



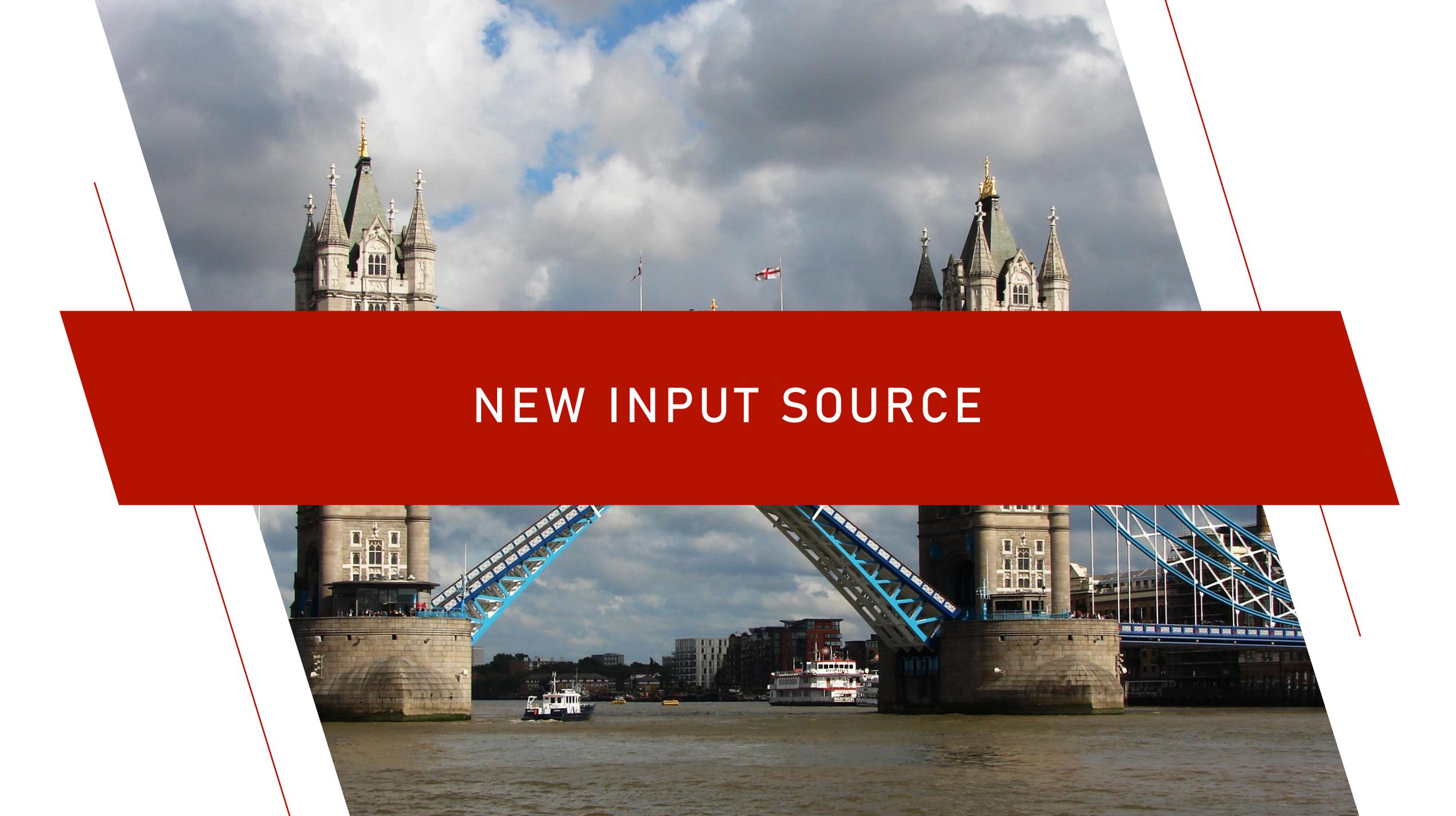
# REPORT WRITER ENHANCEMENTS 2020 - 2024

DireXions 2024

# AGENDA

The background of the slide is a photograph of a multi-story urban building. The building has a mix of grey stone and bright red brick facades. Several windows are visible, some with air conditioning units. A black metal fire escape is attached to the red brick section of the building. The sky is a pale, overcast blue.

