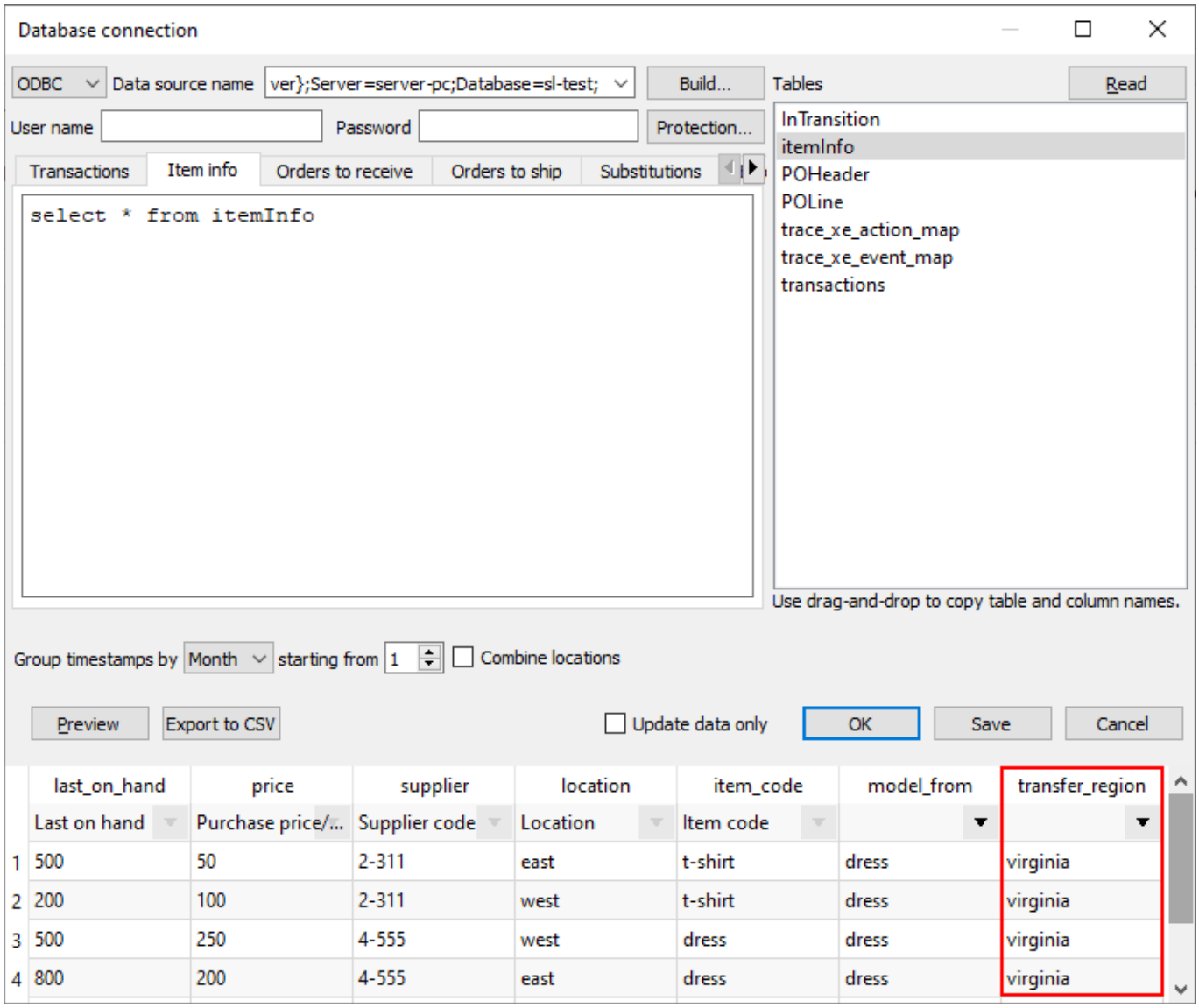
Delivery date is a Streamline's promised date the item to be received on. Of course, you can modify or reset it in your system after the transfer orders have been exported in there.

Now, let us show how to introduce region constraint in the optimization.

