Query and Excel Report

Query and Excel Report

4BzSoftware Company Limited | Product S-02

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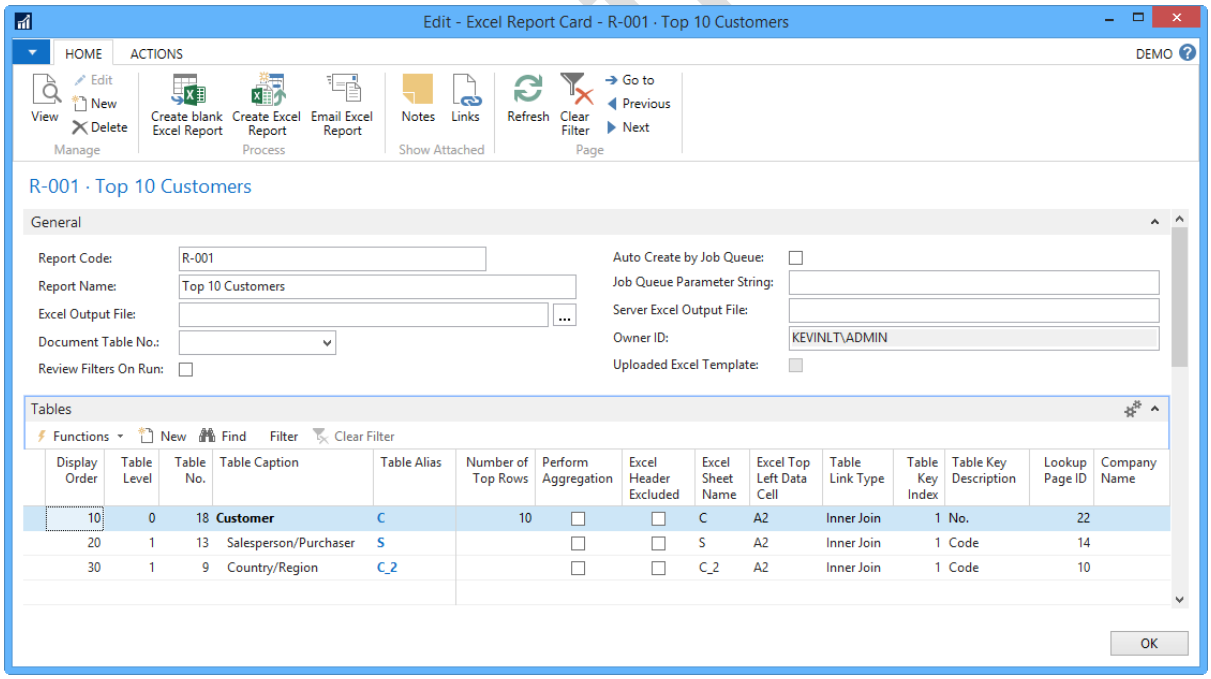
1. Introduction

As you know, Microsoft Excel has tremendous capabilities such as Formula, Chart, Power Pivot, Slicer, and Condition Format … help you build stunning dashboards and reports. Now with our solution, users, without programming skill, make real time Excel reports in Microsoft Dynamics NAV directly. Below is "Query and Excel Report" functionality:

- User interaction or prepare reports silently, capacity of using pre-built Excel template.
- Make report with 3 steps by Wizard including select Fields, Tables and arrange Fields.
- WYSIWYG Document Layout design produces superb looking document reports.
- Distribute reports through email automatically.
- Retrieve data from multiple companies quickly.
- Report built-in security by standard NAV Role and Permission, and report owner.
- Ability to share reports to other users in same company or using different NAV systems.
- Support aggregation functions such as Group, Summary, Count, Average, Max, and Min.
- Capacity to sort and keep top rows for reports such as Top 10 Customer, Top 20 Item.
- Support joins tables for linking information, Report Parameter for filtering.
- Multiple Excel Worksheets, Format Value, Format Cell, Column Width support.
- Support Web client, export report data to XML with or without Schema.

Related videos at https://www.youtube.com/playlist?list=PLfgzNr8_2Gkp8o589mH7XLFqEUBywciry



We make every effort to ensure that there are no errors. However, no one is perfect, and mistakes do occur. If you find an error or have any idea, we would be very grateful for your feedback, please email to support@4bzsoftware.com. Hope with our products, we contribute to success of your company!

2. How to install

Supported versions: from NAV 2013 (version 070) to NAV 2017 (version 100).

The customization includes below NAV objects:

No.	Type	ID	Name	Note
1	Record	88	Excel Report Header	
2	Record	89	Excel Report Line	
3	Codeunit	31	NAV Library	Protected Object
4	Codeunit	32	Data Table Library	Protected Object
5	Codeunit	33	Excel Library	Protected Object
6	Codeunit	65	License Management	Protected Object
7	Codeunit	201	Excel Report Management	Protected Object
8	Page	8	Standard Text Codes	Start Point
9	Page	502	Posted Sales Invoices Sample	Copied from page 143
10	Page	520	Excel Report List	
11	Page	531	Excel Report Card	
12	Page	532	Excel Report Table Subpage	
13	Page	533	Excel Report Field Subpage	
14	Page	544	Excel Report Filter Subpage	
15	Page	545	Excel Report Parameter Subpage	
16	Page	546	Excel Report Cell Subpage	
17	Page	547	Excel Report Table Key List	
18	Page	549	Excel Report Table Alias List	
19	Page	561	Excel Report Field List	
20	Page	565	Excel Report Wizard	
21	Page	566	Excel Report Params & Filters	
22	Page	9097	Values Lookup	
23	Page	9174	All Objects with Caption	
24	Page	9800	Users	No need from NAV 2016
25	Page	9806	Fields Lookup	

Protected Objects (Codeunit from 31 to 201) should be merged by 4BzSoftware. Other Objects are merged by Customer's Software Vendor (refer to section 4 Technical Point of View for merging).

Note: do not edit or compile Protected Objects, they will be crashed (refer to section 4 to cover)!

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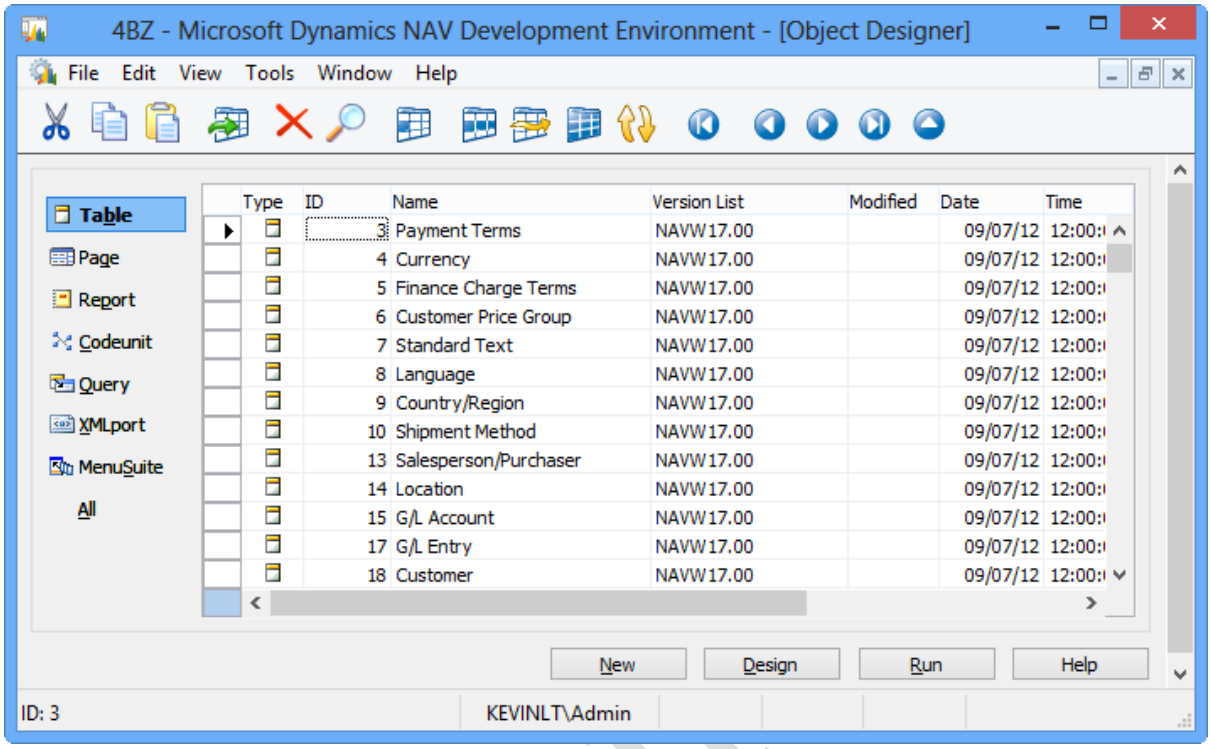
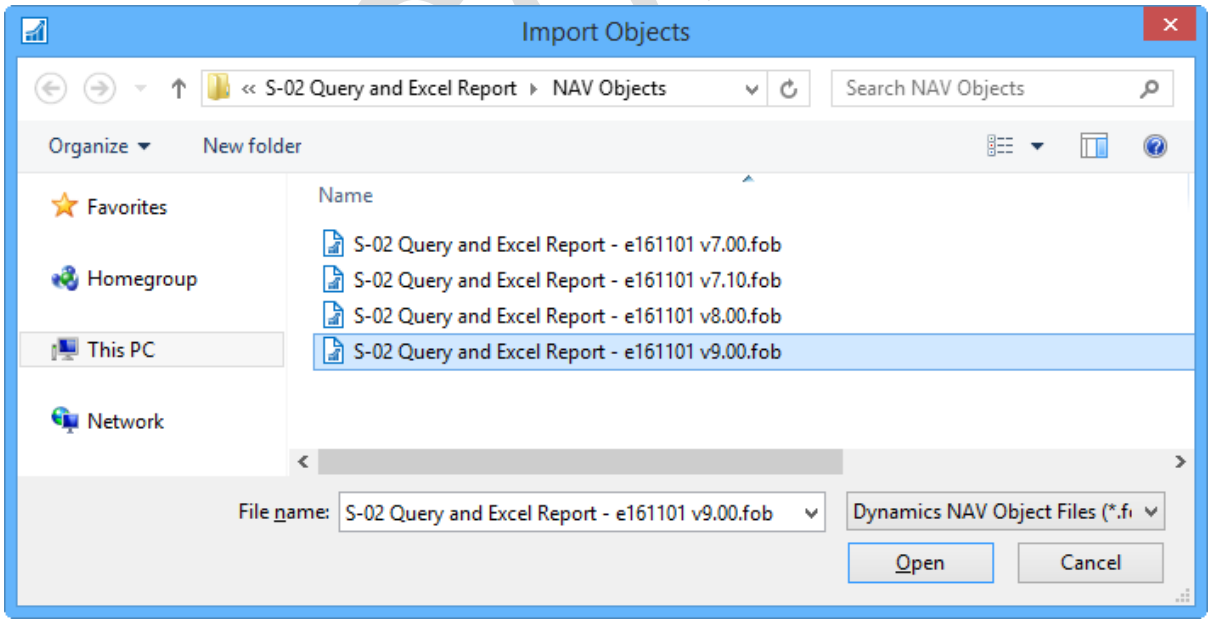
2.1 Import NAV Objects

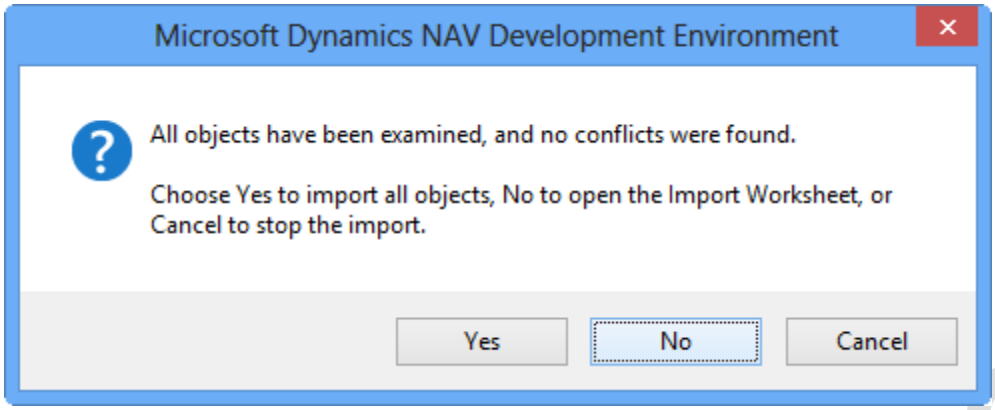
Open Object Designer in Development Environment (after login database, press Shift+F12):



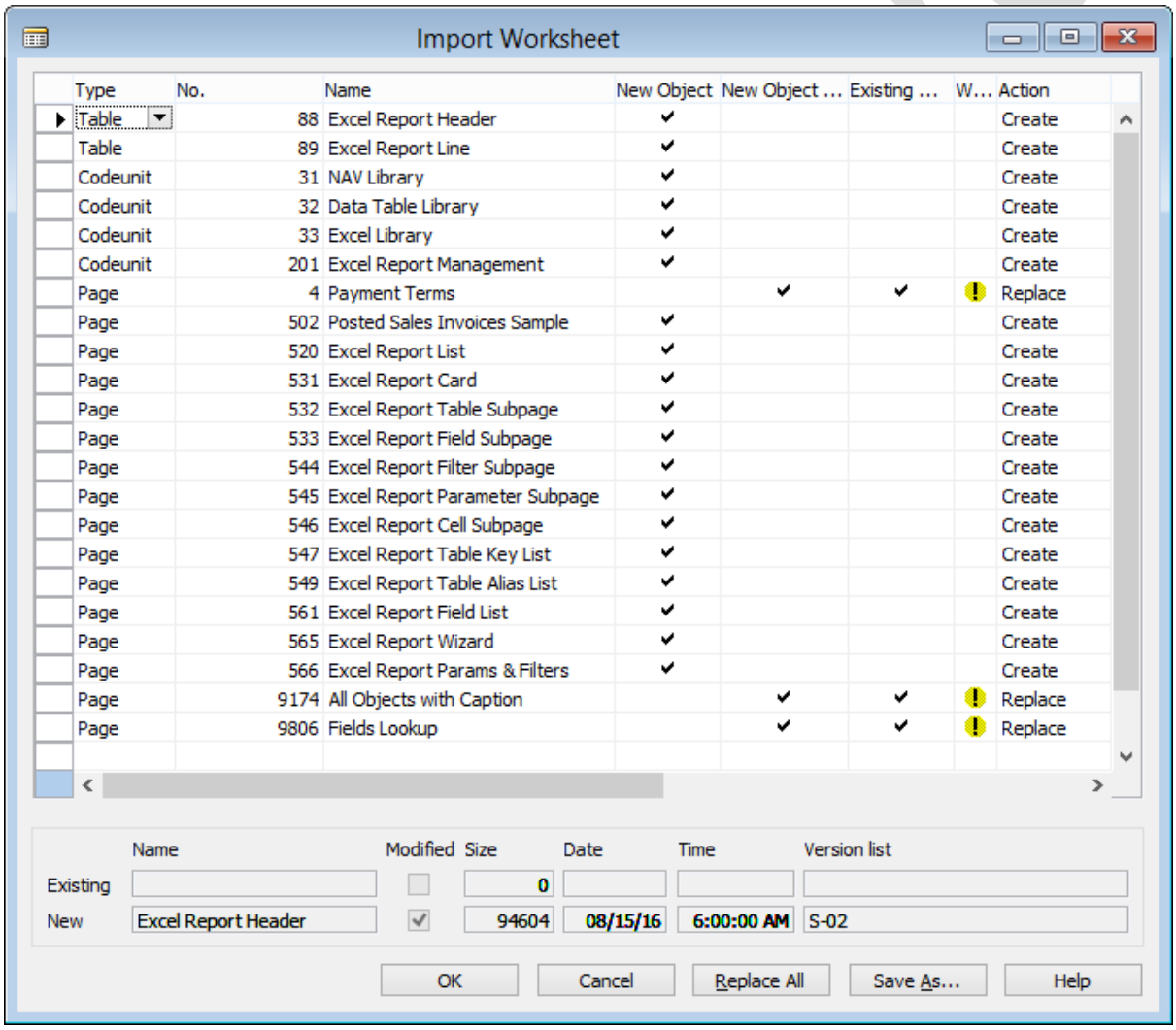
Click File → Import… → Browse Service Navision Objects in Import Objects dialog → Click Open:



Select No to open Import Worksheet due to conflicted objects:

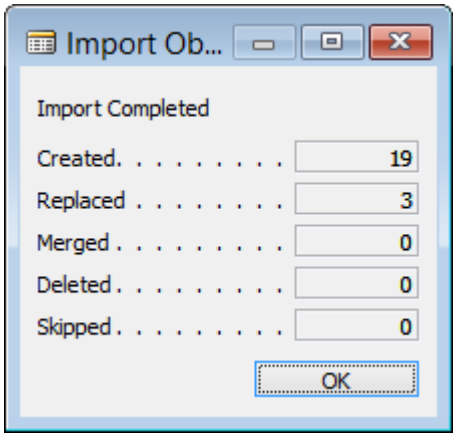


Click Replace All button and then click OK:

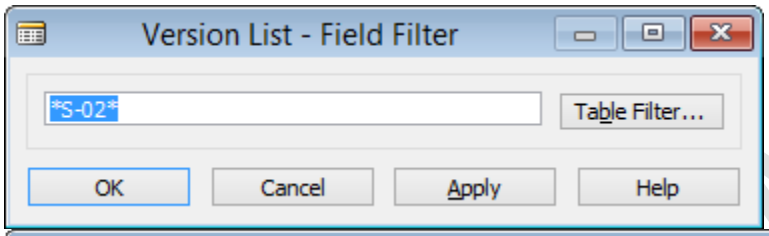


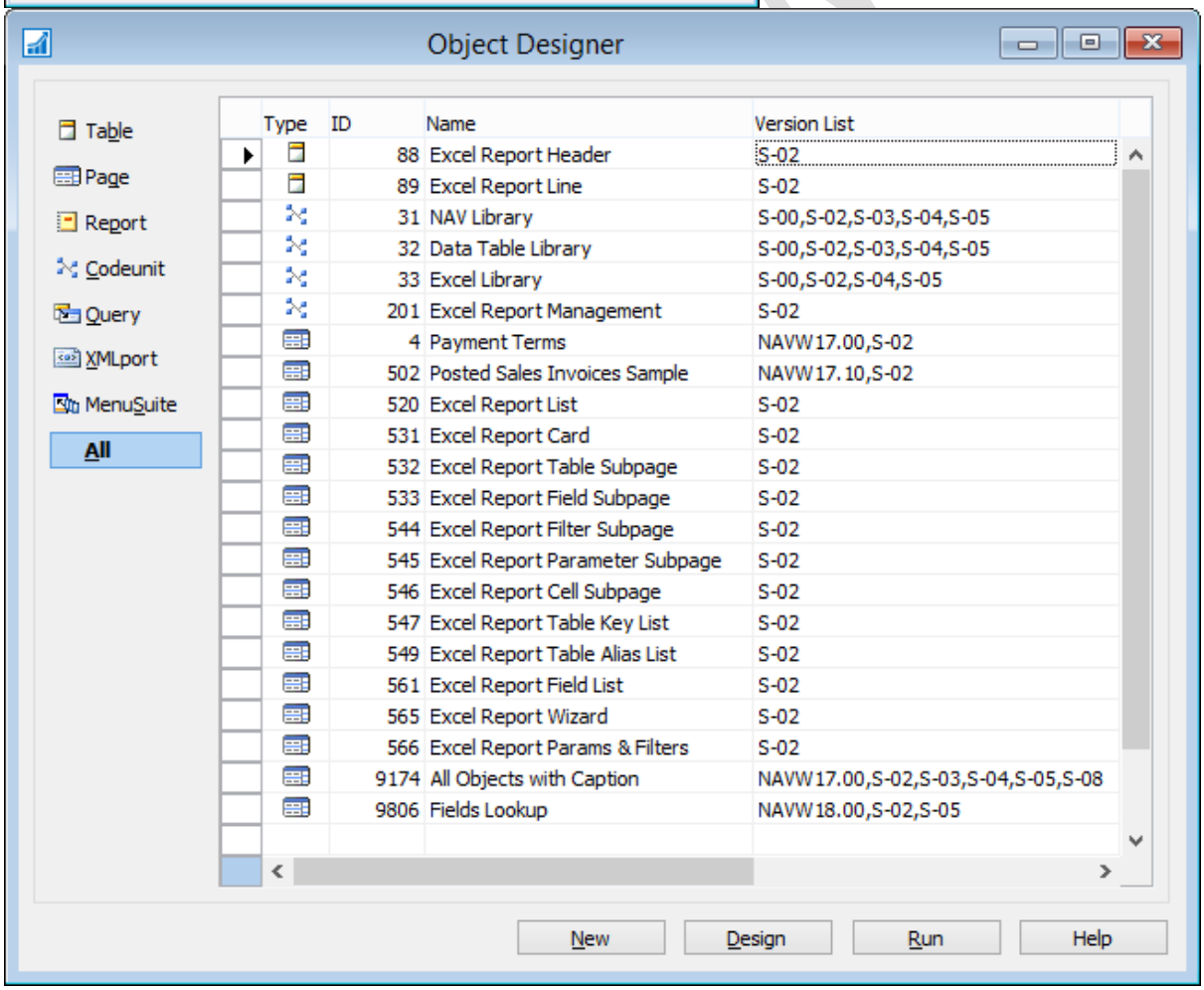
From NAV 2015, choose “Force” option for Synchronize Schema.

Import Objects dialog result:



Filter Version List with string *S-02*, compile below selected objects:





Type	ID	Name	Version List
	88	Excel Report Header	S-02
	89	Excel Report Line	S-02
	31	NAV Library	S-00,S-02,S-03,S-04,S-05
	32	Data Table Library	S-00,S-02,S-03,S-04,S-05
	33	Excel Library	S-00,S-02,S-04,S-05
	201	Excel Report Management	S-02
	4	Payment Terms	NAVW17.00,S-02
	502	Posted Sales Invoices Sample	NAVW17.10,S-02
	520	Excel Report List	S-02
	531	Excel Report Card	S-02
	532	Excel Report Table Subpage	S-02
	533	Excel Report Field Subpage	S-02
	544	Excel Report Filter Subpage	S-02
	545	Excel Report Parameter Subpage	S-02
	546	Excel Report Cell Subpage	S-02
	547	Excel Report Table Key List	S-02
	549	Excel Report Table Alias List	S-02
	561	Excel Report Field List	S-02
	565	Excel Report Wizard	S-02
	566	Excel Report Params & Filters	S-02
	9174	All Objects with Caption	NAVW17.00,S-02,S-03,S-04,S-05,S-08
	9806	Fields Lookup	NAVW18.00,S-02,S-05

This is finish importing Navision Objects. To make sure, you should check Service Status in next step.

2.2 Add Permission

It normally has 2 groups of user: Report Designers and End Users.

Additional needed permissions basically include:

Group	Table Data	Read	Insert	Modify	Delete
Report Designers	Excel Report Header (88)	Yes	Yes	Yes	Yes
	Excel Report Line (89)	Yes	Yes	Yes	Yes
	Record Link (2000000068)	Yes	Yes	Yes	Yes
End Users	Excel Report Header (88)	Yes	No	Yes	Yes
	Excel Report Line (89)	Yes	No	Yes	No
	Record Link (2000000068)	Yes	Yes	Yes	Yes

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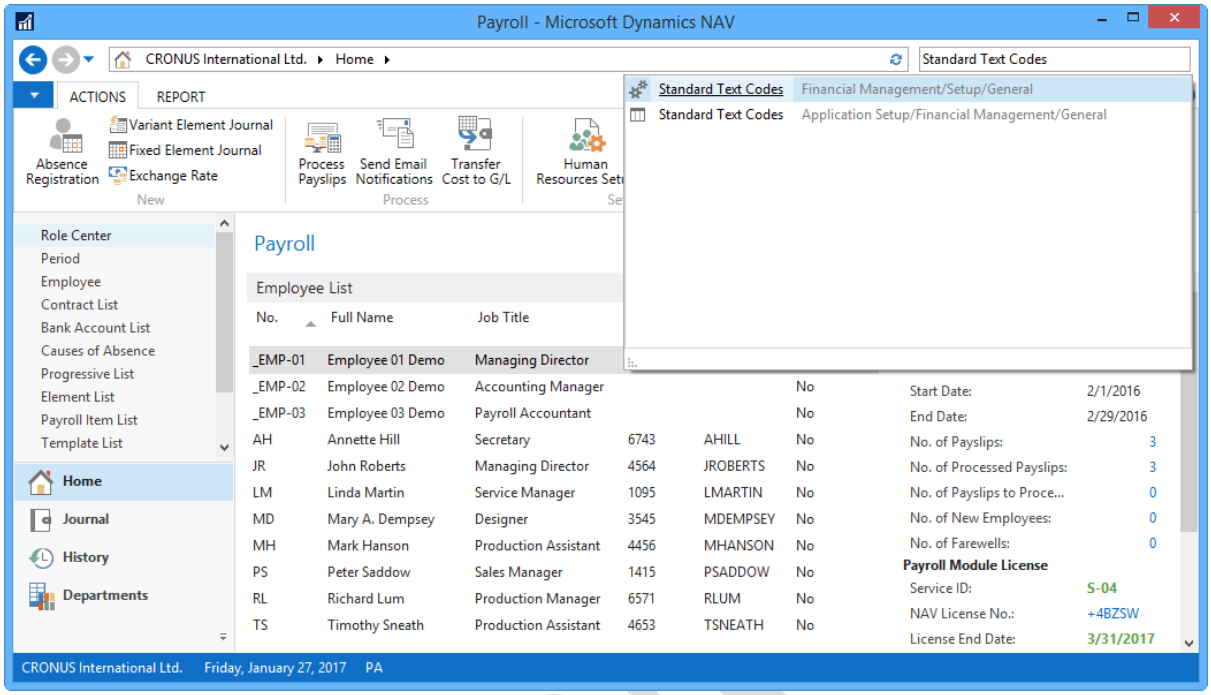
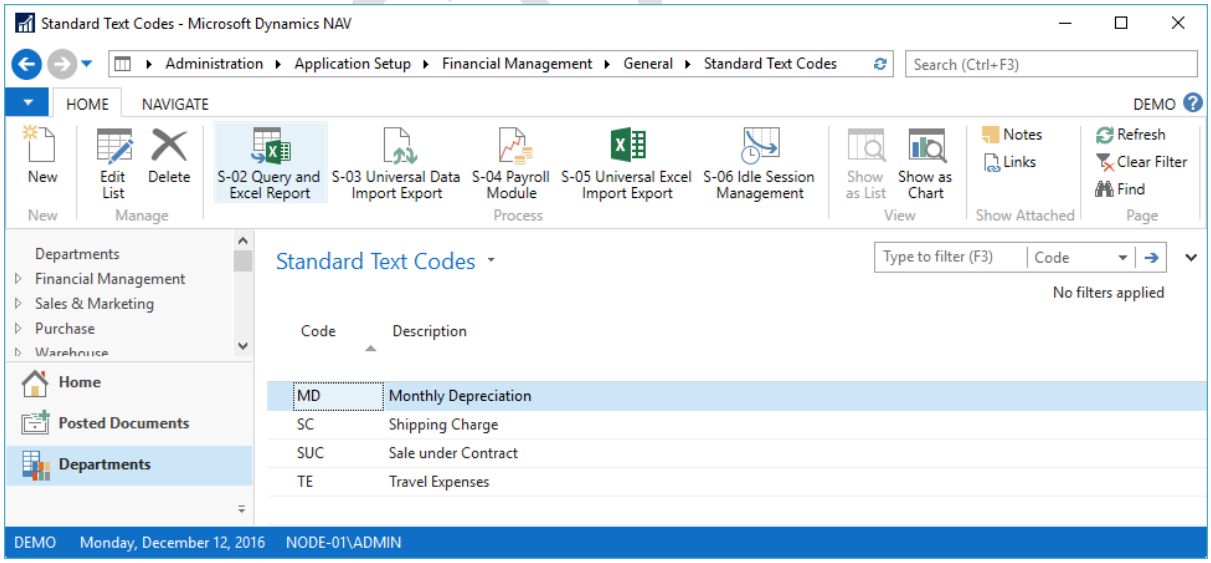
2.3 Check Service Status

Service is licensed by NAV License Numbers and End Dates. It should be valid to take effect.

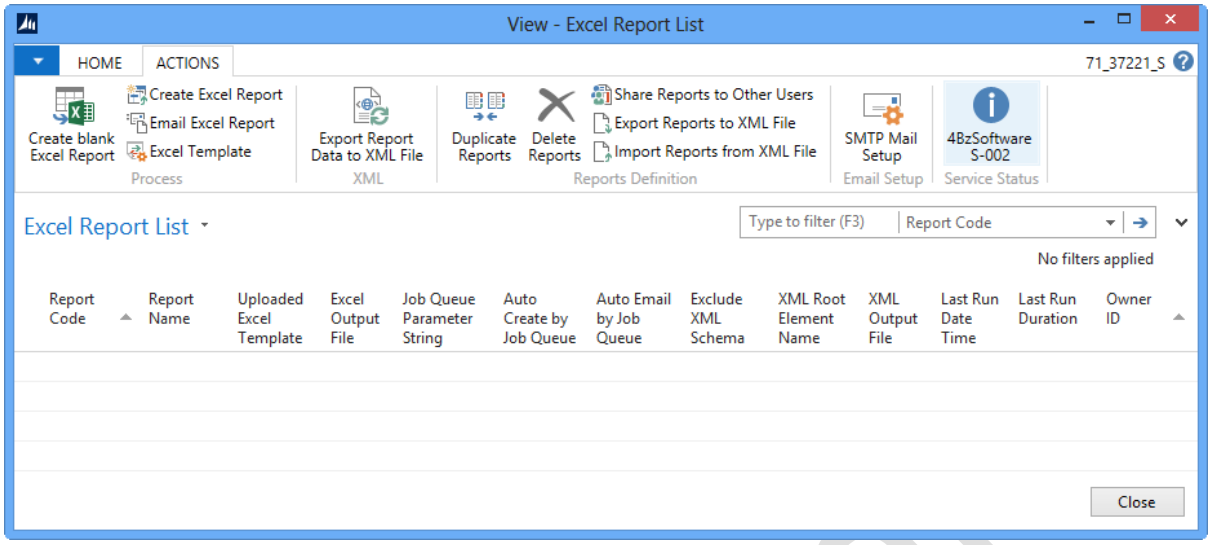
To check Service Status, you open "Standard Text Codes":



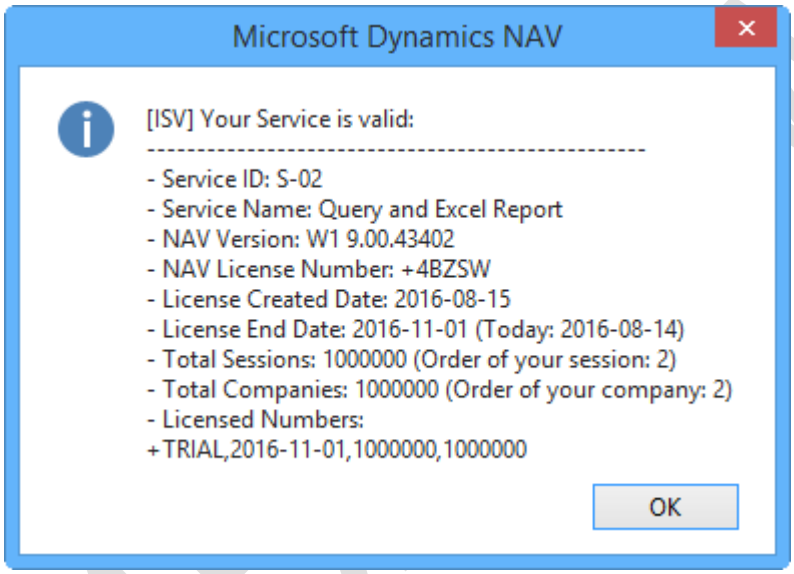
Click action "S-02 Query and Excel Report" on Standard Text Codes page:



Click action “4BzSoftware S-02” on Excel Report List page:



Service Status dialog:



If your NAV version is 7.0 and build is less than 36116, or version is 7.1 and build is less than 36310, you have to use “Microsoft.Dynamics.Nav.OpenXml.dll” file of Platform Hotfix, instead of current file. Please refer to section 6 Open Xml Excel Library for updating!

3. How to use

It is good and faster to start with videos. Related videos are at
https://www.youtube.com/playlist?list=PLfgzNr8_2Gkp8o589mH7XLFqEUBywciry

Sections 3.1 to 3.8 explain meaning of fields.

After filling information, sections from 3.9 show you how to operate Excel Report manually:

- Create new Excel Report (from blank Excel file).
- Create new Excel Report by Wizard.
- Create Excel Report using pre-built Excel Template (Upload/Download/Clear Template).
- Create Document Layout Excel Report.
- Email Excel Report.
- Export Report Data to XML.
- Duplicate Report.
- Share Reports to other users.
- Export/Import Reports Definition via XML file (share reports across NAV systems).

Section 7 talks about SMTP Mail setup in order to send report via email.

Section 8 and 9 discuss about Job Queue and NAS Service to:

- Auto creates reports with predefined names at Navision Server.
- Auto sends reports via email to desired recipients.