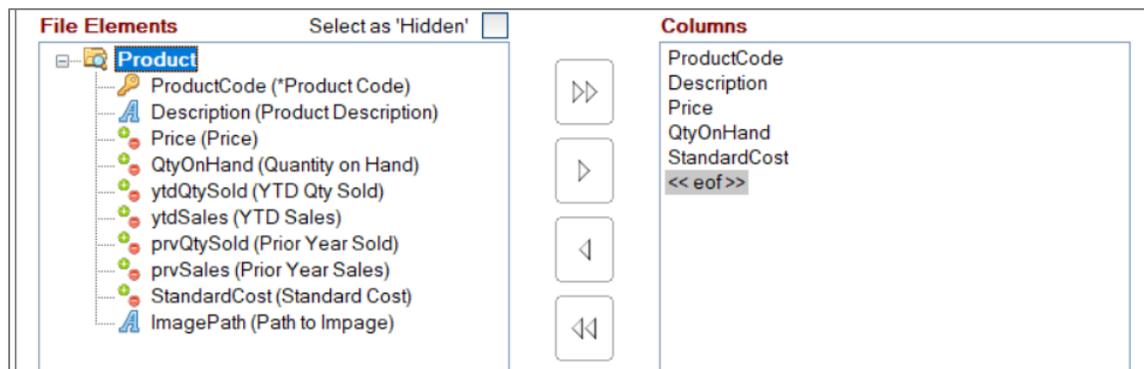
- 1. New Input Source**
- 2. Parameter Specifications**
- 3. Report Designer Enhancements**
- 4. New Report Options**
- 5. Dynamic Run-Time Filters**

A photograph of the Tower Bridge in London, showing its two stone towers and blue suspension cables. The bridge is partially open, with the walkways raised. The River Thames is visible in the foreground with a small boat. The sky is overcast with grey clouds. A large red banner with white text is superimposed over the middle of the image.

# NEW INPUT SOURCE

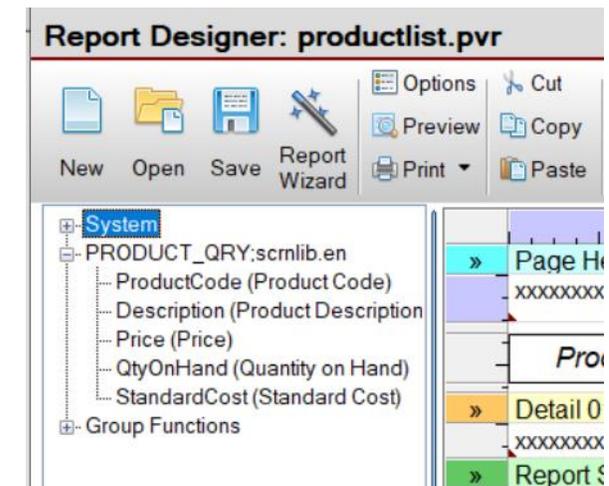
## New Input Source

- Query Definition as an Input Source
  - Supports Query Definitions based on PxPlus files with embedded dictionaries, View definitions or external database
  - Adds another way to access a dataset comprised of multiple related files



← Query Definition

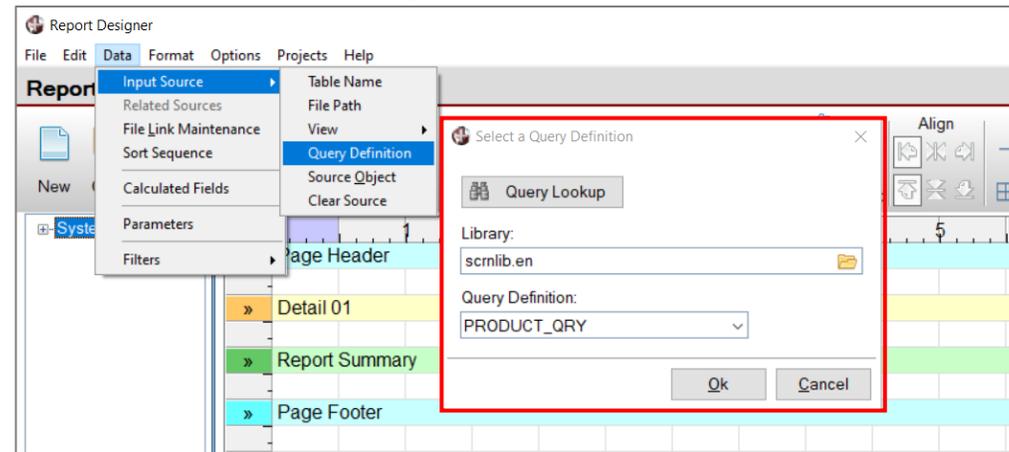
Report Data →



# REPORT WRITER - NEW INPUT SOURCE

## New Input Source

- To assign a query as an input source
  - Data > Input source > Query Definition

