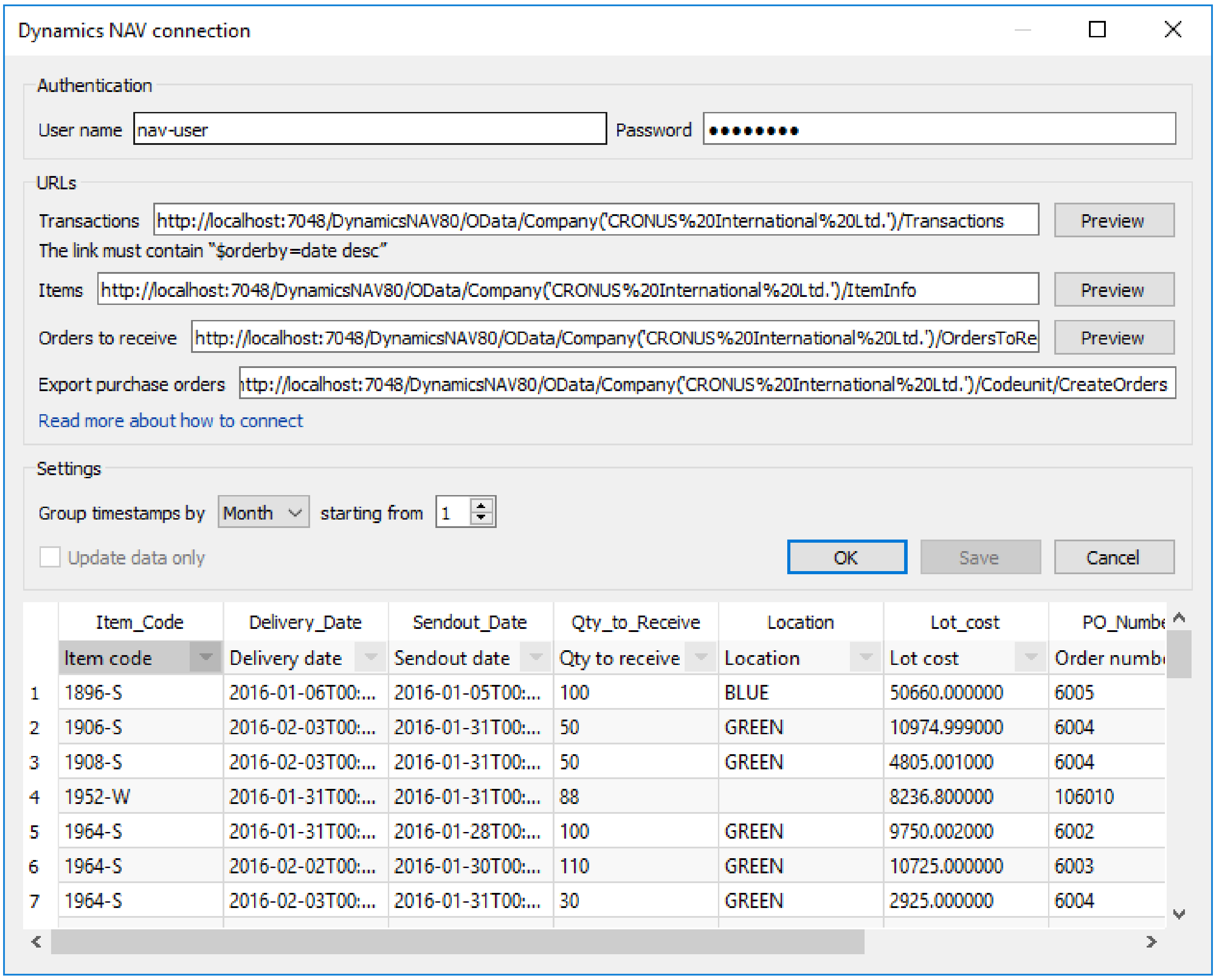
3.5.5. How to Import Data from Dynamics NAV using Web-services

In order to import data using this guide, you need a NAV developer license and Microsoft Dynamics NAV 2013 or higher. If you do not have such a license or have an older NAV version, you can create a new project using the Dynamics NAV connection.

Streamline establishes a web connection in order to import data from NAV.

Open the Dynamics NAV connection dialog by clicking menu **File** > **New** > **Dynamics NAV connection**.



User name: nav-user
Password: ••••••••

Transactions: http://localhost:7048/DynamicsNAV80/OData/Company('CRONUS%20International%20Ltd.')/Transactions
The link must contain "$orderby=date desc"
Items: http://localhost:7048/DynamicsNAV80/OData/Company('CRONUS%20International%20Ltd.')/ItemInfo
Orders to receive: http://localhost:7048/DynamicsNAV80/OData/Company('CRONUS%20International%20Ltd.')/OrdersToRe
Export purchase orders: ttp://localhost:7048/DynamicsNAV80/OData/Company('CRONUS%20International%20Ltd.')/Codeunit/CreateOrders
Read more about how to connect

Group timestamps by: Month starting from 1
Update data only

	Item_Code	Delivery_Date	Sendout_Date	Qty_to_Receive	Location	Lot_cost	PO_Numbe
	Item code	Delivery date	Sendout date	Qty to receive	Location	Lot cost	Order numb
1	1896-S	2016-01-06T00:...	2016-01-05T00:...	100	BLUE	50660.000000	6005
2	1906-S	2016-02-03T00:...	2016-01-31T00:...	50	GREEN	10974.999000	6004
3	1908-S	2016-02-03T00:...	2016-01-31T00:...	50	GREEN	4805.001000	6004
4	1952-W	2016-01-31T00:...	2016-01-31T00:...	88		8236.800000	106010
5	1964-S	2016-01-31T00:...	2016-01-28T00:...	100	GREEN	9750.002000	6002
6	1964-S	2016-02-02T00:...	2016-01-30T00:...	110	GREEN	10725.000000	6003
7	1964-S	2016-02-03T00:...	2016-01-31T00:...	30	GREEN	2925.000000	6004

In the **Authentication** section, fill in the credentials of your Windows account that has permissions to start NAV.

In the **URLs** section you should set up four NAV web-services' URLs. The first three of them should return information about:

- transactions impacting inventory on-hand (**Transactions** service);

- items (**Item info** service); and
- items that are on open purchase or transfer orders (**Orders to receive** service).

And the last one is purposed to create purchase orders in NAV (**Create Purchase Orders** service). A guide on how to create the web-services is given below.

The **Settings** section allows you to aggregate imported data by a given period and limit the import by using the **starting from** parameter.

To get accurate forecasts, we recommend providing Streamline with at least 24 months of sales history.
2019/05/21 13:45 · admin

Creating NAV web services

The first three services read data from NAV and the last one (Creating Purchase Orders) – writes them into NAV. Each read-service returns a result of SQL-queries of which data are read by the application. To import data into Streamline, the connector uses the Database connection functionality. Thus, the data that can be imported using these services are limited by the Database connection capabilities.

- The *Transaction* service should return the result of the Transactions query.
- The *Item info* service should return the result of the Item info query.
- The *Orders to receive* service should return the result of the Orders to receive query.

Let's consider creating a *read-service*.

Creating a read-service

To create a read-service we need to:

1. Create a view that will return the result of the query.
2. Create a NAV table that will contain the result of the query.
3. Create a NAV page that will display the table.
4. Publish the page as a web-service.

Let's consider creating the *Orders to receive* service. Other services can be created using the same actions. To demonstrate it, we will use the CRONUS Company demo database, shipped with NAV.

1 Creating a view

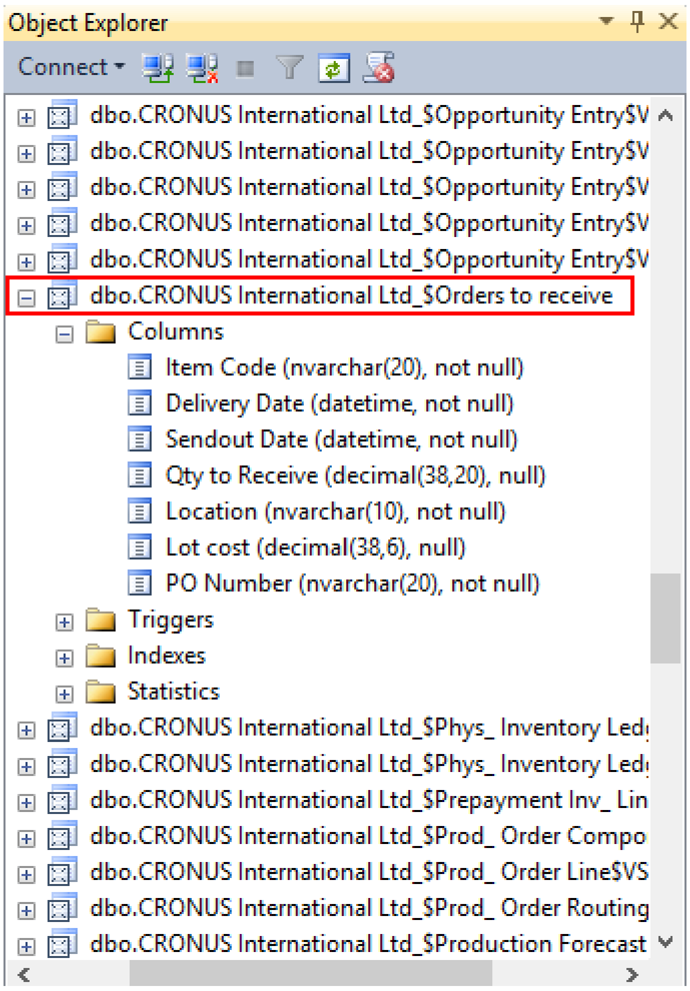
First, we need to create a SQL *view* that returns a table having **Item code**, **Location**, **Arrival Date** and **Quantity** columns. To do this, open *SQL Server Management Studio* and create a new query by clicking menu **File** > **New** > **Query with Current Connection**. Paste the following code in the newly created query-file:

orders-to-receive.sql

```
USE [NAVDEMO]
```

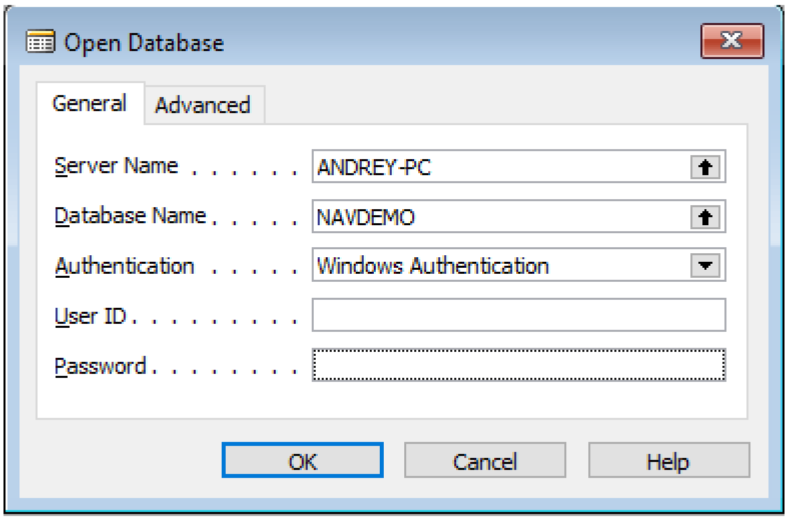
```
GO

CREATE VIEW [dbo].[CRONUS International Ltd_$Orders TO receive] AS
SELECT
    i.No_ AS [Item Code],
    l.[Expected Receipt DATE] AS [Delivery DATE],
    l.[ORDER DATE] AS [Sendout DATE],
    l.[Outstanding Qty_ (Base)] - l.[RETURN Qty_ TO Ship (Base)] AS
[Qty TO Receive],
    l.[Location Code] AS Location,
    l.[Unit Cost (LCY)] * (l.[Outstanding Qty_ (Base)] - l.[RETURN Qty_
TO Ship (Base)]) AS [Lot cost],
    l.[Document No_] AS [PO NUMBER]
FROM dbo.[CRONUS International Ltd_$Purchase Line] l
INNER JOIN dbo.[CRONUS International Ltd_$Item] i
  ON l.No_ = i.No_
WHERE l.[Outstanding Qty_ (Base)] - l.[RETURN Qty_ TO Ship (Base)] > 0
  AND l.Type = 2
  AND l.[Document TYPE] = 1
```

After clicking the menu **Query** > **Execute**, you should see the newly created view under the **Views** in the **Object Explorer** tree (see fig. below). If it does not appear, select the **Views** and click menu **View** > **Refresh**.