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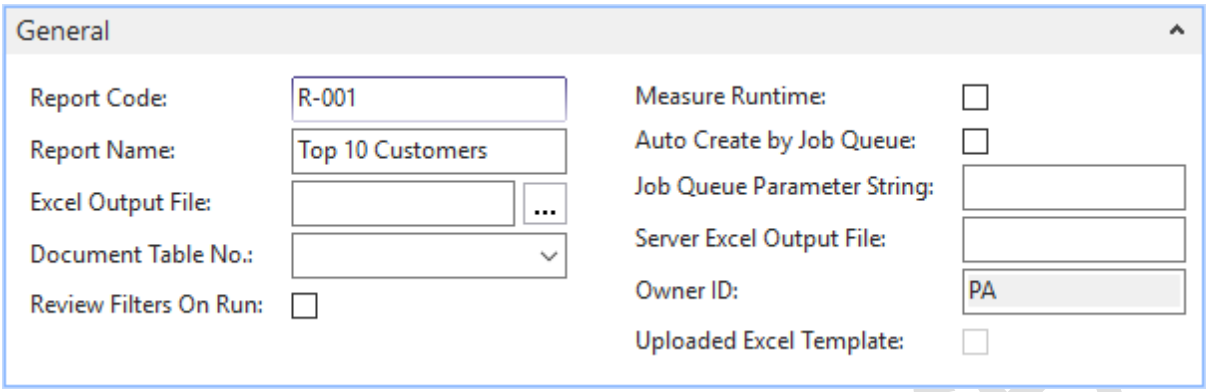
3.1 Input General Group

You input general information of report in this group:



Field Name	Description
Report Code	Code of report. It should be unique by Owner ID.
Report Name	Name of report.
Excel Output File	Output file name at client: - RTC: specify output Excel file. If value is blank, output file is downloaded to %temp% folder with file name format "Book1-#y2#m2#d2_#HH2#M2#S2.xlsx". Available formats are described in "Dynamic Output File Name" section. - Web Client: not apply. Brower uses its own download folder.
Document Table No.	Table No. for Document Layout Excel Report, such as: - 36: Sales Header. - 38: Purchase Header. - 112: Sales Invoice Header. - 122: Purch. Inv. Header.
Review Filters On Run	When it is true, a Review Parameters and Filters dialog is shown for reviewing their values before running report. You specify desired Parameters and Filters to show in Parameters and Filters Parts, value "Show Filter for Review".
Measure Runtime	Set true to measure report runtime.
Auto Create by Job Queue	Used for auto create report at Navision Server. Refer to section 8 Configure Job Queue to create report auto.
Job Queue Parameter String	Used for auto create or email report. This field and Parameter String of Job Queue Entry should be matched, they are case sensitive.
Server Excel Output File	Specify output Excel file at NAV Server when auto created. It can contain Date Time format. Available formats are described in "Dynamic Output File Name" section.
Owner ID	Owner of report.
Uploaded Excel Template	Indicate Excel Template is uploaded.

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3.2 Input Tables Part

You specify tables in hierarchy for query in this part:

Tables

Functions New Find Filter Clear Filter

Display Order	Table Level	Table No.	Table Caption	Table Alias	Number of Top Rows	Perform Aggregation	Excel Header Excluded	Excel Sheet Name	Excel Top Left Data Cell	Incremental Excel Top Left Data Cell	Table Link Type	Table Key Index	Table Key Description	Lookup Page ID	Company Name
10	0	18	**Customer**	C	10	☐	☐	C	A2		Parent Left + Inner Join	1	No.	22	
20	1	13	Salesperson/Purchaser	S		☐	☐	S	A2		Parent Left + Inner Join	1	Code	14	
30	1	9	Country/Region	C_2		☐	☐	C_2	A2		Parent Left + Inner Join	1	Code	10	

When lookup Table No., you can select multiple tables using Ctrl key and mouse click.

Field Name	Description
Display Order	Display order of tables. It is increased automatically by 10. Number this field to rearrange tables display. You can renumber Display Order by 10 in Functions action.
Table Level	Specify tables' hierarchy. Top table has Table Level 0, all its children should be displayed below it and have Table Level from 1. Can have many Top tables. A top table and its children return a data table.
Table No.	No. of table to query data.
Table Caption	Caption of table, indented by Table Level and non-editable.
Table Alias	Alias of table. It is unique in report. Fields, Filters and Excel Cells parts use Table Alias for reference.
Number of Top Rows	Number of Top Rows that you want to keep. It is often combined with sort setup in Fields Part when you are interested by top information only such as Top 10 Sales Customer.
Perform Aggregation	Indicate return query should perform aggregation. You specify detail aggregation function for each field in Field part.
Excel Header Excluded	Indicate return data table has header or not. You specify header in Field part, it is Display Name of each field.
Excel Sheet Name	Specify Excel Sheet Name that data table will be pushed.
Excel Top Left Data Cell	Specify Top Left Data Cell that data table will be pushed. When you include the Excel Header, its row number is minus 1 from Top Left Data Cell row number. You can input Table Alias Cell Reference as [TableAlias#CellReference#RowOrColumnOffset#ColumnOrRowOffset] For example, return data table range B3:E183, Cell Reference can be: - TR: Top Row Number of Table. It returns 3 in example. - BR: Bottom Row Number of Table. It returns 183 in example. - LC: Left Column Name of Table. It returns B in example. - RC: Right Column Name of Table. It returns E in example. - TLC: Top Left Cell of Table. It returns B3 in example. - TRC: Top Right Cell of Table. It returns E3 in example.

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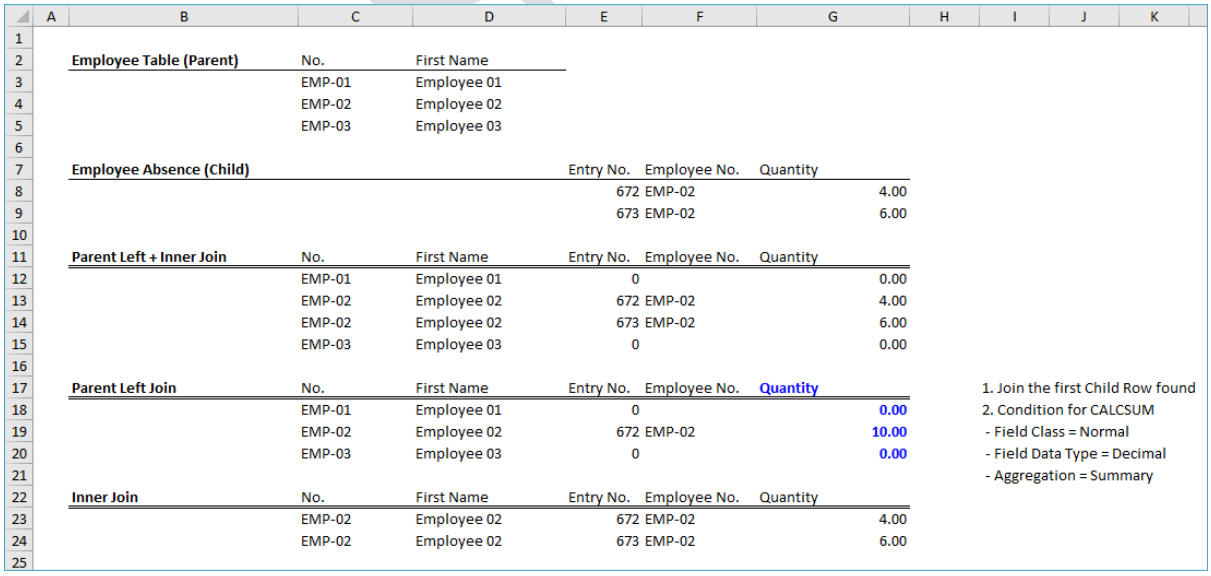
Field Name	Description
	- BLC: Bottom Left Cell of Table. It returns B183 in example. - BRC: Bottom Right Cell of Table. It returns E183 in example. Cell Reference with Row and Column Offset: - TRC#C2: Increase 2 columns from Top Right Cell. It returns G3. - BR#R1: Increase 1 row from Bottom Row. It returns 184. - BLC#R1#C-1 or BLC#C-1#R1: Increase 1 row and decrease 1 column from Bottom Left Cell. It returns D184.
Incremental Excel Top Left Data Cell	Same as Excel Top Left Data Cell. However, when it is absolute Cell Address, value is updated to next Bottom Left Data Cell after run report. As a result, next time run report, it becomes Excel Top Left Data Cell. It is used with Incremental Filter Expression and Excel Template. "Incremental Excel Template" section provides you more information.
Table Link Type	Apply for child table only which Table Level is greater than 0: - Parent Left + Inner Join: inner join with its parent table. - Parent Left Join: left join on its parent table. - Inner Join: outer join with its parent. Below picture shows you how tables are joined.
Table Key Index	Specify key of table for joining and querying data.
Table Description	Description of key, it is non-editable.
Lookup Page ID	Page ID to view table's data. Click drill down button ... to view data.
Company Name	Company Name where data is retrieved.



Employee Table (Parent)	No.	First Name				
	EMP-01	Employee 01				
	EMP-02	Employee 02				
	EMP-03	Employee 03				
Employee Absence (Child)			Entry No.	Employee No.	Quantity	
			672	EMP-02		4.00
			673	EMP-02		6.00
Parent Left + Inner Join	No.	First Name	Entry No.	Employee No.	Quantity	
	EMP-01	Employee 01	0			0.00
	EMP-02	Employee 02	672	EMP-02		4.00
	EMP-02	Employee 02	673	EMP-02		6.00
	EMP-03	Employee 03	0			0.00
Parent Left Join	No.	First Name	Entry No.	Employee No.	Quantity	
	EMP-01	Employee 01	0			0.00
	EMP-02	Employee 02	672	EMP-02		10.00
	EMP-03	Employee 03	0			0.00
Inner Join	No.	First Name	Entry No.	Employee No.	Quantity	
	EMP-02	Employee 02	672	EMP-02		4.00
	EMP-02	Employee 02	673	EMP-02		6.00

1. Join the first Child Row found
2. Condition for CALCSUM
- Field Class = Normal
- Field Data Type = Decimal
- Aggregation = Summary

Table Link Type explanation

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3.3 Input Fields Part

You specify fields of tables in this part:

Fields

Functions New Find Filter Clear Filter

Display Order	Table Alias	Field No.	Field Caption	Field Data Type	Field Alias	Excel Cell Value as Text	Excel Header Name	Opposite Sign	Sort Order	Sort Descending	Aggregation	Excel Format Value	Excel Column Width
5	C				Number	=[C#Number#RO#CD]	Number	☐		☐	Group	@	10
10	C	2	Name	Text	Name		Customer Name	☐		☐	Group	@	40
20	C	62	Sales (LCY)	Decimal	Sales LCY		Sales (LCY)	☐	1	☑	Summary	#,##0.00	20
30	S	2	Name	Text	Name		Salesperson Name	☐		☐	Group	@	40
40	C_2	2	Name	Text	Name		Country Name	☐		☐	Group	@	40

To insert multiple fields: on new line, fill Table Alias, lookup Field No., use Ctrl key and select fields.

Field Name	Description
Display Order	Display and return order of fields. It is increased automatically by 10. Number this field to rearrange fields display. You can renumber Display Order by 10 in Functions action.
Table Alias	Table Alias of table that you want to enter its fields.
Field No.	No. of field, according to Table Alias.
Field Caption	Caption of field, it is non-editable.
Field Data Type	Data type of field, it is non-editable.
Field Alias	It comes from field caption and is adjusted to be unique within table.
Excel Cell Value as Text	Input free Excel Cell Value as Text column. PRACTICE-04 report, Customer Top Sales with %, is a good example for Excel Cell Value as Text. You can key in or lookup Table Alias, Field Alias or drill down available values: - Free value such as text, number, date, time ... - Excel formula start with "=", such as "=SUM(A1:A100)". - Special value [TableAlias#@CompanyName] to get Table Alias's Company Name information in Tables Part. - Parameter as [#Parameter ID]. - Table Field Alias Reference as [TableAlias#FieldAlias#RowOrColumnAdjust#ColumnOrRowAdjust]. #RowOrColumnAdjust can be: - #RT: Row Top. - #RO: Row Order. - #RB: Row Bottom. - #RD: Row Delete. - #R: Row Adjustment such as #R10, #R-10. #ColumnOrRowAdjust can be: - #CL: Column Left. - #CO: Column Order. - #CR: Column Right. - #CD: Column Delete. - #C: Column Adjustment such as #C10, #C-10.

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Field Name	Description
Excel Header Name	Excel Header Name of return data table.
Opposite Site	Revert the sign. It applies for real Fields which have Field No. and supported Data Types are Integer, BigInteger and Decimal.
Sort Order	Specify sort order of field in return data table: - 0: ignore sort. - 1: the most sort priority. It is applicable for database fields which have Field No.
Sort Descending	When true, it is sorted in descending. It is applicable for database fields which have Field No.
Aggregation	Specify aggregation function apply to field. Functions are Group, Summary, Count, Average, Maximum and Minimum. It is carried out only when Perform Aggregation in Tables Part is true.
Excel Format Value	Specify Excel Format Value for field in return data table. Refer to section 6.6 Format Value for detail.
Excel Column Width	Specify Excel Column Width for field in return data table: - -1 : ignore width. - 0 : hide column. - 1 to 255 : set column width as value.

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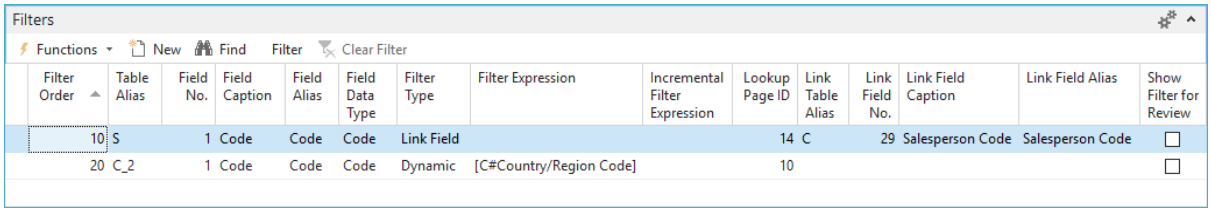
3.4 Input Filters Part

You specify filters in this part:



Filters

Functions New Find Filter Clear Filter

Filter Order	Table Alias	Field No.	Field Caption	Field Alias	Field Data Type	Filter Type	Filter Expression	Incremental Filter Expression	Lookup Page ID	Link Table Alias	Link Field No.	Link Field Caption	Link Field Alias	Show Filter for Review
10	S	1	Code	Code	Code	Link Field			14	C	29	Salesperson Code	Salesperson Code	☐
20	C_2	1	Code	Code	Code	Dynamic	[C#Country/Region Code]		10					☐

To insert multiple fields: on new line, fill Table Alias, lookup Field No., use Ctrl key and select fields.

Field Name	Description
Filter Order	Filter order. It is increased automatically by 10. Number this field to rearrange filter order. You can renumber Filter Order by 10 in Functions action.
Table Alias	Table Alias of table that you want to enter its fields.
Field No.	No. of field, according to Table Alias.
Field Caption	Caption of field.
Field Alias	It comes from field caption and is adjusted to be unique within table.
Field Data Type	Data type of field, it is non-editable.
Filter Type	Specify type of filter. It can be: - Fixed: apply to table before joining parent table. Values in Filter Expression are parsed for filter. - Dynamic: apply to table while joining each parent row. Values in Filter Expression are parsed for filter. - Link Field: used when you know exactly relationship between table and its parent. It makes system faster while joining each parent row due to no parsing values.
Filter Expression	Filter Expression for Fixed and Dynamic filter types. It follows NAV filter expression and can contain: - Table Field Alias with format [Table Alias#Field Alias]. - Parameter with format [#Parameter ID]. For example: - 1/1/14..12/31/14 - >=1&<=[#Month] - [C#Country/Region Code] You can look up or drill down available values as below pictures.
Incremental Filter Expression	Same as Filter Expression. However, when value starts with "> Filter Value", it is updated to "> Last Queried Value". As a result, next time run report, system retrieves newer data, greater than Last Queried Value. It is used with Incremental Excel Top Left Data Cell and Excel Template. "Incremental Excel Template" section provides you more information.

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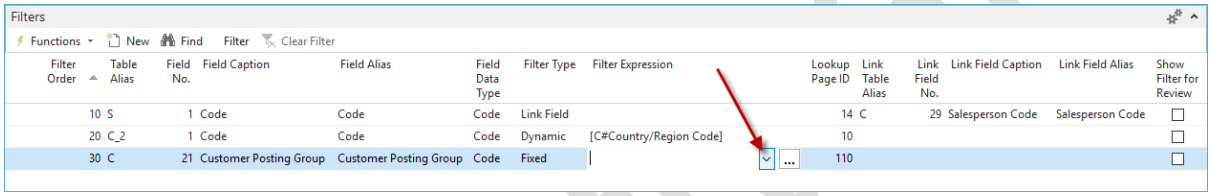
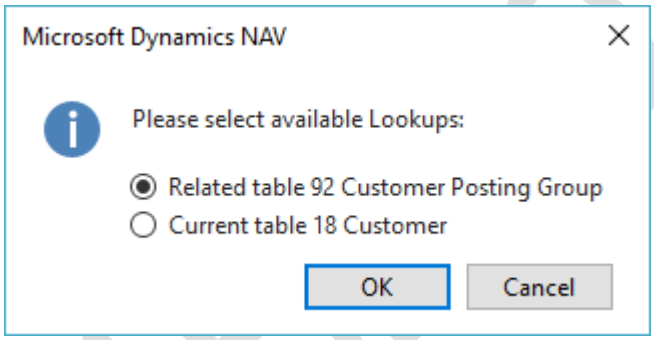
Field Name	Description
Lookup Page ID	Page ID to view table's data. Click drill down button ... to view data.
Link Table Alias	Specify Parent Table Alias. Used for Link Field filter type.
Link Field No.	Specify Parent Field No. Used for Link Field filter type.
Link Field Caption	Caption of Link Field No. It is non-editable.
Link Field Alias	Field Alias of Link Field. Used for Link Field filter type.
Show Filter for Review	Indicate to show the filter on Review Parameters and Filters dialog before running report. It needs Review Filters On Run is checked in General Group.

Filter Expression – Lookup:

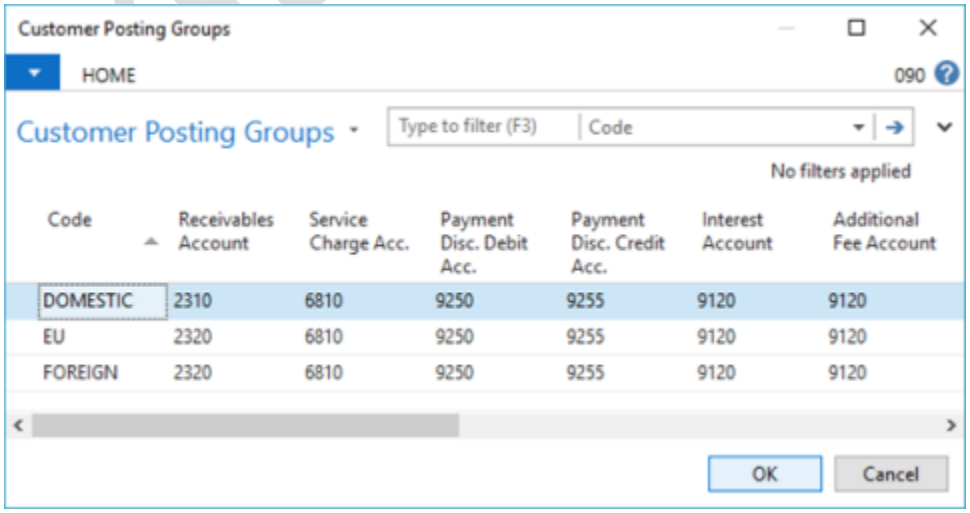
1. Click lookup button:



2. Select available lookups if exists, and click OK button:

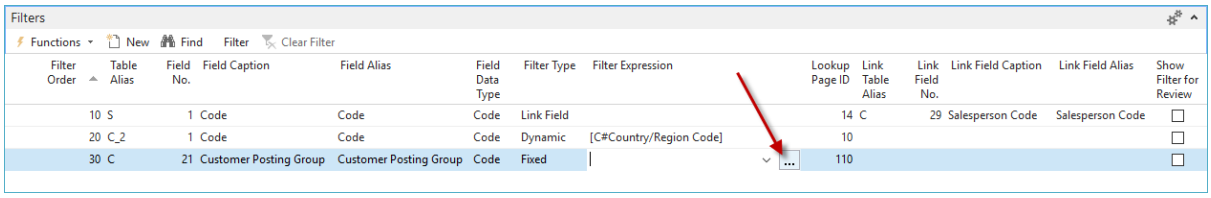


3. Choose desired row, and click OK button to fill in Filter Expression:

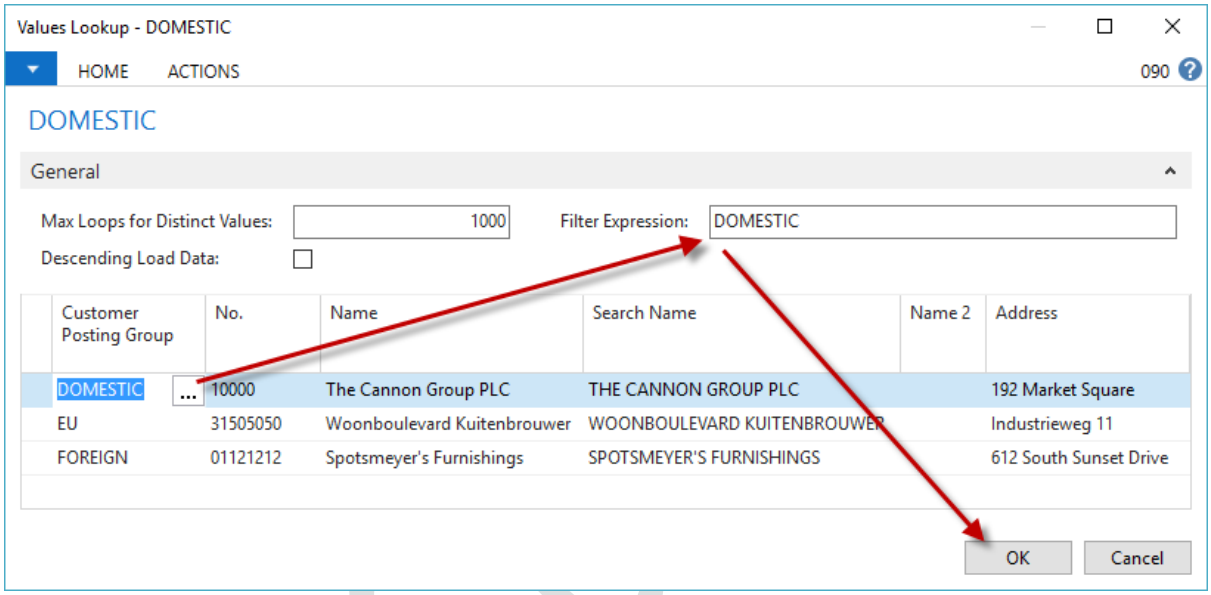


Filter Expression – Drill down:

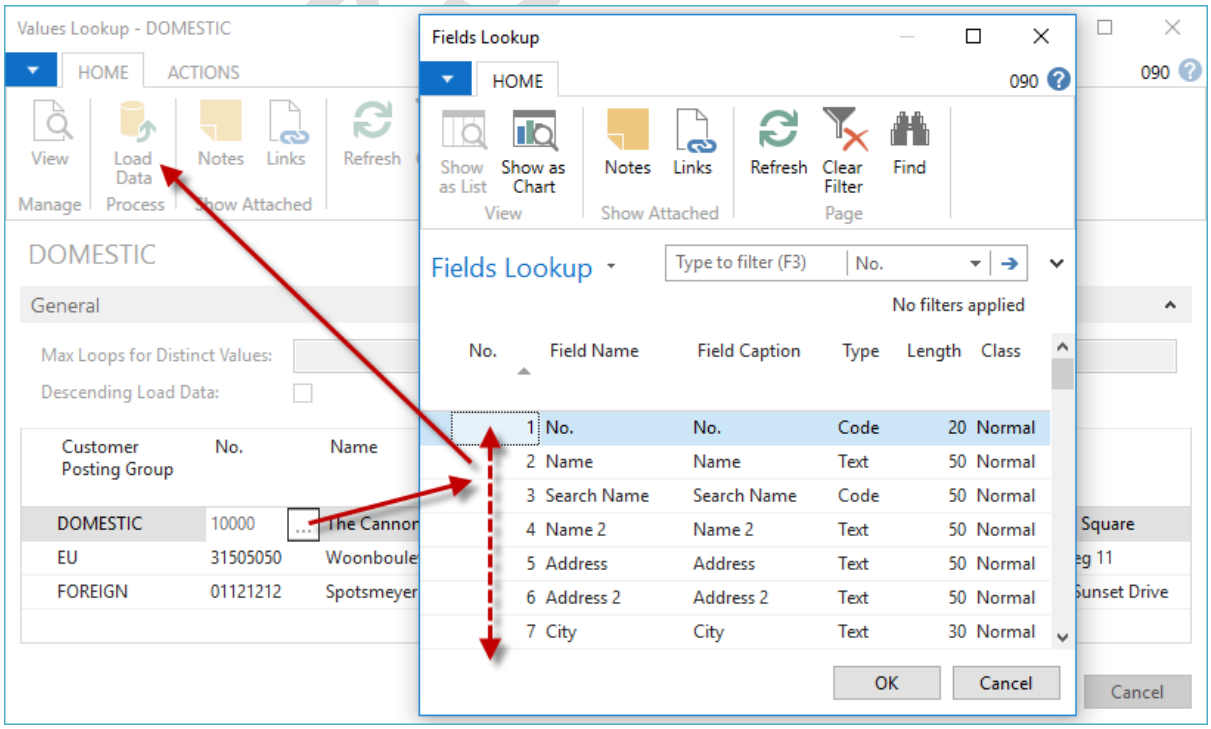
- Click lookup button to show Values Lookup page:



- The first column Assist Edit button helps insert value to Filter Expression.
  You can specify Maximum Loops to retrieve Distinct Values, and Descending Load Data:



- The second to sixth columns Assist Edit buttons help to change Fields. After changing Fields, remember to click Load Data action to re-load distinct sample records:



3.5 Input Parameters Part

You specify parameters of report in this part:

Parameters

Functions New Find Filter Clear Filter

Display Order	Parameter ID	Parameter Data Type	Parameter Type	Parameter Value	Parameter Formula	Document Field No.	Excel Format Value	Excel Sheet Name	Excel Top Left Cell	Excel Bottom Right Cell	Excel Format Cell	Excel Column Width	Show Filter for Review
10	#Country Code	Code	Value	GB|US			@	Filters	B1	B1		15	☐
20	#Report Date	Date	Formula		[Today]		M/d/yyyy	Filters	B2	B2		15	☐
30	#Report By	Text	Formula		[UserID] - [UserName]		@	Filters	B3	B3		40	☐

Field Name	Description
Display Order	Display order of parameters. It is increased automatically by 10. Number this field to rearrange parameters display. You can renumber Display Order by 10 in Functions action.
Parameter ID	ID of parameter. It is used in Field, Filter and Excel Cell parts.
Parameter Data Type	Type of parameter. Supported types are Text, Code, Boolean, Integer, BigInteger, Decimal, Date, Time, DateTime, DateFormula, Duration, GUID.
Parameter Type	Type of parameter. It can be: - Value: enter fixed value in Parameter Value column. - Formula: enter formula in Parameter Formula column. System will automatically convert Parameter Formula to Parameter Value before querying data. - Document: enter Field No. in Document Field No. column. System will automatically convert value of selected Document Field No. to Parameter Value before querying data.
Parameter Value	Value of parameter. You can look up or drill down available values, same as Filter Expression in above “Input Fields Part” section.
Parameter Formula	Some special values such as current date, user, report, company … are common used when run report. Parameter Formula contains predefined values for those cases: - [Today,<DateFormula>] : today with date formula for offset. - [Time] : current time. - [Now] : current date time. - [Day] : current day of month. - [Month] : current month of year. - [Year] : current year. - [Week] : current week (52 weeks per year). - [UserID] : ID of user who run report. - [UserName] : name of user who run report. - [CompanyID : ID of company. - [CompanyName] : name of company. - [CompanyAddress] : address of company. Some common DateFormula: - <-CM> : first date of current month. - <CM> : end date of current month. - <-CY> : first date of current year.

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Field Name	Description
	- <CY> : end date of current year. - <-CW> : first date of current week. - <CW> : end date of current week.
Document Field No.	Field No. of Document Table No. specified in General Group (3.1). It is used for Document Layout Excel Report.
Excel Format Value	Format value string. Refer to section 6.7 Format Value for detail.
Excel Sheet Name	Excel sheet name to push parameter value. Blank means not to push.
Excel Top Left Cell	Top Left position of cell or range. You can input Table Alias Cell Reference as [TableAlias#CellReference#RowOrColumnOffset#ColumnOrRowOffset] For example, return data table range B3:E183, Cell Reference can be: - TR: Top Row Number of Table. It returns 3 in example. - BR: Bottom Row Number of Table. It returns 183 in example. - LC: Left Column Name of Table. It returns B in example. - RC: Right Column Name of Table. It returns E in example. - TLC: Top Left Cell of Table. It returns B3 in example. - TRC: Top Right Cell of Table. It returns E3 in example. - BLC: Bottom Left Cell of Table. It returns B183 in example. - BRC: Bottom Right Cell of Table. It returns E183 in example. Cell Reference with Offset Row and Column: - TRC#C2: Increase 2 columns from Top Right Cell. It returns G3. - BR#R1: Increase 1 row from Bottom Row. It returns 184. - BLC#R1#C-1 or BLC#C-1#R1: Increase 1 row and decrease 1 column from Bottom Left Cell. It returns D184.
Excel Bottom Right Cell	Bottom Right position of cell or range. Like Excel Top Left Cell, you can input Table Alias Cell Reference.
Excel Format Cell	Format cell string. Refer to section 6.6 Format Cell for detail.
Excel Column Width	Specify Excel Column Width: - -1 : ignore width. - 0 : hide column. - 1 to 255 : set column width as value.
Show Filter for Review	Indicate to show the filter on Review Parameters and Filters dialog before running report. It needs Review Filters On Run is checked in General Group.

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3.6 Input Excel Cells Part

You input Excel value, format cells and set column width in this part. If possible, you should prepare those things in Excel Template rather than use this part in order to increase speed.

Excel Cells

Functions Find Filter Clear Filter

Display Order	Excel Sheet Name	Excel Top Left Cell	Excel Bottom Right Cell	Excel Format Cell	Excel Cell Value as Text	Excel Format Value	Excel Column Width
10	Report	B3	B3	U;I	Reported by	@	15
20	Report	C3	C3		[#Report By]	@	30
30	Report	B4	B4	U;I	Total Sales	@	-1
40	Report	C4	C4		=SUM('Navision Data'!B2:B100)	#,##0.00	-1
50	Navision Data	[C#TL]	[C#BR]	BA;BAS,Thick;BH;BV			-1
60	Navision Data	[C#TL]	[C#TR]	B			-1

Field Name	Description
Display Order	Display order of cells. It is increased automatically by 10. Number this field to rearrange cells display. You can renumber Display Order by 10 in Functions action.
Excel Sheet Name	Excel sheet name to push.
Excel Top Left Cell	Top Left position of cell or range. You can input Table Alias Cell Reference as [TableAlias#CellReference#RowOrColumnOffset#ColumnOrRowOffset] For example, return data table range B3:E183, Cell Reference can be: - TR: Top Row Number of Table. It returns 3 in example. - BR: Bottom Row Number of Table. It returns 183 in example. - LC: Left Column Name of Table. It returns B in example. - RC: Right Column Name of Table. It returns E in example. - TLC: Top Left Cell of Table. It returns B3 in example. - TRC: Top Right Cell of Table. It returns E3 in example. - BLC: Bottom Left Cell of Table. It returns B183 in example. - BRC: Bottom Right Cell of Table. It returns E183 in example. Cell Reference with Offset Row and Column: - TRC#C2: Increase 2 columns from Top Right Cell. It returns G3. - BR#R1: Increase 1 row from Bottom Row. It returns 184. - BLC#R1#C-1 or BLC#C-1#R1: Increase 1 row and decrease 1 column from Bottom Left Cell. It returns D184.
Excel Bottom Right Cell	Bottom Right position of cell or range. Like Excel Top Left Cell, you can input Table Alias Cell Reference.
Excel Format Cell	Format cell string. Refer to section 6.6 Format Cell for detail.

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Field Name	Description
Excel Cell Value as Text	You can input: - Free value such as text, number, date, time ... - Excel formula start with "=", such as "=SUM(A1:A100)". - Special value [TableAlias#@CompanyName] to get Table Alias's Company Name information in Tables Part. - Parameter as [#Parameter ID]. - Field Alias with format [Table Alias#Display Name]. - Table Alias Cell Reference as [TableAlias#FieldAlias#RowOrColumnAdjust#ColumnOrRowAdjust]. #RowOrColumnAdjust can be: - #RT: Row Top. - #RO: Row Order. - #RB: Row Bottom. - #RD: Row Delete. - #R: Row Adjustment such as #R10, #R-10. #ColumnOrRowAdjust can be: - #CL: Column Left. - #CO: Column Order. - #CR: Column Right. - #CD: Column Delete. - #C: Column Adjustment such as #C10, #C-10.
Excel Format Value	Format value string. Refer to section 6.7 Format Value for detail.
Excel Column Width	Specify Excel Column Width: - -1 : ignore width. - 0 : hide column. - 1 to 255 : set column width as value.

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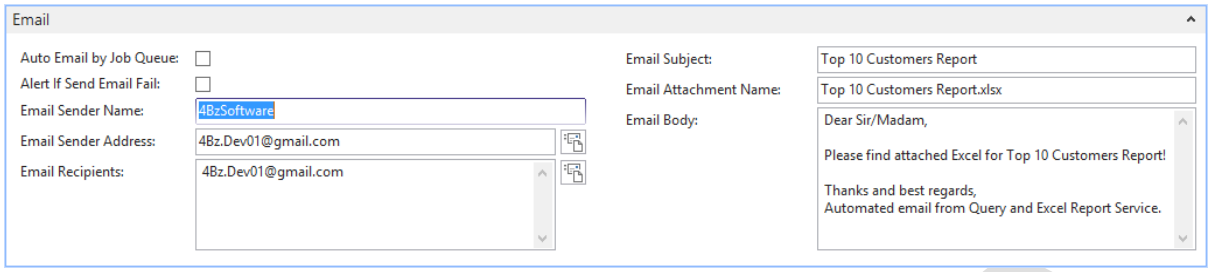
3.7 Input Email Group

To be able to email report, you should first configure SMTP Mail as section 7 Configure SMTP Mail. Then, you enter email information in this group:



Field Name	Description
Auto Email by Job Queue	Set true if you want to send report via email automatically. Refer to section 8 Configure Job Queue for the automation. Note that Job Queue Parameter String in General group or report and Parameter String of Job Queue Entry should be the same as they are case sensitive.
Alert If Send Email Fail	When there is error in sending mail, message pop-up if value is true.
Email Sender Name	Name of sender.
Email Sender Address	Email address of sender.
Email Recipients	Email addresses of recipients, separated by semi colon “;”
Email Subject	Subject of email.
Email Attachment Name	Name of attached excel report file. It can contain Date Time format. Available formats are described in “Dynamic Output File Name” section.
Email Body	Body content of email, support multiple lines.