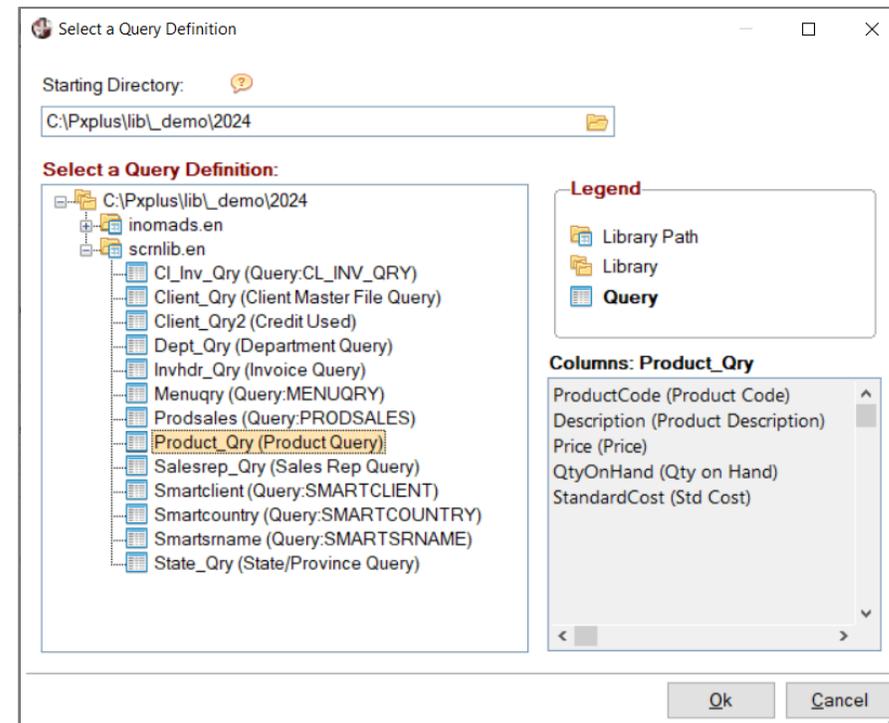


Select the query by identifying the library and query name or by clicking the *Query Lookup* button.

# REPORT WRITER - NEW INPUT SOURCE

## New Input Source

- *Query Lookup* – Select a Query Definition
  - Lists queries that exist in the current directory level and lower



# REPORT WRITER - NEW INPUT SOURCE

## New Input Source

When selected, the query columns are listed in the Report Designer data pane for inclusion in the report layout

The screenshot displays the Microsoft Report Designer interface for a report named 'productlist.pvr'. The left-hand pane shows the data source 'PRODUCT\_QRY:scmlib.en' with a tree view of its columns: ProductCode (Product Code), Description (Product Description), Price (Price), QtyOnHand (Quantity on Hand), and StandardCost (Standard Cost). These columns are highlighted with a red box. The main report area shows a table with the following structure:

Product List			
Product Code	Description	Price	Std Cost
xxxxxxxxxx	xx	#,##0.00	#,##0.00

The report layout includes a Page Header, Detail 01, Report Summary, and Page Footer. The Page Header contains the text 'Product List' and 'xxxx'. The Report Summary contains the text 'Total number of products: #,##0'. The Page Footer contains the text 'xxxxxxxxxx'.

A photograph of a stone bridge structure over water, with a red banner overlaid in the center containing the text 'PARAMETER SPECIFICATIONS'. The bridge is made of large, rectangular stone blocks and has a decorative railing on top. The water is greenish and reflects the sky. In the foreground, there are black metal posts connected by chains, forming a barrier. The background shows bare tree branches and a clear sky.

# PARAMETER SPECIFICATIONS

# PARAMETER SPECIFICATIONS

## Parameters

- Values that are supplied by the user or application program when a report is generated.
  - E.g.
    - Generate data for a particular department to be specified by the user requesting the report.
    - Display transactions between a certain start and end date to be specified at run time.
- Can be displayed in the report, used in formulas, or used to set up selection criteria.

## Parameter Expression Support

- Enhanced to allow expressions for Maximum Length, Minimum and Maximum Values, Default Value and Format
  - Expression values preceded by '=', e.g. =DTE(0:"%Y%Mz%Dz")

Parameter Name	Class	Prompt / Description	Type	Maximum Length	Minimum Value	Maximum Value	Default Value	Format
StartDate		Start date	Text	8			=DTE(0:"%Y%Mz%Dz")	
EndDate		End date	Text	8			=DTE(0:"%Y%Mz%Dz")	
			Text					

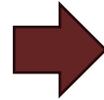
## Parameters Using Dynamic Data Classes

- Data class definitions have descriptions, input lengths, default values, formats and validation rules assigned to them, as well as drop box definitions, checkbox input and queries
- By assigning a *Data Class* to a parameter definition, these settings can be used to format input in the default parameter interface at run-time

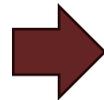
# PARAMETER SPECIFICATIONS

## Parameters Using Dynamic Data Classes

Class selection



Class info



**Report Parameters**

Parameter Name	Class / Prompt / Description	Type	Maximum Length	Minimum Value	Maximum Value	Default Value	Format
SalesCode	from class*	Text	*from class*			*from class*	*from class*
		Text					