Object Explorer
Connect
dbo.CRONUS International Ltd_$Opportunity Entry$V
dbo.CRONUS International Ltd_$Opportunity Entry$V
dbo.CRONUS International Ltd_$Opportunity Entry$V
dbo.CRONUS International Ltd_$Opportunity Entry$V
dbo.CRONUS International Ltd_$Opportunity Entry$V
dbo.CRONUS International Ltd_$Orders to receive
Columns
Item Code (nvarchar(20), not null)
Delivery Date (datetime, not null)
Sendout Date (datetime, not null)
Qty to Receive (decimal(38,20), null)
Location (nvarchar(10), not null)
Lot cost (decimal(38,6), null)
PO Number (nvarchar(20), not null)
Triggers
Indexes
Statistics
dbo.CRONUS International Ltd_$Phys_ Inventory Led
dbo.CRONUS International Ltd_$Phys_ Inventory Led
dbo.CRONUS International Ltd_$Prepayment Inv_ Lin
dbo.CRONUS International Ltd_$Prod_ Order Compo
dbo.CRONUS International Ltd_$Prod_ Order Line$VS
dbo.CRONUS International Ltd_$Prod_ Order Routing
dbo.CRONUS International Ltd_$Production Forecast

2 Creating a table

Now, we need to create a NAV table that will be attached to the *Orders to receive* view. Open Dynamics Development Environment and click **File** > **Database** > **Open**. In the Open Database dialog, enter the server and database name, and set authentication to *Windows Authentication*. Click **OK**.

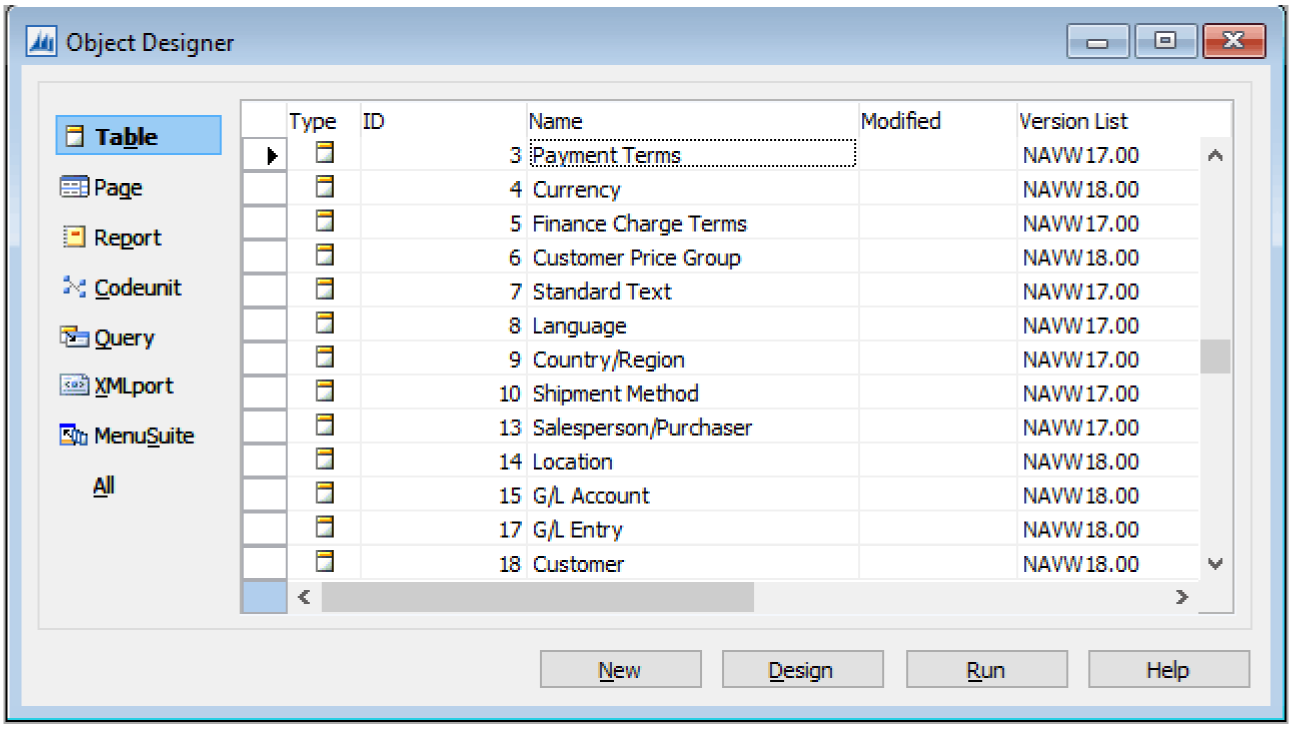


Open Database

General | Advanced

Server Name	ANDREY-PC
Database Name	NAVDEMO
Authentication	Windows Authentication
User ID	
Password	

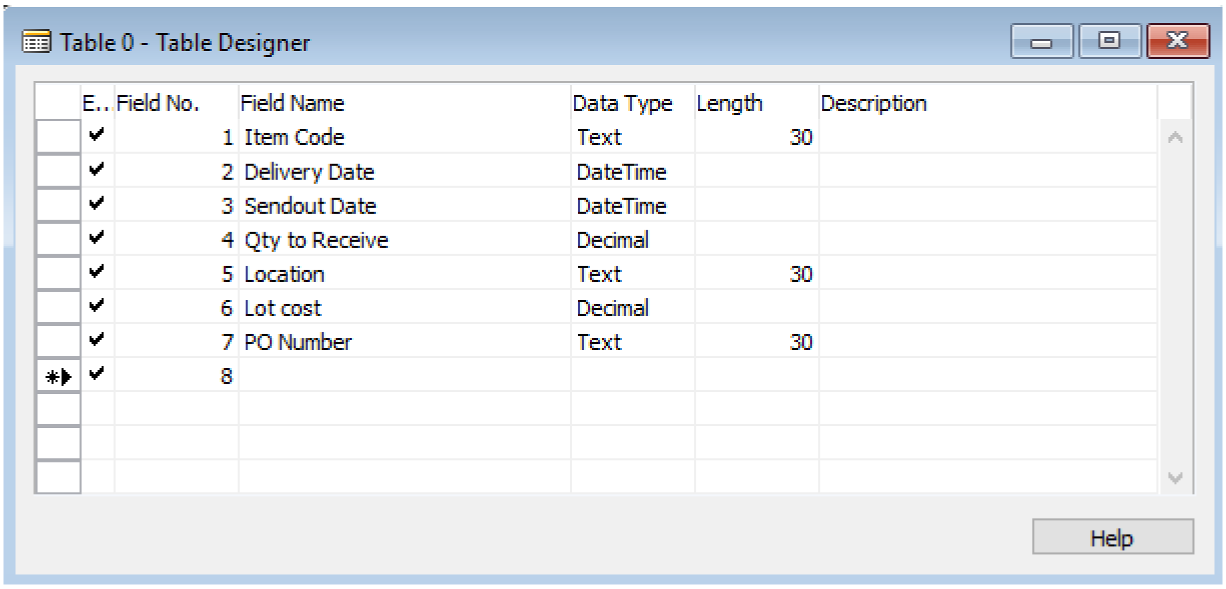
Click menu **Tools** > **Object Designer**. On the left side of the window, select the **Table** category and click the **New** button.



Object Designer

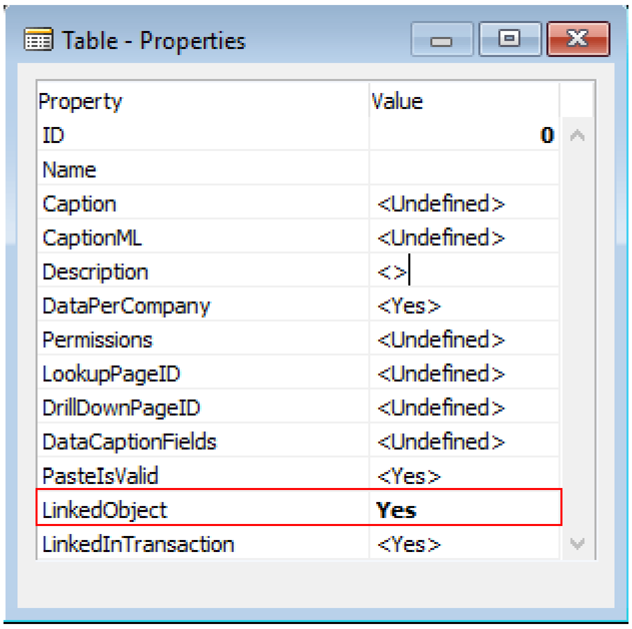
Type	ID	Name	Modified	Version List
	3	Payment Terms		NAVW17.00
	4	Currency		NAVW18.00
	5	Finance Charge Terms		NAVW17.00
	6	Customer Price Group		NAVW18.00
	7	Standard Text		NAVW17.00
	8	Language		NAVW17.00
	9	Country/Region		NAVW17.00
	10	Shipment Method		NAVW17.00
	13	Salesperson/Purchaser		NAVW17.00
	14	Location		NAVW18.00
	15	G/L Account		NAVW18.00
	17	G/L Entry		NAVW18.00
	18	Customer		NAVW18.00

Now, we need to declare columns of the new table with exactly the same names and compatible datatypes as the fields in the *Orders to receive* view.