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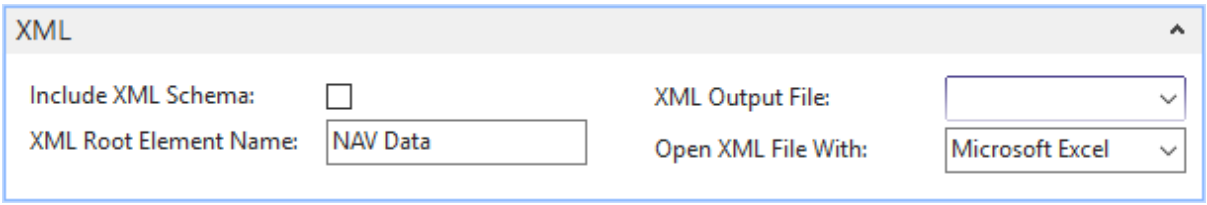
3.8 Input XML Group

Report supports export data to XML file. You define XML output information in this group:



Field Name	Description
Include XML Schema	Determine XML output include XML Schema or not.
XML Root Element Name	Root Element Name of XML output.
XML Output File	Output file name at client: - RTC: specify output XML file. If value is blank, output file is downloaded to %temp% folder with file name format "RepCode-#y2#m2#d2_#HH2#M2#S2.xlsx". Available formats are described in "Dynamic Output File Name" section. - Web Client: not apply. Brower uses its own download folder.
Open XML File With	Specify application to open the XML file. Available options: - Microsoft Excel. - Default Application. - Windows Explorer.

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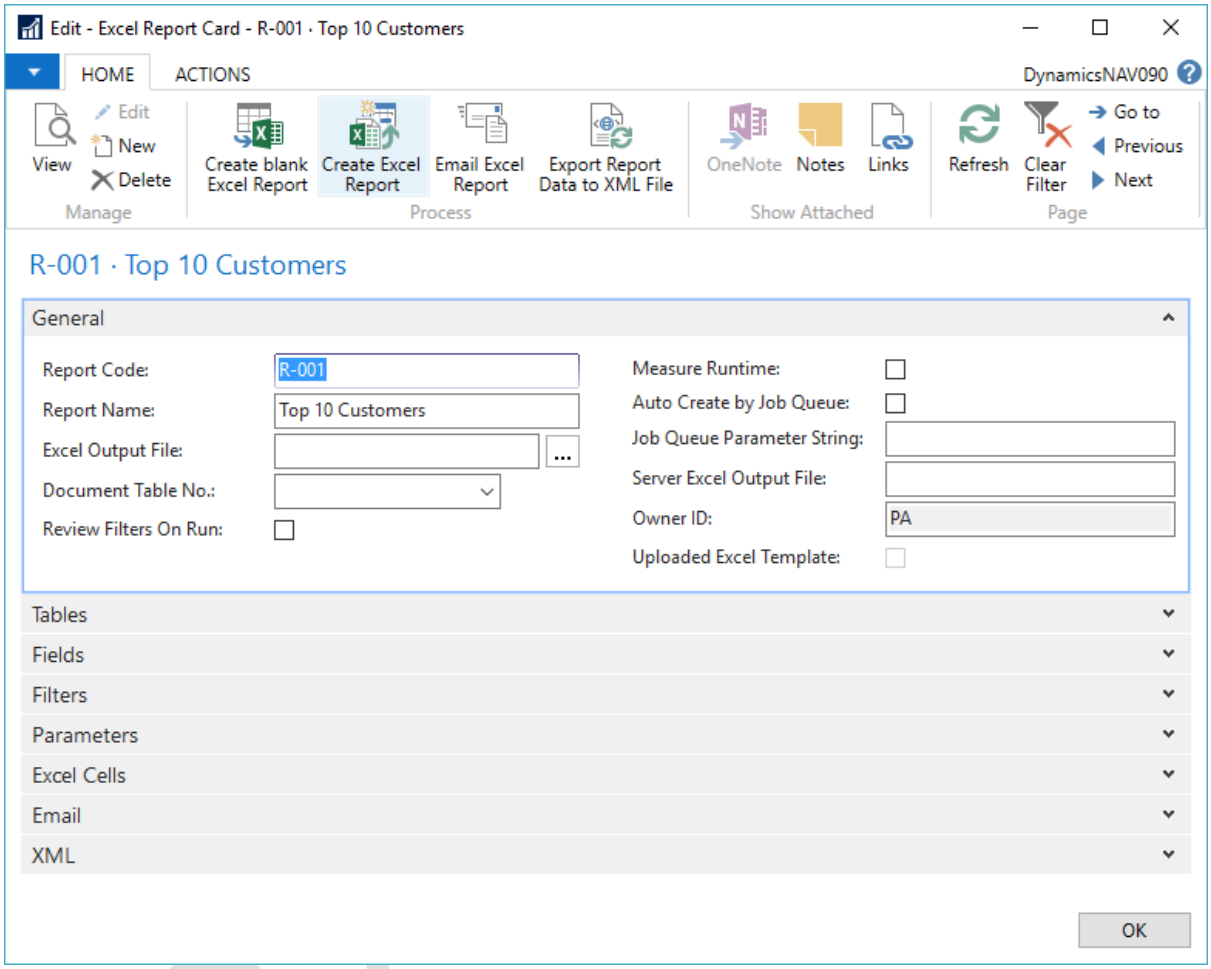
3.9 Create new Excel Report

After filling information, now you can create new excel report.

Click Ribbon → Home → Create Excel Report (Process):



You can measure report runtime, specify Excel Output File (Role Tailored Client) in General group.

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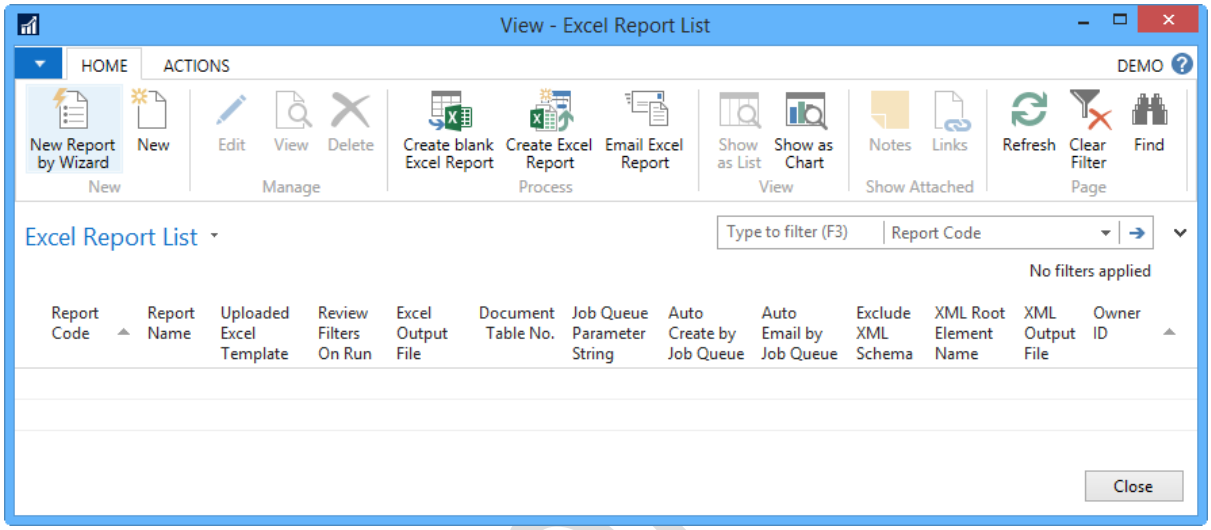
3.10 Create new Excel Report by Wizard

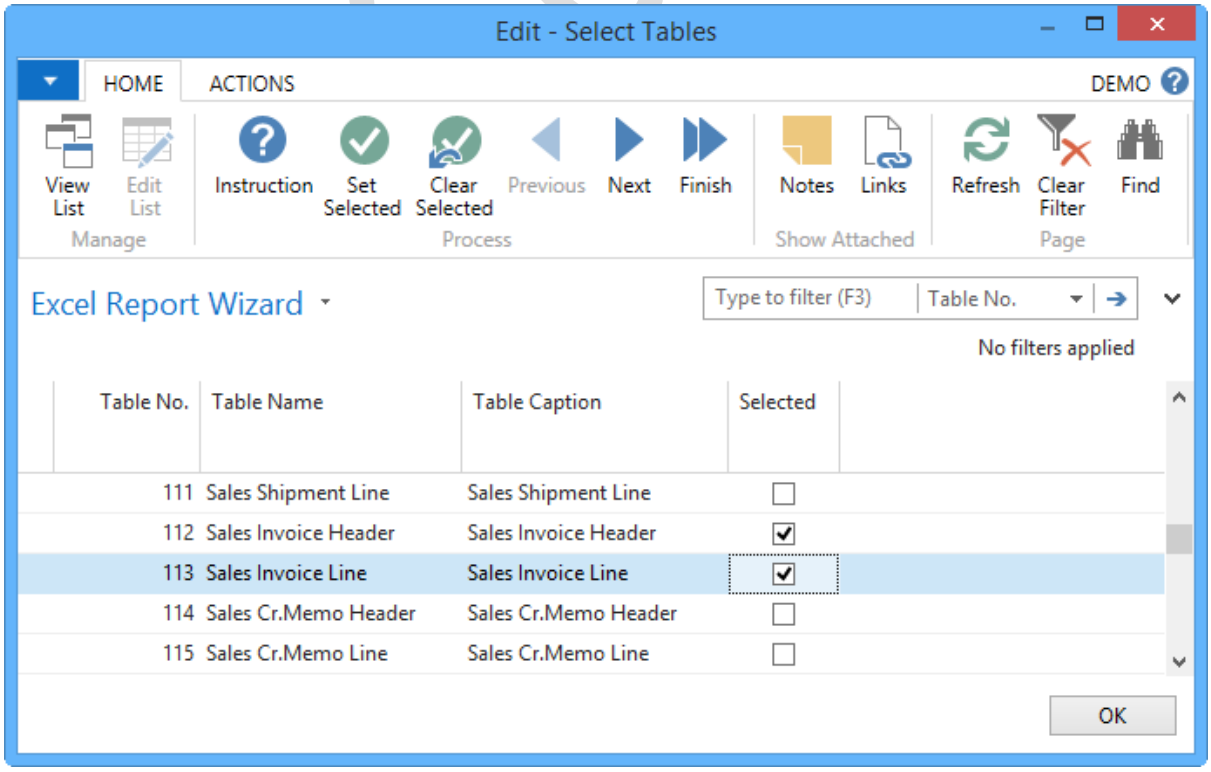
You can speed up generating report definition by Wizard. It includes the following steps:

1. Select Tables.
2. Arrange selected Tables (skipped if there is one selected Table).
3. Select Fields for each Table.
4. Arrange selected Fields.

To create new Excel Report by Wizard, click Ribbon → Home → New Report by Wizard (New)



Wizard page appeared, start from Step 1 – Select Tables:

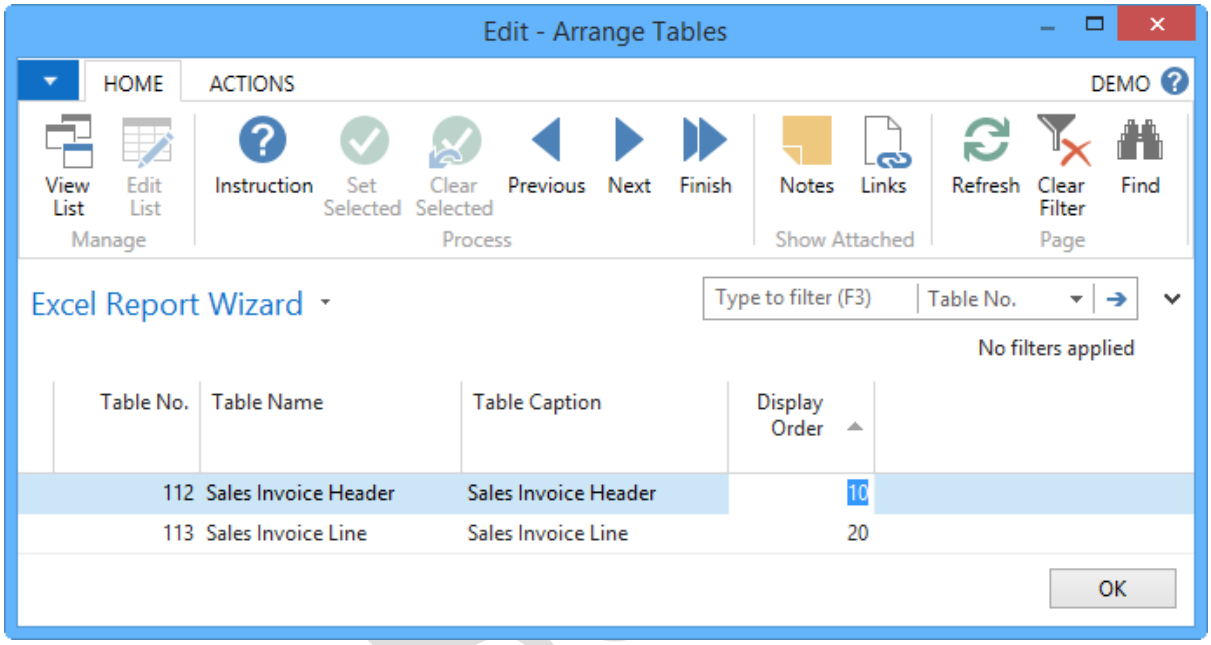


You can Finish or Close page at any time. Close page means cancel the Wizard.

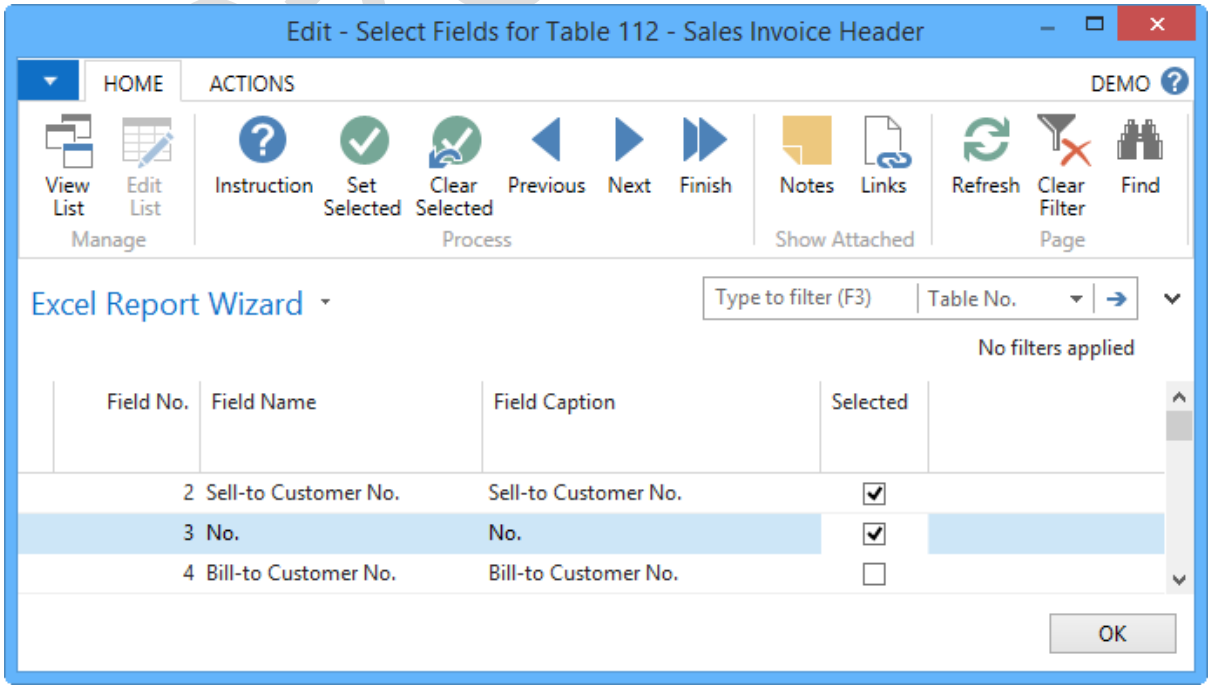
There are some actions on Ribbon:

- Instruction: show instruction message.
- Set Selected: set all visible tables (step 1) or fields (step 3) selected.
- Clear Selected: clear selected of all visible tables (step 1) or fields (step 3).
- Previous: go to previous step.
- Next: go to next step.
- Finish: complete the wizard. New report is generated and opened.

At step 2 or 4 – Arrange selected Tables or selected Fields, adjust Display Order values to arrange:



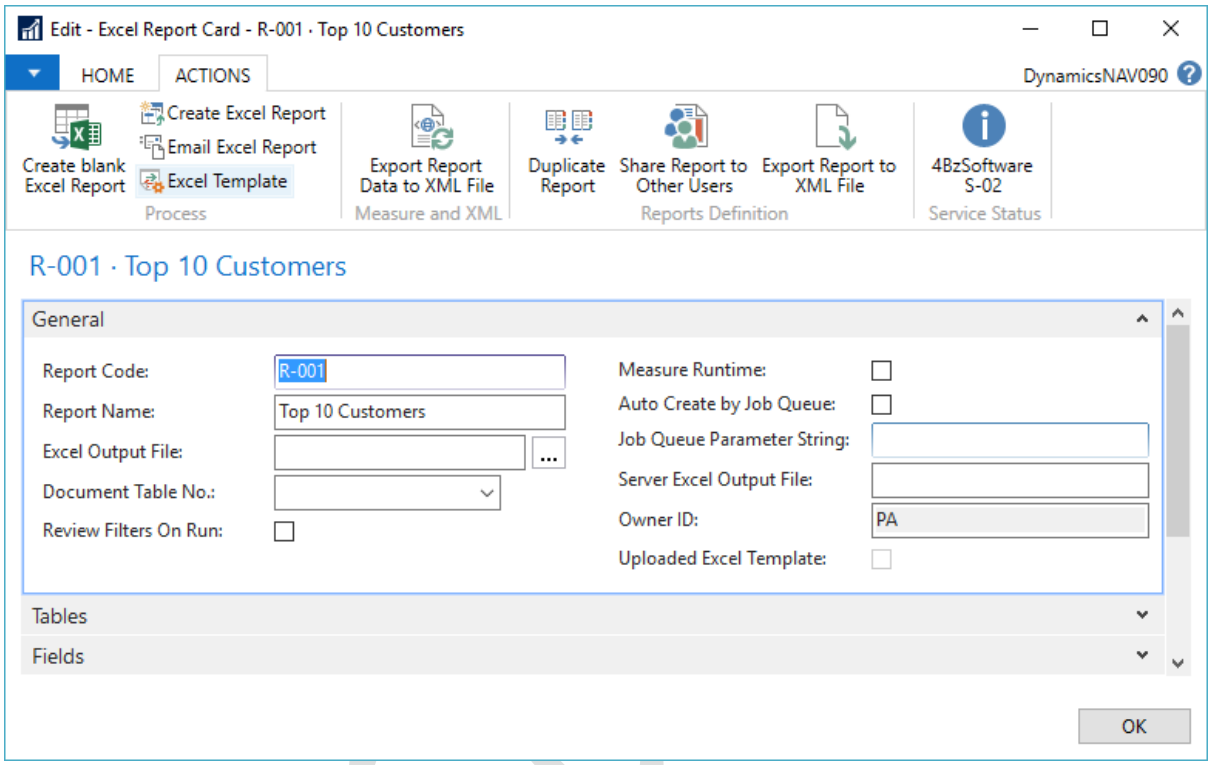
At step 3 – Select Fields for each Table, you can look at page caption to know which table:



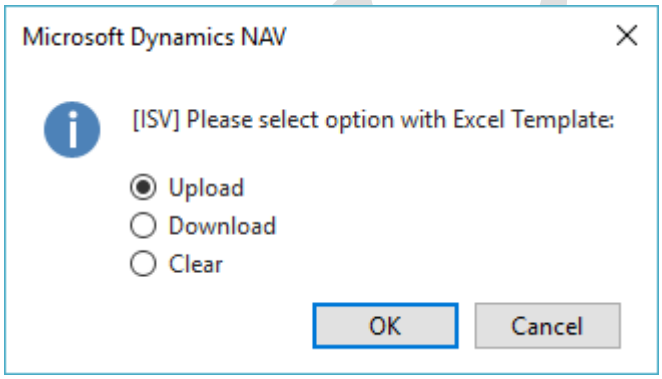
3.11 Create Excel Report from Excel Template

It is good way to do all format, pivot, chart, and slicer … in Excel file and upload it to system. System consumes less time when it queries and pushes data into uploaded Excel file only.

To upload Excel Template file, click Ribbon → Actions → Excel Template (Process):

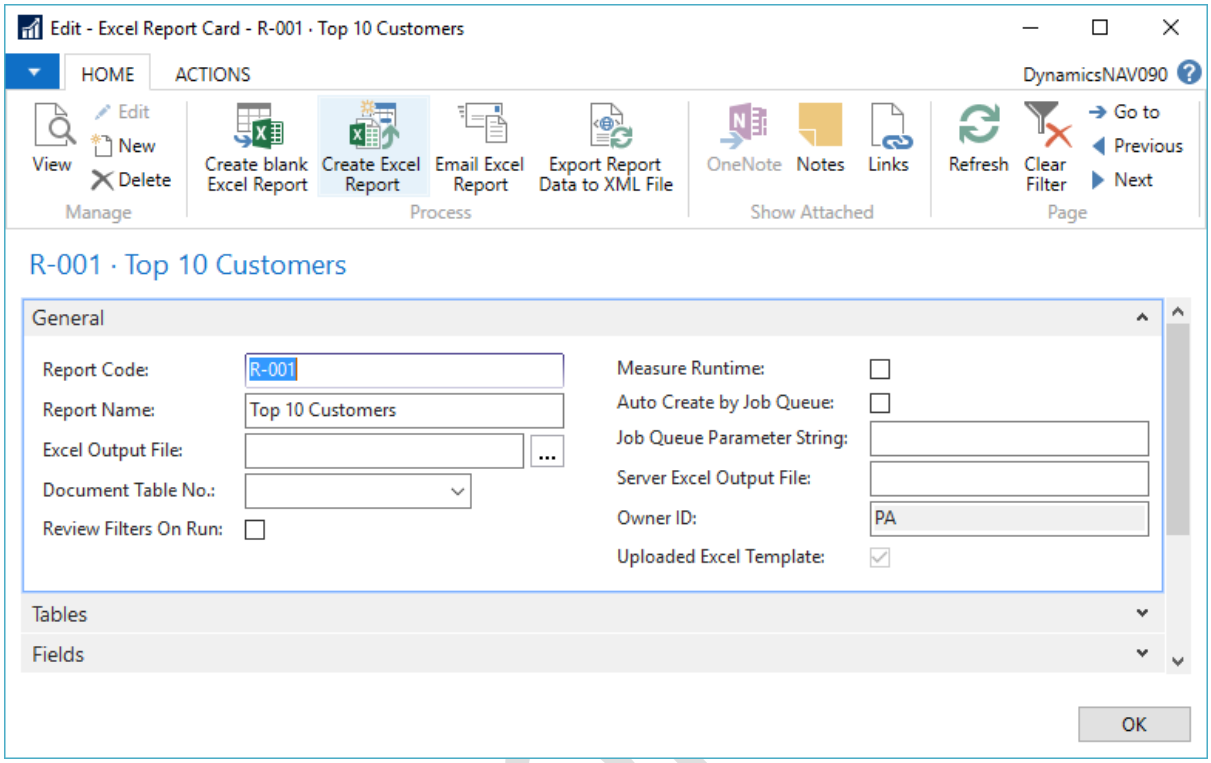


Select Upload and browse Excel Template file:



Uploaded Excel Template field is true now, indicate Excel Template is used. You can also Download or Clear the file. When no template used, system pushes data into blank Excel file as section 3.9.

To create report with uploaded Template, click Ribbon → Actions → Create Excel Report (Process):



To create report at Navision Server automatically:

- Refer to section 8 Configure Job Queue.
- Fill in Job Queue Parameter String same as Parameter String of Job Queue Entry.
- Specify Server Excel Output File.
- Set Auto Create by Job Queue to true.

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3.12 Create Document Layout Excel Report

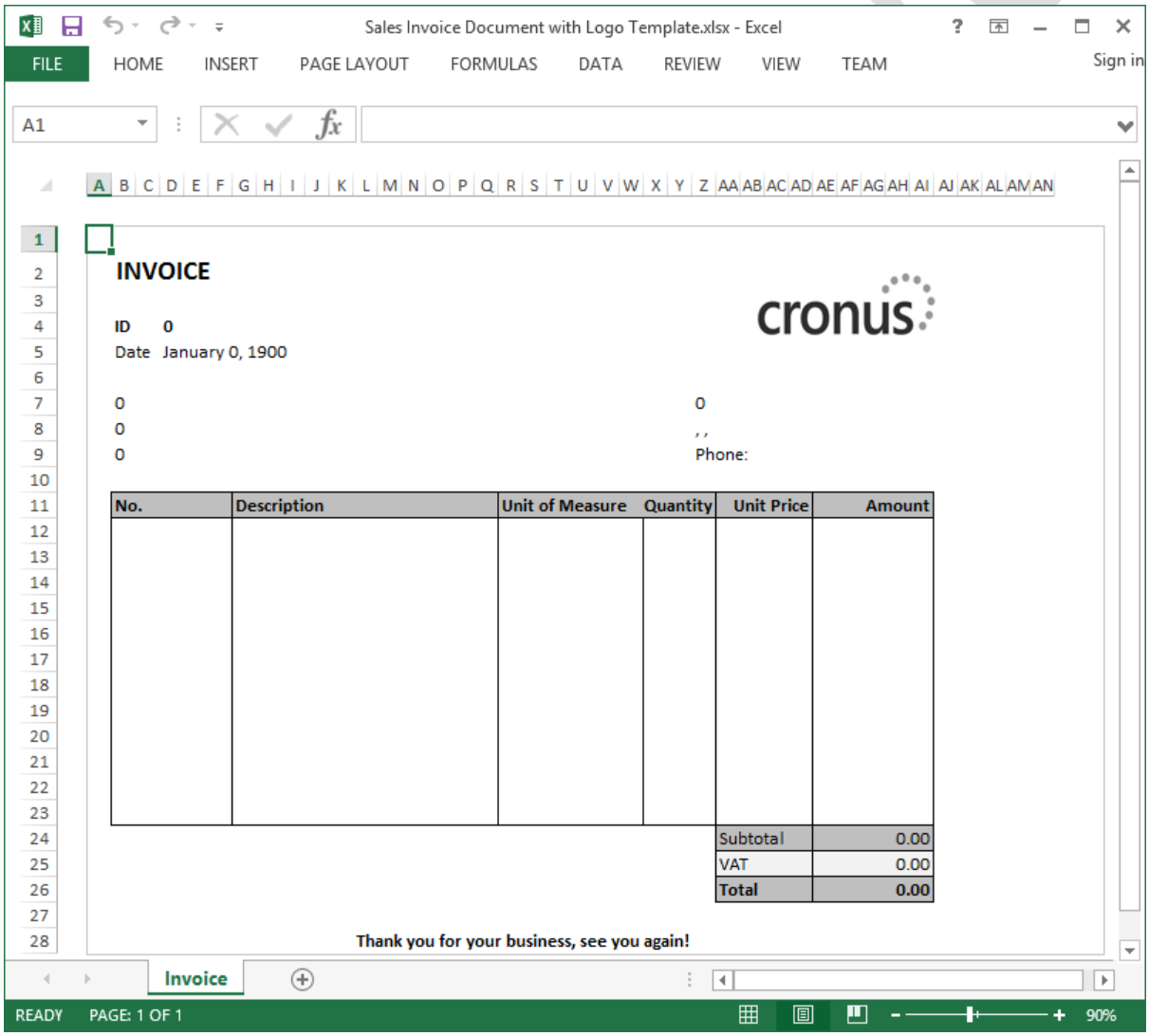
You can quickly create a Document Layout Excel Report by following our detail video "NAV Query and Excel Report - Document Layout" at:

https://www.youtube.com/playlist?list=PLfgzNr8_2Gkp8o589mH7XLFqEUBywciry

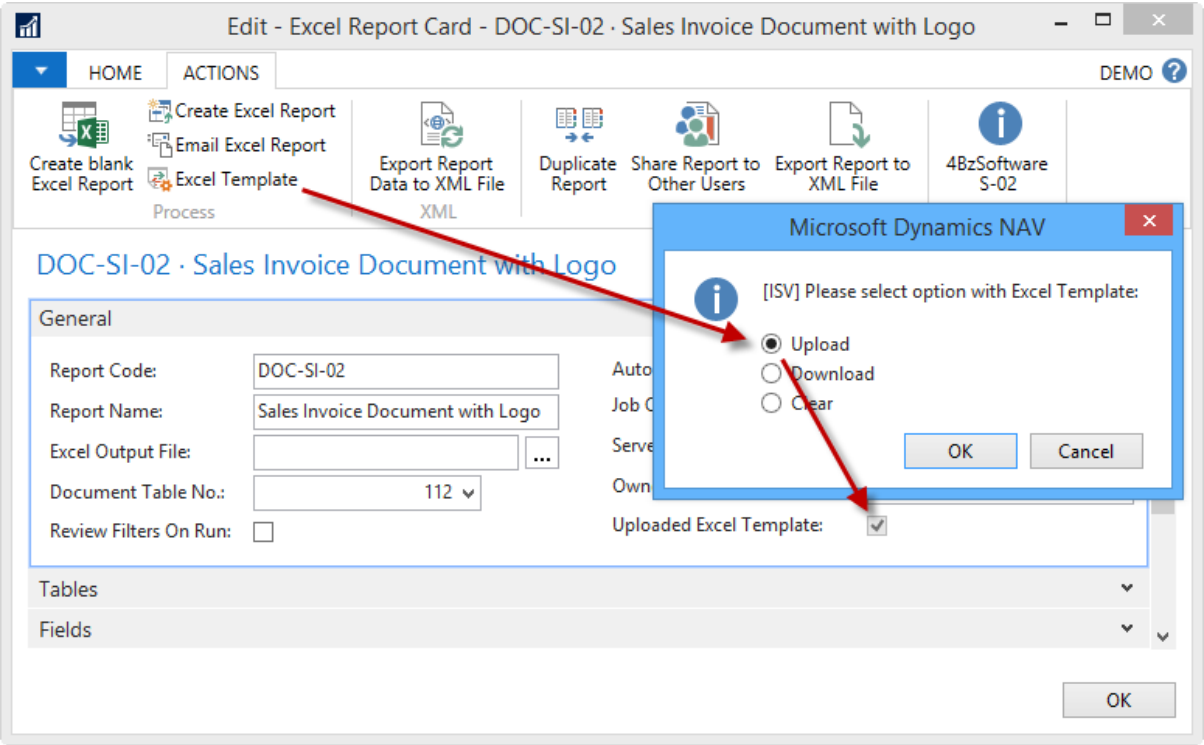
Process to create a Document Layout Excel Report:

1. Create new Excel Report from blank (section 3.9) or by Wizard (section 3.10).
2. Design Document Layout by Microsoft Excel application.
3. Upload designed Document Layout as Template to Excel Report (section 3.11).
4. Link your Document Layout Excel Report to desired Document.