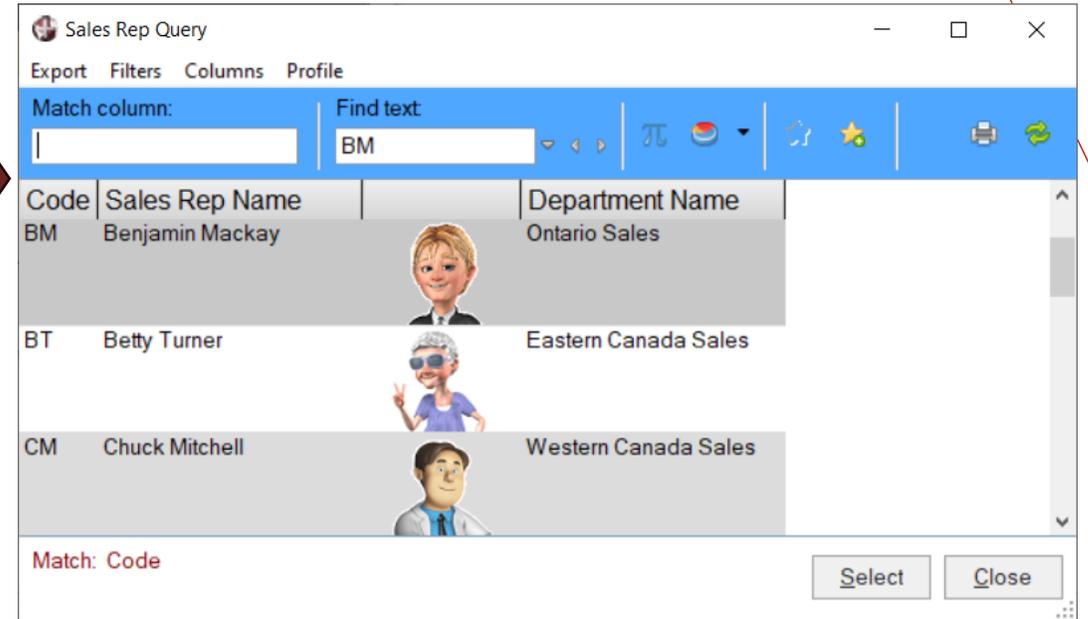
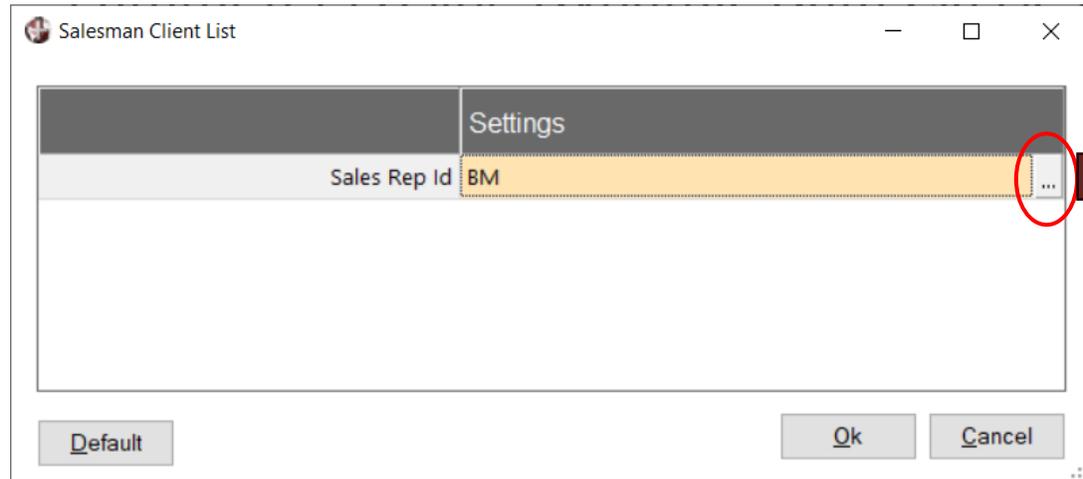
**Data Class Information** Ignore class validation

Settings	
Class Name - Description (Control Type)	SALESREP - Sales Rep Id (Input Field)
Length	3
Query	SALESREP_QRY,scrnlib.en
Validator	prog/Validator;Validate_Salesrep

Ok Cancel

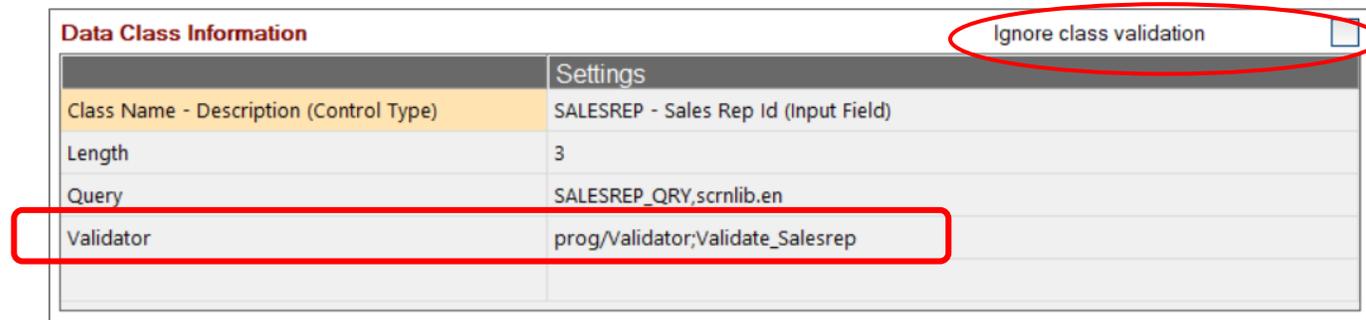
# PARAMETER SPECIFICATIONS

## Parameters Using Dynamic Data Classes



## Parameters – Ignore Class Validation

- Some Data Classes have validation rules assigned
  - Validation rules require an exact match
  - Sometimes you don't want an exact match, such as when setting up ranges
- *Ignore class validation option*
  - Allows you to use the class for input formatting but not for validation