Applying Transfer Region Constraint

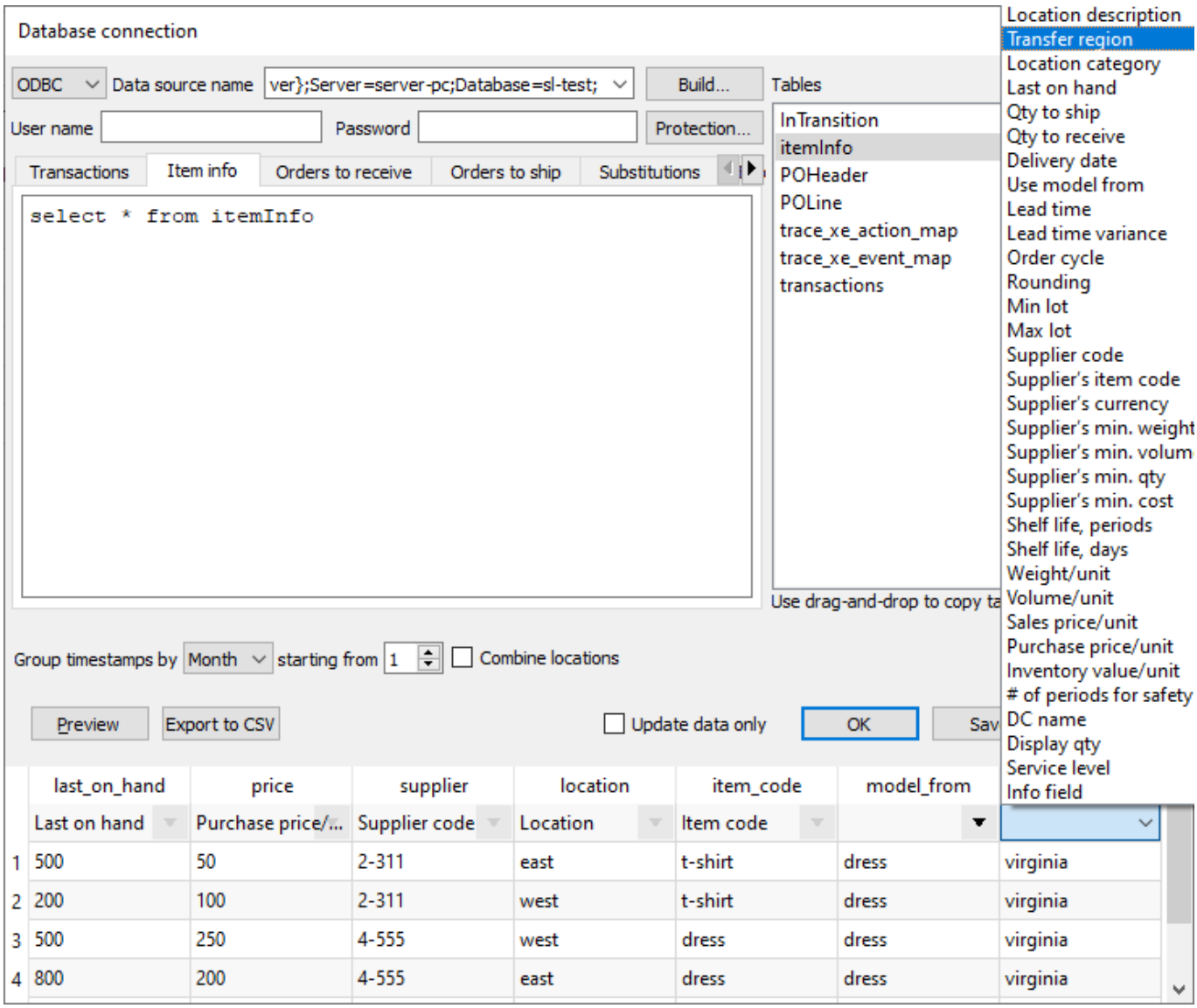
To enable Streamline to put a region constraint on the generated transfers, the Transfer region data type should be configured and imported along with other information about your inventory. To do this, we will reconfigure our connection setting to the database by completing the following steps:

1. Go to the menu **File** > **Change connection** > **Database connection**.
2. Navigate to the **Item info** tab, click the **Preview** button to execute our query. This query returns a table containing descriptive information for each planning item. The last column of the table contains the transfer region (see figure below).



	last_on_hand	price	supplier	location	item_code	model_from	transfer_region
	Last on hand	Purchase price/...	Supplier code	Location	Item code		
1	500	50	2-311	east	t-shirt	dress	virginia
2	200	100	2-311	west	t-shirt	dress	virginia
3	500	250	4-555	west	dress	dress	virginia
4	800	200	4-555	east	dress	dress	virginia