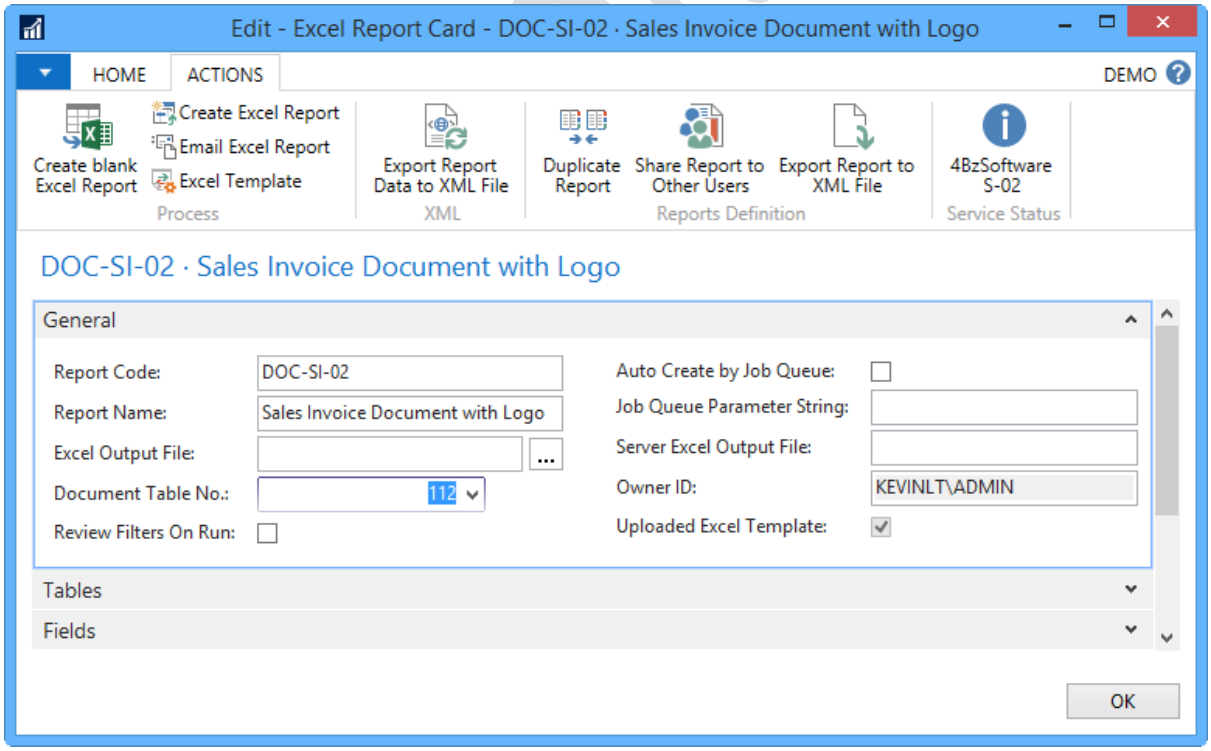
Step 2: Design Document Layout by Microsoft Excel application:



Step 3: Upload designed Document Layout as Template to Excel Report (section 3.11):



Step 4: Link your Document Layout Excel Report to desired Document:

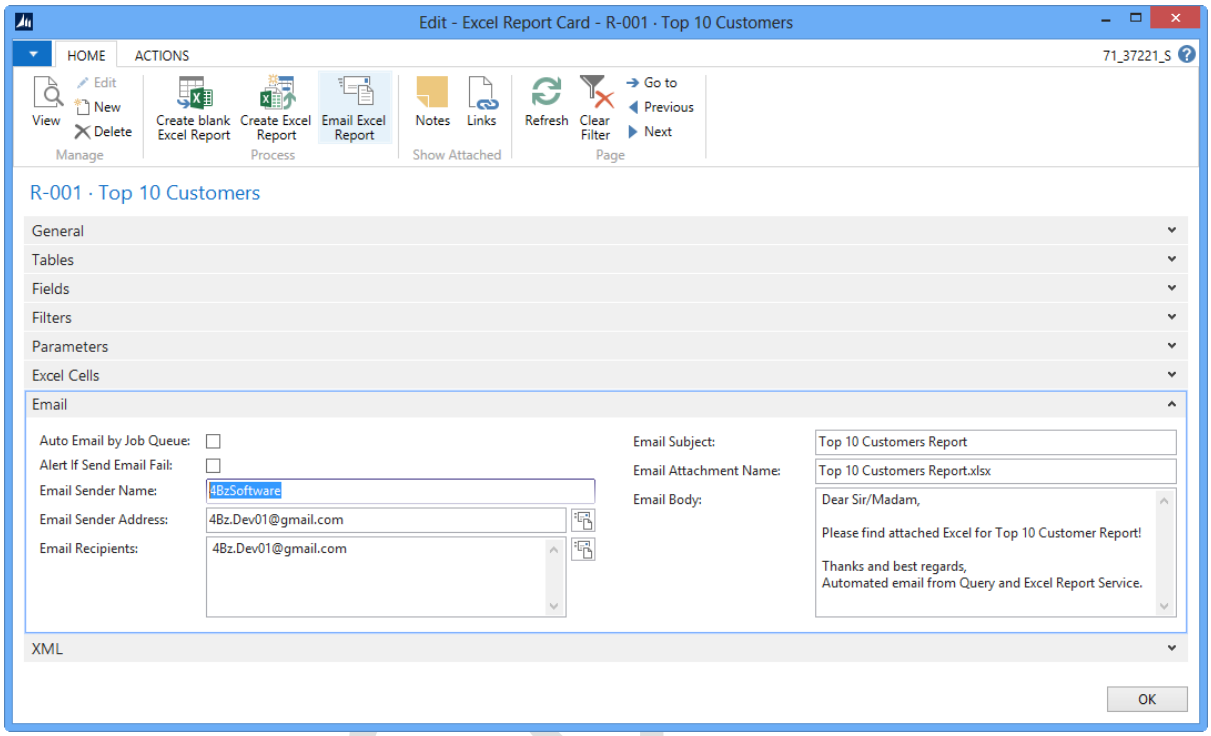


3.13 Email Excel Report

Instead of create Excel output file, you can email report.

Remember to configure SMTP Mail as section 7, and fill in information in Email Group, then email.

Click Ribbon → Home → Email Excel Report (Process):



To email report automatically:

- Refer to section 8 Configure Job Queue.
- Fill in Job Queue Parameter String same as Parameter String of Job Queue Entry.
- Set Auto Email by Job Queue to true.

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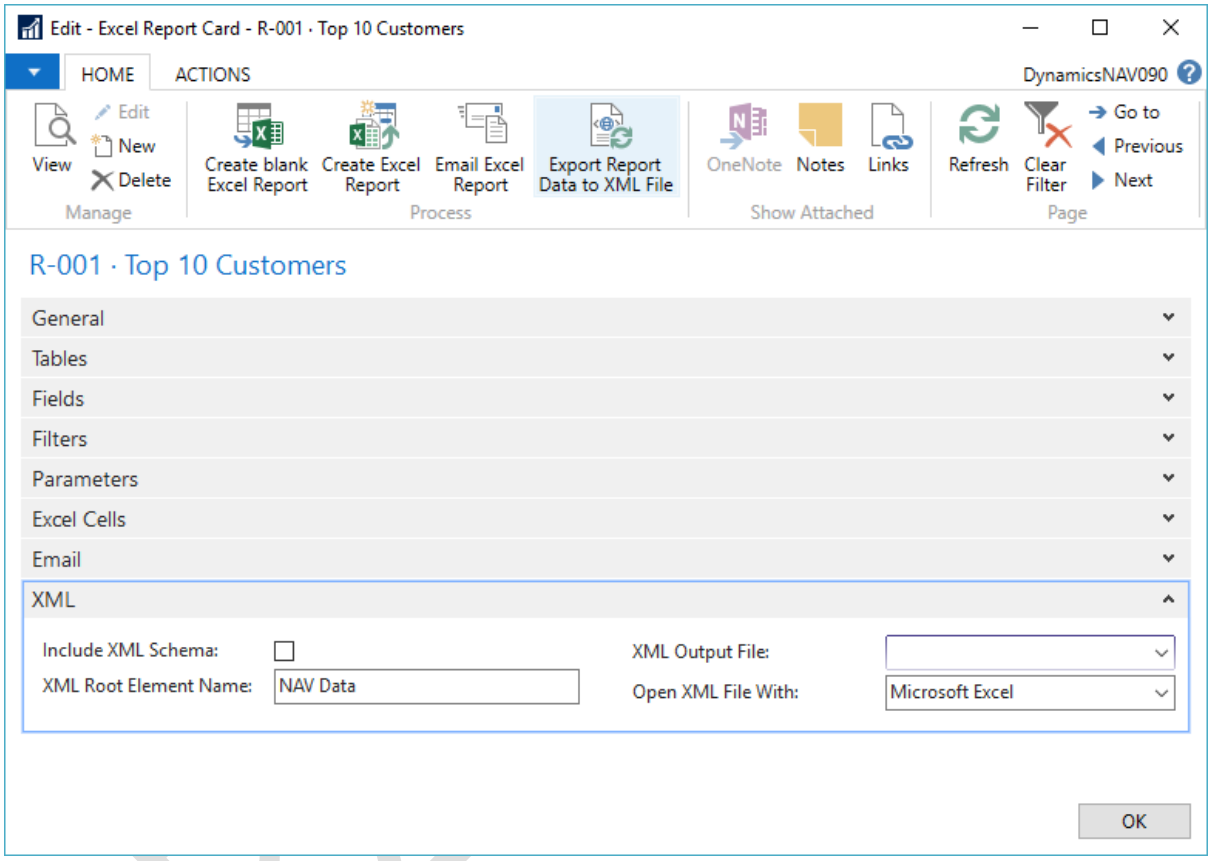
3.14 Export Report Data to XML File

Tool supports export Report Data to XML file, then open it with:

- Microsoft Excel (use XML Source Import).
- Default Windows Application.
- Or just open its folder location.

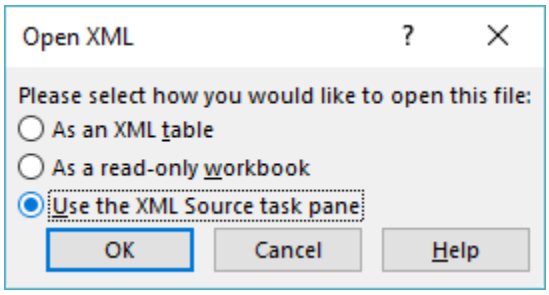
Click Ribbon → Export Report Data to XML File (Process):



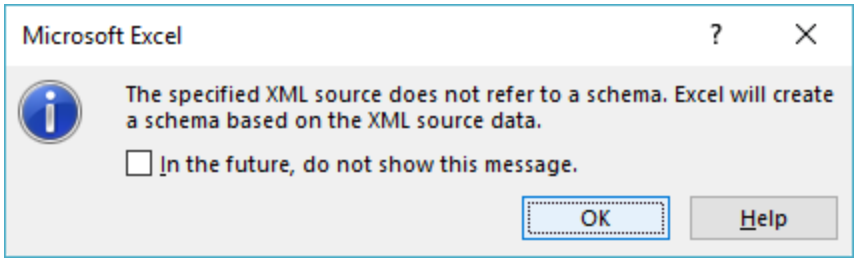
You can specify whether include XML schema, root element name, output file and open file with.

XML Output file: if value is blank, it is downloaded to %temp% folder with format "Report Code-#y2#m2#d2_#HH2#M2#S2.xlsx". Avail formats are described in "Dynamic Output File Name" section.

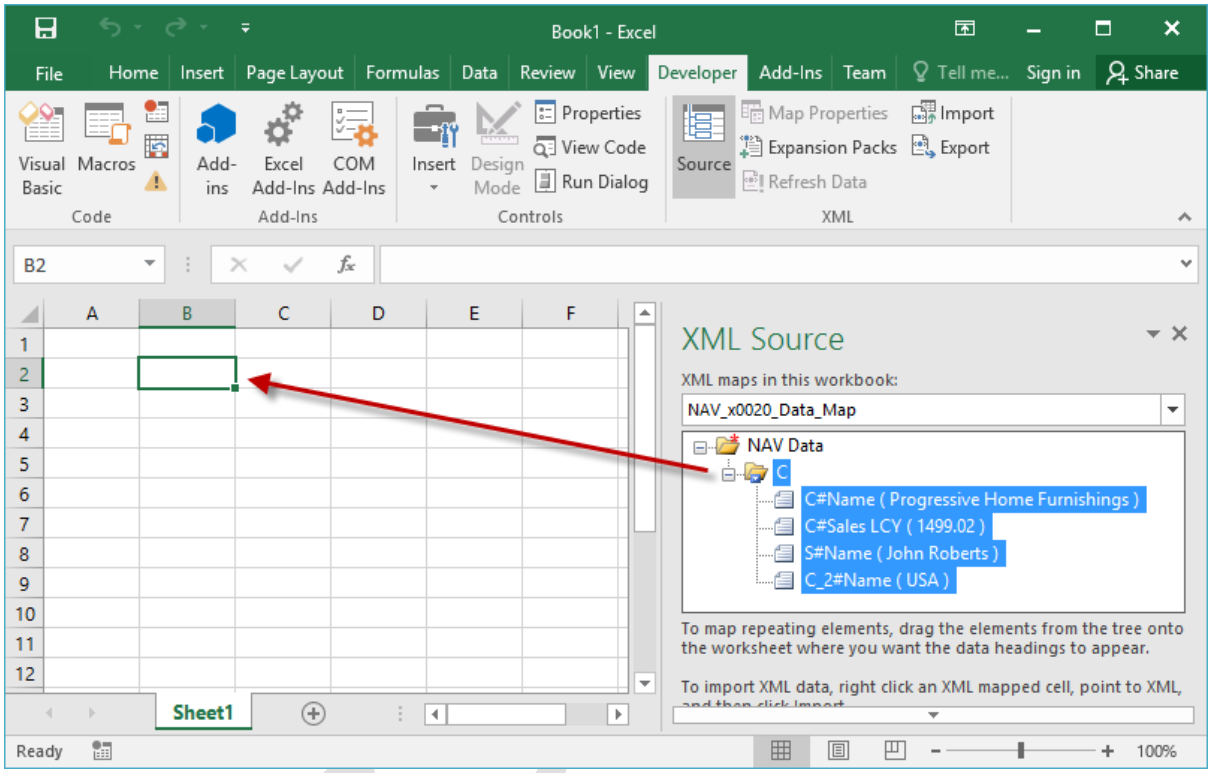
When open with Excel, you can use XML Source task pane to drag XML Data to desired Cell:



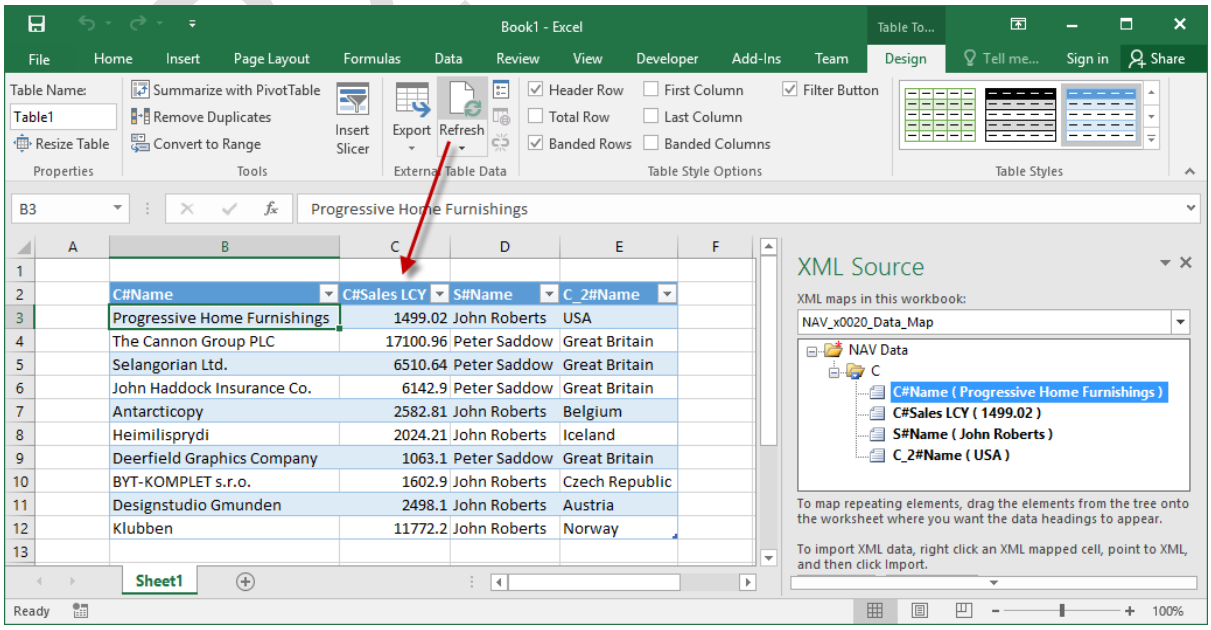
Click OK to continue:



Drag XML Data to desired Cell:



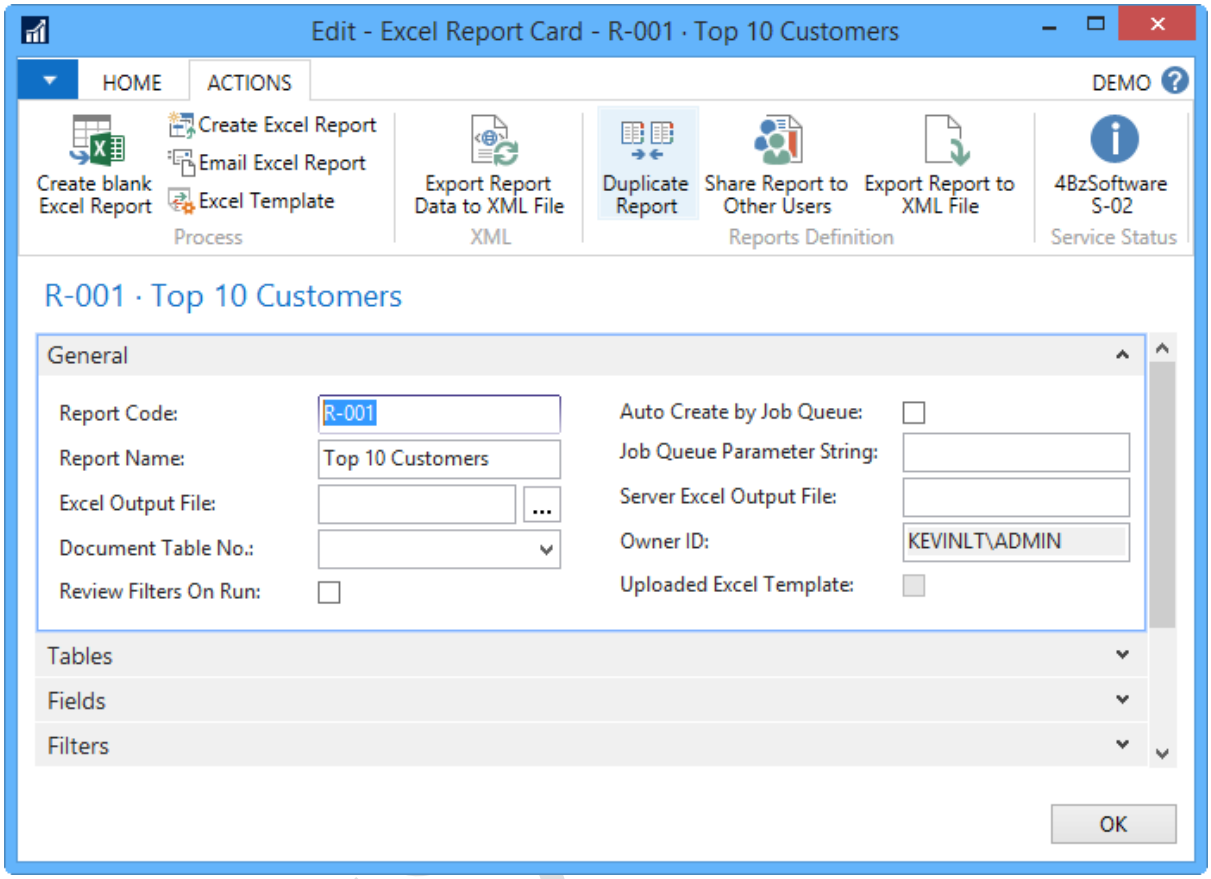
Finally, click Refresh button on the Ribbon to load XML Data:



3.15 Duplicate Report

You can duplicate Report to create new one from existed, or backup purpose.

Click Ribbon → Actions → Duplicate Report (Report Definition):

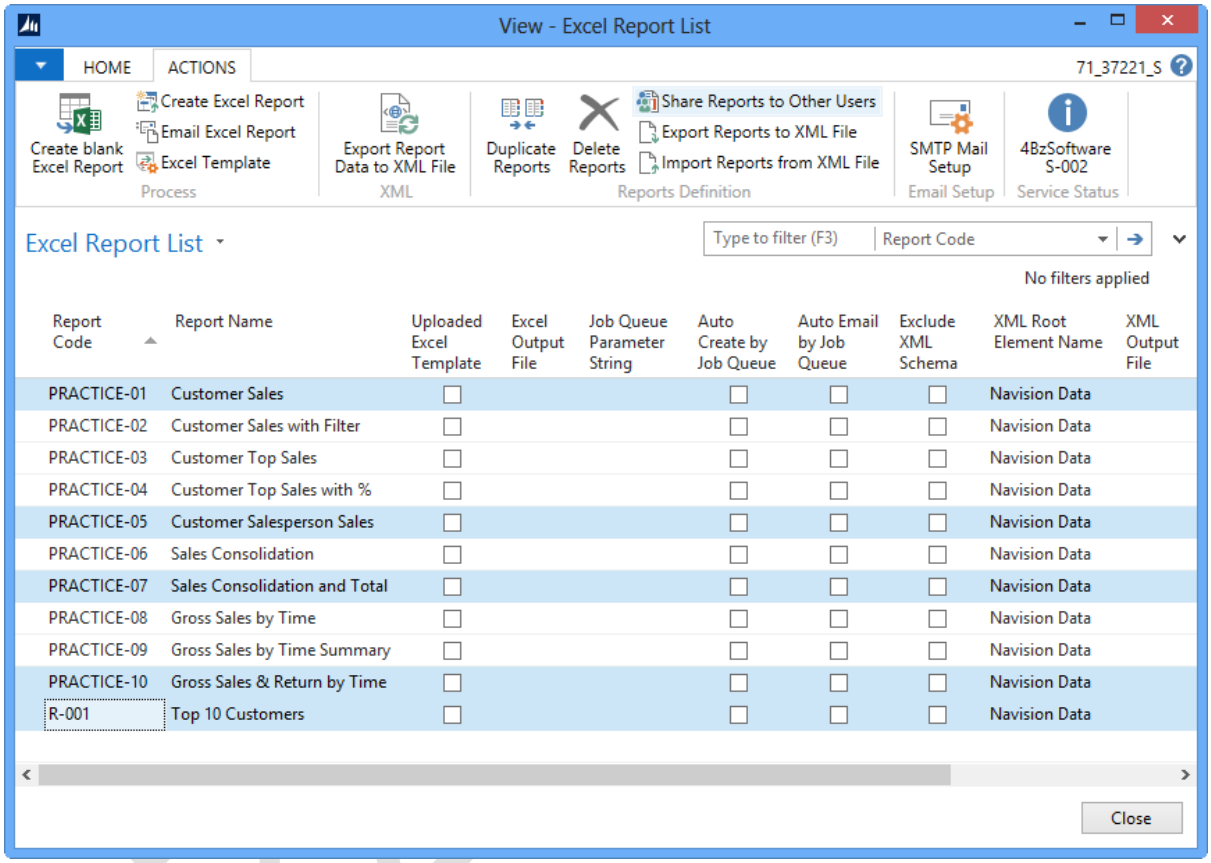


3.16 Report Security and Share Reports Definition to other Users

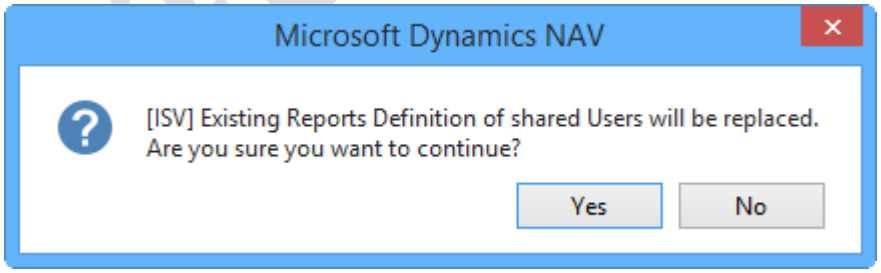
Reports are secured by standard Role and Permission of Navision for reading data.
In addition, reports are only seen by owner.

You can share Reports Definition to other Users in the same company, on Excel Report List page:

- Select reports that you want to share.
- Click Ribbon → Actions → Share Reports to Other Users (Report Definition).



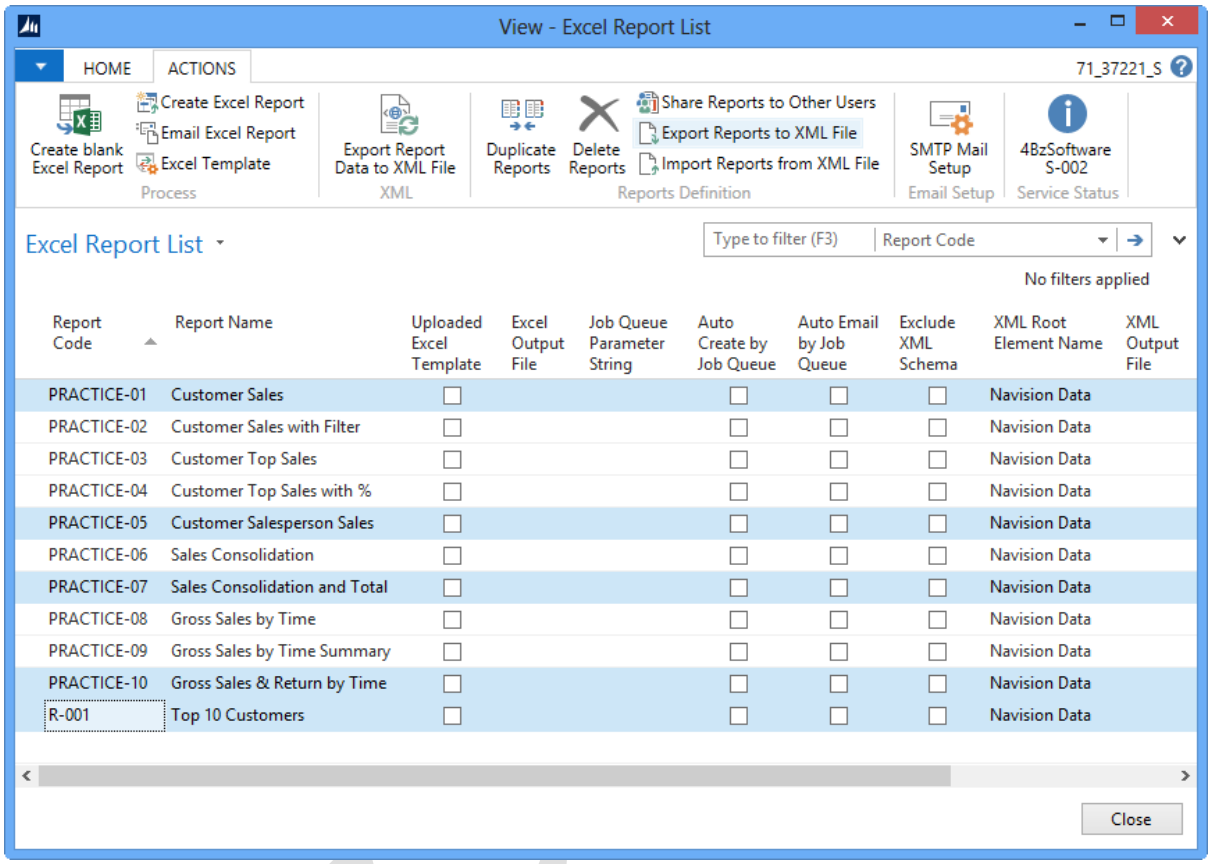
- Select users that you want to share to on Users list page, click OK.
- Click Yes to share:



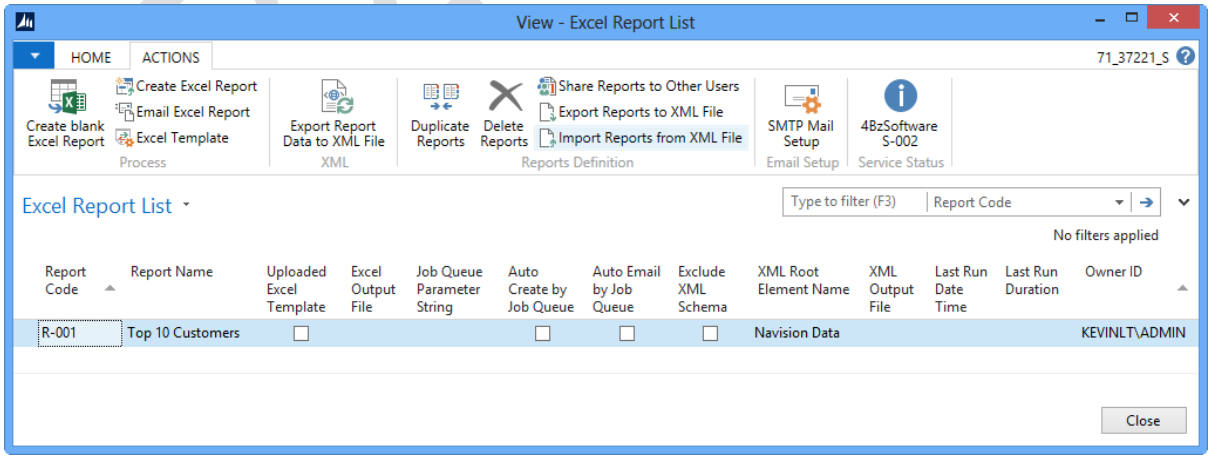
3.17 Export and Import Reports Definition via XML File

You can share reports to other users in different companies or systems by exporting and importing Reports Definition via XML file.

At source system, select needed reports, click on Export Reports to XML File action and save it:



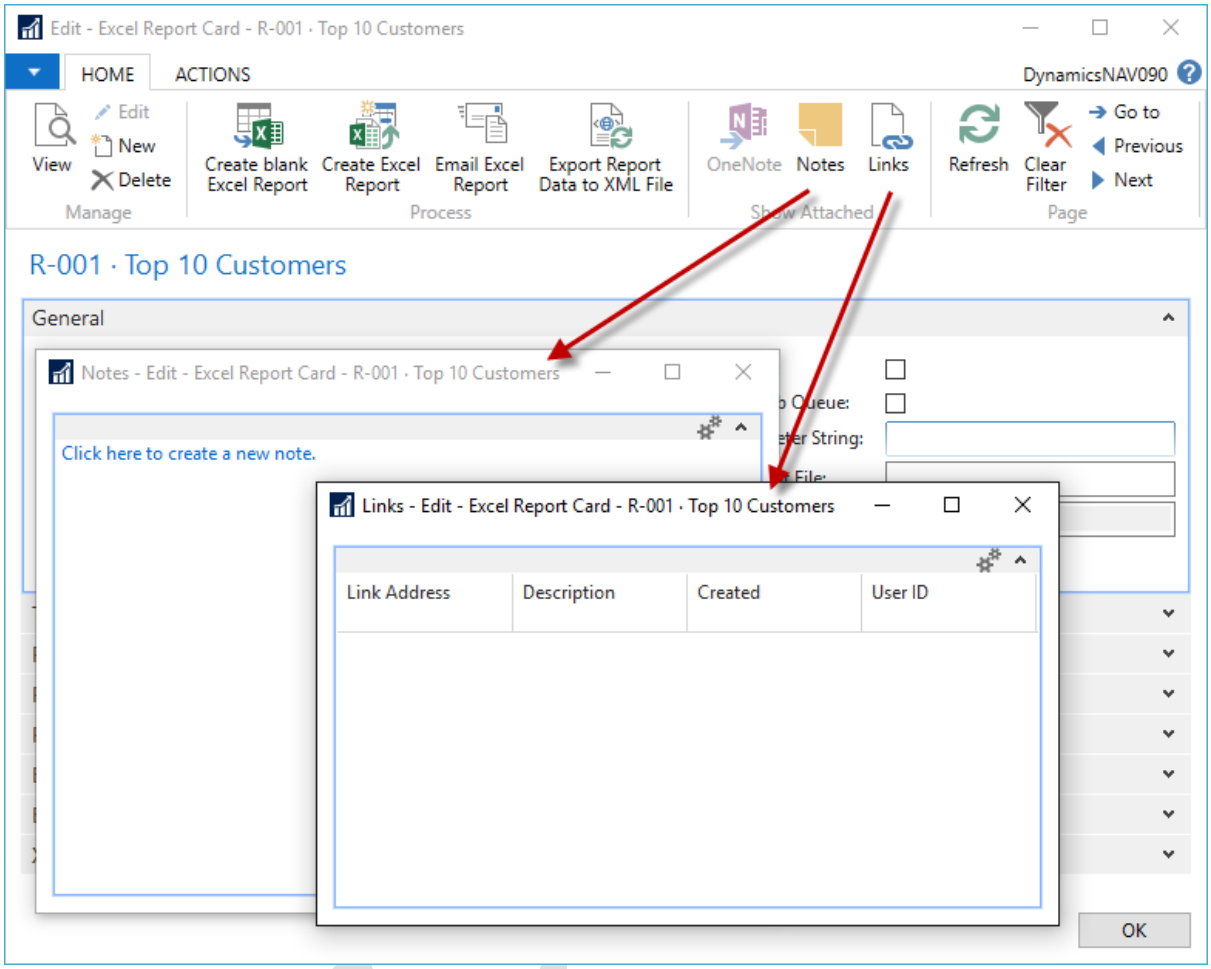
At destination system, click on Import Reports from XML File and browse source XML file:



Source and destination systems may have different tables' fields. Therefore, when system raises an error, you should recheck them.

3.18 Notes and Links for Report Definition

You can take notes or create links (standard system functions) when define report:



They are copied to destination reports definition when you:

- Duplicate reports definition.
- Share reports definition to other users.
- Export/import reports definition via XML file.

3.19 Dynamic Output File Name

With this feature, users can track changes of report such as Daily Inventory Report.