The screenshot shows a table titled "Data Class Information" with a sub-header "Settings". The table has two columns: "Class Name - Description (Control Type)" and "Settings". The "Ignore class validation" checkbox is circled in red. The "Validator" row is also circled in red.

Data Class Information		Ignore class validation <input type="checkbox"/>
		Settings
Class Name - Description (Control Type)	SALESREP - Sales Rep Id (Input Field)	
Length	3	
Query	SALESREP_QRY,scrnlib.en	
Validator	prog/Validator;Validate_Salesrep	



# REPORT DESIGNER ENHANCEMENTS



- [Text Alignment Made Easier](#)

Before



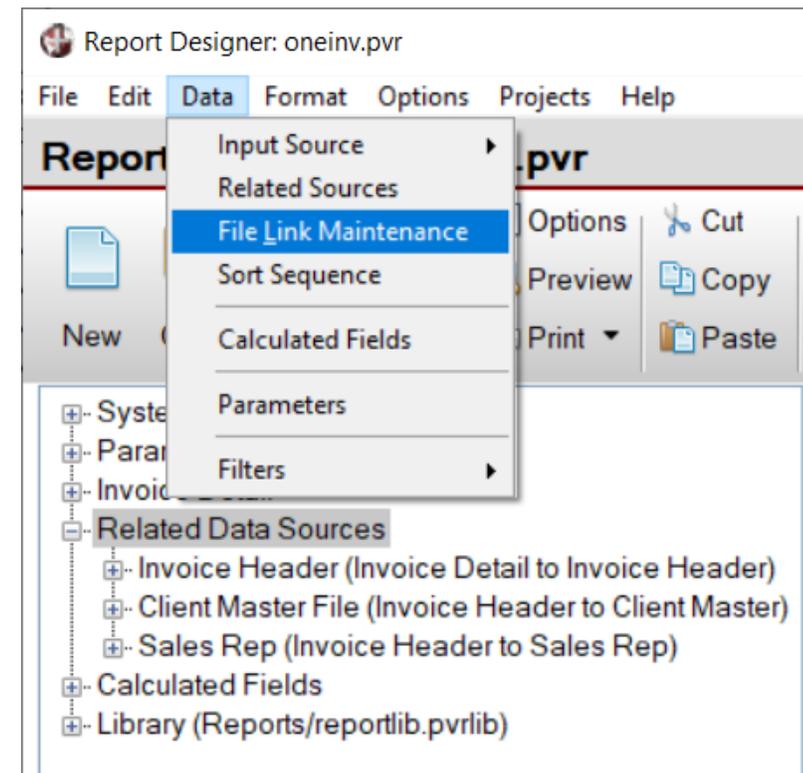
Now



- More choices
- Shows alignment of current cell

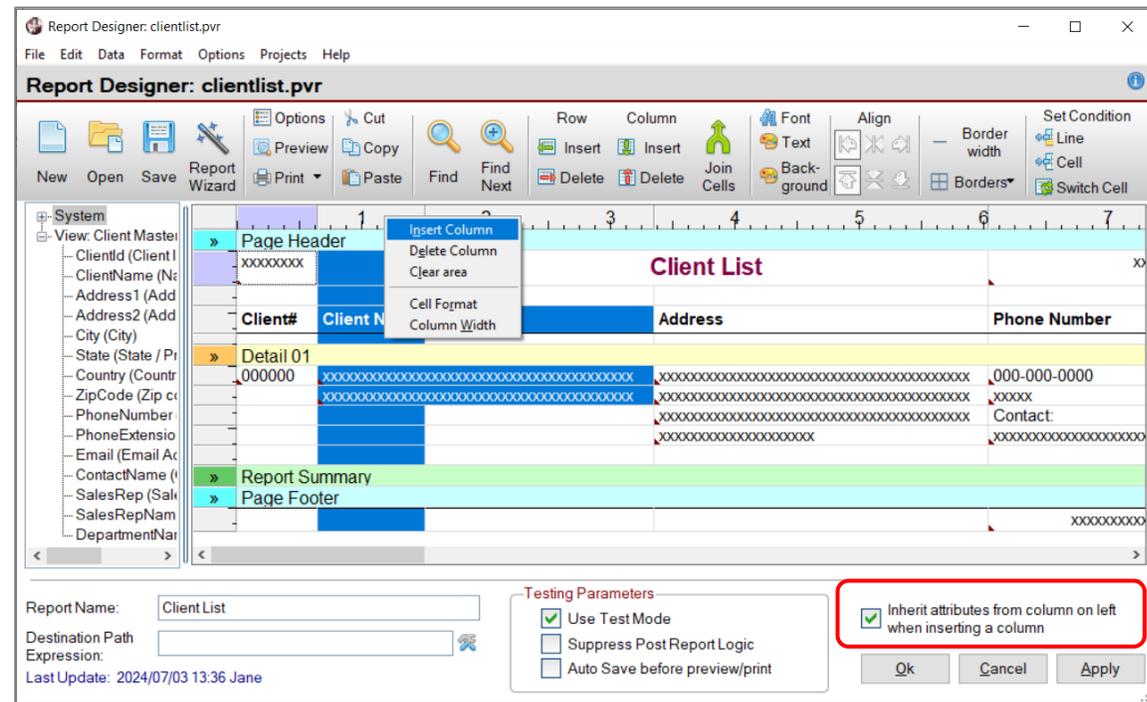