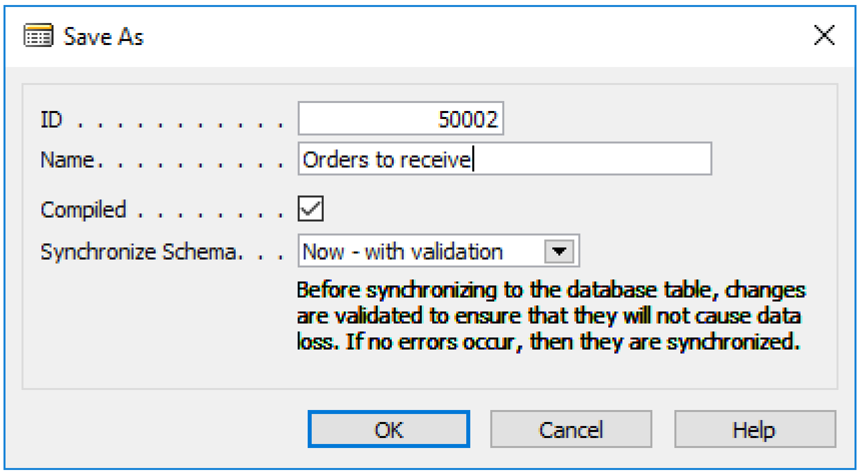
E..	Field No.	Field Name	Data Type	Length	Description
✓	1	Item Code	Text	30	
✓	2	Delivery Date	DateTime		
✓	3	Sendout Date	DateTime		
✓	4	Qty to Receive	Decimal		
✓	5	Location	Text	30	
✓	6	Lot cost	Decimal		
✓	7	PO Number	Text	30	
✓	8				

After that set the cursor on the next empty field and click menu **View** > **Properties**. In the **Table Properties** window set the **LinkedObject** property to **Yes**. This will link our *Orders to receive* view to this table.



Property	Value
ID	0
Name	
Caption	<Undefined>
CaptionML	<Undefined>
Description	<>
DataPerCompany	<Yes>
Permissions	<Undefined>
LookupPageID	<Undefined>
DrillDownPageID	<Undefined>
DataCaptionFields	<Undefined>
PasteIsValid	<Yes>
LinkedObject	**Yes**
LinkedInTransaction	<Yes>

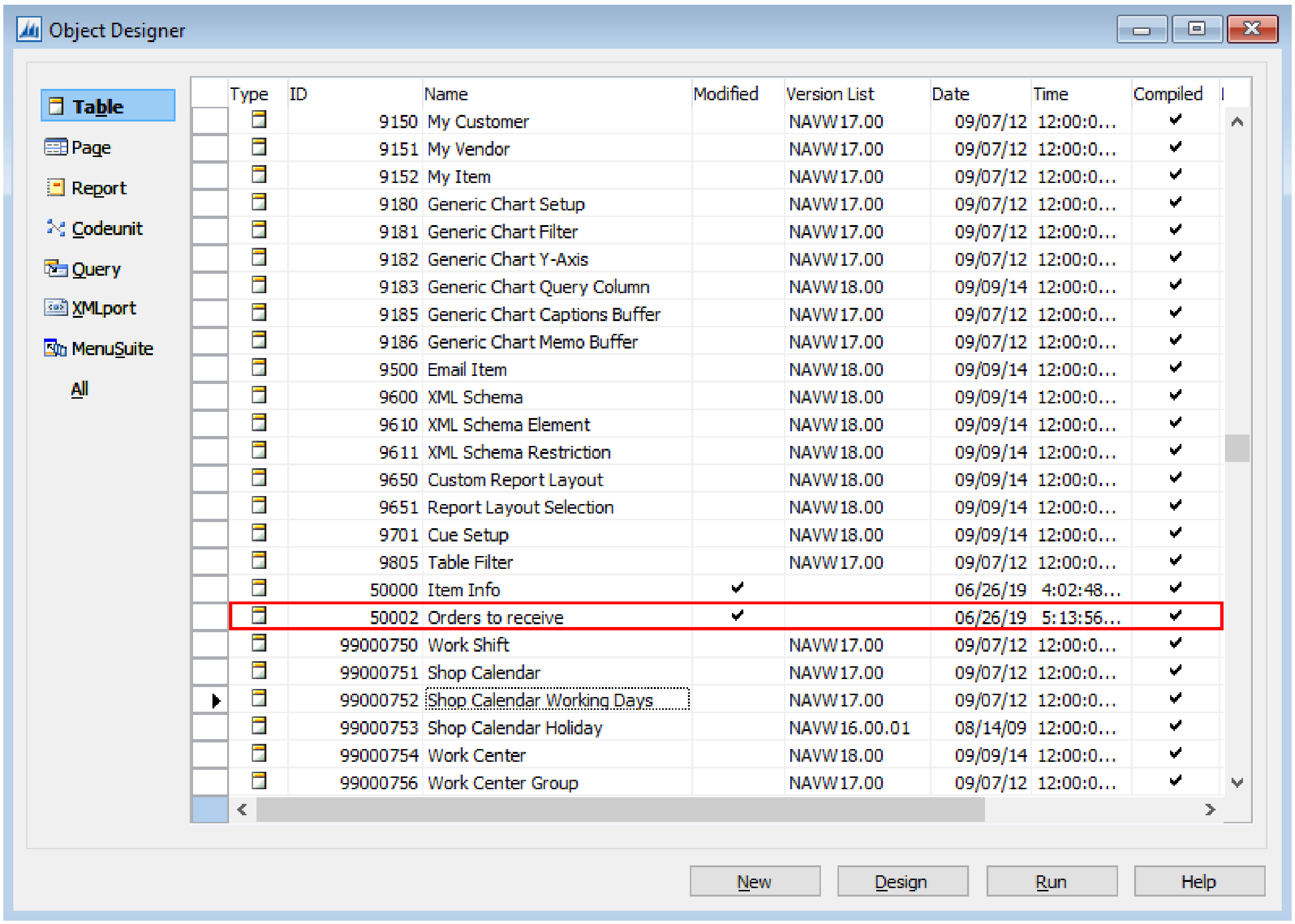
Close the window and close the Table Designer window. NAV will prompt you to save the changes, click **Yes**. The **Save As** dialog asks you to enter table **ID** and **Name**. According to the NAV documentation, the user-defined ID range is [50,000-99,999], so we can choose any unused value. The **Name must** be the same as the *Orders to receive* view name, in our case, “Orders to receive”.



ID	50002
Name	Orders to receive
Compiled	✓
Synchronize Schema	Now - with validation

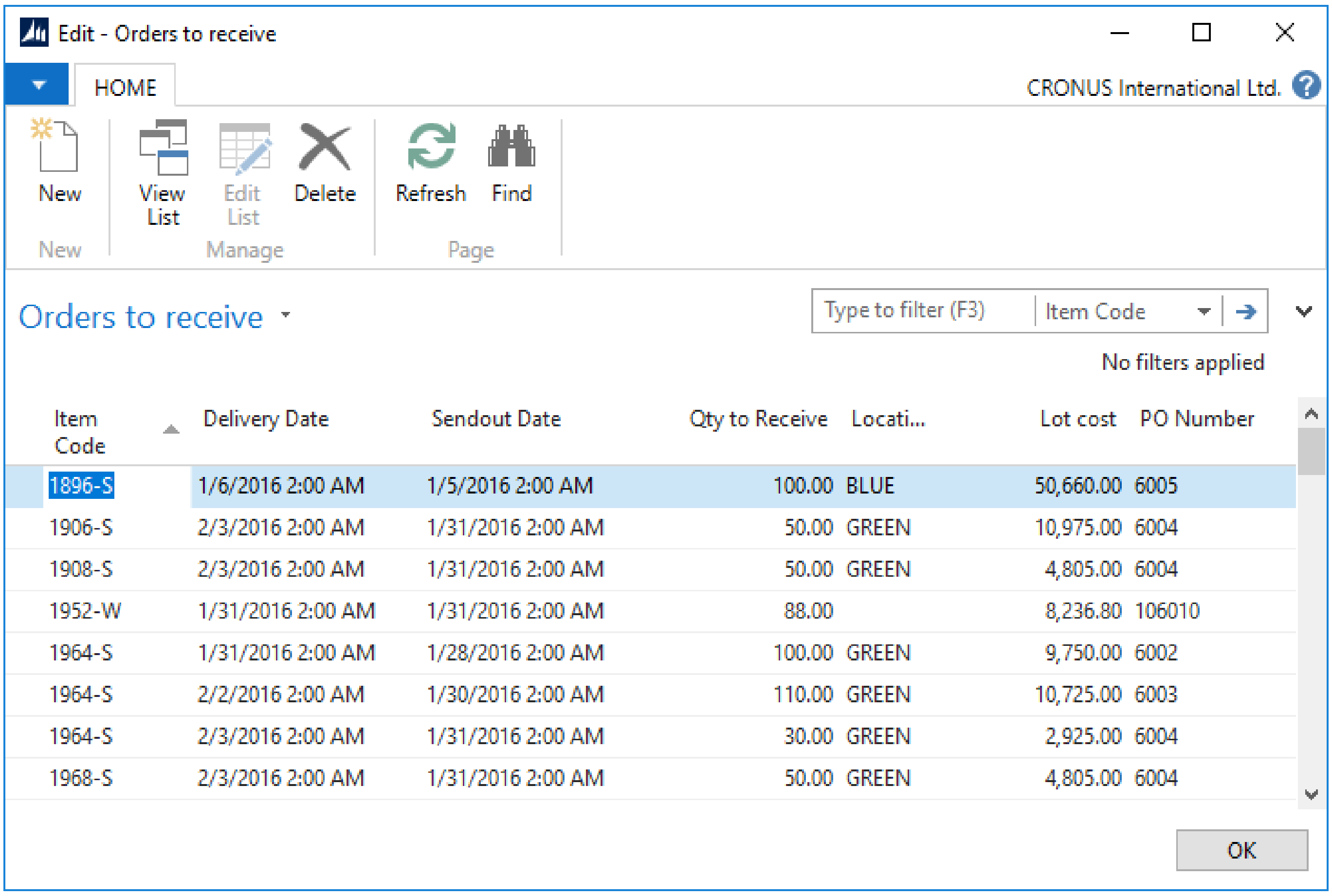
Before synchronizing to the database table, changes are validated to ensure that they will not cause data loss. If no errors occur, then they are synchronized.

Click **OK**. Now the *Orders to receive* table will appear in the list.