For example, the report is set to send email at 06:00 AM daily:

- Email Attachment Name is "Inventory Report - [#Now,#y2#m2#d2_#HH2#M2#S2].xlsx"
- On 01st March 2017: email attached file is "Inventory Report - 170301_060000.xlsx".
- On 02nd March 2017: email attached file is "Inventory Report - 170302_060000.xlsx".
- On 03rd March 2017: email attached file is "Inventory Report - 170303_060000.xlsx".
- …

It applies to:

- Excel Output File
- Server Output File
- XML Output File
- Email Attachment Name

Full format is [#Now"OptionalDateAdjustment","DateTimeFormat"]

- It is case sensitive, starts with "[#Now", and ends with "]" character.
- "OptionalDateAdjustment" follows NAV Date Formula as:
  - +1D, +2W, +3M, +4Q or +5Y = plus 1Day, 2Weeks, 3Months, 4Quarter or 5Years.
  - -1D, -2W, -3M, -4Q or -5Y = minus 1Day, 2Weeks, 3Months, 4Quarter or 5Years.
- "DateTimeFormat" follows below table:

Date Time Format	Description	Example
#d1	Day in month with 1 char = <Day>	1, 10
#d2	Day in month with 2 chars = <Day, 2>	01, 10
#m1	Month in year with 1 char = <Month>	3, 10
#m2	Month in year with 2 chars = <Month, 2>	03, 10
#mt3	Month Text with 3 chars = <Month Text, 3>	Mar, Oct
#mt	Month Text = <Month Text>	March, October
#y2	Year with 2 chars = <Year, 2>	17
#y4	Year with 4 chars = <Year4>	2017
#HH1	Hours 1 to 24 with 1 char = <Hours24>	6, 16
#HH2	Hours 1 to 24 with 2 chars = <Hours24, 2>	06, 16
#H1	Hours 1 to 12 with 1 char = <Hours>	6
#H2	Hours 1 to 12 with 2 chars = <Hours, 2>	06
#M1	Minutes with 1 char = <Minutes>	9
#M2	Minutes with 2 chars = <Minutes, 2>	09
#S1	Seconds with 1 char = <Seconds>	9
#S2	Seconds with 2 chars = <Seconds, 2>	09
#MS	Milliseconds with 3 chars = <Thousands>	678
#APM	Ante or Post Meridiem = <AM/PM>	AM, PM

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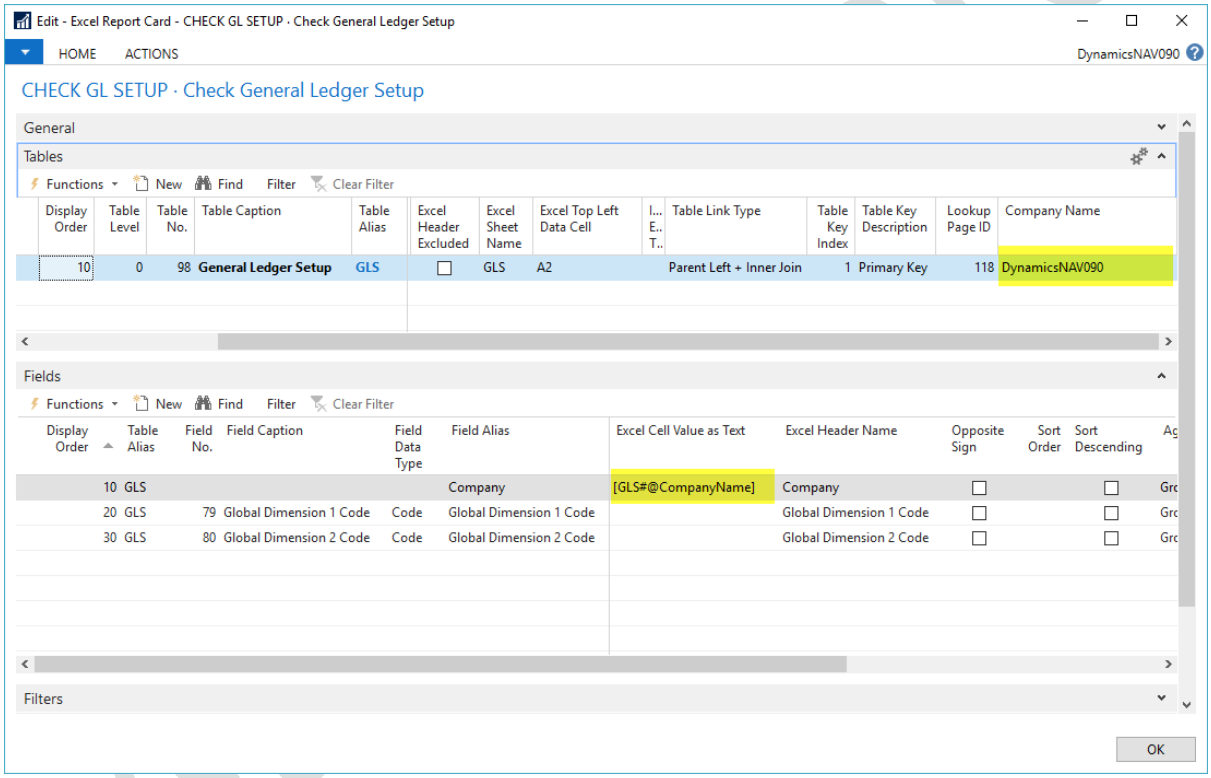
3.20 Duplicate Structure by Companies function

When you have more than 2 companies and want to make consolidation report, the feature saves a lot of time for you. It is boring while doing same actions such as select Tables, Fields and Filters for each companies. Process is:

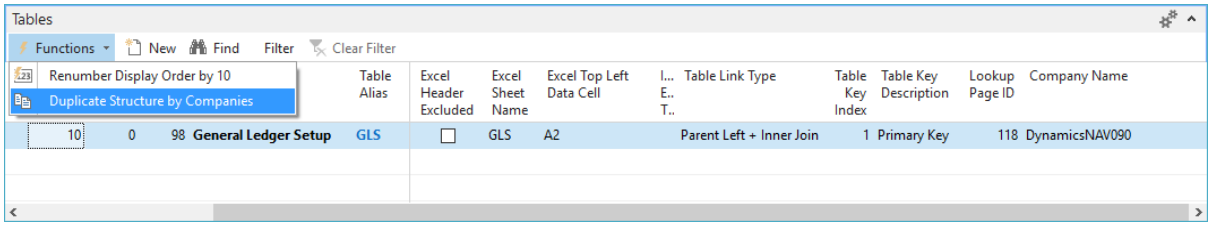
- Finish designing for one company. To identify company, you can use special value [TableAlias#@CompanyName] in Excel Cell Value as Text of Fields Part.
- In Tables Part, on Top Table line, click Functions → Duplicate Structure by Companies.
- Select Companies that you want to duplicate.

Another example, you want to cross check General Ledger Setup of all companies:

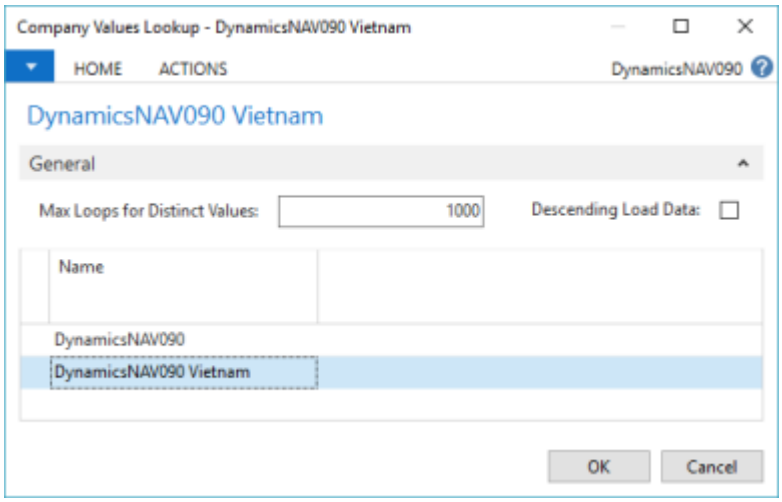
- Finish designing for one company. To identify company, you can use special value [TableAlias#@CompanyName] in Excel Cell Value as Text of Fields Part:



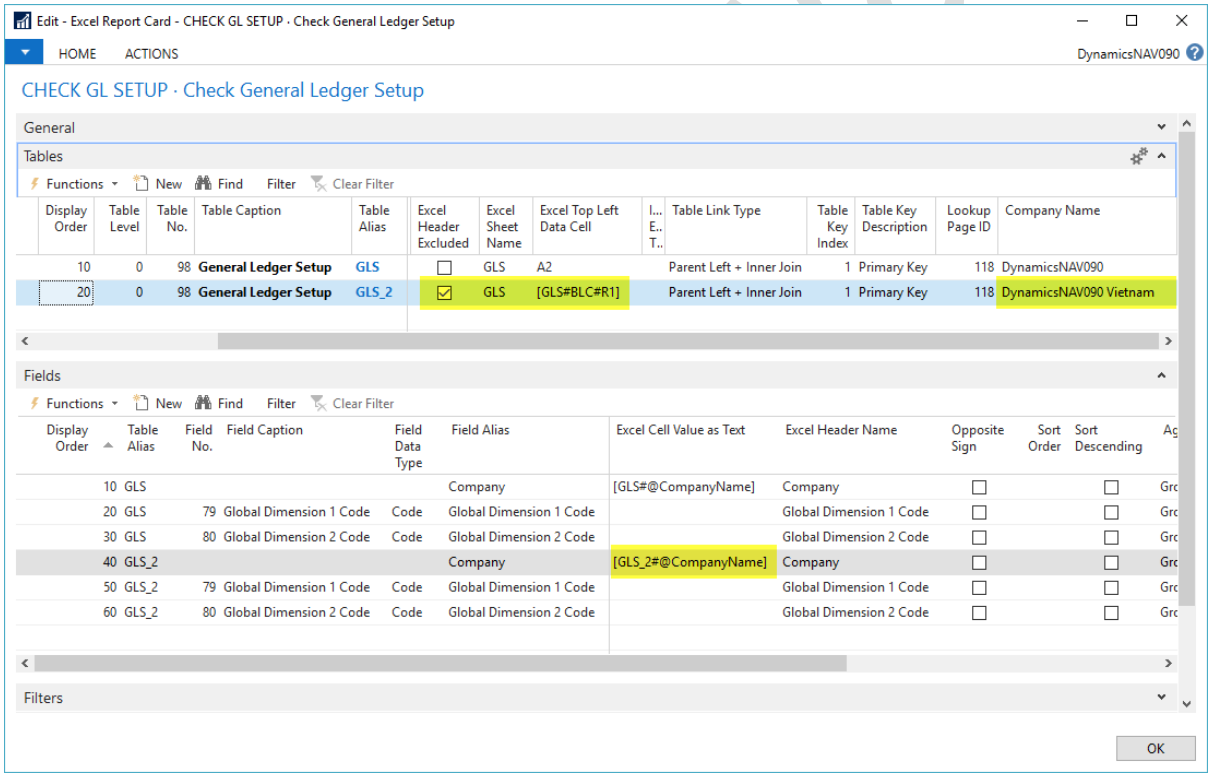
- In Tables Part, on Top Table line, click Functions → Duplicate Structure by Companies:



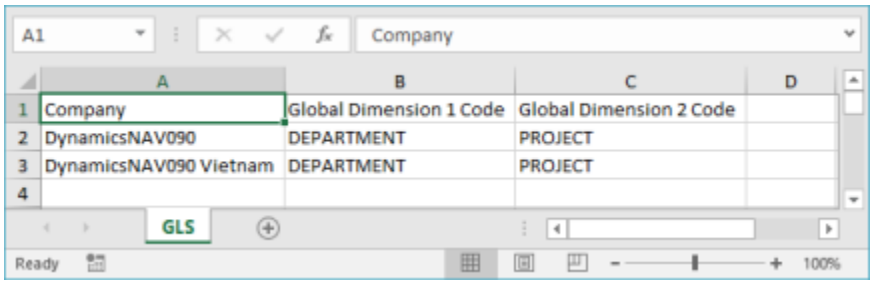
- Select Companies that you want to duplicate
  (use Ctrl key + mouse click to select multiple companies):



Back to Excel Report Card:

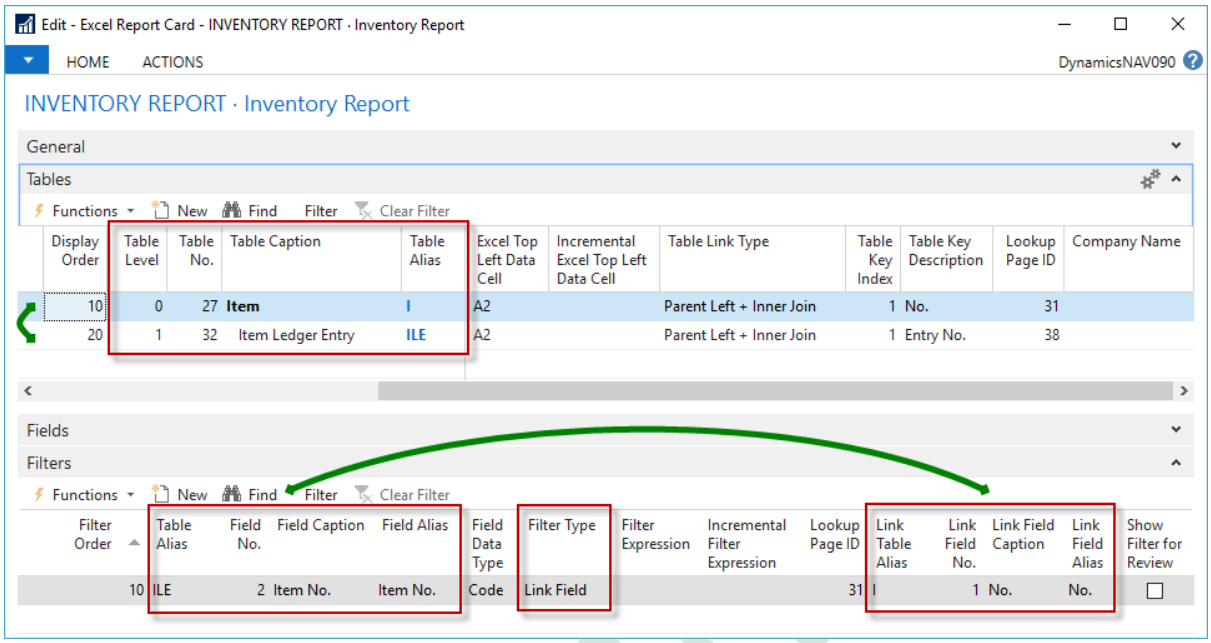


Excel output report:



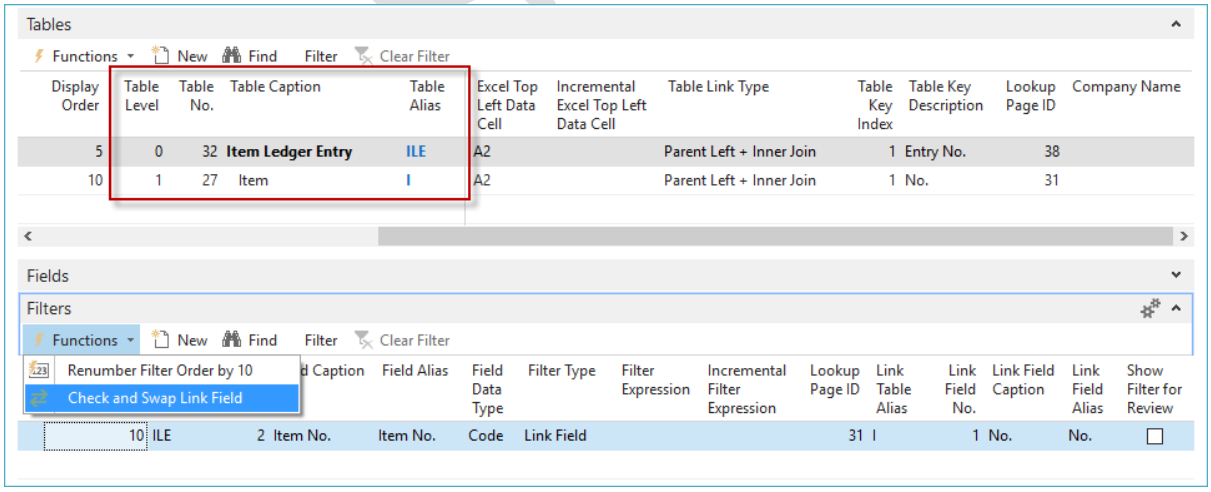
3.21 Check and Swap Link Field function in Filter Part

In some cases, you want to change Table Hierarchy. As a result, you have to review and swap Filters for Link Field Filter Type, Child Filter Fields are on left side and Parent Link Filter Fields are on right side. It takes you a lot of time when report definition is complex and has many Link Field Filters:

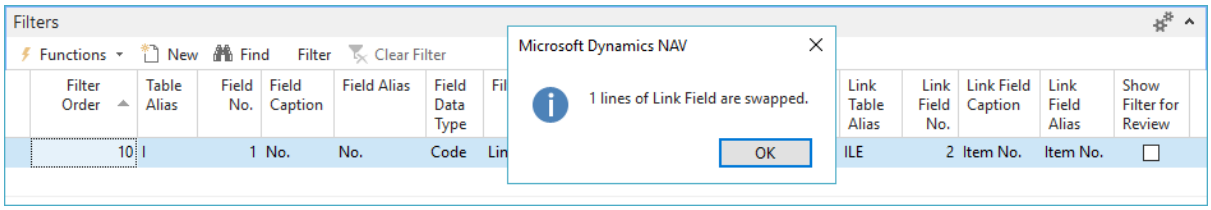


We developed the feature to support you:

- In Tables Part, change Table Hierarchy as your requirement.
- In Filters Part, click Functions → Check and Swap Link Field:



- Check result:



3.22 Incremental Excel Template

Do you believe Inventory Report can be generated within a minute despite large database size? It is because tool can exports data incrementally (instead of data from the beginning) when run.

Take a look at example, Daily Inventory Report:

- Report is sent by Email Daily, around 06:00 AM.
- There are around 800 Items and 5 Locations.
- Main Source Table of report is Item Ledger Entry.
- There are 1,000,000 records of 10 years.
- Current year is the 11th year.
- There are 1,000 records per day.
- Day 1 of current year: records from 1,000,001 to 1,001,000.
- Day 2 of current year: records from 1,001,001 to 1,002,000.
- …

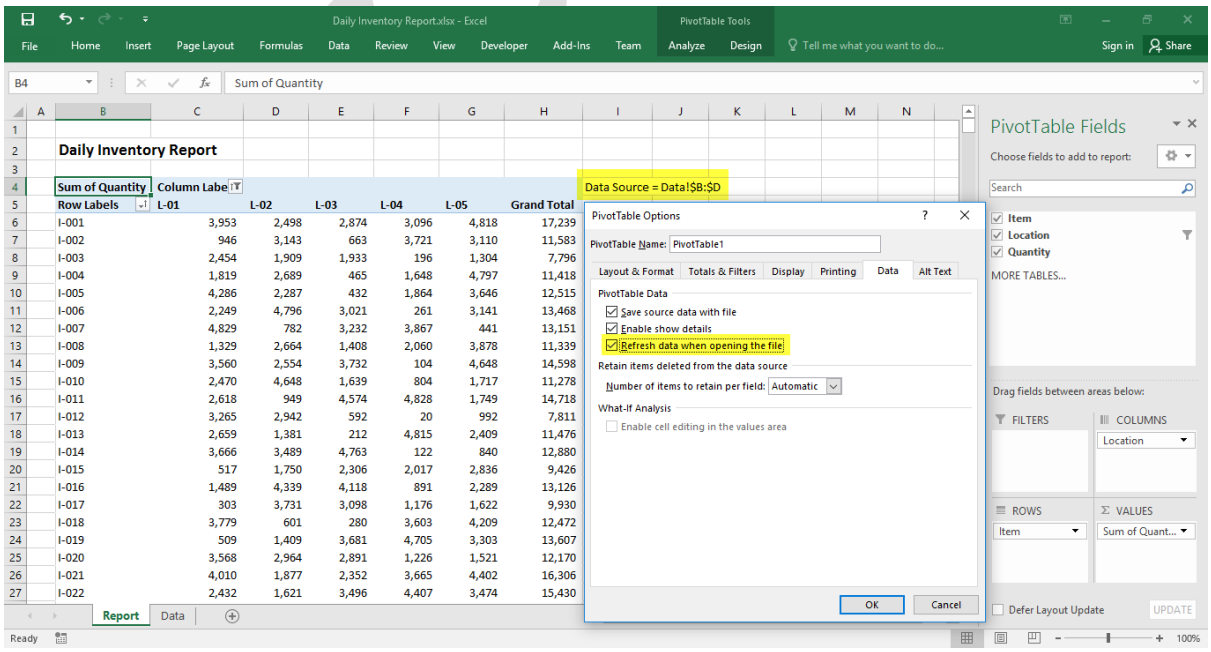
We need to use:

1. Excel Template: store opening balance and incremental data exported from tool.
2. In Tables Part, Incremental Excel Top Left Data Cell: point to next Bottom Left Cell.
3. In Filters Part, Incremental Filter Expression: set to greater than last Numeric Value.

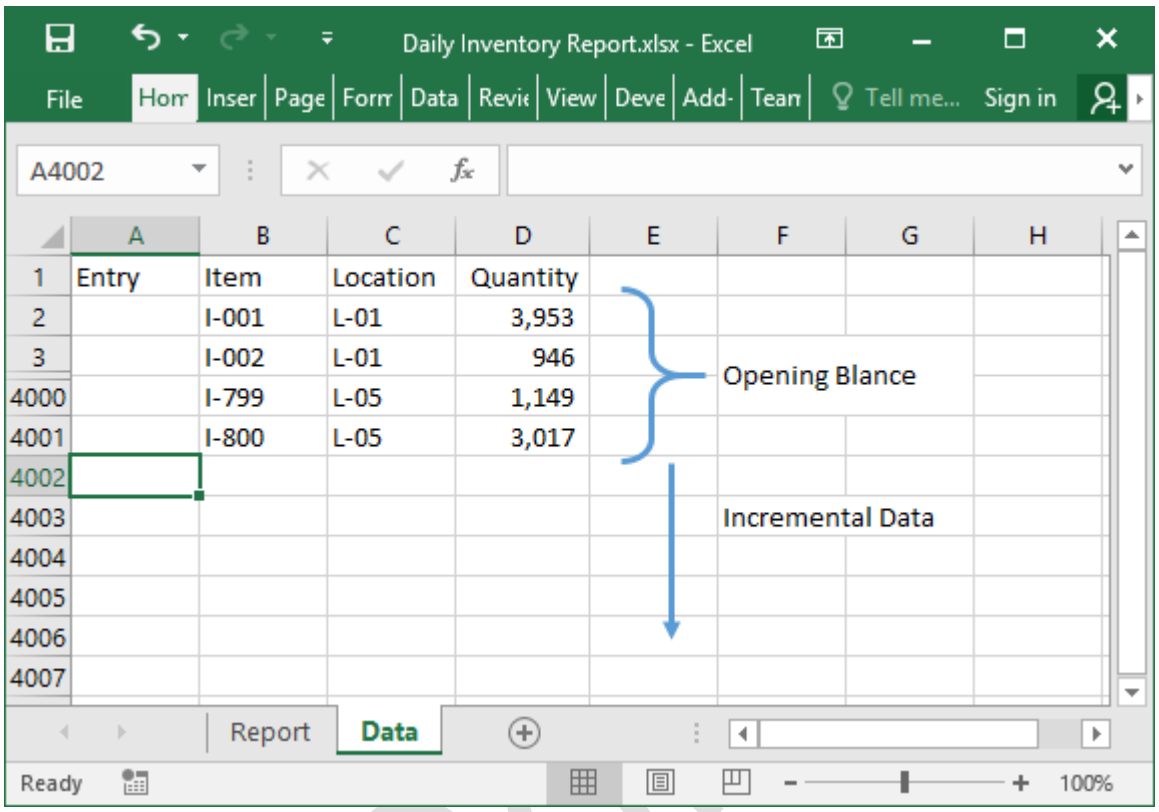
Process:

1. Excel Template: store opening balance and incremental data exported from tool:

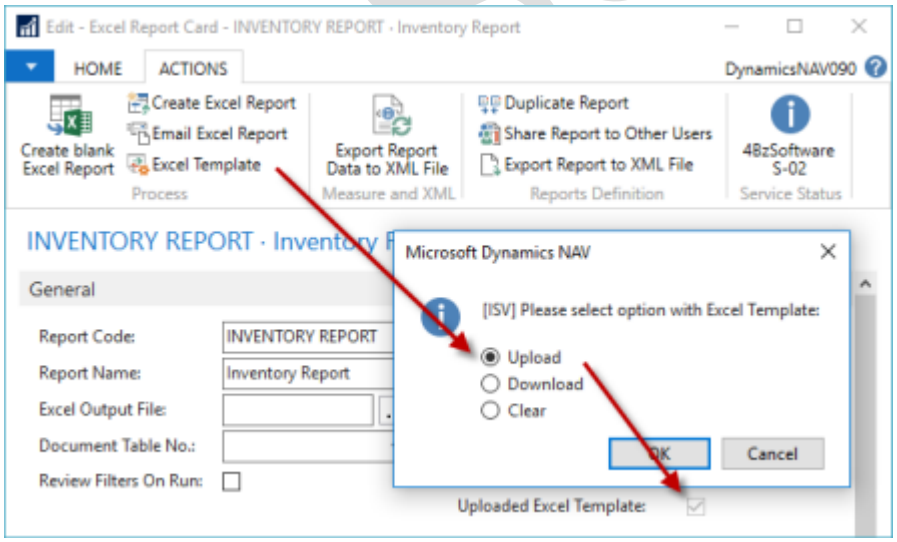
"Report" sheet shows inventory information via a pivot table. Its data source comes from B to D columns of "Data" sheet, and is set "Refresh data when opening file":



Inventory opening balance can be aggregated by SQL script. “Data” sheet contains opening balance of 800 Items and 5 Locations (rows from 2 to 4001) and incremental data exported from tool daily (rows from 4002):



Remember to upload Excel Template to report definition:



2. In Tables Part, Incremental Excel Top Left Data Cell: point to next Bottom Left Cell:

Edit - Excel Report Card - INVENTORY REPORT · Inventory Report

HOME ACTIONS DynamicsNAV090

INVENTORY REPORT · Inventory Report

Tables

Functions New Find Filter Clear Filter

Display Order	Table Level	Table No.	Table Caption	Table Alias	Excel Header Excluded	Excel Sheet Name	Excel Top Left Data Cell	Incremental Excel Top Left Data Cell	Table Link Type	Table Key Index	Table Key Description	Lookup Page ID	Company Name
10	0	32	**Item Ledger Entry**	ILE	☑	Data	A4002	A4002	Parent Left + Inner Join	1	Entry No.	38	

Fields

Functions New Find Filter Clear Filter

Display Order	Table Alias	Field No.	Field Caption	Field Data Type	Field Alias	Excel Cell Value as Text	Excel Header Name	Opposite Sign	Sort Order	Sort Descending	Aggregation	Excel Format Value	Excel Column Width
10	ILE	1	Entry No.	Integer	Entry No.		Entry No.	☐		☐	Group	#,##0	10
20	ILE	2	Item No.	Code	Item No.		Item No.	☐		☐	Group	@	15
30	ILE	8	Location Code	Code	Location Code		Location Code	☐		☐	Group	@	15
40	ILE	12	Quantity	Decimal	Quantity		Quantity	☐		☐	Summary	#,##0	20

3. In Filters Part, Incremental Filter Expression: set to greater than last Numeric Value:

Filters

Functions New Find Filter Clear Filter

Filter Order	Table Alias	Field No.	Field Caption	Field Alias	Field Data Type	Filter Type	Filter Expression	Incremental Filter Expression	Lookup Page ID	Link Table Alias	Link Field No.	Link Field Caption	Link Field Alias	Show Filter for Review
10	ILE	1	Entry No.	Entry No.	Integer	Fixed	>0	>0	38					☐

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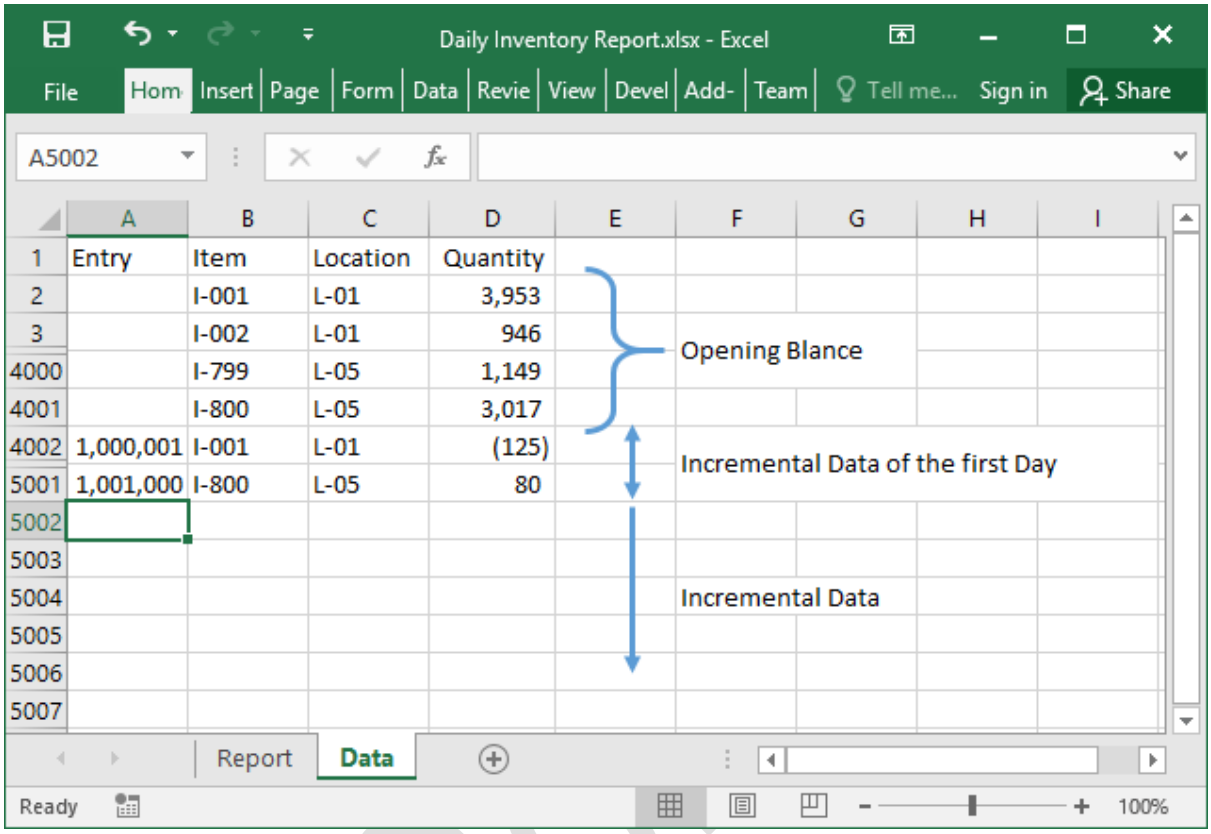
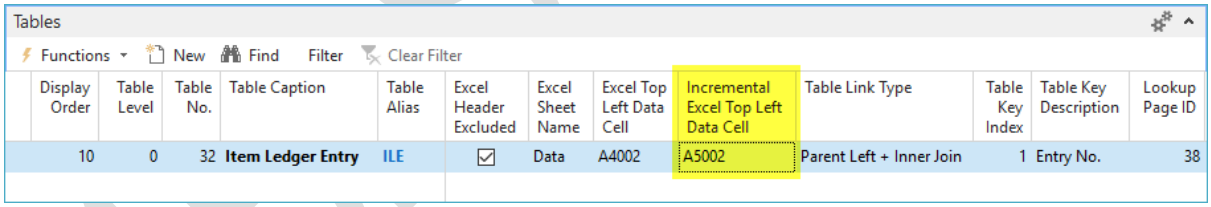
4. After run report on the first day:

Excel Template is updated with Incremental Data of the 1st Day, and saved back to report definition:



In Tables Part, Incremental Excel Top Left Data Cell is pointed to next Bottom Left Cell:

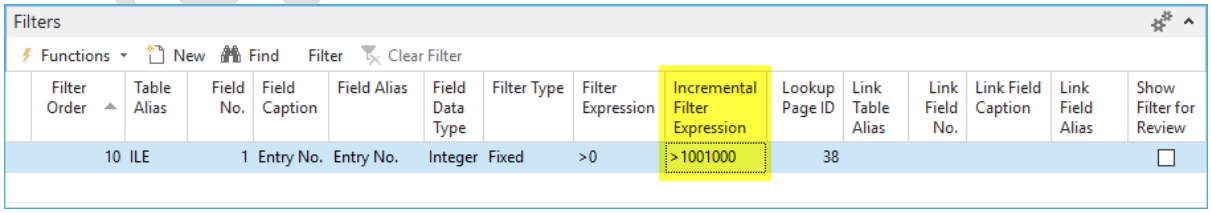


Tables

Functions New Find Filter Clear Filter

Display Order	Table Level	Table No.	Table Caption	Table Alias	Excel Header Excluded	Excel Sheet Name	Excel Top Left Data Cell	Incremental Excel Top Left Data Cell	Table Link Type	Table Key Index	Table Key Description	Lookup Page ID
10	0	32	**Item Ledger Entry**	ILE	☑	Data	A4002	A5002	Parent Left + Inner Join	1	Entry No.	38

In Filters Part, Incremental Filter Expression is set to greater than last Numeric Value:



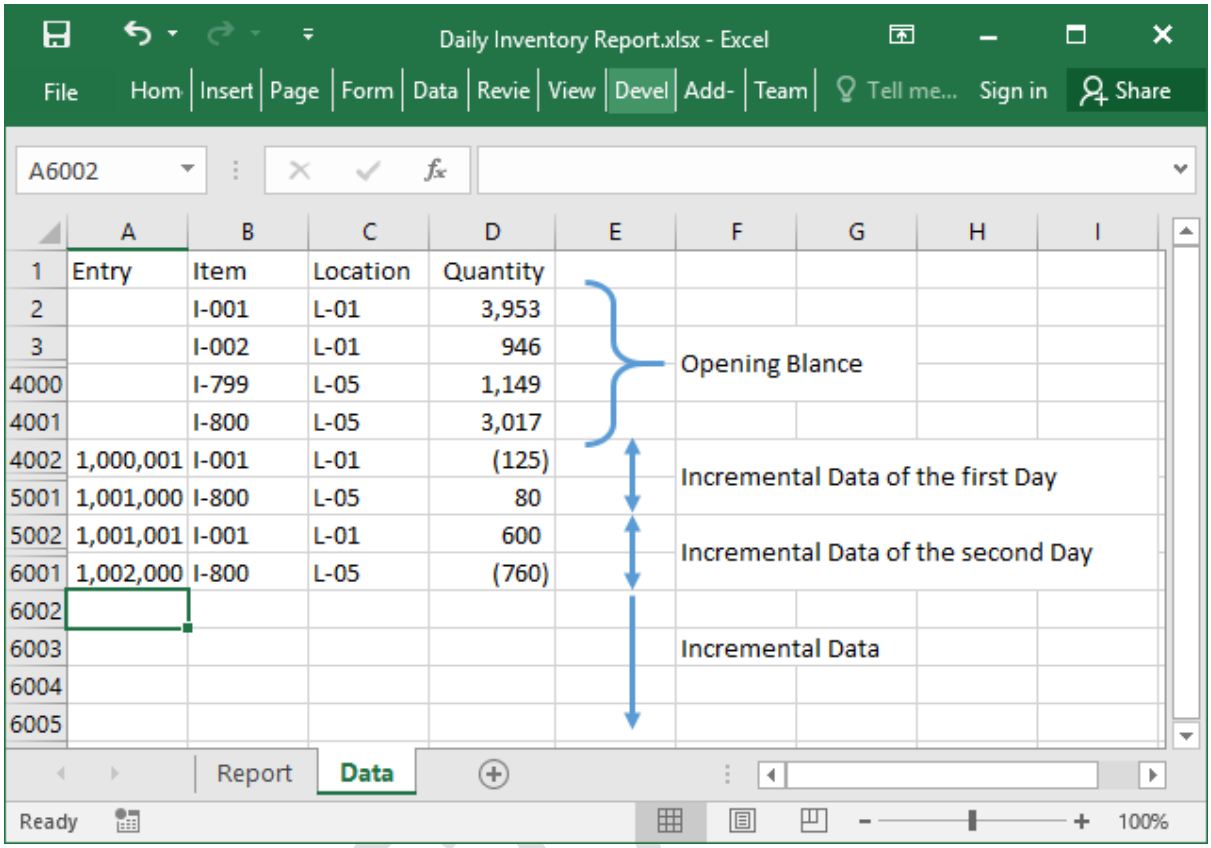
Filters

Functions New Find Filter Clear Filter

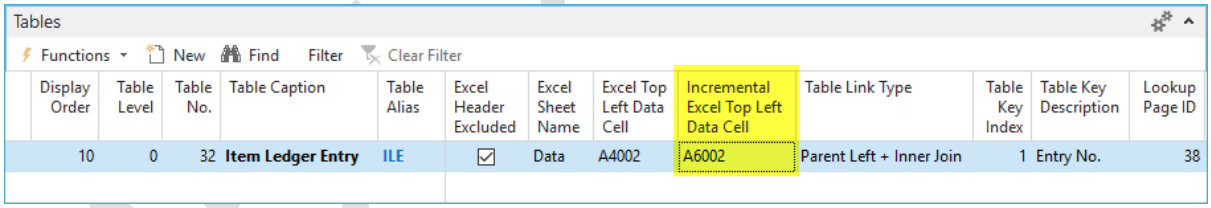
Filter Order	Table Alias	Field No.	Field Caption	Field Alias	Field Data Type	Filter Type	Filter Expression	Incremental Filter Expression	Lookup Page ID	Link Table Alias	Link Field No.	Link Field Caption	Link Field Alias	Show Filter for Review
10	ILE	1	Entry No.	Entry No.	Integer	Fixed	>0	>1001000	38					☐

5. After run report on the second day:

Excel Template is updated with Incremental Data of the 2nd Day, and saved back to report definition:



In Tables Part, Incremental Excel Top Left Data Cell is pointed to next Bottom Left Cell:

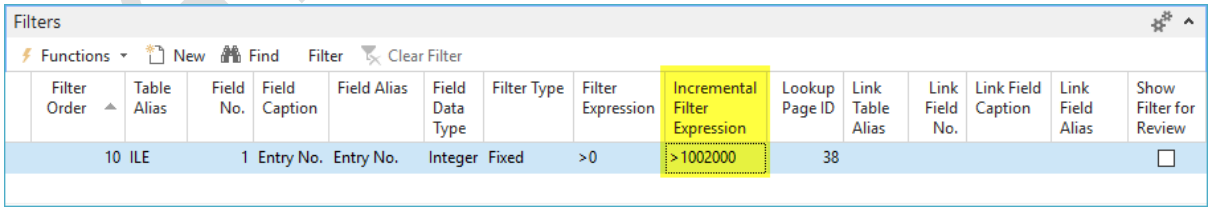


Tables

Functions New Find Filter Clear Filter

Display Order	Table Level	Table No.	Table Caption	Table Alias	Excel Header Excluded	Excel Sheet Name	Excel Top Left Data Cell	Incremental Excel Top Left Data Cell	Table Link Type	Table Key Index	Table Key Description	Lookup Page ID
10	0	32	**Item Ledger Entry**	ILE	☑	Data	A4002	A6002	Parent Left + Inner Join	1	Entry No.	38

In Filters Part, Incremental Filter Expression is set to greater than last Numeric Value:



Filters

Functions New Find Filter Clear Filter

Filter Order	Table Alias	Field No.	Field Caption	Field Alias	Field Data Type	Filter Type	Filter Expression	Incremental Filter Expression	Lookup Page ID	Link Table Alias	Link Field No.	Link Field Caption	Link Field Alias	Show Filter for Review
10	ILE	1	Entry No.	Entry No.	Integer	Fixed	>0	>1002000	38					☐

And so on for the next days.