## Links to File Link Maintenance

- File Link Maintenance utility lets you define and maintain cross-reference linkages that exist between data files
- Link to *File Link Maintenance* added to *Data* menu
- Don't have to exit the Report Designer to set up file links



## Inherit Cell Attributes from Left when Inserting Column

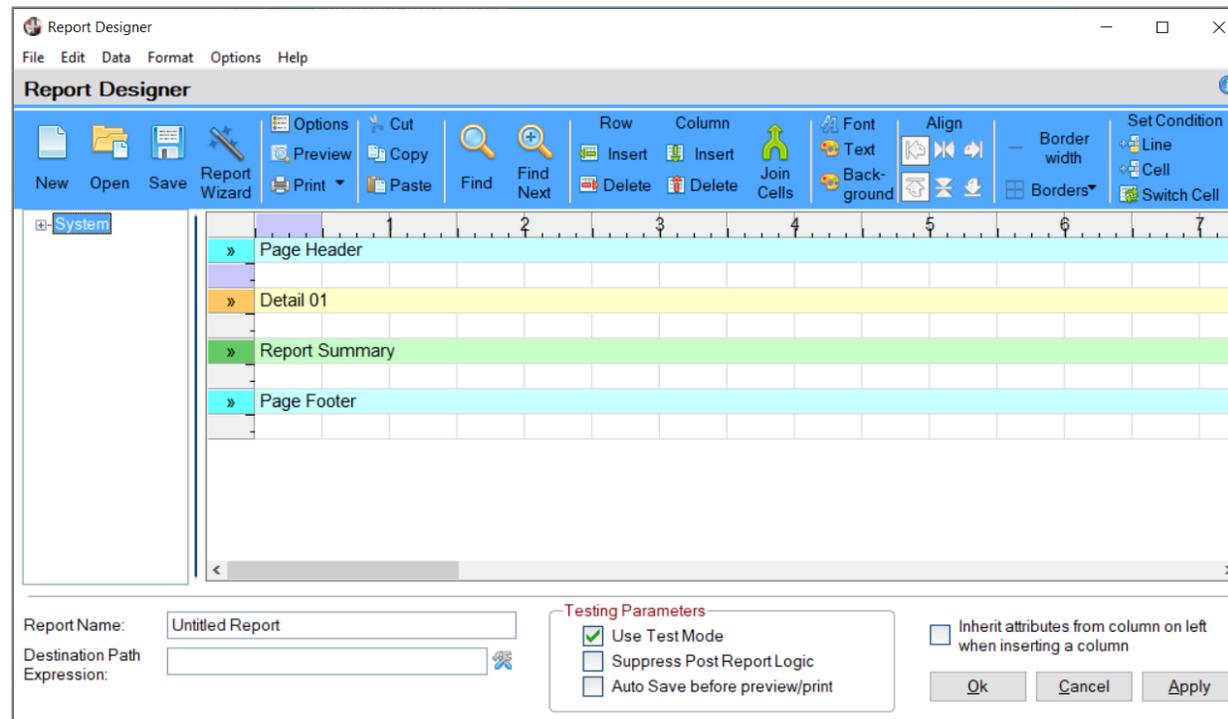
- Option to inherit attributes (font, alignment, word-wrap, colors and borders) from the current cell when inserting a column (like Excel)



# REPORT DESIGNER ENHANCEMENTS

## Theme Colors

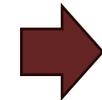
- The Report Designer can be a user-facing feature, so will use the application theme colors, if set.