Type	ID	Name	Modified	Version List	Date	Time	Compiled
	9150	My Customer		NAVW17.00	09/07/12	12:00:0...	✓
	9151	My Vendor		NAVW17.00	09/07/12	12:00:0...	✓
	9152	My Item		NAVW17.00	09/07/12	12:00:0...	✓
	9180	Generic Chart Setup		NAVW17.00	09/07/12	12:00:0...	✓
	9181	Generic Chart Filter		NAVW17.00	09/07/12	12:00:0...	✓
	9182	Generic Chart Y-Axis		NAVW17.00	09/07/12	12:00:0...	✓
	9183	Generic Chart Query Column		NAVW18.00	09/09/14	12:00:0...	✓
	9185	Generic Chart Captions Buffer		NAVW17.00	09/07/12	12:00:0...	✓
	9186	Generic Chart Memo Buffer		NAVW17.00	09/07/12	12:00:0...	✓
	9500	Email Item		NAVW18.00	09/09/14	12:00:0...	✓
	9600	XML Schema		NAVW18.00	09/09/14	12:00:0...	✓
	9610	XML Schema Element		NAVW18.00	09/09/14	12:00:0...	✓
	9611	XML Schema Restriction		NAVW18.00	09/09/14	12:00:0...	✓
	9650	Custom Report Layout		NAVW18.00	09/09/14	12:00:0...	✓
	9651	Report Layout Selection		NAVW18.00	09/09/14	12:00:0...	✓
	9701	Cue Setup		NAVW18.00	09/09/14	12:00:0...	✓
	9805	Table Filter		NAVW17.00	09/07/12	12:00:0...	✓
	50000	Item Info	✓		06/26/19	4:02:48...	✓
	50002	Orders to receive	✓		06/26/19	5:13:56...	✓
	99000750	Work Shift		NAVW17.00	09/07/12	12:00:0...	✓
	99000751	Shop Calendar		NAVW17.00	09/07/12	12:00:0...	✓
	99000752	Shop Calendar Working Days		NAVW17.00	09/07/12	12:00:0...	✓
	99000753	Shop Calendar Holiday		NAVW16.00.01	08/14/09	12:00:0...	✓
	99000754	Work Center		NAVW18.00	09/09/14	12:00:0...	✓
	99000756	Work Center Group		NAVW17.00	09/07/12	12:00:0...	✓

To test it, click the **Run** button. This will launch the Dynamics NAV Client and shows the result in a separate window.



Item Code	Delivery Date	Sendout Date	Qty to Receive	Locati...	Lot cost	PO Number
1896-S	1/6/2016 2:00 AM	1/5/2016 2:00 AM	100.00	BLUE	50,660.00	6005
1906-S	2/3/2016 2:00 AM	1/31/2016 2:00 AM	50.00	GREEN	10,975.00	6004
1908-S	2/3/2016 2:00 AM	1/31/2016 2:00 AM	50.00	GREEN	4,805.00	6004
1952-W	1/31/2016 2:00 AM	1/31/2016 2:00 AM	88.00		8,236.80	106010
1964-S	1/31/2016 2:00 AM	1/28/2016 2:00 AM	100.00	GREEN	9,750.00	6002
1964-S	2/2/2016 2:00 AM	1/30/2016 2:00 AM	110.00	GREEN	10,725.00	6003
1964-S	2/3/2016 2:00 AM	1/31/2016 2:00 AM	30.00	GREEN	2,925.00	6004
1968-S	2/3/2016 2:00 AM	1/31/2016 2:00 AM	50.00	GREEN	4,805.00	6004

3 Creating a page

NAV allows publishing a *Page*, *Query* or *CodeUnit* object as a web-service. . In our case *Pages* will be used to expose the *Orders to receive* and *Item Info* read-services and a *Query* – to expose the *Transactions* service. So let’s create a page that will display the *Orders to receive* table.

Select the **Page** category in the **Object Designer** window and click the **New** button. In the **Table** field enter the table name you want to show on the new page. In our case, this is the *Orders to receive* table. Click **Create a page using a wizard** option and select **List** from the choices. Click **OK**.

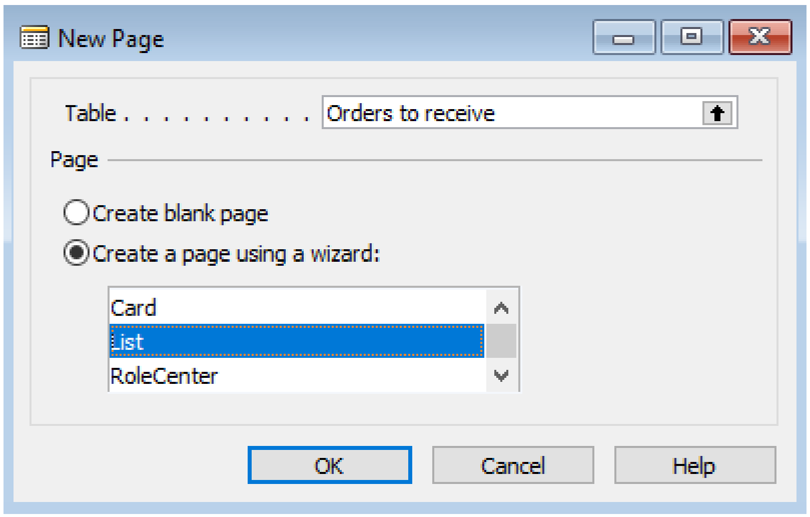
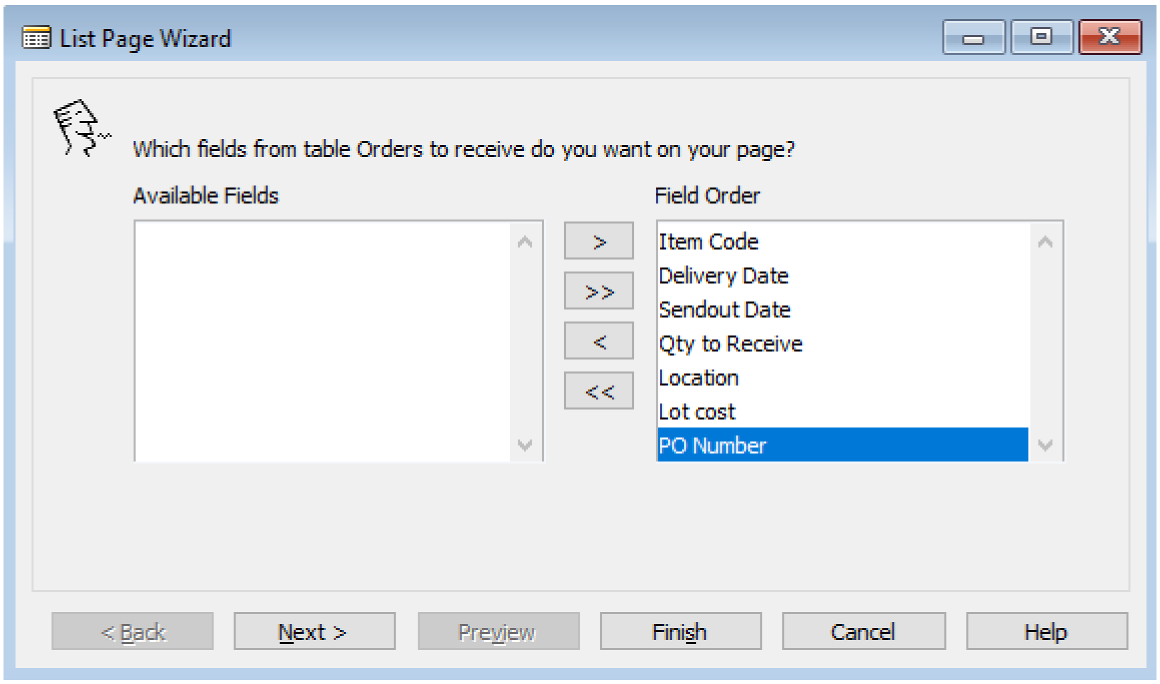


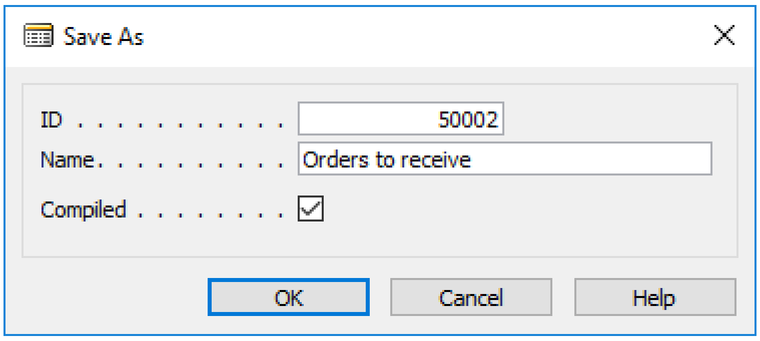
Table . . . . Orders to receive

Create blank page
[✓ Create a page using a wizard:]

Card
[✓ List]
RoleCenter



Add all the fields on the page and click the **Finish** button. Close the **Page Designer** dialog, and click **Yes** to save the changes. Enter page **ID** (choose any unused id from the range described above). Type a name for the page and click **OK** in the **Save As** dialog.


Save As

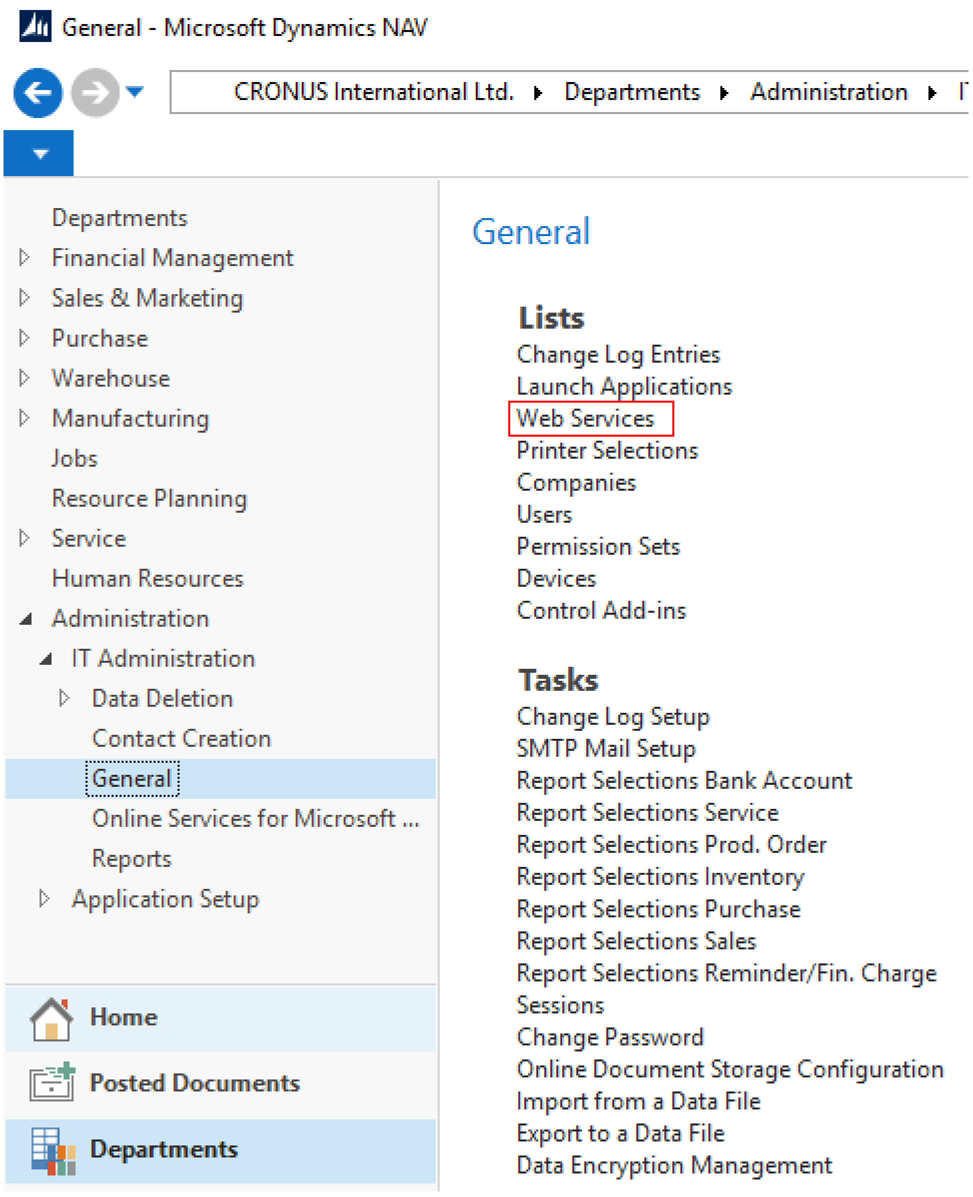
ID 50002
Name. . . . . Orders to receive
Compiled . . . . ✓

After that, the *Orders to receive* page will appear in the list.