After several months, report will be slower. At that time, you should sum-up incremental data (rows from 4002) and plus them to opening balance (rows from 2 to 4001). Then, you start the process again with new opening balance. Remember to delete rows from 4002 for new Incremental Data, and adjust Incremental Excel Top Left Data Cell to A4002 in Tables Part.

4. Technical Point of View

4.1 Navision Objects

The customization includes below Navision Objects:

No.	Type	ID	Name	Note
1	Record	88	Excel Report Header	
2	Record	89	Excel Report Line	
3	Codeunit	31	NAV Library	Protected Object
4	Codeunit	32	Data Table Library	Protected Object
5	Codeunit	33	Excel Library	Protected Object
6	Codeunit	65	License Management	Protected Object
7	Codeunit	201	Excel Report Management	Protected Object
8	Page	8	Standard Text Codes	Start Point
9	Page	502	Posted Sales Invoices Sample	Copied from page 143
10	Page	520	Excel Report List	
11	Page	531	Excel Report Card	
12	Page	532	Excel Report Table Subpage	
13	Page	533	Excel Report Field Subpage	
14	Page	544	Excel Report Filter Subpage	
15	Page	545	Excel Report Parameter Subpage	
16	Page	546	Excel Report Cell Subpage	
17	Page	547	Excel Report Table Key List	
18	Page	549	Excel Report Table Alias List	
19	Page	561	Excel Report Field List	
20	Page	565	Excel Report Wizard	
21	Page	566	Excel Report Params & Filters	
22	Page	9097	Values Lookup	
23	Page	9174	All Objects with Caption	
24	Page	9800	Users	No need from NAV 2016
25	Page	9806	Fields Lookup	

You can list them by filtering Version List column with string *S-02* in Object Designer of Development Environment.

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4.2 Merge Objects

Protected Objects (Codeunit from 31 to 201) must be merged by 4BzSoftware. First, you export these objects and send to 4BzSoftware. Second, we merge and protect them. Then, we send them back to you. Finally, you import with replace them in Development Environment. Please do not edit or compile Protected Objects, they will be crashed! In case it happens, reimport with replace them by Protected objects from us.

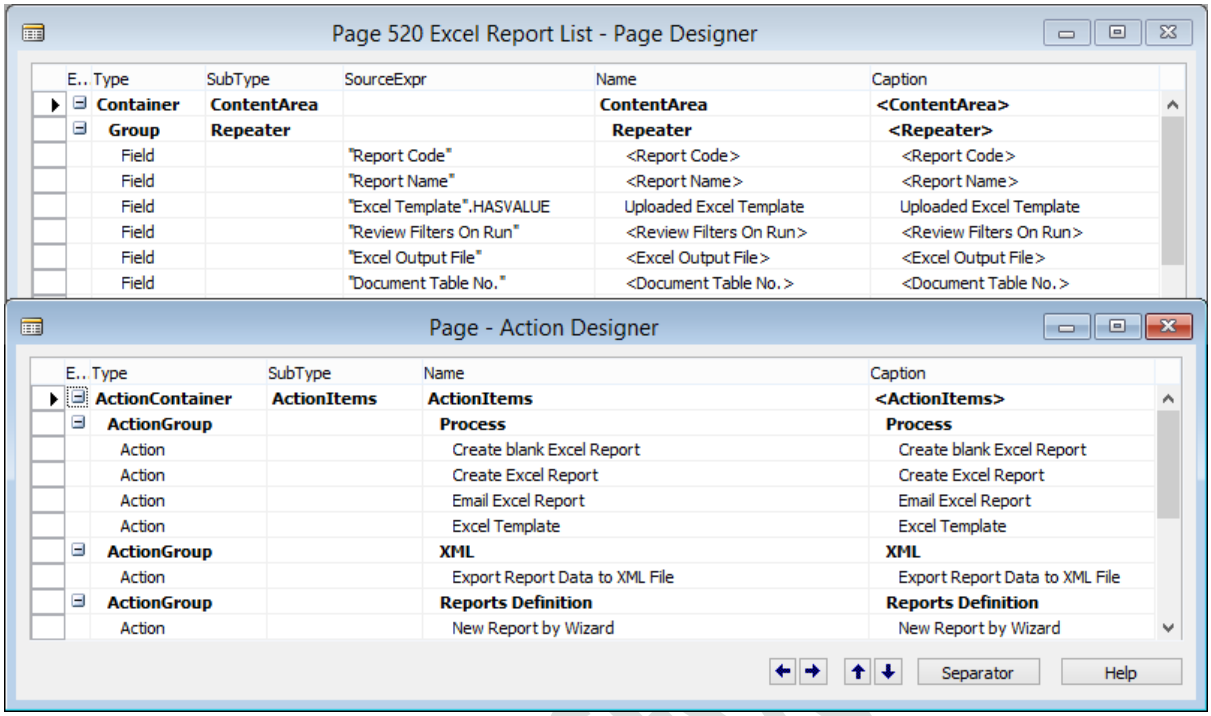
For other objects, if there is no modification before, you simply import with replace them. Otherwise, you merge them by searching for S-02 string, where they were edited:

Code is bounded by "//S-02{" and "//S-02}". Search for "S-02" you can see all:

Table 89 Excel Report Line - C/AL Editor

```
SuggestFieldAlias Txt(pTxt TableAlias : Text[50];pTxt FieldCaption : Text) Text 50 : Text[50]
//S-02{
//Field Alias removes blank and special characters of Field Caption
//For example, "Sales (LCY)" to "SalesLCY", "SalesLCY_2", "SalesLCY_3", ..., "SalesLCY_99"
gCoU_ERMgmt.ServiceToNAVLibrary(gCoU_NAVLib, FALSE);

pTxt_FieldCaption := DELCHR(pTxt_FieldCaption, '=', '|&#=<>()[]{}');
pTxt_FieldCaption := gCoU_NAVLib.TextReplace_Txt(pTxt_FieldCaption, '  ', ' ');
Text_50 := COPYSTR(pTxt_FieldCaption, 1, MAXSTRLEN(Text_50) - 3);

//Add suffix to be unique within TableAlias as TableAlias#FieldAlias
WITH lRec_ERField DO BEGIN
  FilterAsReportLine(Rec, "Line Type"::Field);
  SETRANGE("Table Alias", pTxt_TableAlias);
  SETRANGE("Field Alias", Text_50);

  //No need suffix
  IF NOT FINDFIRST THEN
    EXIT;

  //Need suffix
  i := 1;
  REPEAT
    i += 1;
    SETRANGE("Field Alias", STRSUBSTNO('%1_%2', Text_50, i));
  UNTIL (NOT FINDFIRST);
  Text_50 := STRSUBSTNO('%1_%2', Text_50, i);
END;
//S-02}
```

Pages often have new fields and actions. They sometimes got code inside:



1. Add record 88 – Excel Report Header:
   - Set DataPerCompany to No.
   - Add fields from 50001 to 50071.
   - Add key “Report Code,Owner ID”.
   - Edit Permissions of Table Properties.
   - Add global variables from gCoU_NAVLib to gBol_Cancelled.
   - Add global text constants from gTxC_ExportingRptsDefToXML to gTxC_ExpRptsDefFileName.
   - Add functions from CheckAndSortLineNo to IsCancelled_Bol.
   - Edit trigger OnDelete.
2. Add record 89 – Excel Report Line:
   - Set DataPerCompany to No.
   - Add fields from 50001 to 50200.
   - Add keys from “Report Code,Owner ID,Line Type,Line No.” to “Top Table Alias,Display Order”.
   - Edit Permissions of Table Properties.
   - Add global variables from gCoU_NAVLib to gCoU_ConfigMgmt.
   - Add global text constants from gTxC_TableAliasUnique to gTxC_ParameterIDUnique.
   - Add functions from FilterAsReport to ParseParamFormula_Txt.
   - Edit trigger OnDelete.
3. Add codeunit 31 – NAV Library:
   - Add global variables from gTxA_ServiceInfo to gInt_StatusNextProcessed.
   - Add functions from ServiceInit to LookupPage_Txt.

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4. Add codeunit 32 – Data Table Library:
   - Add global variables from gTxA_ServiceInfo to gInt_ViewTotalRows.
   - Add functions from ServiceInit to View_Previous.
5. Add codeunit 33 – Excel Library:
   - Add global variables from gTxA_ServiceInfo to CurrentCol.
   - Add functions from ServiceInit to ReadCell_DateTime.
6. Add codeunit 65 – License Management:
   - Add global variables from gPag_Text1 to gCoU_SessionMgmt.
   - Add functions from IsValid_Bol to GetSessionMgmt.
7. Add codeunit 201 – Excel Report Management:
   - Set Record to Job Queue Entry.
   - Edit trigger OnRun.
   - Add global variables from gTxA_ServiceInfo to gOpt_RunType.
   - Add functions from ServiceInit to TranslateDateTime_Txt.
8. Edit page 8 – Standard Text Codes:
   - Add actions from “4BzSoftware” to “S-06 Idle Session Management”.
9. Add page 502 – Posted Sales Invoices Sample (copied from page 143):
   - Add global variable gCoU_ExcelLib.
   - Add functions from InputFormatValueSheet to ReadWorkbook.
   - Add actions from “ActionItems” to “Read Workbook”.
   - Edit trigger OnOpenPage.
10. Add page 520 – Excel Report List:
    - Add controls from “ContentArea” to “<Owner ID>”.
    - Add global variables from gCoU_ERMgmt to gBol_HasReport.
    - Add global text constants from gTxC_ExcelTemplateOption to gTxC_ImportRptDefsFromXML.
    - Add function GetText.
    - Add actions from “ActionItems” to “4BzSoftware S-02”.
    - Edit triggers OnOpenPage, OnAfterGetRecord, OnNewRecord.
11. Add page 531 – Excel Report Card:
    - Add controls from “ContentArea” to “<Open XML File With>”.
    - Add global variables from gCoU_NAVLib to gTxt_EmailBody.
    - Add global text constants from gTxC_ExcelTemplateOption to gTxC_ConfirmReplaceReports.
    - Add actions from “ActionItems” to “4BzSoftware S-02”.
    - Edit triggers OnOpenPage, OnClosePage, OnAfterGetRecord, OnNewRecord.
12. Add page 532 – Excel Report Table Subpage:
    - Add controls from “ContentArea” to “<Company Name>”.
    - Add global variables from gCoU_NAVLib to gInt_LastDisplayOrder.
    - Add functions RenumberDisplayOrderby10 to NextTableAlias_Txt.
    - Add actions from “ActionItems” to “Duplicate Structure by Companies”.
    - Edit triggers OnOpenPage, OnAfterGetRecord, OnNewRecord, OnInsertRecord.

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13. Add page 533 – Excel Report Field Subpage:
    - Add controls from “ContentArea” to “<Excel Column Width>”.
    - Add global variable gBol_Editable_Sort.
    - Add global text constants from gTxC_AdjustRowOption to gTxC_AdjustmentSelection.
    - Add function SetEditable.
    - Add actions from “ActionItems” to “Renumber Display Order by 10”.
    - Edit trigger OnAfterGetRecord, OnNewRecord.
14. Add page 544 – Excel Report Filter Subpage:
    - Add controls from “ContentArea” to “<Show Filter for Review>”.
    - Add global variables from gCoU_NAVLib to gTxt_PageView.
    - Add global text constants from gTxC_SelectLookups to gTxC_SwappedLinkField.
    - Add function SetPageView.
    - Add actions from “ActionItems” to “Check and Swap Link Field”.
    - Edit triggers OnOpenPage, OnNewRecord.
15. Add page 545 – Excel Report Parameter Subpage:
    - Add controls from “ContentArea” to “<Show Filter for Review>”.
    - Edit Permissions of Page Properties.
    - Add global variable gTxt_PageView.
    - Add global text constant gTxC_SelectValues.
    - Add function SetPageView.
    - Add actions from “ActionItems” to “Renumber Display Order by 10”.
    - Edit trigger OnNewRecord.
16. Add page 546 – Excel Report Cell Subpage:
    - Add controls from “ContentArea” to “<Excel Column Width>”.
    - Add global text constants from gTxC_AdjustRowOption to gTxC_AdjustmentSelection.
    - Add actions from “ActionItems” to “Renumber Display Order by 10”.
    - Edit trigger OnNewRecord.
17. Add page 547 – Excel Report Table Key List:
    - Add controls from “ContentArea” to “<Key>”.
18. Add page 549 – Excel Report Table Alias List:
    - Add controls from “ContentArea” to “<Excel Top Left Cell>”.
    - Add global variable gBol_StyleExp_TableCaption.
    - Edit triggers OnOpenPage, OnAfterGetRecord.
19. Add page 561 – Excel Report Field List:
    - Add controls from “ContentArea” to “<Field Alias>”.
    - Edit trigger OnOpenPage.
20. Add page 565 – Excel Report Wizard:
    - Add controls from “ContentArea” to “<Selected>”.
    - Add global variables from gOpt_Step to gInt_DisplayOrder.
    - Add global text constants from gTxC_NewReportFirstCode to gTxC_PageCaption.
    - Add functions from Start_Bol to SetStepAsPageAction.
    - Add actions from “ActionItems” to “Finish”.
    - Edit triggers OnOpenPage, OnClosePage, OnQueryClosePage.

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21. Add page 566 – Excel Report Params & Filters:
    - Add controls from ContentArea to FiltersSubpage.
    - Edit trigger OnOpenPage.
22. Edit page 9097 – Values Lookup:
    - Add variables from from gCoU_NAVLib to gBol_Visible6.
    - Add functions from SetLookupValue to LoadData.
    - Add controls from “ContentArea” to "Cell Value as Text".
    - Add actions from “ActionItems” to “Load Data”.
    - Edit trigger OnOpenPage.
23. Edit page 9174 – All Objects with Caption:
    - Add global text constants from gTxC_ServiceValid to gTxC_ReadingExcelCell2.
    - Add functions GetSelection to GetText.
24. Edit page 9800 – Users (applied for versions before NAV 2016):
    - Add function GetSelectionFilter.
25. Edit page 9806 – Fields Lookup:
    - Add function GetSelection.
    - Add controls from "<Type >" to "<Class>".

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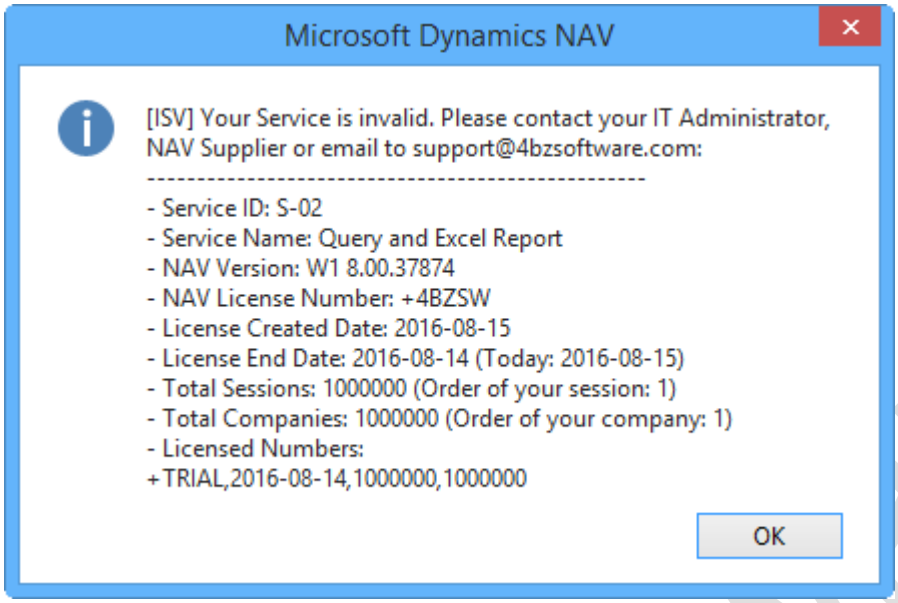
4.3 Troubleshoot

Symptom 1 - Service does not run and Service Status is invalid:



Reason: Your session is over or service is expired by License End Date or License Number is incorrect.

Solution: Contact Admin for support. If cannot solve, Admin should contact Software Vendor.

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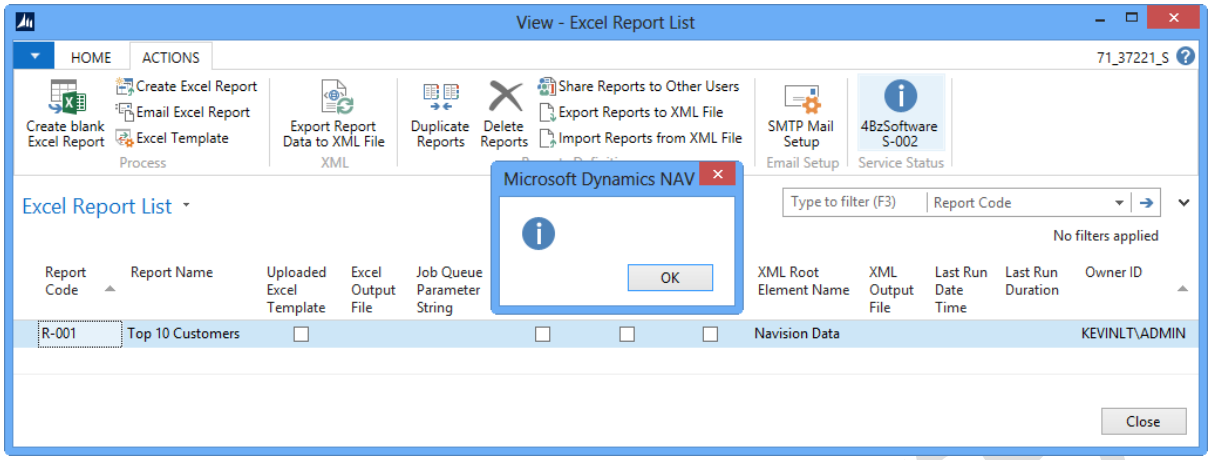
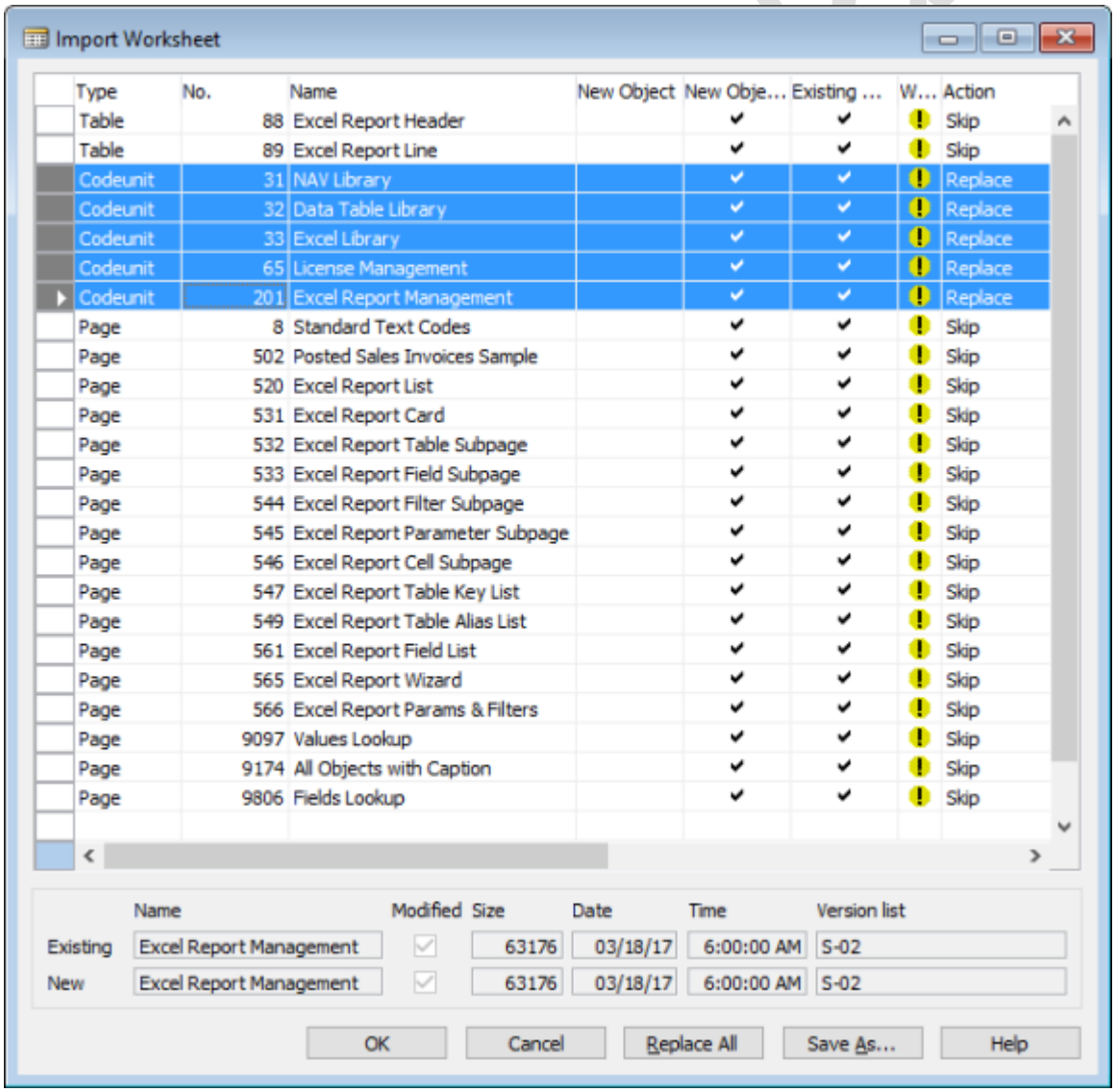
Symptom 2 - Service does not run and Service Status text file has no information:



Reason: Protected Objects were edited and compiled.

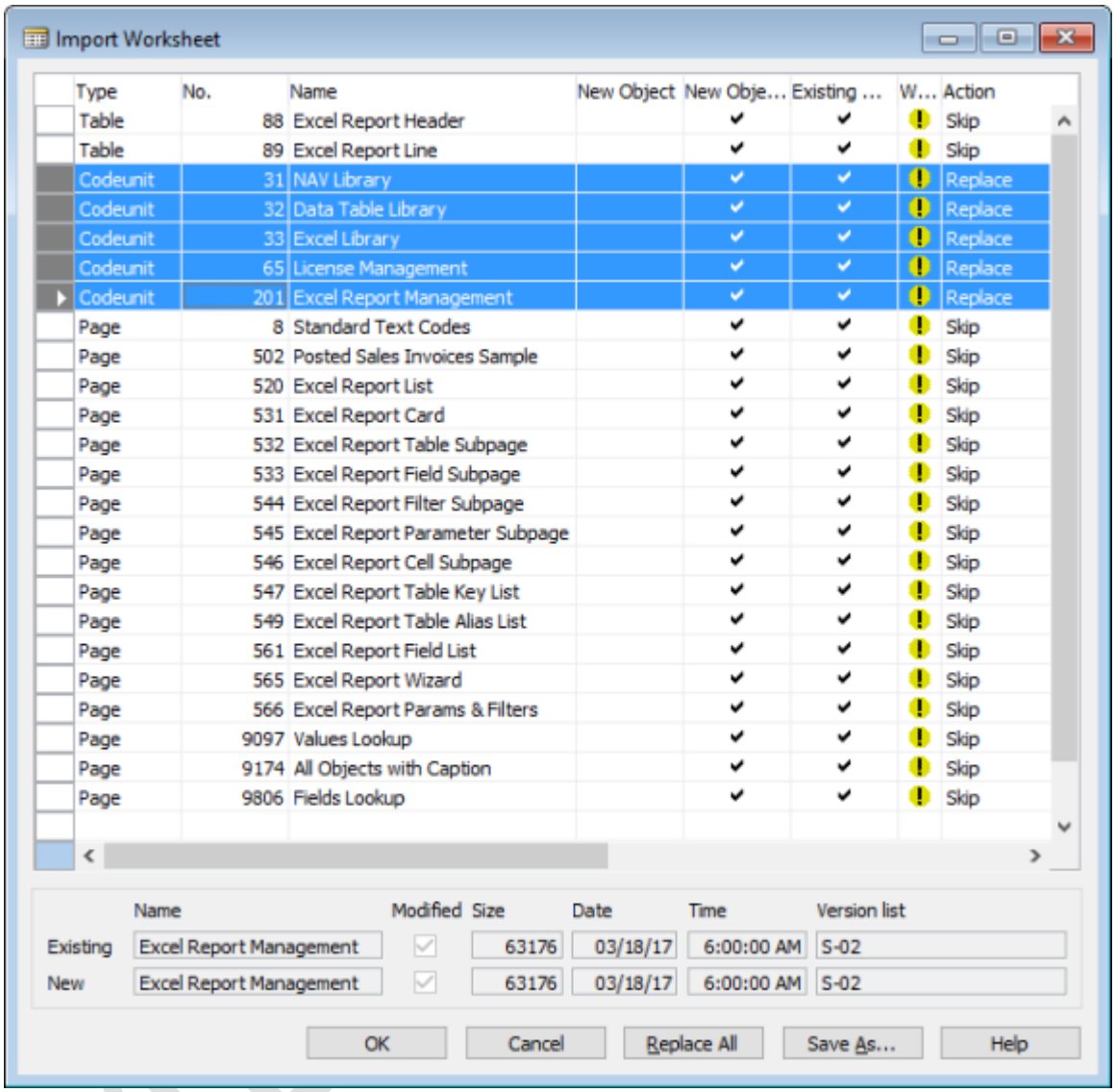
Solution: Reimport with replace them by protected objects from 4BzSoftware:



Symptom 3 - Protected Objects were complied accidentally:

Reason: Protected Objects were complied accidentally.

Solution: Reimport with replace them by protected objects from 4BzSoftware:



4.4 Version Control

Version (yymmdd)	**Description**
140628	1. Release tool for NAV 2013 (version 070). 2. Release tool for NAV 2013 R2 (version 071).
140928	1. New retrieve data from multiple companies. 2. New Table Alias Cell Reference with Row and Column Offset. 3. New Field as Excell Cell Text Value in Fields Part. 4. New Parameter Formula with DateFormula. 5. New duplicate and delete multiple reports in list page.
141101	1. Release tool for NAV 2015 (version 080).
150131	1. New Page Excel Report Field List.
150314	1. New Report by Wizard, including select Tables, Fields and arrange Fields. 2. New Document Layout Excel Report. 3. Make data of Tables visible to all companies.
160315	1. Release tool for NAV 2015 (version 080). 2. Align with new Library to increase performance.
160815	1. Optimize tool to increase performance. 2. Enable Partners to localize tool, all use captions instead of names. 3. Combined License, simpler management for both Partners and Customers. 4. More interactive dialog status allows users to stop report at any time. 5. Support lookup data and select available values in Filter Expression. 6. Review Filters on Run allows users to review desired Parameters and Filters. 7. Import report definition with existing check, and let user decide what to do. 8. New way of Table Alias and Field Alias suggestion based on caption. 9. More meaningful with new way of parsing Excel Cell Value as Text.
170414	1. Optimize and new special value in Excel Cell Value as Text. 2. New Values Lookup page to assist edit Filter Expression and Parameter Value. 3. New feature: check and Swap Link Field function in Filter Part. 4. New feature: duplicate Structure by Companies function. 5. New feature: open XML file with. 6. New feature: notes and links for Report Definition. 7. New feature: incremental Excel Template. 8. New feature: dynamic Output Filename. 9. New feature: opposite Sign.
180125	1. Release tool for NAV from 2013 to 2018 (version 070 to 110). 2. Enhance Duplicate Structure by Companies. 3. Allow to apply indirect permission for security purpose. 4. Enable import Report Definition file with length is larger than 128.
180625	1. Enhance Duplicate Structure by Companies.
190122	1. Release tool for Business Central on premise, version 130.
190722	1. Release tool for Business Central on premise, version 140.

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5. Pricing

Please contact us via email support@4bzsoftware.com
or visit www.4bzsoftware.com/product/query-and-excel-report.html

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6. Open Xml Excel Library

NAV 2013 replaces Excel Automation by Open Xml Spreadsheet technique to increase performance and align with web environment. However, it is a challenge to master and enhance Open Xml Spreadsheet in C/SIDE. To make it easy, we'd like to introduce our solution which is pure Open Xml:

- Support input Value, Formula, Format Value, and Format Cell more than 250 characters.
- Support Format Value for Text, Number, Date, Time.
- Support Format Cell:
    - Font Bold, Italic, Underline, Double Underline.
    - Font Name, Size, Color by Index, Theme and RGB.
    - Back Color by Index, Theme and RGB.
    - Border Around, Horizontal, Vertical, Top, Bottom, Left, Right, Diagonal Up Down.
    - Border Color by Index, Theme and RGB.
    - Border Styles are None, Thin, Medium, Dashed, Dotted, Thick, Double, Hair, MediumDashed, DashDot, MediumDashDot, DashDotDot, MediumDashDotDot, SlantDashDot.
- Support Web Client.
- Support SetColumnWidth.
- Refresh Formula Cells automatically.