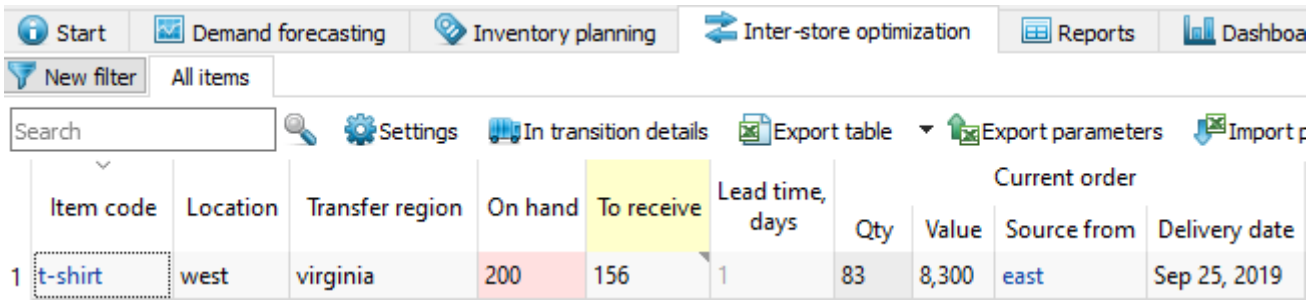
3. Now we match this column to the **Transfer region** meaning selected from the dropdown (see figure below).



	last_on_hand	price	supplier	location	item_code	model_from	
	Last on hand	Purchase price/...	Supplier code	Location	Item code		
1	500	50	2-311	east	t-shirt	dress	virginia
2	200	100	2-311	west	t-shirt	dress	virginia
3	500	250	4-555	west	dress	dress	virginia
4	800	200	4-555	east	dress	dress	virginia

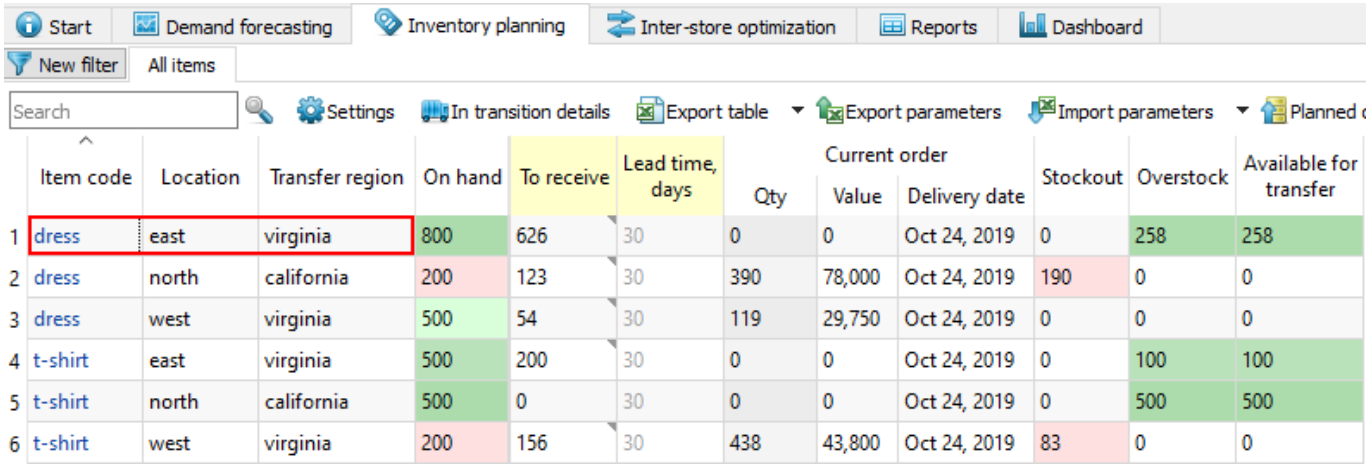
4. To import the column, we click **OK**.

After application the transfer region constraint, the transfer of **190** units for **dress** has disappeared (see figure below).



	Item code	Location	Transfer region	On hand	To receive	Lead time, days	Current order			
							Qty	Value	Source from	Delivery date
1	t-shirt	west	virginia	200	156	1	83	8,300	east	Sep 25, 2019

That has happened because the location with the overstock is located in a different region (see figure below).