4 Publishing a web-service

Finally, let's publish the created page as a web-service.

Run the NAV Client, go to **Departments** > **Administration** > **IT Administration** > **General**. Click on the **Web Services** link in the **Lists** section.

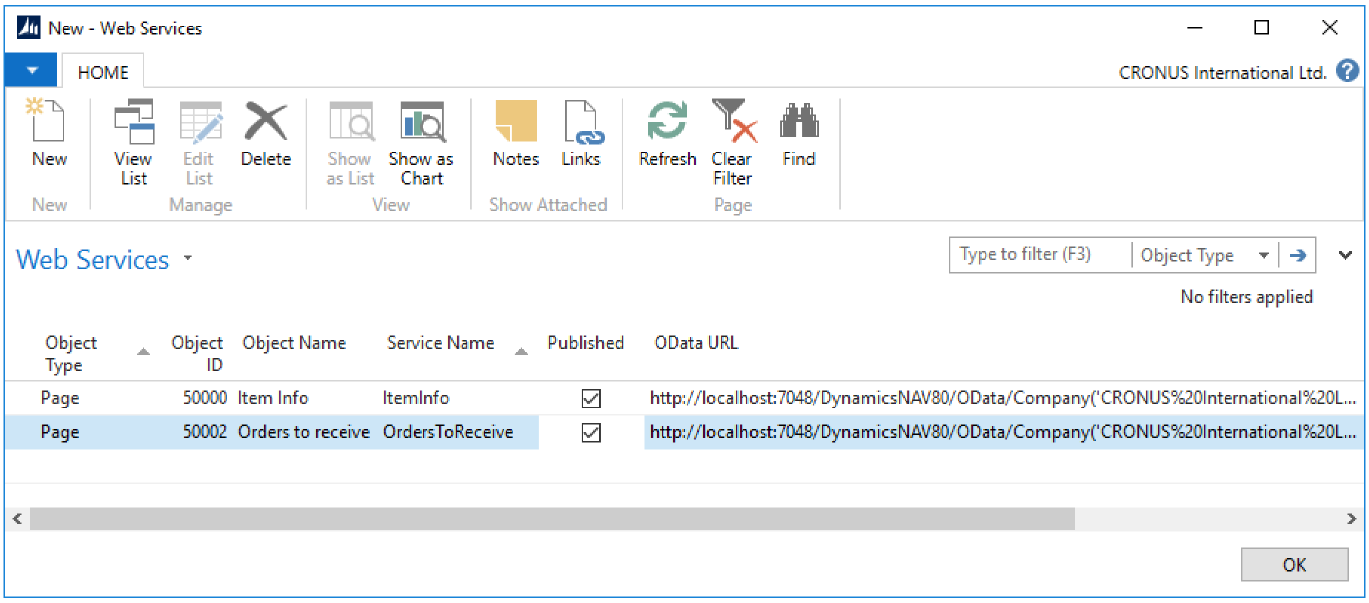


General

Lists
Change Log Entries
Launch Applications
Web Services
Printer Selections
Companies
Users
Permission Sets
Devices
Control Add-ins

Tasks
Change Log Setup
SMTP Mail Setup
Report Selections Bank Account
Report Selections Service
Report Selections Prod. Order
Report Selections Inventory
Report Selections Purchase
Report Selections Sales
Report Selections Reminder/Fin. Charge
Sessions
Change Password
Online Document Storage Configuration
Import from a Data File
Export to a Data File
Data Encryption Management

Click the **New** button in the toolbar. In the **New – Web Services** window, set the cursor on the first empty line. Choose **Page** in the **Object Type** column, type the page **ID** in the **Object ID** column (in our case '50002'). Enter the service name in the **Service Name** column (this name will be a part of the web-service URL). Publish the service by selecting the **Published** checkbox.



Object Type	Object ID	Object Name	Service Name	Published	OData URL
Page	50000	Item Info	ItemInfo	☑	http://localhost:7048/DynamicsNAV80/OData/Company('CRONUS%20International%20L...
Page	50002	Orders to receive	OrdersToReceive	☑	http://localhost:7048/DynamicsNAV80/OData/Company('CRONUS%20International%20L...

To test the web-service, select it and its link in the OData URL column. The URL will be opened in the default browser. The result should be similar to:

```
<?xml version="1.0" encoding="utf-8"?>
  <feed xml:base="http://localhost:7048/DynamicsNAV80/OData/"
xmlns="http://www.w3.org/2005/Atom"
xmlns:d="http://schemas.microsoft.com/ado/2007/08/dataservices"
xmlns:m="http://schemas.microsoft.com/ado/2007/08/dataservices/metadata">
<id>http://localhost:7048/DynamicsNAV80/OData/Company('CRONUS%20Internationa
l%20Ltd.')/OrdersToReceive</id>
  <title
type="text">OrdersToReceive</title><updated>2019-06-26T14:34:41Z</updated><l
ink rel="self" title="OrdersToReceive" href="OrdersToReceive" />
  <entry
m:etag="W/&quot;'32%3BUsMAAAF7MQA4ADkANgAtAFMAAAAAAA%3D%3D1%3B00%3B'&quot;">
<id>http://localhost:7048/DynamicsNAV80/OData/Company('CRONUS%20Internationa
l%20Ltd.')/OrdersToReceive('1896-S')</id>
    <category term="NAV.OrdersToReceive"
scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
      <link rel="edit" title="OrdersToReceive"
href="Company('CRONUS%20International%20Ltd.')/OrdersToReceive('1896-S')" />
      <title />
      <updated>2019-06-26T14:34:41Z</updated>
      <author><name /></author>
      <content type="application/xml"><m:properties>
        <d:Item_Code>1896-S</d:Item_Code>
        <d:Delivery_Date
m:type="Edm.DateTime">2016-01-06T00:00:00Z</d:Delivery_Date>
        <d:Sendout_Date
m:type="Edm.DateTime">2016-01-05T00:00:00Z</d:Sendout_Date>
        <d:Qty_to_Receive m:type="Edm.Decimal">100</d:Qty_to_Receive>
        <d:Location>BLUE</d:Location>
        <d:Lot_cost m:type="Edm.Decimal">50660.000000</d:Lot_cost>
        <d:PO_Number>6005</d:PO_Number>
        <d:ETag>32;UsMAAAF7MQA4ADkANgAtAFMAAAAAAA==1;00;</d:ETag>
        </m:properties>
      </content>
  </entry>
  <entry
m:etag="W/&quot;'32%3BUsMAAAF7MQA5ADAANgAtAFMAAAAAAA%3D%3D1%3B00%3B'&quot;">
<id>http://localhost:7048/DynamicsNAV80/OData/Company('CRONUS%20Internationa
l%20Ltd.')/OrdersToReceive('1906-S')</id>
    <category term="NAV.OrdersToReceive"
scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
      <link rel="edit" title="OrdersToReceive"
href="Company('CRONUS%20International%20Ltd.')/OrdersToReceive('1906-S')"
/><title />
      <updated>2019-06-26T14:34:41Z</updated>
      <author><name /></author>
      <content type="application/xml"><m:properties>
      <d:Item_Code>1906-S</d:Item_Code>
      <d:Delivery_Date
m:type="Edm.DateTime">2016-02-03T00:00:00Z</d:Delivery_Date>
      <d:Sendout_Date
m:type="Edm.DateTime">2016-01-31T00:00:00Z</d:Sendout_Date>
      <d:Qty_to_Receive m:type="Edm.Decimal">50</d:Qty_to_Receive>
      <d:Location>GREEN</d:Location>
      <d:Lot_cost m:type="Edm.Decimal">10974.999000</d:Lot_cost>
<d:PO_Number>6004</d:PO_Number><d:ETag>32;UsMAAAF7MQA5ADAANgAtAFMAAAAAAA==1;
00;</d:ETag>
      </m:properties>
    </content>
  </entry>
…
```

Click **OK** to close the **New – Web Services** window.

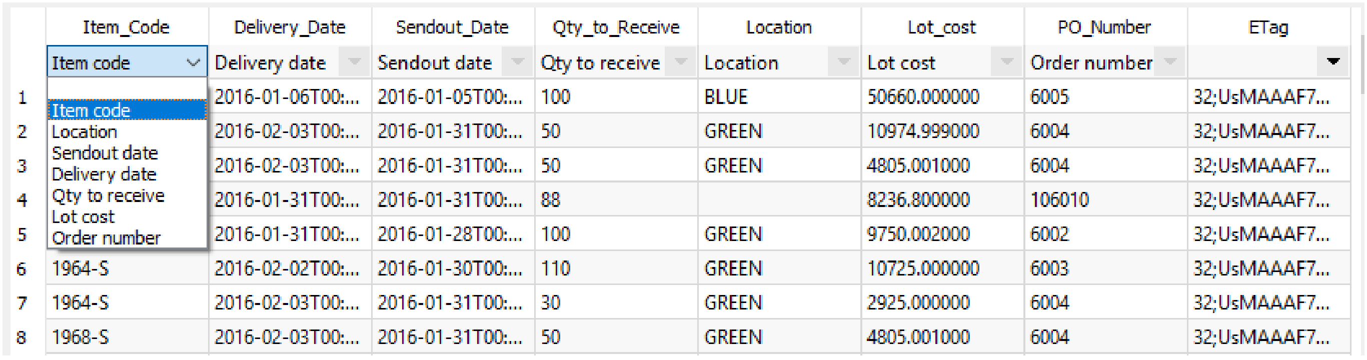
The URL for the **Orders to receive** field of the **Dynamics NAV connection** dialog in our example is: http://localhost:7048/DynamicsNAV80/OData/Company('CRONUS%20International%20Ltd.')/OrdersToReceive

Generally, you will need to replace *localhost* with the *IP* of the machine running the NAV Server.