# NEW REPORT OPTIONS

## Line Advancement

- Control how line advancement occurs
  - Normal Line Advancement 
  - Controlled Line Advancement 

10/07/2024		Sales YTD by Department				1
Dept	Department Name	RepCode	Sales Rep	Sales YTD	Dept. Total	
<b>EAST</b>	Eastern Canada Sales	AN	Anastasia Nelson	\$75,583.54	\$148,120.03	
		BT	Betty Turner	\$72,536.49		
<b>LRGE</b>	Large Account Sales	OB	Olivia Blackwood	\$40,183.01	\$40,183.01	
<b>ONT</b>	Ontario Sales	BM	Benjamin Mackay	\$97,223.07	\$316,335.79	
		DK	Donna Kerr	\$98,494.33		
		HK	Hank Kane	\$120,618.39		
<b>QUE</b>	Quebec Sales	GT	Gordon Taylor	\$85,778.96	\$134,811.04	
		RL	Roberta Lee	\$49,032.08		
<b>WEST</b>	Western Canada Sales	CM	Chuck Mitchell	\$175,886.34	\$343,795.36	
		PG	Paul Gonsalvez	\$167,909.02		
<b>Company Total</b>					<b>\$983,245.23</b>	

10/07/2024		Sales YTD by Department		1
<b>EAST Eastern Canada Sales</b>				
RepCode	Sales Rep			Sales YTD
AN	Ana			\$75,583.54
BT	Bett			\$72,536.49
Departmental Total				\$148,120.03
<b>LRGE Large Account Sales</b>				
RepCode	Sales Rep			Sales YTD
OB	Olivi			\$40,183.01
Departmental Total				\$40,183.01
<b>ONT Ontario Sales</b>				
RepCode	Sales Rep			Sales YTD
BM	Benj			\$97,223.07
DK	Don			\$98,494.33
HK	Han			\$120,618.39
Departmental Total				\$316,335.79
<b>QUE Quebec Sales</b>				
RepCode	Sales Rep			Sales YTD
GT	Gor			\$85,778.96
RL	Rob			\$49,032.08
Departmental Total				\$134,811.04
<b>WEST Western Canada Sales</b>				
RepCode	Sales Rep			Sales YTD
CM	Chu			\$175,886.34
PG	Paul			\$167,909.02
Departmental Total				\$343,795.36
Company Total				\$983,245.23

# REPORT WRITER OPTIONS

## Line Advancement Options

- Normal – Regular line advancement
- Overlay Next Line – Write line, do *not* advance vertical positioning, write next line
- Overlay Previous Line – Write line, advance vertical positioning; subtract vertical positioning and write next line

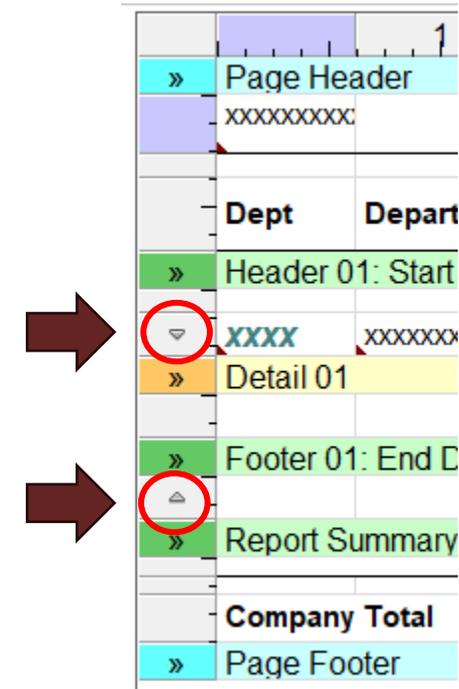
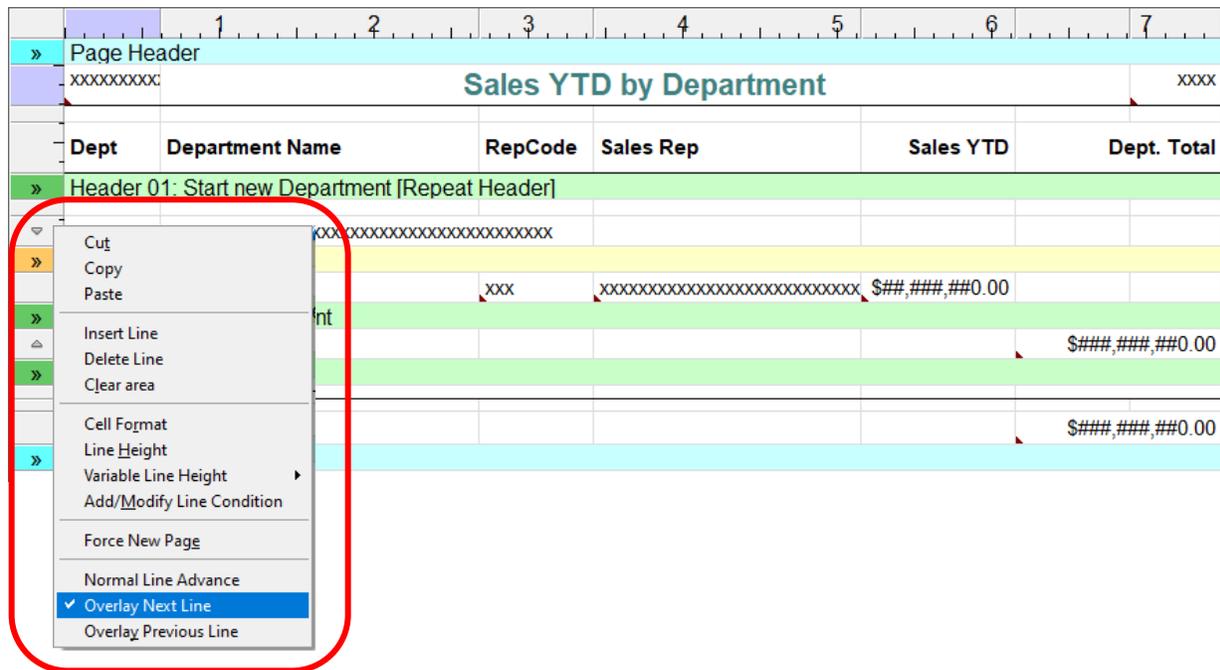