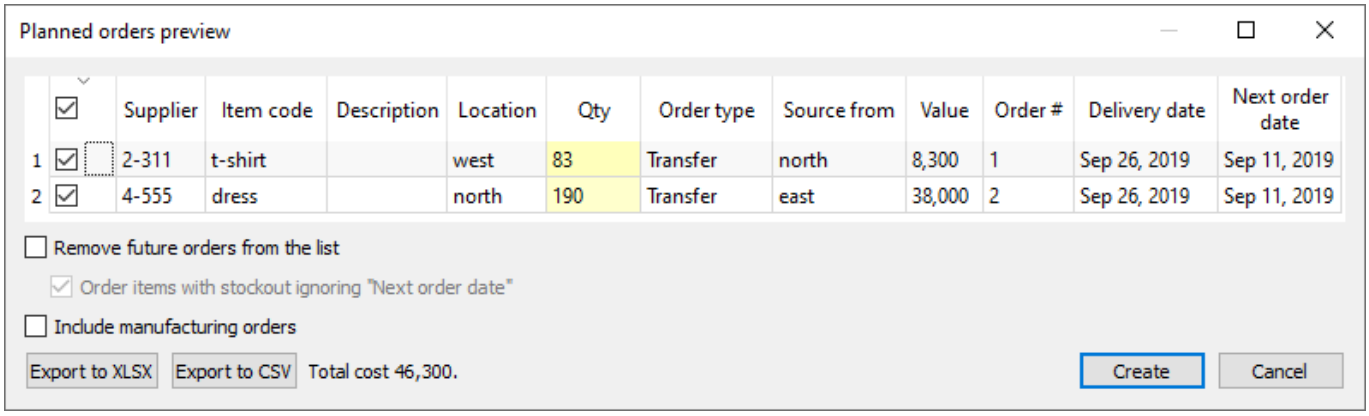


	Item code	Location	Transfer region	On hand	To receive	Lead time, days	Current order			Stockout	Overstock	Available for transfer
							Qty	Value	Delivery date			
1	dress	east	virginia	800	626	30	0	0	Oct 24, 2019	0	258	258
2	dress	north	california	200	123	30	390	78,000	Oct 24, 2019	190	0	0
3	dress	west	virginia	500	54	30	119	29,750	Oct 24, 2019	0	0	0
4	t-shirt	east	virginia	500	200	30	0	0	Oct 24, 2019	0	100	100
5	t-shirt	north	california	500	0	30	0	0	Oct 24, 2019	0	500	500
6	t-shirt	west	virginia	200	156	30	438	43,800	Oct 24, 2019	83	0	0

Exporting Intersite Transfer Orders

To export intersite transfer orders:

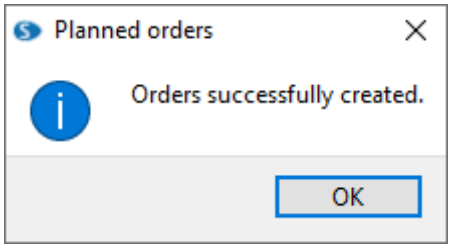
1. Go to the **Intersite optimization** tab.
2. Click the **Planned orders** button found on the toolbar. The **Planned orders preview** dialog appears (see figure below).



There are several exporting options:

- **Export to XLSX** button exports the orders to an Excel file.
- **Export to CSV** button exports them to a CSV file that can also be opened in Excel. Typically, this option is used to export huge orders.
- **Create** button exports orders to the database.