5 Setting the meaning of read-service table columns

In order to understand *read-service* data correctly by Streamline, we need to set up the proper column type for each of the table columns returned by a service. To do this, click on the **Preview** button near the *read-service* link of the NAV connection dialog. The result of the query will appear in the table below.

Click on the combo-box under each column header and choose the most appropriate type in the drop-down list.



	Item_Code	Delivery_Date	Sendout_Date	Qty_to_Receive	Location	Lot_cost	PO_Number	ETag
	Item code	Delivery date	Sendout date	Qty to receive	Location	Lot cost	Order number	
1		2016-01-06T00:...	2016-01-05T00:...	100	BLUE	50660.000000	6005	32;UsMAAAF7...
2		2016-02-03T00:...	2016-01-31T00:...	50	GREEN	10974.999000	6004	32;UsMAAAF7...
3		2016-02-03T00:...	2016-01-31T00:...	50	GREEN	4805.001000	6004	32;UsMAAAF7...
4		2016-01-31T00:...	2016-01-31T00:...	88		8236.800000	106010	32;UsMAAAF7...
5		2016-01-31T00:...	2016-01-28T00:...	100	GREEN	9750.002000	6002	32;UsMAAAF7...
6	1964-S	2016-02-02T00:...	2016-01-30T00:...	110	GREEN	10725.000000	6003	32;UsMAAAF7...
7	1964-S	2016-02-03T00:...	2016-01-31T00:...	30	GREEN	2925.000000	6004	32;UsMAAAF7...
8	1968-S	2016-02-03T00:...	2016-01-31T00:...	50	GREEN	4805.001000	6004	32;UsMAAAF7...

Item code
Location
Sendout date
Delivery date
Qty to receive
Lot cost
Order number

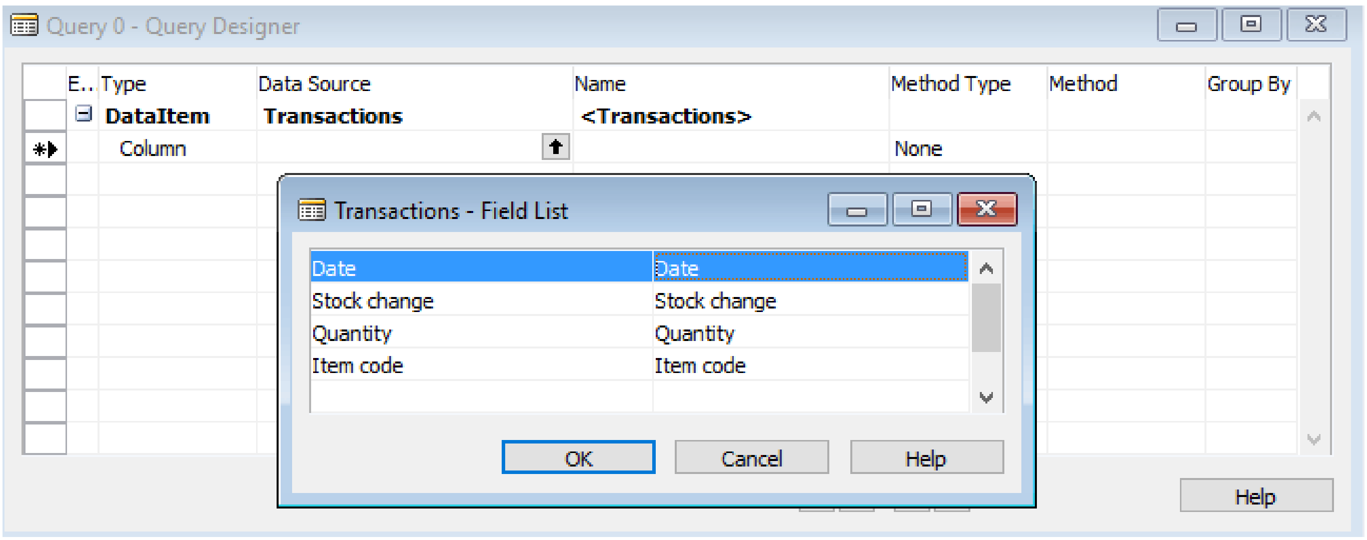
Repeat steps 1-5 for the *Item info*, and *Orders to receive* services. You can download SQL queries for all the *read-services*: items.sql, transactions.sql, orders-to-receive.sql.

For the *Transactions* service the third step is creating a *Query* instead of creating a *Page* (explained below).

Creating a query

Streamline requires that *Transactions* service returns records ordered by date. Therefore we will create a query that orders the *Transactions* table by date and then publish it as a web-service.

Go to the **Query** category in the **Object Designer** window and click the **New** button. Leave the **Type** as it is by default (DataItem). In the **Data source** column click on the *arrow* and choose the *Transactions* table in the appeared list. Now, let's add all the columns of the table in the query. To do this, set the cursor on the next line (the **Type** will be set to '*Column*' automatically) and click the arrow in **Data Source** column. Choose one of the table fields. Repeat this procedure until all the fields are added to the query.



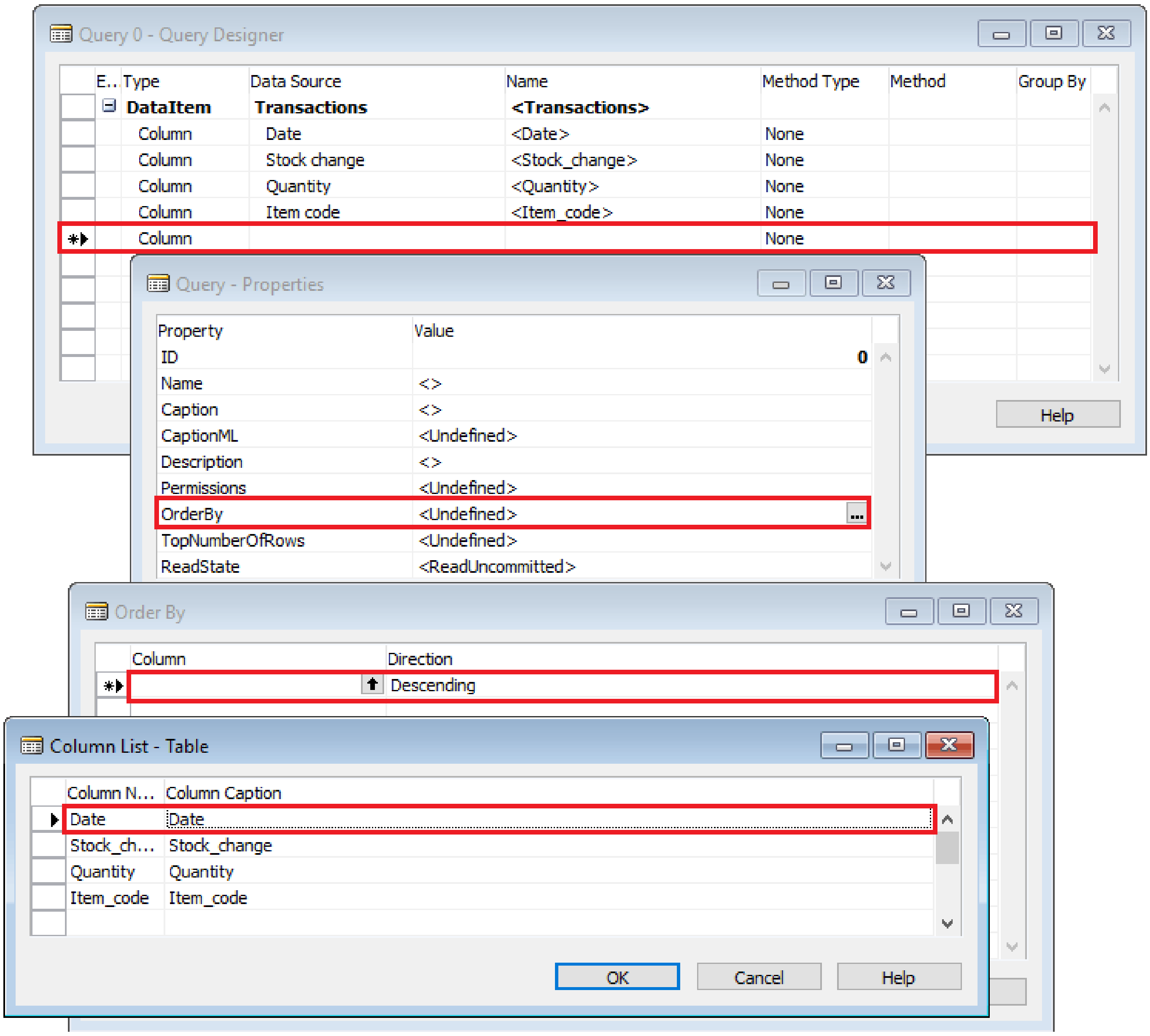
Query 0 - Query Designer

E..	Type	Data Source	Name	Method Type	Method	Group By
⊟	**DataItem**	**Transactions**	**<Transactions>**			
	Column			None		

Transactions - Field List

Date	Date
Stock change	Stock change
Quantity	Quantity
Item code	Item code

To open the query properties, set the cursor on the last line of the Query dialog and go to menu **View** > **Properties**. We need here to set the **OrderBy** property. Click on the button on the right of the **Value** column. Set the **Direction** to the descending order of the **Order by** dialog. Then click on the arrow in the **Column**. Choose the **Date** field in the list.