To work well, you should update Platform Hotfix equal to or greater than:

Version	Hotfix ID	Build No.
2013	2923346	7.0.36116
2013 R2	2934572	7.1.36310

Platform Hotfix description: This message is for C/AL programmers: A call to Microsoft.Dynamics.Nav.OpenXml.Spreadsheet.WorkbookReader.Open failed with this message: The spreadsheet is corrupted. The following error occurred: Attribute 'name' should have unique value" error message when you import an Excel file.

Or simple way, use "Microsoft.Dynamics.Nav.OpenXml.dll" file of Platform Hotfix (*zip\NST) instead of Navision Service OpenXml folder:

Version	Navision Service folder
2013	C:\Program Files\Microsoft Dynamics NAV\70\Service\Add-ins\OpenXML
2013 R2	C:\Program Files\Microsoft Dynamics NAV\71\Service

- Download and unzip mentioned Platform Hotfix.
- Open Navision Service OpenXml folder, rename Microsoft.Dynamics.Nav.OpenXml.dll to Microsoft.Dynamics.Nav.OpenXml_YYMMDD.dll.
- Copy Microsoft.Dynamics.Nav.OpenXml.dll from Platform Hotfix to Navision Service OpenXml folder.
- Restart Navision Service.

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6.1 NAV Objects

NAV Objects of Open Xml Excel Library are 3 codeunits and a page for demo:

- Create new Workbook.
- Update existed Workbook with user interaction or silence.
- Read book with user interaction or silence.

No.	Type	ID	Name	Note
1	Codeunit	31	NAV Library	Protected Object
2	Codeunit	32	Data Table Library	Protected Object
3	Codeunit	33	Excel Library	Protected Object
4	Page	502	Posted Sales Invoices Sample	Demo in Page Actions

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6.2 Create new Workbook

Procedure to create new Workbook:

- Create new Server Workbook, call CreateBook_Bol function.
- Input data to Excel Buffer, discuss detail in next section.
- Update Workbook and get output Excel file, call FillAndDownloadBook_Txt function.

```
Create new Workbook - OnAction()
//S-02{
IF NOT gCoU_ExcelLib.CreateBook_Bol() THEN
  EXIT;

gCoU_ExcelLib.InputAddOrUseSheet('Format Value');
InputFormatValueSheet();

gCoU_ExcelLib.InputAddOrUseSheet('Format Cell');
InputFormatCellSheet();

//Can hide percent processed to increase speed
//gCoU_NAVMgmt.Status_HidePercent(TRUE);
//gCoU_ExcelLib.SetStatusDialog(gCoU_NAVMgmt);

//gCoU_ExcelLib.FillAndDownloadBook_Txt('D:\Book1_Output.xlsx', TRUE); //Download to client as D:\Book1_Output.xlsx, and try to open it.
gCoU_ExcelLib.FillAndDownloadBook_Txt('', TRUE);  //1st parameter: client output file name (blank = save as an Excel file in %temp% folder)
                                                  //2nd parameter: try to open Excel file at client.
                                                  //Function returns final Client Output File Name.

//S-02}
```

CreateBook_Bol() Boolean : Boolean

- Function creates new Excel file at Server.

FillAndDownloadBook_Txt(pTxt_ClientFileNameOutput : Text;pBol_TryOpenExcel : Boolean) Txt_ClientFileNameOutput : Text

- Function returns final Client Output File Name.
- pTxt_ClientFileNameOutputOrBlank:
  - RTC: specify output Excel file. If value is blank text, output file is downloaded to %temp% folder with file name format “Book1-YYMMDD_HHmmss.xlsx”.
  - Web Client: not apply. Output file is downloaded to web default download folder.
- pBol_TryOpenExcel:
  - RTC: System will open output Excel file.
  - Web Client: System only downloads output file to web default download folder.

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6.3 Update existed Workbook

Procedure to update a Workbook:

- Specify client Workbook, call UpdateClientBook_Bol function.
- Input data to Excel Buffer, discuss detail in next section.
- Update Workbook and get output Excel file, call FillAndDownloadBook_Txt function.

```
Update_existed_Workbook - OnAction()
//S-002{
//IF NOT gCoU_Excel.UpdateBook_Bol('D:\Book1.xlsx') THEN //Update client source file D:\Book1.xlsx
IF NOT gCoU_Excel.UpdateClientBook_Bol('') THEN //Browse client file source file.
  EXIT;

gCoU_Excel.InputInit('Format Value');
InputFormatValueSheet();

gCoU_Excel.InputAddOrUseSheet('Format Cell');
InputFormatCellSheet();

//Can hide percent processed to increase speed
//gCoU_NAVMgmt.Status_HidePercent(TRUE);
//gCoU_Excel.SetStatusDialog(gCoU_NAVMgmt);

//gCoU_Excel.FillAndDownloadBook_Txt('D:\Book1_Output.xlsx', TRUE); //Download to client as D:\Book1_Output.xlsx, and try to open it.
gCoU_Excel.FillAndDownloadBook_Txt('', TRUE); //1st parameter: client output file name (blank = save as an Excel file in %temp% folder)
                                              //2nd parameter: try to open Excel file at client.
                                              //Function returns final Client Output File Name.
//S-002}
```

UpdateClientBook_Bol(pTxt_ClientFileNameSouceOrBlank : Text) Boolean : Boolean

- pTxt_ClientFileNameSouceOrBlank:
  - RTC: specify Excel source file to update. If value is blank text, open file dialog is displayed for your browsing file. Otherwise, system will get Excel source file silently.
  - Web Client: not apply. You have to browse Excel source file every time.

FillAndDownloadBook_Txt(pTxt_ClientFileNameOutput : Text;pBol_TryOpenExcel : Boolean) Txt_ClientFileNameOutput : Text

- Function returns final Client Output File Name.
- pTxt_ClientFileNameOutputOrBlank:
  - RTC: specify output Excel file. If value is blank text, output file is downloaded to %temp% folder with file name format “Book1-YYMMDD_HHmmss.xlsx”.
  - Web Client: not apply. Output file is downloaded to web default download folder.
- pBol_TryOpenExcel:
  - RTC: System will open output Excel file.
  - Web Client: System only downloads output file to web default download folder.

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6.4 Read Workbook

Procedure to Read a Workbook:

- Specify Workbook, call ReadBook_Bol function.
- Read needed Worksheet, call ReadSheet_Bol function.
- Read desired Cells, call ReadCell_[NavDataType] functions.
- Close Workbook, call CloseBook function.

```
ReadWorkbook()
//S-02{
//IF gCoU_ExcelLib.ReadBook_Bol('D:\Book1.xlsx') THEN BEGIN //Browse file: no
  //IF gCoU_ExcelLib.ReadSheet_Bol('Format Value') THEN BEGIN //Select Worksheet: no

//Can hide percent processed to increase speed
//gCoU_NAVMgmt.Status_HidePercent(TRUE);
//gCoU_ExcelLib.SetStatusDialog(gCoU_NAVMgmt);

IF gCoU_ExcelLib.ReadBook_Bol('') THEN BEGIN //Browse file: yes
  IF gCoU_ExcelLib.ReadSheet_Bol('') THEN BEGIN //Select Worksheet: yes
    MESSAGE('[4Bz] End Value Cell of Worksheet "%1" is "%2%3".', gCoU_ExcelLib.GetActiveSheetName_Txt,
      gCoU_ExcelLib.GetColumnName_Cod(gCoU_ExcelLib.ReadSheet_Dim_Int('R')), gCoU_ExcelLib.ReadSheet_Dim_Int('B'));
    MESSAGE('[4Bz] Value of Cell B2 is "%1".', gCoU_ExcelLib.ReadCell_Text(2, 'B', 0));
    MESSAGE('[4Bz] Value of Cell C2 is "%1".', gCoU_ExcelLib.ReadCell_Text(2,  3 , 0));
    {
    //Select Format Value sheet of sample book
    MESSAGE('[4Bz] Integer of Cell C7 is "%1".', gCoU_ExcelLib.ReadCell_Integer(7, 3));
    MESSAGE('[4Bz] BigInteger of Cell C7 is "%1".', gCoU_ExcelLib.ReadCell_BigInteger(7, 'C'));
    MESSAGE('[4Bz] Decimal of Cell C5 is "%1".', gCoU_ExcelLib.ReadCell_Decimal(5, 'C'));
    MESSAGE('[4Bz] Time of Cell C8 is "%1".', gCoU_ExcelLib.ReadCell_Time(8, 'C'));
    MESSAGE('[4Bz] Date of Cell C8 is "%1".', gCoU_ExcelLib.ReadCell_Date(8, 'C'));
    MESSAGE('[4Bz] DateTime of Cell C9 is "%1".', gCoU_ExcelLib.ReadCell_DateTime(9, 'C'));
    }
  END;
  gCoU_ExcelLib.ReleaseMemory;
END;
//S-02}
```

ReadBook_Bol(pTxt_ClientFileNameSouceOrBlank : Text) Boolean : Boolean

- pTxt_ClientFileNameSouceOrBlank:
  - RTC: specify Excel source file to read. If value is blank text, open file dialog is displayed for your browsing file. Otherwise, system will get Excel source file silently.
  - Web Client: not apply. You have to browse Excel source file every time.

ReadSheet_Bol(pTxt_SheetNameOrBlank : Text) Boolean : Boolean

- pTxt_SheetNameOrBlank: specify Sheet Name. If value is blank text, a menu windows is displayed for your Sheets selection.

ReadSheet_MaxRowNo_Int() Integer : Integer

- Return the Maximum Row Number of read Worksheet.

ReadSheet_MaxColumnNo_Int() Integer : Integer

- Return the Maximum Column Number of read Worksheet.

GetActiveSheetName_Txt() Text_250 : Text[250]

- Return Name of current read Worksheet

ReadCell_Text(pInt_RowNo : Integer;pVar_ColumnNoOrName : Variant;pInt_Length : Integer) Text : Text

- pInt_RowNo: specify Row Number of Cell to read, start from 1.
- pVar_ColumnNoOrName: specify Column Nbr or Name of Cell to read, start from 1 or 'A'.
- pInt_Length: specify length of text to read. 0 means read all.

ReadCell_Integer(pInt_RowNo : Integer;pVar_ColumnNoOrName : Variant) Integer : Integer

- pInt_RowNo: specify Row Number of Cell to read, start from 1.
- pVar_ColumnNoOrName: specify Column Nbr or Name of Cell to read, start from 1 or 'A'.

ReadCell_BigInteger(pInt_RowNo : Integer;pVar_ColumnNoOrName : Variant) BigInteger : BigInteger

- pInt_RowNo: specify Row Number of Cell to read, start from 1.
- pVar_ColumnNoOrName: specify Column Nbr or Name of Cell to read, start from 1 or 'A'.

ReadCell_Decimal(pInt_RowNo : Integer;pVar_ColumnNoOrName : Variant) Decimal : Decimal

- pInt_RowNo: specify Row Number of Cell to read, start from 1.
- pVar_ColumnNoOrName: specify Column Nbr or Name of Cell to read, start from 1 or 'A'.

ReadCell_Time(pInt_RowNo : Integer;pVar_ColumnNoOrName : Variant) Time : Time

- pInt_RowNo: specify Row Number of Cell to read, start from 1.
- pVar_ColumnNoOrName: specify Column Nbr or Name of Cell to read, start from 1 or 'A'.

ReadCell_Date(pInt_RowNo : Integer;pVar_ColumnNoOrName : Variant) Date : Date

- pInt_RowNo: specify Row Number of Cell to read, start from 1.
- pVar_ColumnNoOrName: specify Column Nbr or Name of Cell to read, start from 1 or 'A'.

ReadCell_DateTime(pInt_RowNo : Integer;pVar_ColumnNoOrName : Variant) DateTime : DateTime

- pInt_RowNo: specify Row Number of Cell to read, start from 1.
- pVar_ColumnNoOrName: specify Column Nbr or Name of Cell to read, start from 1 or 'A'.

CloseBook()

- Close Workbook and release resources.

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6.5 Input data to Excel Buffer

Procedure to Input data to Excel Buffer:

- Initialize input, call InputInit function.
- Add or Use Worksheet, call InputAddOrUseSheet function.
- Input Cells, call InputCell or InputCellAndTab and InputCellAndEnter functions.

```
InputFormatCellSheet()
//S-000{
WITH gCoU_Excel DO BEGIN
  lInt_RowNo := 2;
  InputCell(lInt_RowNo,  2 , 'Format Cell', '@', 'B');  //1st parameter pInt_RowNo is Row No
  InputCell(lInt_RowNo, 'C', 'Description', '@', 'B');  //2nd parameter pVar_ColumnNoOrName is Column No or Column Name
  InputCell(lInt_RowNo,  4 , 'Sample Value', '@', 'B'); //3rd parameter pVar_Value can be Text, Code, Decimal, Date, ...
  InputCell(lInt_RowNo, 'F', 'Border', '@', 'B');       //4th parameter pTxt_FormatValue for Text, Number, Date, ...
                                                        //5th parameter pTxt_FormatCell for Bold, Italic, Underline, Font, Color, Border, ...
  lInt_RowNo += 1;
  InputCell(lInt_RowNo, 2, 'B', '@', '');
  InputCell(lInt_RowNo, 3, 'Bold', '@', '');
  InputCell(lInt_RowNo, 4, 'Bold Cell', '@', 'B');
```

```
InputFormatValueSheet()
//S-000{
WITH gCoU_Excel DO BEGIN
  SetCurrentCell(2, 'B'); //Set Current Cell as B2
  InputCellAndTab('Format Value', '@', 'B');  //Input value then move to next right cell, Cell B2 -> C2.
  InputCellAndTab('Sample Value', '@', 'B');  //Cell C2 -> D2.
  InputCellAndEnter('Description', '@', 'B'); //Input value then move to first below cell, Cell D2 -> A3.

  SetCurrentCell(3, 2); //Set Current Cell as B3
  InputCellAndTab('(blank)', '@', '');
  InputCellAndTab('General Value', '', ''); //2nd parameter pTxt_FormatValue = '' means General.
  InputCellAndEnter('General', '@', '');

  MoveCellBy(0, 1); //Move current cell by number of Rows and Columns, Cell A4 -> B4.
  InputCellAndTab('@', '', '');
  InputCellAndTab('Text Value', '@', ''); //2nd parameter pTxt_FormatValue = '@' means Text.
  InputCellAndEnter('Text', '@', '');

  MoveCellBy(0, 1);
  InputCellAndTab('#,##0.00', '@', ''); //1st parameter pVar_Value can be Text, Code, Decimal, Date, ...
  InputCellAndTab(12345.6789, '#,##0.00', ''); //2nd parameter pTxt_FormatValue = '#,##0.00' means Number with Thousand Separator and 2 Decimal.
  InputCellAndEnter('Number with Thousand Separator and 2 Decimal', '@', ''); //3rd parameter pTxt_FormatCell for Bold, Italic, Underline, Font, Color, Border, ...
```

InputInit(pTxt_InitSheetNameOrBlank : Text[250])

- pTxt_InitSheetNameOrBlank: specify initialized Sheet Name. Value can be blank text.

InputAddOrUseSheet(pTxt_SheetName : Text[250])

- pTxt_SheetName: specify Sheet Name to add or re-input existed Sheet Name.

InputCell(pInt_RowNo : Integer;pVar_ColumnNoOrName : Variant;pVar_Value : Variant;pTxt_FormatValue : Text;pTxt_FormatCell : Text)

- pInt_RowNo: specify Row Number of Cell to input, start from 1.
- pVar_ColumnNoOrName: specify Column No. or Name of Cell to input, start from 1 or 'A'.
- pVar_Value: Value that you want to input to Cell.
- pTxt_FormatValue: refer to section 6.6 Format Value.
- pTxt_FormatCell: refer to section 6.7 Format Cell.

InputCellAndTab(pVar_Value : Variant;pTxt_FormatValue : Text;pTxt_FormatCell : Text)

- Using SetCurrentCell and MoveCellBy functions to control Current Cell Position, InputCellAndTab function inputs Value then moves to next right Cell, e.g. B2 → C2.
- pVar_Value: Value that you want to input to Cell.
- pTxt_FormatValue: refer to section 6.6 Format Value.
- pTxt_FormatCell: refer to section 6.7 Format Cell.

InputCellAndEnter(pVar_Value : Variant;pTxt_FormatValue : Text;pTxt_FormatCell : Text)

- Using SetCurrentCell and MoveCellBy functions to control Current Cell Position, InputCellAndEnter function inputs Value then moves to first below Cell, e.g. D2 → A3.
- pVar_Value: Value that you want to input to Cell.
- pTxt_FormatValue: refer to section 6.6 Format Value.
- pTxt_FormatCell: refer to section 6.7 Format Cell.

SetCurrentCell(pInt_RowNo : Integer;pVar_ColumnNoOrName : Variant)

- pInt_RowNo: set Row Number of Current Cell to specified Row Number.
- pVar_ColumnNoOrName: set Column Number of Current Cell to specified Column Number.

MoveCellBy(pInt_NumberOfRows : Integer;pInt_NumberOfColumns : Integer)

- pInt_NumberOfRows: move Current Cell by Number of Rows.
- pInt_NumberOfColumns: move Current Cell by Number of Columns.

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6.6 Format Value

Format Value is a string that helps you display Value of Cell in desired format such as Text, Number with decimal places and thousand separator, Percentage, Date, Time, Date Time, or General.

Some common Format Value:

Format Value	Sample Value	Description
(blank)	General Value	General
@	Text Value	Text
#,##0.00	12,345.68	Number with Thousand Separator and 2 Decimal
0%	8100%	Percentage
#,##0	1,000,000	Formula must start with =
yyyy-mm-dd hh:mm:ss	2014-06-07 16:47:00	Date Time 24H
yyyy-mmm-dd hh:mm AM/PM	2014-Jun-07 04:47 PM	Date Time AM/PM

Please refer following link for full picture:

http://office.microsoft.com/en-001/excel-help/number-format-codes-HP005198679.aspx

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6.7 Format Cell

Format Cell is a string that helps you to decorate a Cell. It is combined from Properties separated by semicolon. Each Property has a Key and Value, separated by comma. Property's Value can be empty.

[Format Cell] = [Property 1]; [Property 2]; [Property 3] …

[Format Cell] = [Key 1, Value 1]; [Key 2]; [Key 3, Value 3] …

Format Cell	Description	Sample Value		Border	
B	Bold	**Bold Cell**			
I	Italic	*Italic Cell*			
U	Underline	Underline Cell			
UD	Double Underline	Double Underline Cell			
FN,Segoe Print; FCI,10	Font Name, Font Color by Index (0 to 65)	Font Name is Segoe Print, Font Color by Index is 10			
FS,12; FCRGB,000000FF	Font Size (1 to 409), Font Color by RGB	Font Size is 12, Font Color by RGB 000000FF			
BCT,0	Back Color by Theme is same as Font Color by Theme (0 to 9)				
BCT,1	Back Color by Theme is same as Font Color by Theme (0 to 9)				
BCT,2	Back Color by Theme is same as Font Color by Theme (0 to 9)				
BCT,3	Back Color by Theme is same as Font Color by Theme (0 to 9)				
BCT,4	Back Color by Theme is same as Font Color by Theme (0 to 9)				
BCT,5	Back Color by Theme is same as Font Color by Theme (0 to 9)				
BCT,6	Back Color by Theme is same as Font Color by Theme (0 to 9)				
BCT,7	Back Color by Theme is same as Font Color by Theme (0 to 9)				
BCT,8	Back Color by Theme is same as Font Color by Theme (0 to 9)				
BCT,9	Back Color by Theme is same as Font Color by Theme (0 to 9)				
BCRGB,00FF0000	Back Color by RGB is same as Font Color by RGB				
BCRGB,0000FF00	Back Color by RGB is same as Font Color by RGB				
BCRGB,000000FF	Back Color by RGB is same as Font Color by RGB				
BA	Border Around				
BH; BV	Border Horizontal, Border Vertical				

Support Properties:

No.	Key	Example	Description
1	B	B	Make Cell Bold.
2	I	I	Make Cell Italic.
3	U	U	Make Cell Underline.
4	UD	UD	Make Cell Double Underline.
5	FN	FN,Segoe Print	Set Cell Font Name, case sensitive.
6	FS	FS,12	Set Cell Font Size, value from 1 to 409.
7	FCI	FCI,10	Set Cell Font Color by Index, value from 0 to 65. Reference link http://msdn.microsoft.com/en-us/library/cc296089(v=office.12).aspx
8	FCT	FCT,5	Set Cell Font Color by Theme, value from 0 to 9.
9	FCRGB	FCRGB,000000FF	Set Cell Font Color by RGBA (Red Green Blue Alpha). Reference links http://en.wikipedia.org/wiki/RGBA_color_space http://msdn.microsoft.com/en-us/library/system.windows.media.color(v=vs.95).aspx
10	BCI	BCI,10	Set Cell Back Color by Index, value from 0 to 65.
11	BCT	BCT,5	Set Cell Back Color by Theme, value from 0 to 9.
12	BCRGB	BCRGB,000000FF	Set Cell Back Color by RGBA (Red Green Blue Alpha).
13	BA	BA	Border Around Cell.
14	BAS	BA; BAS,thin	Border Around Line Style, used with BA. Value are None, Thin, Medium, Dashed, Dotted, Thick, Double, Hair, MediumDashed, DashDot,

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No.	Key	Example	Description
			MediumDashDot, DashDotDot, MediumDashDotDot, SlantDashDot.
15	BACI	BA; BACI,10	Border Around Line Color by Index, used with BA. Value from 0 to 65.
16	BACT	BA; BACT,5	Border Around Line Color by Theme, used with BA. Value from 0 to 9.
17	BACRGB	BA; BACRGB, 000000FF	Border Around Line Color by RGBA, used with BA.
18	BT	BT	Border Top Cell.
19	BTS	BT; BTS,thin	Border Top Line Style, used with BT. Value are None, Thin, Medium, Dashed, Dotted, Thick, Double, Hair, MediumDashed, DashDot, MediumDashDot, DashDotDot, MediumDashDotDot, SlantDashDot.
20	BTCI	BT; BTCI,10	Border Top Line Color by Index, used with BT. Value from 0 to 65.
21	BTCT	BT; BTCT,5	Border Top Line Color by Theme, used with BT. Value from 0 to 9.
22	BTCRGB	BT; BTCRGB,000000FF	Border Top Line Color by RGBA, used with BT.
23	BB	BB	Border Bottom Cell.
24	BBS	BB; BBS,thin	Border Bottom Line Style, used with BB. Value are None, Thin, Medium, Dashed, Dotted, Thick, Double, Hair, MediumDashed, DashDot, MediumDashDot, DashDotDot, MediumDashDotDot, SlantDashDot.
25	BBCI	BB; BBCI,10	Border Bottom Line Color by Index, used with BB. Value from 0 to 65.
26	BBCT	BB; BBCT,5	Border Bottom Line Color by Theme, used with BB. Value from 0 to 9.
27	BBCRGB	BB; BBCRGB,000000FF	Border Bottom Line Color by RGBA, used with BB.
28	BL	BL	Border Left Cell.
29	BLS	BL; BLS,thin	Border Left Line Style, used with BL. Value are None, Thin, Medium, Dashed, Dotted, Thick, Double, Hair, MediumDashed, DashDot, MediumDashDot, DashDotDot, MediumDashDotDot, SlantDashDot.
30	BLCI	BL; BLCI,10	Border Left Line Color by Index, used with BL. Value from 0 to 65.
31	BLCT	BL; BLCT,5	Border Left Line Color by Theme, used with BL. Value from 0 to 9.
32	BLCRGB	BL; BLCRGB,000000FF	Border Left Line Color by RGBA, used with BL.
33	BR	BR	Border Right Cell.
34	BRS	BR; BRS,thin	Border Right Line Style, used with BR. Value are None, Thin, Medium, Dashed, Dotted, Thick, Double, Hair, MediumDashed, DashDot, MediumDashDot, DashDotDot, MediumDashDotDot, SlantDashDot.
35	BRCI	BR; BRCI,10	Border Right Line Color by Index, used with BR. Value from 0 to 65.
36	BRCT	BR; BRCT,5	Border Right Line Color by Theme, used with BR. Value from 0 to 9.

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No.	Key	Example	Description
37	BRCRGB	BR; BRCRGB,000000FF	Border Right Line Color by RGBA, used with BR.
38	BD	BD	Border Diagonal Cell.
39	BDU	BD; BDU	Border Diagonal Up Cell, used with BD.
40	BDD	BD; BDD	Border Diagonal Down Cell, used with BD.
41	BDS	BD; BDS,thin	Border Diagonal Line Style, used with BD. Value are None, Thin, Medium, Dashed, Dotted, Thick, Double, Hair, MediumDashed, DashDot, MediumDashDot, DashDotDot, MediumDashDotDot, SlantDashDot.
42	BDCI	BD; BDCI,10	Border Diagonal Line Color by Index, used with BD. Value from 0 to 65.
43	BDCT	BD; BDCT,5	Border Diagonal Line Color by Theme, used with BD. Value from 0 to 9.
44	BDCRGB	BD; BDCRGB,000000FF	Border Diagonal Line Color by RGBA, used with BD.

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6.8 Format Range

You can call FormatRange function to format a range.

FormatRange(pInt_TopRowNo : Integer;pVar_LeftColumnNoOrName : Variant;pInt_BottomRowNo : Integer;pVar_RightColumnNoOrName : Variant;pTxt_FormatCell : Text)

- pInt_TopRowNo: Top Row Number of Range, start from 1.
- pVar_LeftColumnNoOrName: Left Column Nbr or Name of Range, start from 1 or 'A'.
- pInt_BottomRowNo: Bottom Row Number of Range, start from 1.
- pVar_RightColumnNoOrName: Right Column Nbr or Name of Range, start from 1 or 'A'.
- pTxt_FormatCell: Format Cell string for Range. For Border Around, Horizontal and Vertical, system will format related Cells to Border Top, Bottom, Left and Right. Addition Properties supported by FormatRange function:

No.	Key	Example	Description
1	BA	BA	Border Around Cell.
2	BAS	BA; BAS,thin	Border Around Line Style, used with BA. Value are None, Thin, Medium, Dashed, Dotted, Thick, Double, Hair, MediumDashed, DashDot, MediumDashDot, DashDotDot, MediumDashDotDot, SlantDashDot.
3	BACI	BA; BACI,10	Border Around Line Color by Index, used with BA. Value from 0 to 65.
4	BACT	BA; BACT,5	Border Around Line Color by Theme, used with BA. Value from 0 to 9.
5	BACRGB	BA; BACRGB,000000FF	Border Around Line Color by RGBA, used with BA.
6	BH	BH	Border Horizontal Cell.
7	BHS	BH; BHS,thin	Border Horizontal Line Style, used with BH. Value are None, Thin, Medium, Dashed, Dotted, Thick, Double, Hair, MediumDashed, DashDot, MediumDashDot, DashDotDot, MediumDashDotDot, SlantDashDot.
8	BHCI	BH; BHCI,10	Border Horizontal Line Color by Index, used with BH. Value from 0 to 65.
9	BHCT	BH; BHCT,5	Border Horizontal Line Color by Theme, used with BH. Value from 0 to 9.
10	BHCRGB	BH; BHCRGB,000000FF	Border Horizontal Line Color by RGBA, used with BH.
11	BV	BV	Border Vertical Cell.
12	BVS	BV; BVS,thin	Border Vertical Line Style, used with BV. Value are None, Thin, Medium, Dashed, Dotted, Thick, Double, Hair, MediumDashed, DashDot, MediumDashDot, DashDotDot, MediumDashDotDot, SlantDashDot.
13	BVCI	BV; BVCI,10	Border Vertical Line Color by Index, used with BV. Value from 0 to 65.
14	BVCT	BV; BVCT,5	Border Vertical Line Color by Theme, used with BV. Value from 0 to 9.
15	BVCRGB	BV; BVCRGB,000000FF	Border Vertical Line Color by RGBA, used with BV.

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6.9 Set Column Width

Open Xml does not support auto fit columns width. You have to set columns width manually.

```
  SetColumnWidth('B', 30); //Set Column Width by Column Name
  SetColumnWidth( 3 , 22); //Set Column Width by Column Index from 1
  SetColumnWidth('D', 45); //Column Width is Integer number from 0 (hide column) to 255
END;
//S-000}
```

SetColumnWidth(pVar_ColumnNoOrName : Variant;pInt_WidthOrZeroHide : Integer)

- pVar_ColumnNoOrName: specify Column Nbr or Name of column, start from 1 or 'A'.
- pInt_WidthOrZeroHide: specify column width, value is from 1 to 255. Set 0 to hide column.

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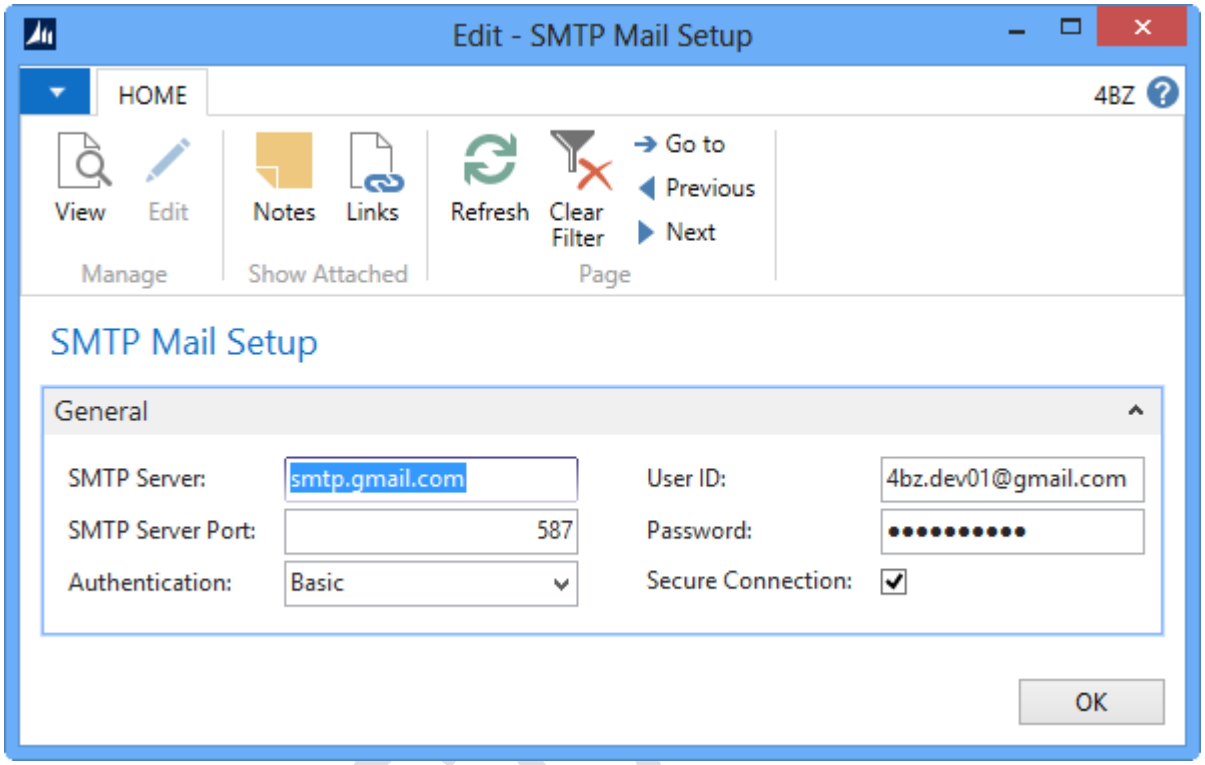
7. SMTP Mail Setup

In order to send Excel report via email, you should setup SMTP Mail.

On Excel Report List, click Ribbon → Actions → SMTP Mail Setup (Email Setup)

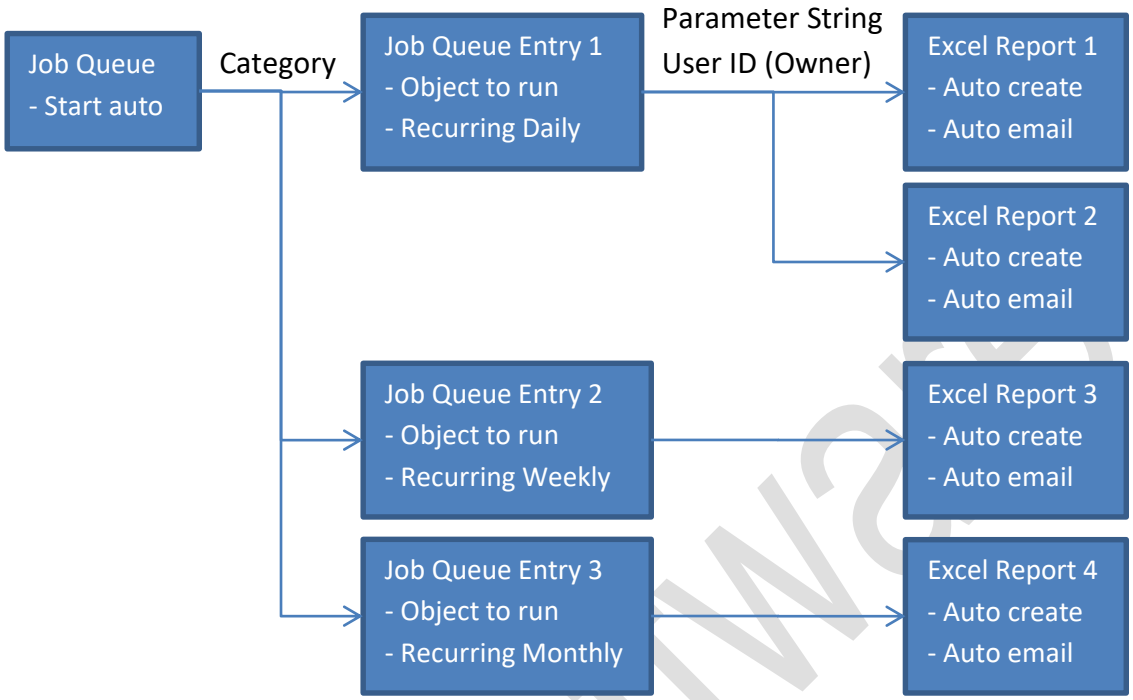


Below is common SMTP Mail setup:

- Mail profile already existed with your windows account:
  - SMTP Server: SMTP Server Address, for example, smtp.company.com.
  - SMTP Server Port: SMTP Server Port, for example, 25.
  - Authentication: Authentication Type, for example, Anonymous.
  - Secure Connection: Use Secure Connection or not, for example, No.
- Gmail profile:
  - SMTP Server: smtp.gmail.com.
  - SMTP Server Port: 587.
  - Authentication: Basic.
  - User ID: {Gmail Account}@gmail.com.
  - Password: {Gmail Password}.
  - Secure Connection: Yes.