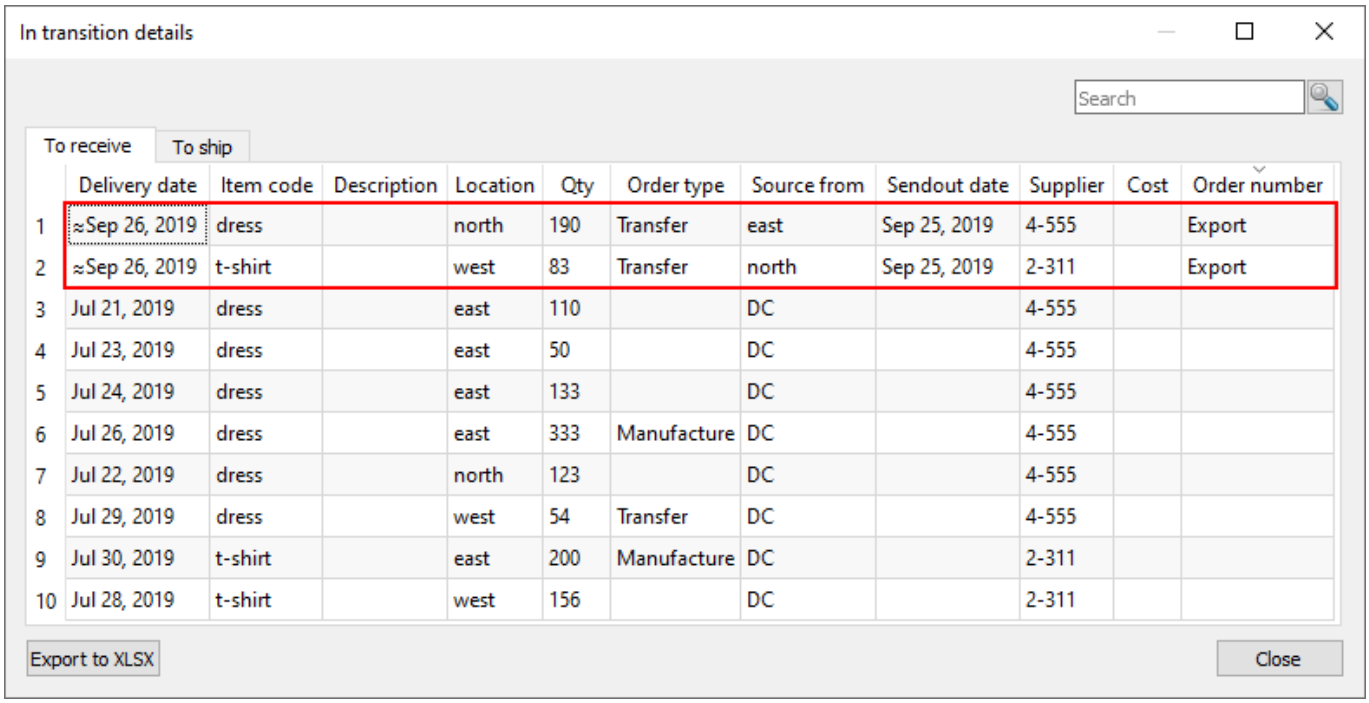
3. We click the **Create** button to export our orders right to the database.



As soon as orders have been exported, Streamline:

- clears the exported lines from the **Intersite optimization** tab; and
- adds the corresponding transactions into the **To receive** list of the **In transition details** dialog.

Let's check this. We click the **In transition details** button found on the toolbar to open the **In transition details** dialog (see figure below).



	Delivery date	Item code	Description	Location	Qty	Order type	Source from	Sendout date	Supplier	Cost	Order number
1	≈Sep 26, 2019	dress		north	190	Transfer	east	Sep 25, 2019	4-555		Export
2	≈Sep 26, 2019	t-shirt		west	83	Transfer	north	Sep 25, 2019	2-311		Export
3	Jul 21, 2019	dress		east	110		DC		4-555		
4	Jul 23, 2019	dress		east	50		DC		4-555		
5	Jul 24, 2019	dress		east	133		DC		4-555		
6	Jul 26, 2019	dress		east	333	Manufacture	DC		4-555		
7	Jul 22, 2019	dress		north	123		DC		4-555		
8	Jul 29, 2019	dress		west	54	Transfer	DC		4-555		
9	Jul 30, 2019	t-shirt		east	200	Manufacture	DC		2-311		
10	Jul 28, 2019	t-shirt		west	156		DC		2-311		

Now, along with other orders which are to be received, Streamline shows the just now exported orders. These orders got an **Export** mark in the **Order number** column.

Lines with the **Export** mark have no common with the real orders-to-receive that are in your ERP's database. It's just internal Streamline's transactions that are created in order to keep the inventory planning workflow correct.

If Streamline is integrated with your system so that clicking the **Create** button automatically creates the corresponding open orders, the mark **Export** will disappear for the exported lines in the **To receive** tab after you click the **Update data** button. Otherwise, the **Update data** command will completely remove the exported lines from the **To receive** tab.

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