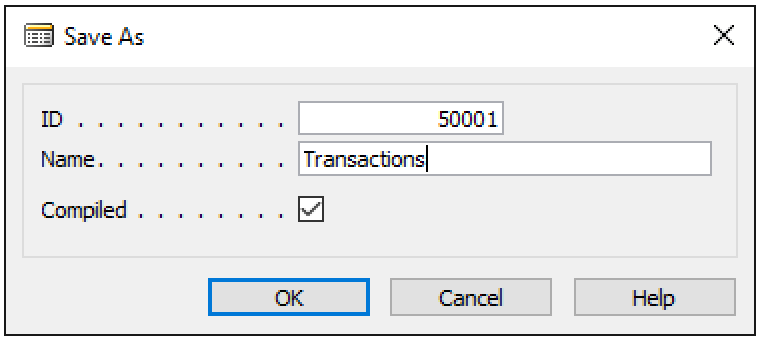
E..	Type	Data Source	Name	Method Type	Method	Group By
⊟	DataItem	Transactions	<Transactions>			
	Column	Date	<Date>	None		
	Column	Stock change	<Stock_change>	None		
	Column	Quantity	<Quantity>	None		
	Column	Item code	<Item_code>	None		
	Column			None		

Property	Value
ID	0
Name	<>
Caption	<>
CaptionML	<Undefined>
Description	<>
Permissions	<Undefined>
OrderBy	<Undefined>
TopNumberOfRows	<Undefined>
ReadState	<ReadUncommitted>

Column	Direction
	Descending

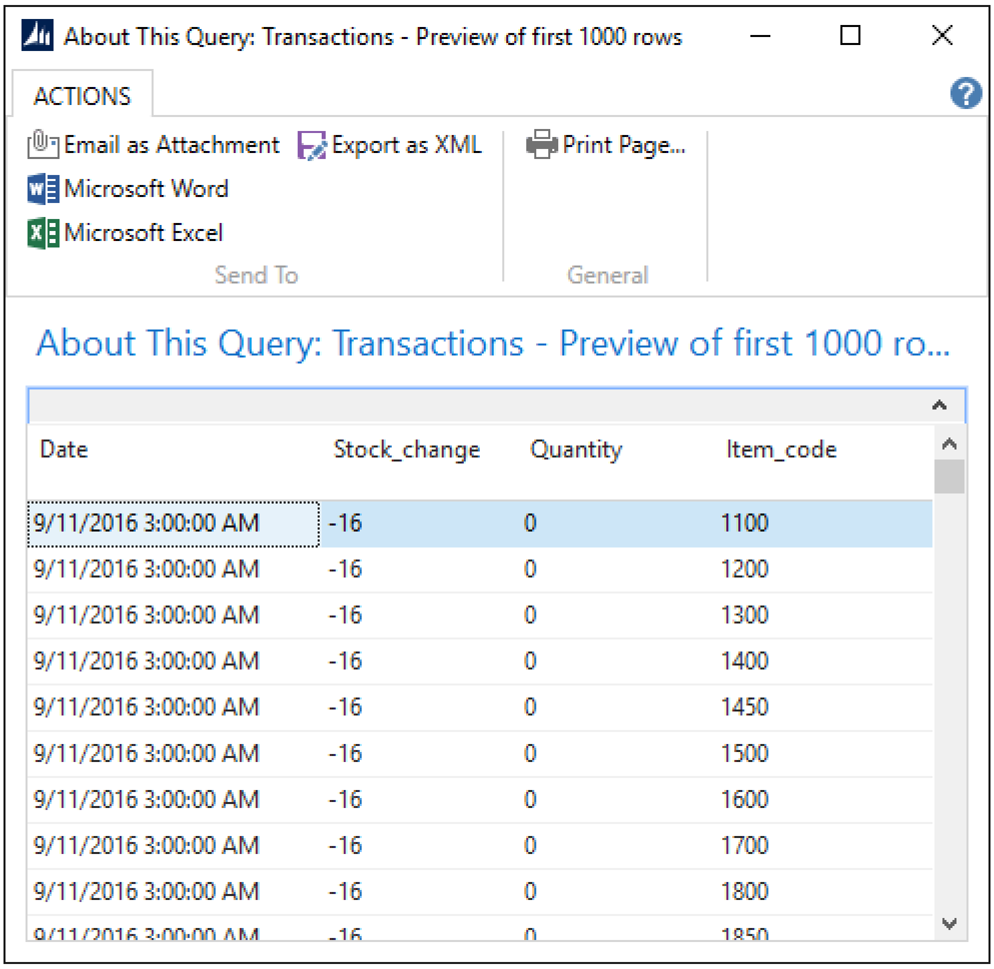
Column N...	Column Caption
Date	Date
Stock_ch...	Stock_change
Quantity	Quantity
Item_code	Item_code

Click **OK** to close the **Order By** dialog. Close the **Query Properties** dialog. Close the **New Query** dialog. Enter an ID from the user range and a name, for example, ‘Transactions’ and save the query.



ID	50001
Name.	Transactions
Compiled	✓

Now this query will appear on the list. To test it, select it and press the **Run** button. The *Transactions* table ordered by date will be opened in a separate window.



About This Query: Transactions - Preview of first 1000 ro...

Date	Stock_change	Quantity	Item_code
9/11/2016 3:00:00 AM	-16	0	1100
9/11/2016 3:00:00 AM	-16	0	1200
9/11/2016 3:00:00 AM	-16	0	1300
9/11/2016 3:00:00 AM	-16	0	1400
9/11/2016 3:00:00 AM	-16	0	1450
9/11/2016 3:00:00 AM	-16	0	1500
9/11/2016 3:00:00 AM	-16	0	1600
9/11/2016 3:00:00 AM	-16	0	1700
9/11/2016 3:00:00 AM	-16	0	1800
9/11/2016 3:00:00 AM	-16	0	1850

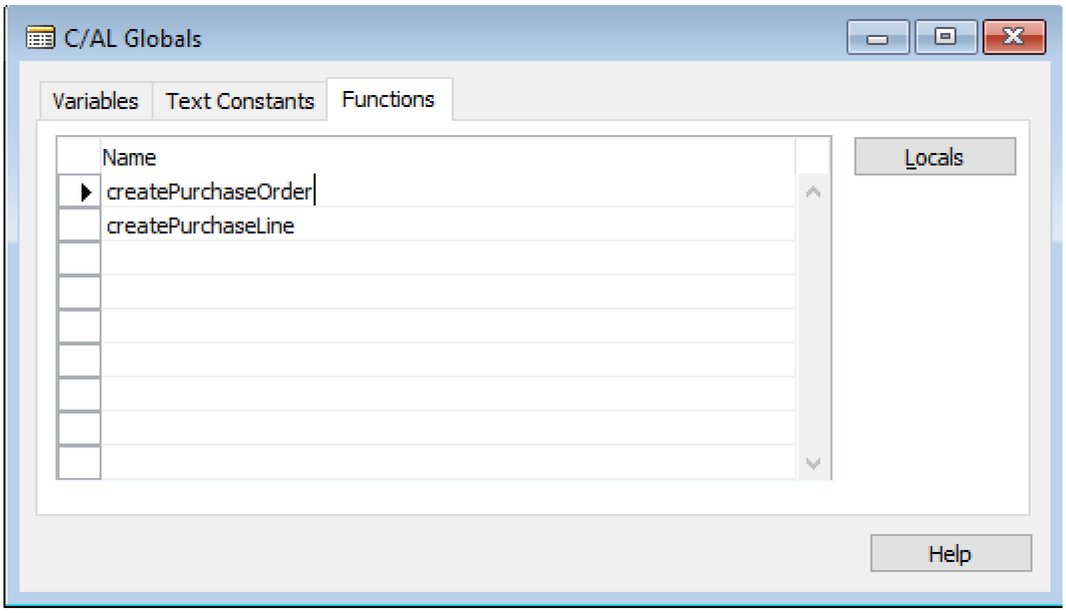
The link for the **Transactions** service in the **Dynamics NAV connection** dialog must also contain the **orderby** parameter: "http://localhost:7048/DynamicsNAV80/OData/Company('CRONUS%20International%20Ltd.')/SalesHistory?&$orderby=Date desc"

Creating the write-service

Now, let’s make up a web-service that creates purchase orders in NAV. We need to create two functions: the first creates an order by the given vendor code and returns its number, the second adds a purchase line into the purchase order using the given order number. A purchase line is described by item code and item quantity.

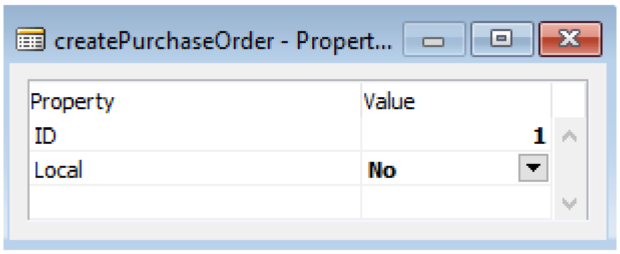
To do this, we will use NAV **Codeunits**. So, open NAV Development Environment, select **Codeunit** in the left menu and click the **New** button.

First, we need to declare these functions in the codeunit. To do this, click the menu **View** > **C/AL Globals**. Click on the **Functions** tab of the **C/AL Globals** window. Let’s name them *createPurchaseOrder* and *createPurchaseLine*. Enter these names into the list.



Name
createPurchaseOrder
createPurchaseLine

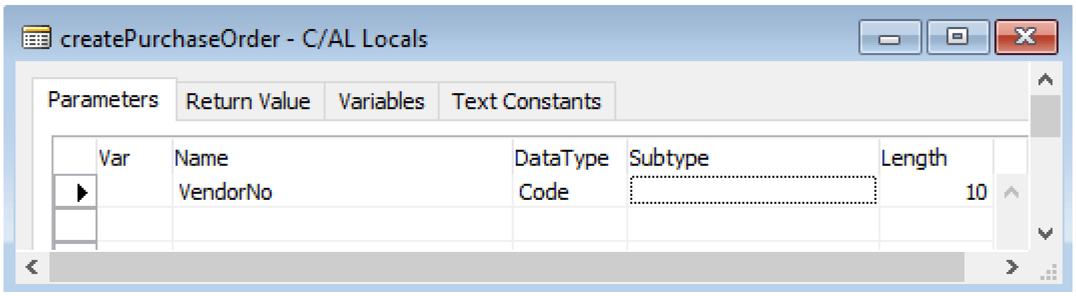
Set the cursor on the line with the function name, click menu **View** > **Properties** and set **Local** property to **No**.



Property	Value
ID	1
Local	No

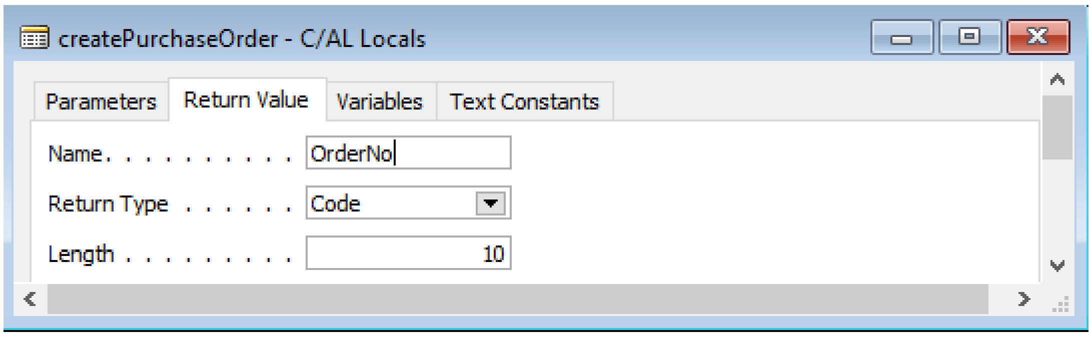
Now, let's specify the declaration of the functions by adding their input and output parameters. Set the cursor on the line with the *createPurchaseOrder* function, and click on the **Locals** button.

The input parameters are declared on the Parameters tab. Let's add a parameter named **VendorNo**. Its DataType is **Code**.