8. Configure Job Queue to create or email reports automatically

To create or email reports automatically, you can use system Job Queue. Below is working process:



A Job Queue is running in a background session and carries out its Job Queue Entries which are the same Job Queue Category. You can manually start Job Queue, or automatically with Navision Service by setting "Start Automatically From NAS" true and configuring NAS Service described in section 9.

Each Job Queue Entry should be defined recurring time to create or email reports as hourly, daily, weekly, monthly … as business requirement. Job Queue Entry carries out its reports based on Parameter String (case sensitive) and User ID (User creates Job Queue Entry and Excel Report).

Each Excel Report can auto create or email report separately.

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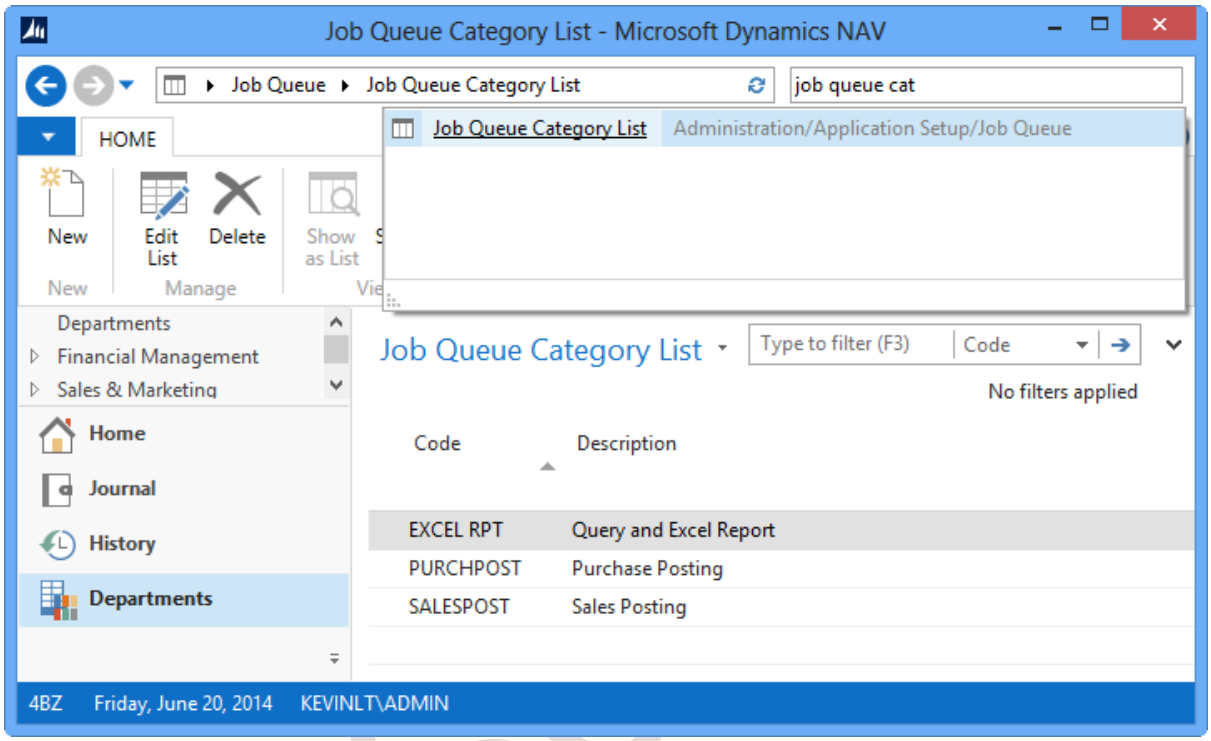
8.1 Create Job Queue Category

It is good to use Job Queue Category to carry out needed Job Queue Entries. However, each Job Queue, when started, consumes a background session. Otherwise, you can ignore Job Queue Category and use one Job Queue to invoke all Job Queue Entries.

In this guideline, we will create a Job Queue Category "EXCEL RPT – Query and Excel Report":



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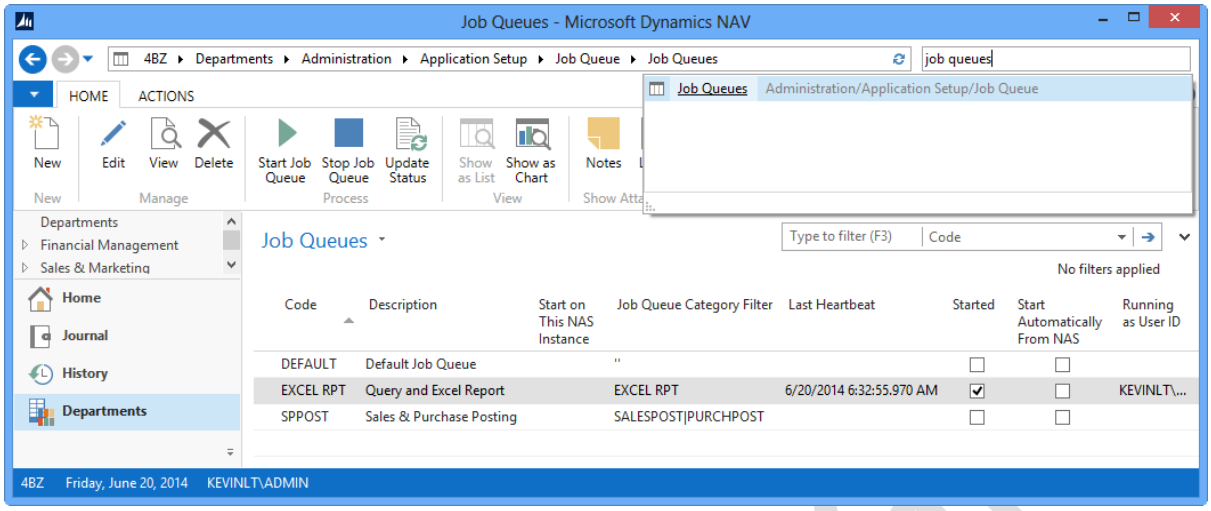
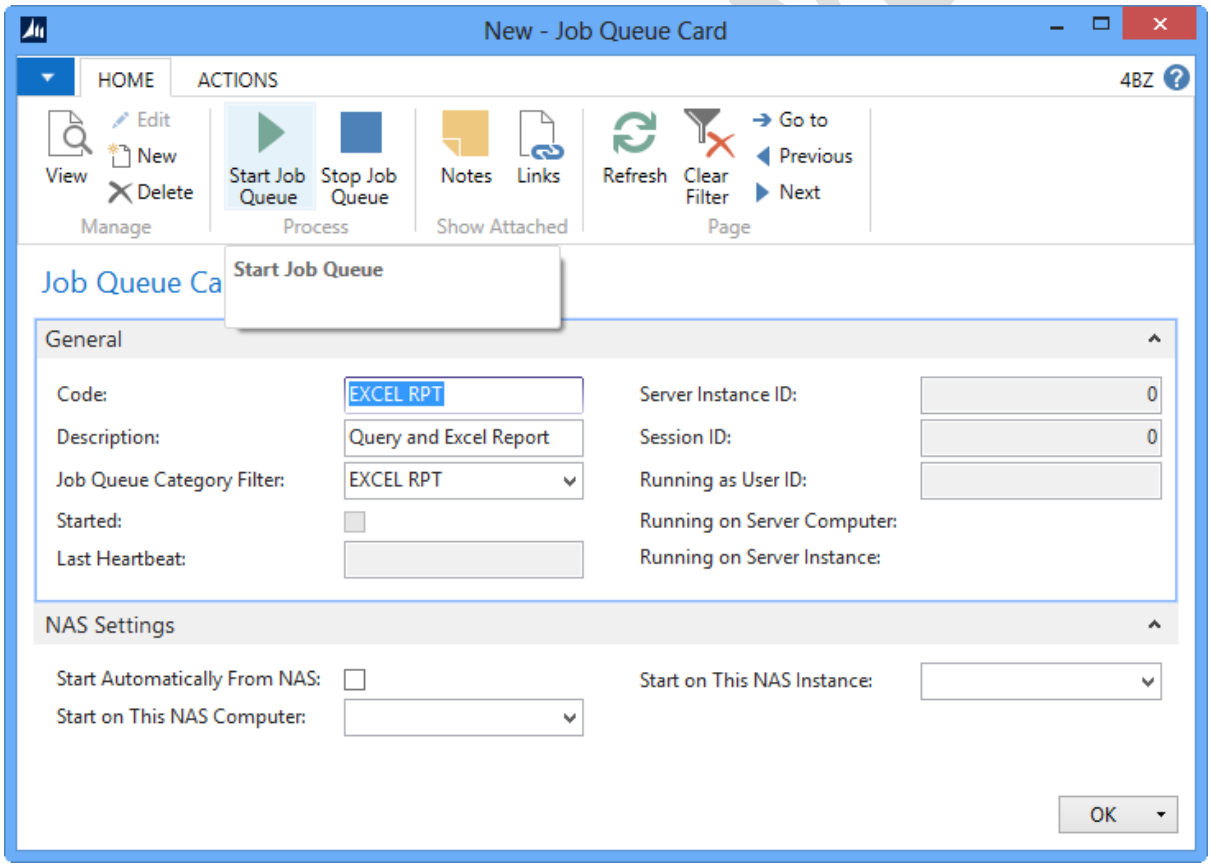
8.2 Create and start Job Queue

Use search function to open Job Queues list page, click "New" action on Ribbon as below:



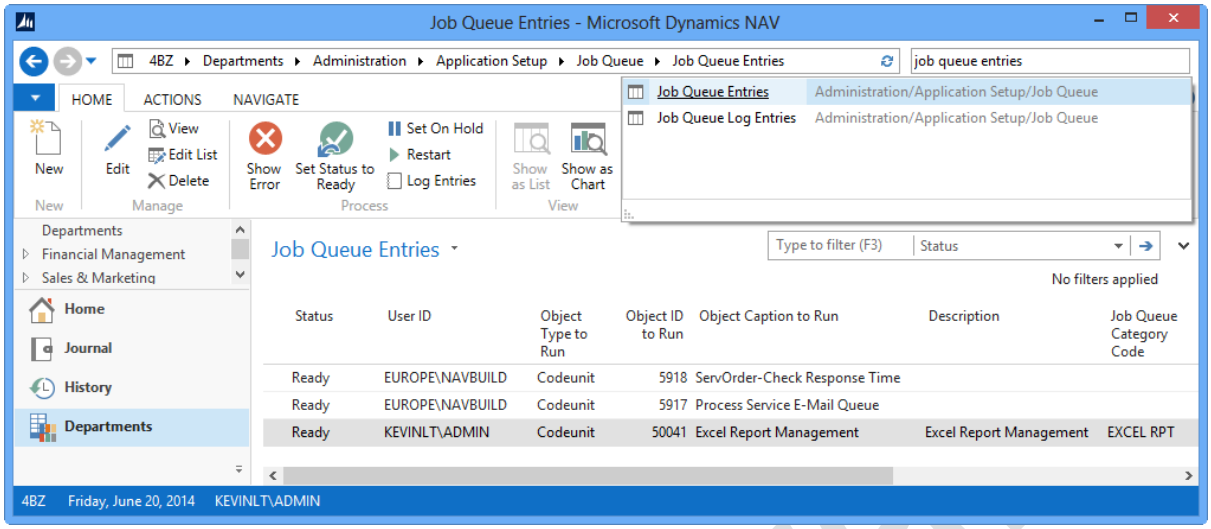
Fill in Code, Description and select created Job Queue Category "EXCEL RPT". Then, Start Job Queue:



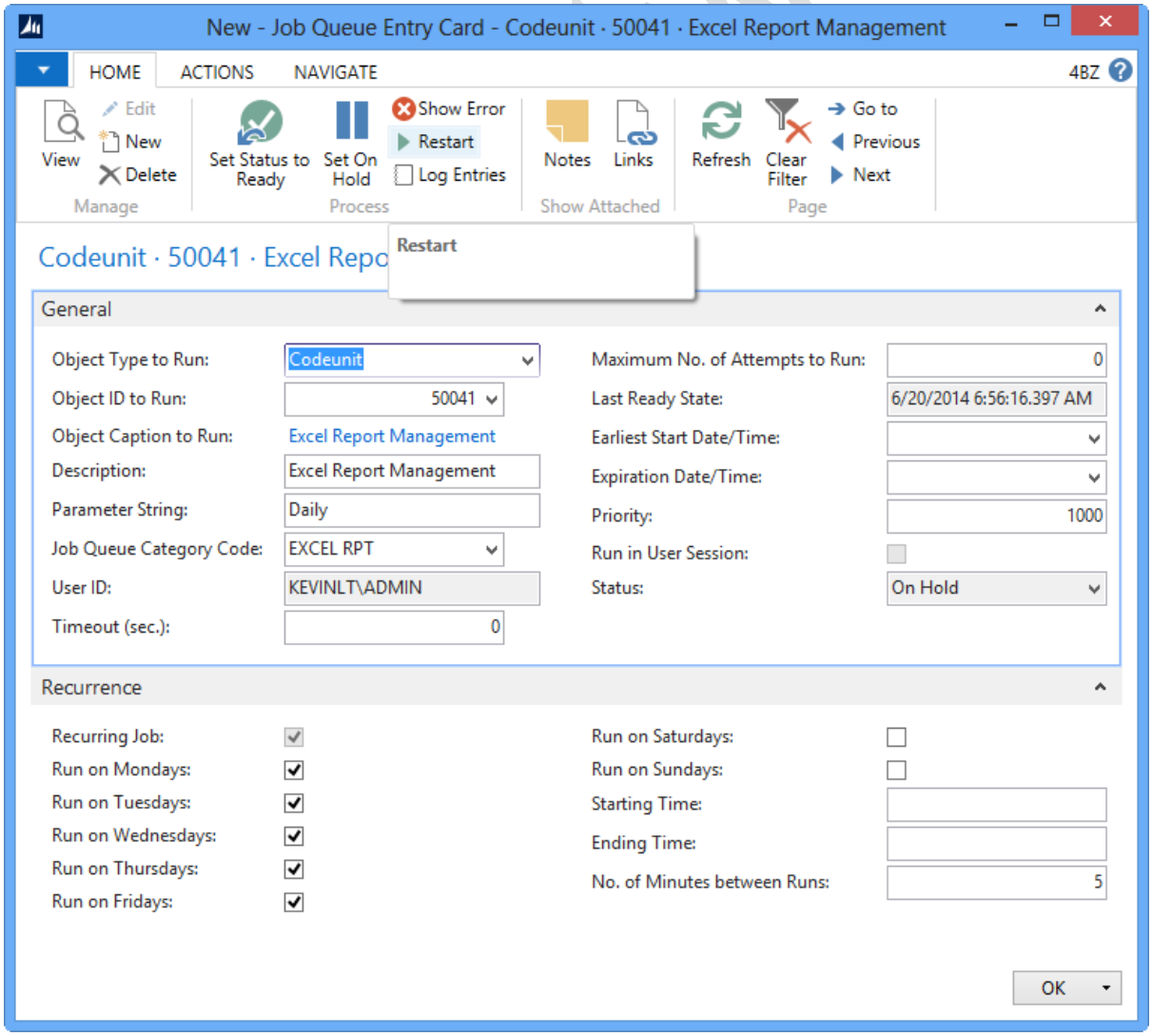
To start Job Queue with Navision Service automatically, set "Start Automatically from NAS" and refer to section 9 Configure NAS Service.

8.3 Create and start recurring Job Queue Entry

Use search function to open Job Queue Entries list page, click “New” action on Ribbon as below



Create entry as below picture. For testing, set No. of Minutes between Runs 5. Then click Restart:

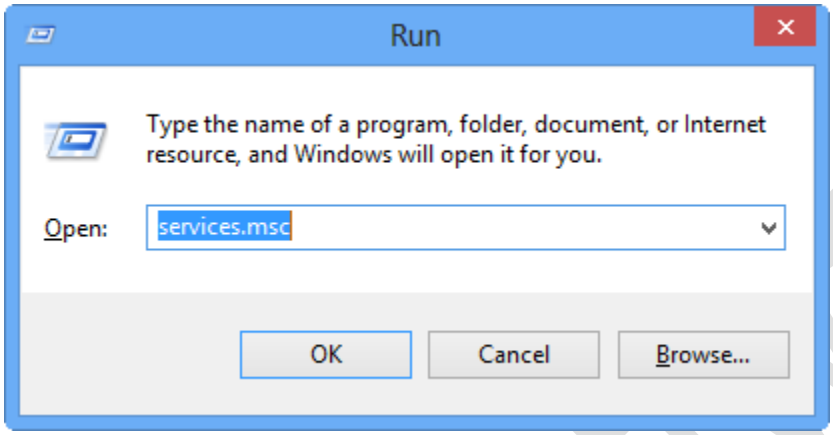


9. Configure NAS Service to start Job Queue automatically

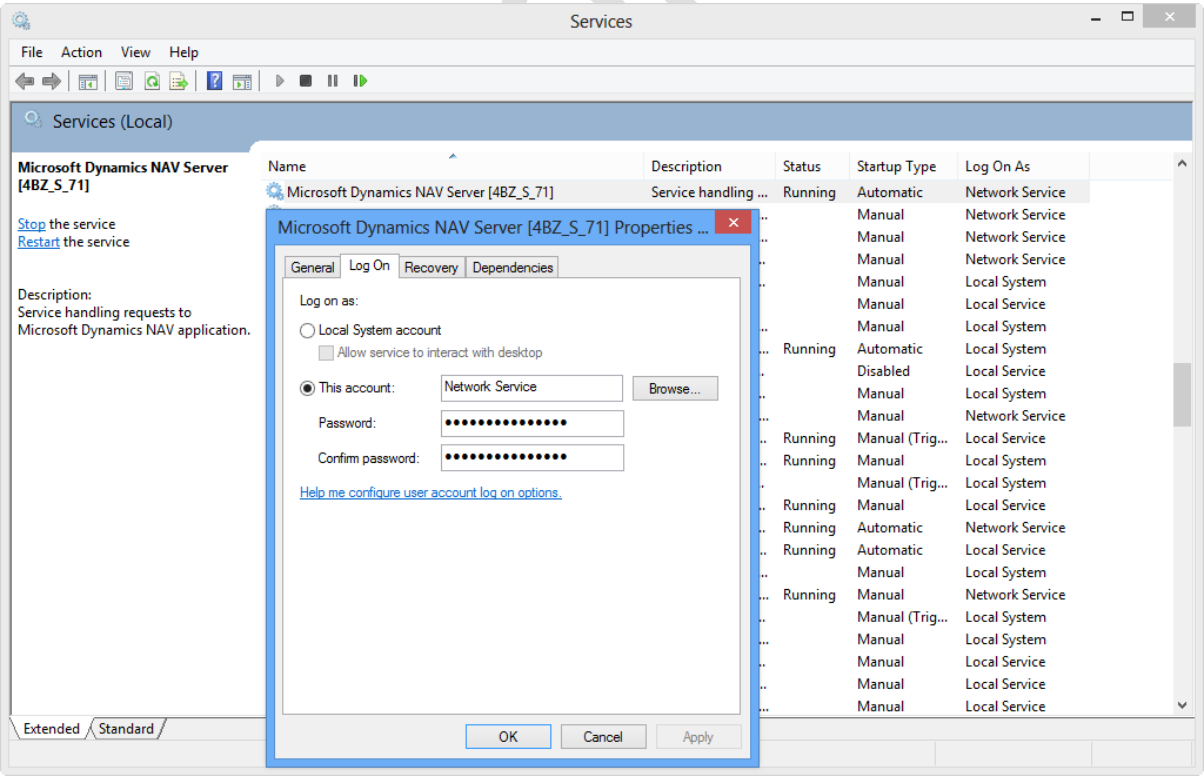
9.1 Navision Service Account and Permission

You can start Job Queue automatically when Navision Service is started. Job Queue will run as Navision Service Account so you need to assign correct permission to Navision Service Account (http://blogs.msdn.com/b/nav/archive/2012/09/20/microsoft-dynamics-nav-2013-nas-services-user-credentials.aspx)

First, you should check the account used to start Navision Service by running below command:

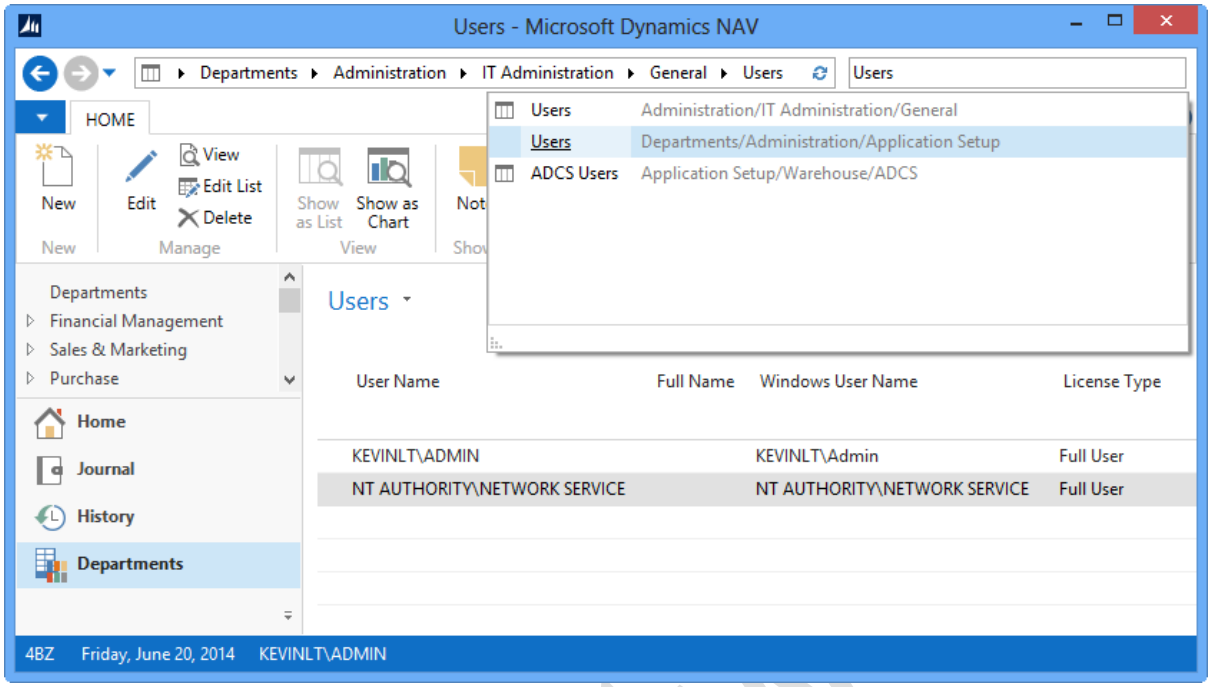


Services window opens:

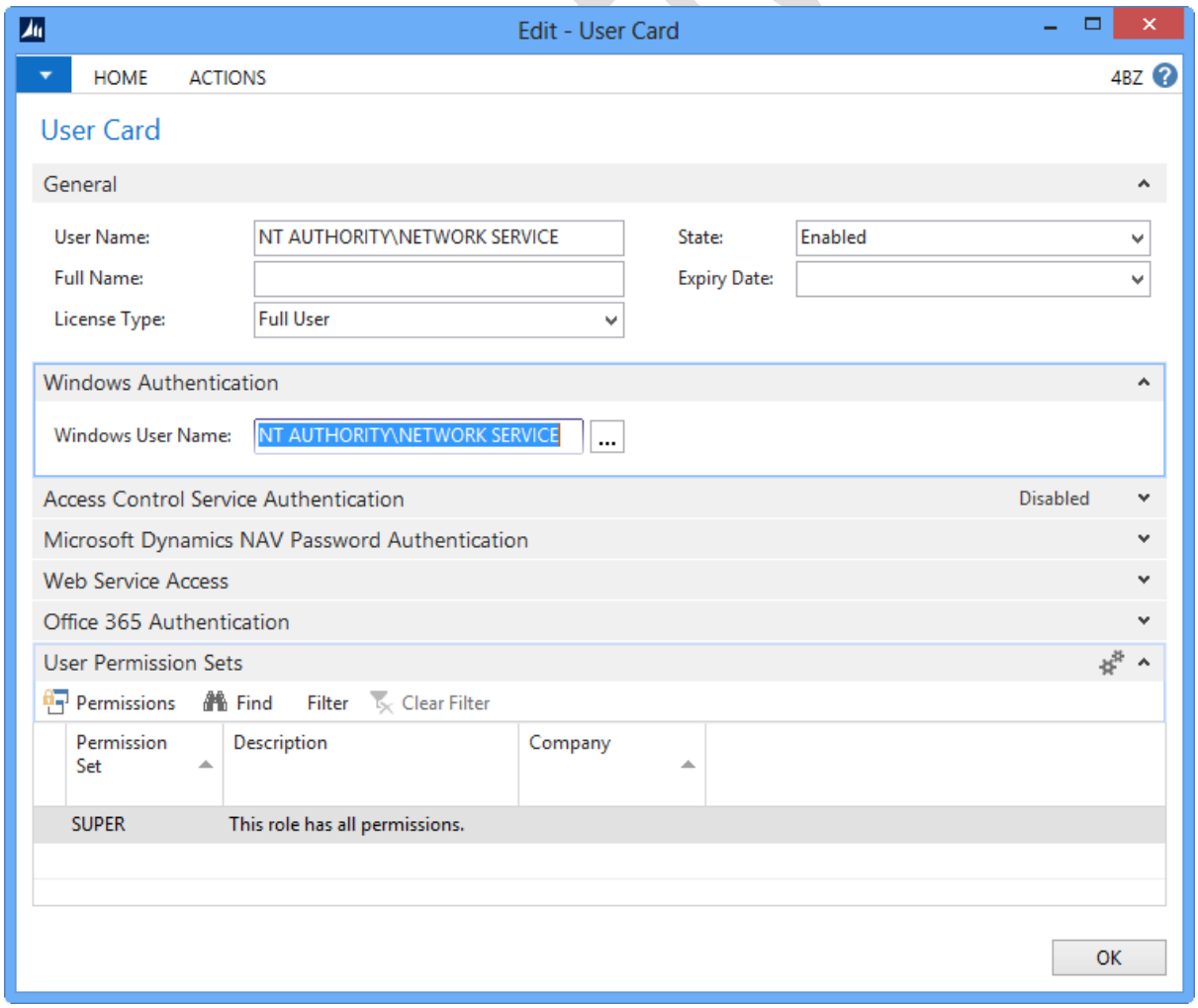


Above picture shows Navision Service started by Network Service account (default installation).

Second, create and assign permission to Navision Service Account by opening Users list page:

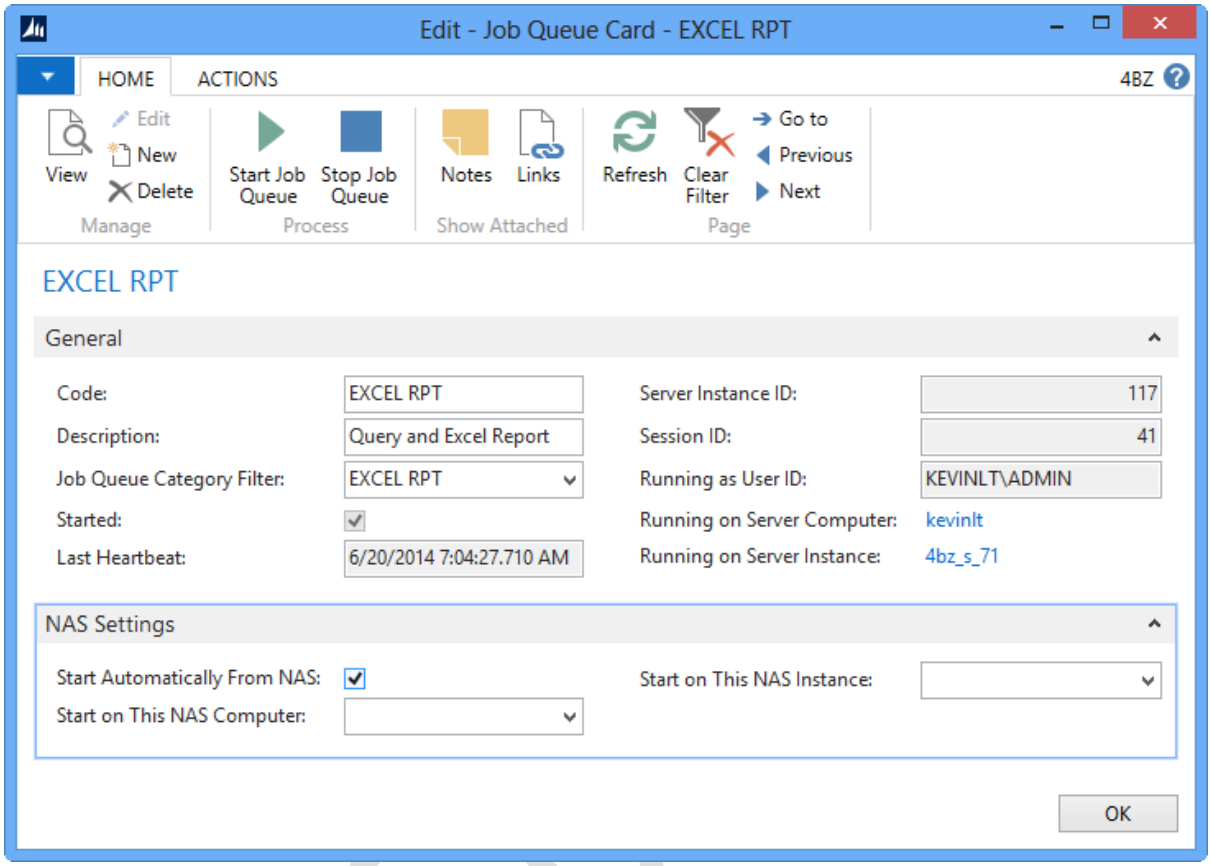


Click on "New" action, key in Windows User Name and assign Permission Set as below:



9.2 Reconfigure Job Queue

Open Job Queue and set “Start Automatically From NAS” to true:



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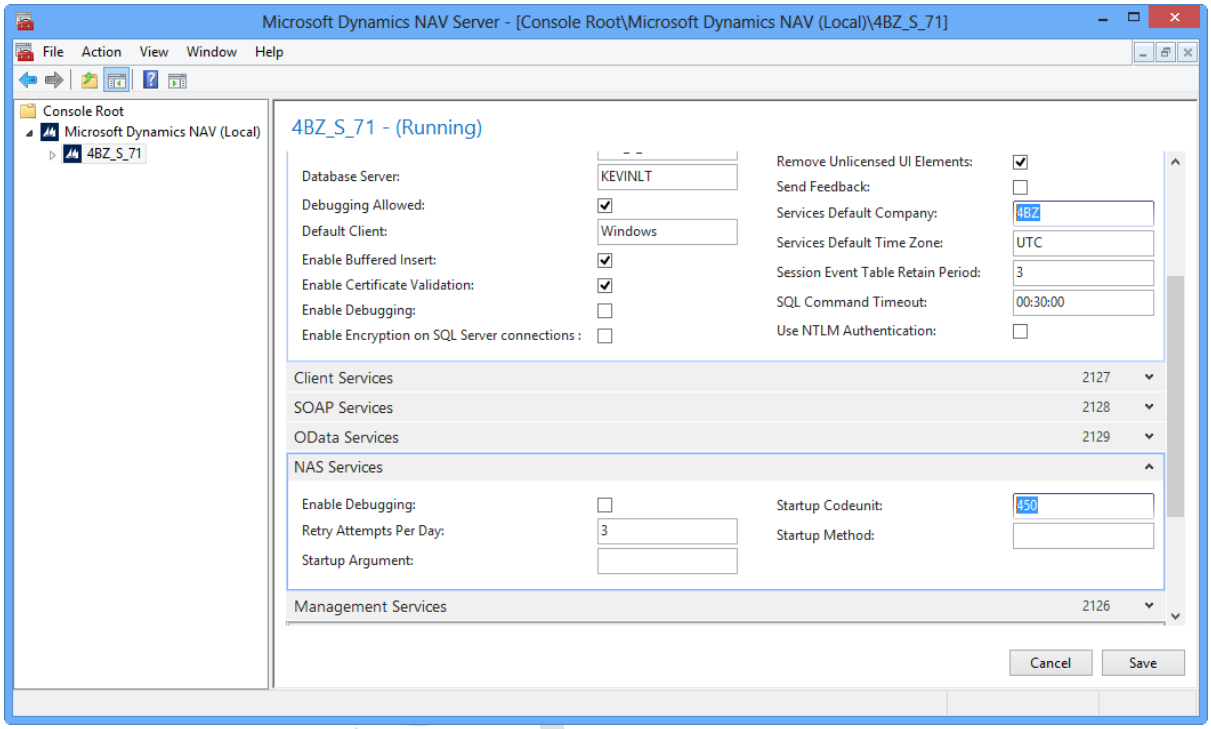
9.3 Configure NAS Service

For full picture, you can refer to http://blogs.msdn.com/b/nav/archive/2012/08/31/background-posting-and-job-queue-in-microsoft-dynamics-nav-2013.aspx

To enable NAS Service:

- Fill in Service Default Company in General group.
- Fill in 450 as Startup Codeunit in NAS Services group.



Click Save and restart the service. Then check:

- Job Queue is started
- Job Queue Entry is started (links with Job Queue via Job Queue Category)
- Excel Report is activated Auto Create or Auto Email (links via Job Queue Parameter String).
- Email received or created Excel file in folder of Navision Server.

This is last page.

Thank you!

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