Var	Name	DataType	Subtype	Length
	VendorNo	Code		10

The return value of the function will be **OrderNo** with data type **Code** also.



createPurchaseOrder - C/AL Locals

Parameters | Return Value | Variables | Text Constants

Name. . . . . OrderNo

Return Type . . . . . . Code

Length 10

In the body of the function, we will use a local variable that is linked to the record of the NAV *PurchaseHeader* table. Function's local variables are declared on the **Variables** tab. Add a variable named **PurchaseHeader** with DataType of **Record**. To set the **Subtype**, click on the arrow in the right corner of the field and choose the 38th line which is **Purchase Header**.

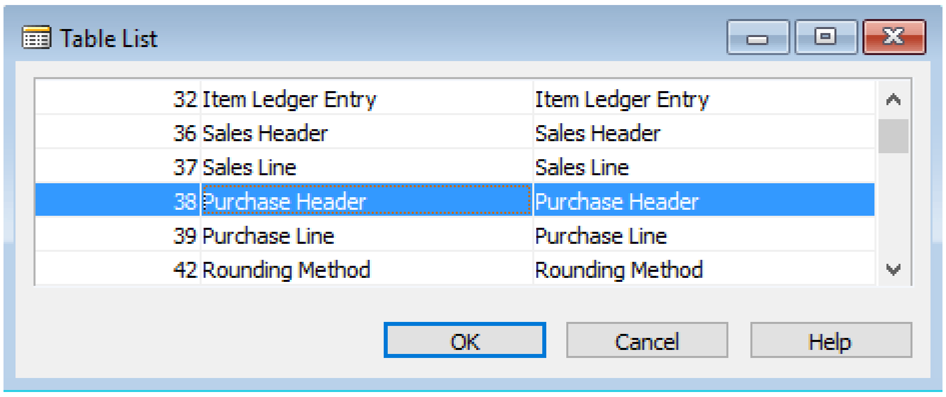
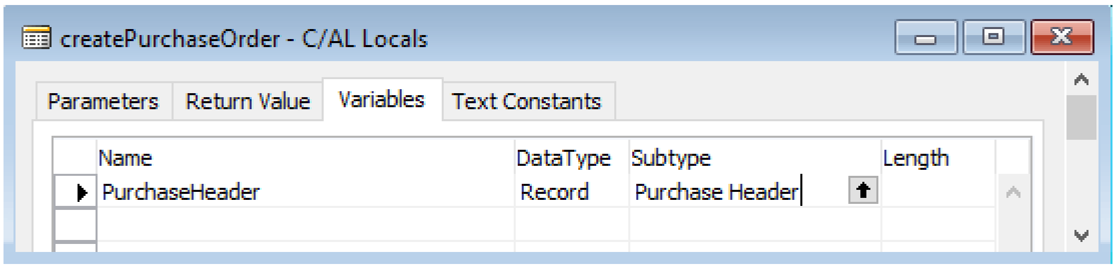


Table List

32	Item Ledger Entry	Item Ledger Entry
36	Sales Header	Sales Header
37	Sales Line	Sales Line
38	Purchase Header	Purchase Header
39	Purchase Line	Purchase Line
42	Rounding Method	Rounding Method



createPurchaseOrder - C/AL Locals

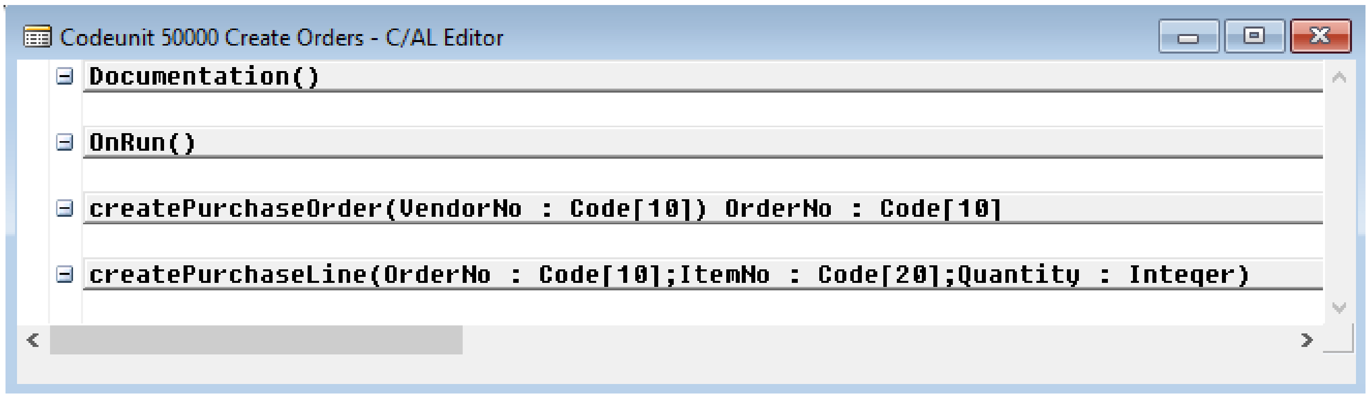
Parameters | Return Value | Variables | Text Constants

Name	DataType	Subtype	Length
PurchaseHeader	Record	Purchase Header	

Do the same actions for the *createPurchaseLine* using the information from the table below.

Name	DataType	Subtype	Length
Input variables			
OrderNo	Code		10
ItemNo	Code		20
Quantity	Integer		
Local variables			
PurchaseLine	Record	Purchase Line	
PurchaseHeader	Record	Purchase Header	
NextLineNo	Integer		

After completing all of this, you should have the following functions' declarations in the C/AL Editor window:



```
Documentation()

OnRun()

createPurchaseOrder(VendorNo : Code[10]) OrderNo : Code[10]

createPurchaseLine(OrderNo : Code[10];ItemNo : Code[20];Quantity : Integer)
```

Now, let’s write the functions’ bodies. Set the cursor on the next empty line after the declaration of the *createPurchaseOrder* function and copy-paste the following code:

```
PurchaseHeader.INIT;
PurchaseHeader.VALIDATE("Document Type",PurchaseHeader."Document
Type"::Order);
PurchaseHeader.VALIDATE("Buy-from Vendor No.",VendorNo);
PurchaseHeader.INSERT(TRUE);
EXIT(PurchaseHeader."No.");
```

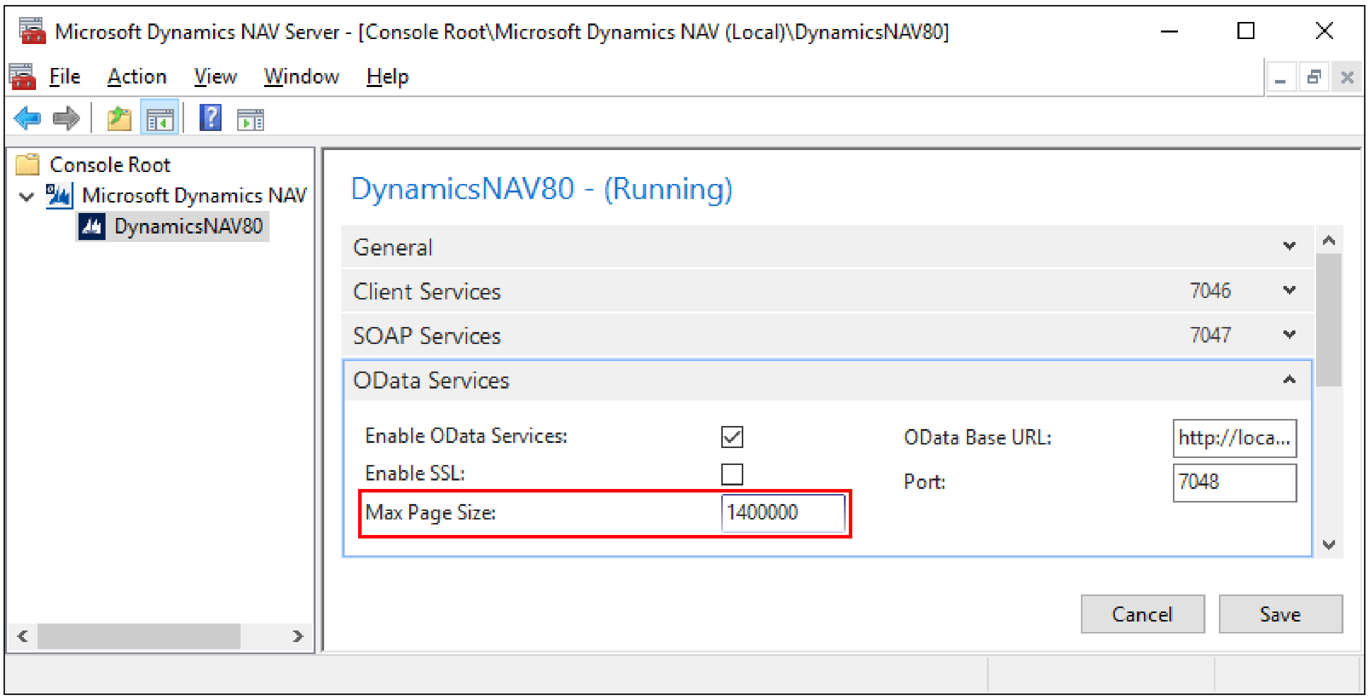
Add the following body for the *createPurchaseLine* function:

```
PurchaseLine.RESET;
PurchaseLine.SETRANGE("Document Type",PurchaseHeader."Document
Type"::Order);
PurchaseLine.SETRANGE("Document No.",OrderNo);
IF PurchaseLine.FIND('+') THEN
  NextLineNo := PurchaseLine."Line No." + 10000
ELSE
  NextLineNo := 10000;
IF NextLineNo = 10000 THEN

CLEAR(PurchaseLine);
PurchaseLine.INIT;
PurchaseLine."Document Type" := PurchaseHeader."Document Type"::Order;
PurchaseLine."Document No." := OrderNo;
PurchaseLine."Line No." := NextLineNo;
PurchaseLine.INSERT(TRUE);
PurchaseLine.VALIDATE(Type,PurchaseLine.Type::Item);
PurchaseLine.VALIDATE("No.", ItemNo);
PurchaseLine.VALIDATE(Quantity,Quantity);
PurchaseLine.MODIFY(TRUE);
```

Close the codeunit, click **OK** with the checked **Compiled** option.

Performance tip: to make the connector load data faster, set the **Max page size** parameter high enough to cover the size of the *Transactions* query. To do this, open the NAV Server Administration Tool, expand the tree in the left pane, select **DynamicsNAV80** instance. Expand the **OData Services** tab, click the **Edit** button in the bottom, set the value in the **Max page size** field. For example, if the query returns over 1.3 million records, set it to 1,400,000. Click the **Save** button.

Restart the NAV server.


Microsoft Dynamics NAV Server - [Console Root\Microsoft Dynamics NAV (Local)\DynamicsNAV80]
File
Action
View
Window
Help
Console Root
Microsoft Dynamics NAV
DynamicsNAV80
General
Cancel
Save

DynamicsNAV80 - (Running)

Client Services 7046

SOAP Services 7047

OData Services

Enable OData Services: ✓

Enable SSL: ☐

Max Page Size: 1400000

OData Base URL: http://loca...

Port: 7048

Next: Fishbowl

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