	1	2	3	4	5	6	7
» Page Header	Sales YTD by Department						xxxx
» Header 01: Start new Department [Repeat Header]	xxxx						
» Detail 01	Dept	Department Name	RepCode	Sales Rep	Sales YTD	Dept. Total	
» Footer 01: End Department			xxx	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	###,###,##0.00		
» Report Summary						###,###,##0.00	
» Company Total						###,###,##0.00	
» Page Footer							

# REPORT WRITER OPTIONS

## Setting Line Advancement Options

- Set from popup menu by right-clicking on row header column

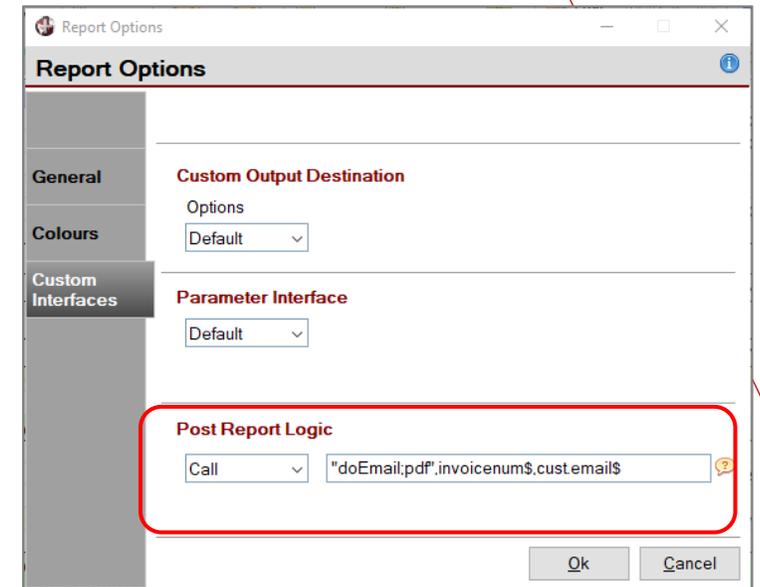


- Ticks indicate Next/Previous selections



## Post-Report Logic

- Specify logic to execute when a report is complete
  - E.g. mail PDF files to a client's email account
- Options:
  - Call – Program to call and optional arguments
  - Execute – PxPlus statement to execute
  - Method – Method in user-defined Logic Object Interface + arguments



## Suppress Post Report Logic

- Testing Parameter on the Report Designer
  - Suppresses the execution of *Post-Report Logic* while testing

Testing Parameters

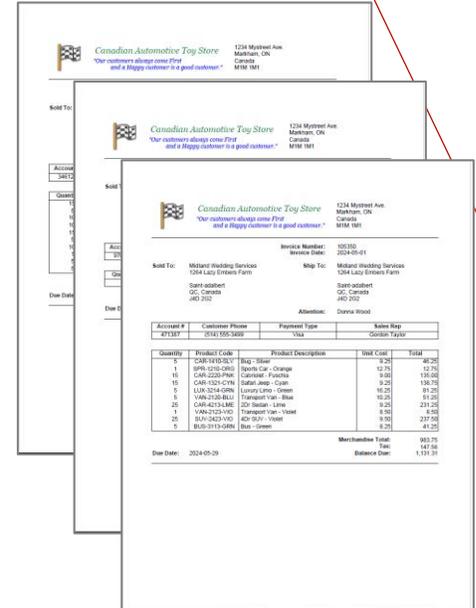
Use Test Mode

Suppress Post Report Logic

Auto Save before preview/print

## Multiple Report Generation

- E.g. Printing invoices, customer statements, etc.
- Previously...
  - Generate multiple reports to a printer
  - Generate multiple concatenated reports to a single file
  - Write program code to execute single reports multiple times
    - Only this last option lends itself to doing *Post-Report Logic*



# REPORT WRITER OPTIONS

## Multiple Report Generation

- Now...
  - One call generates multiple reports to separate physical files
    - Post-Report logic executed for each report
  - You need only:
    - Supply a [Destination Path Expression](#) to evaluate for a unique name for each file, e.g. `_DateYYYYMMDD$+ClientID$[+”.pdf”]`

Destination Path  
Expression:



- Set a *Group Header* option to generate multiple individual reports

# REPORT WRITER OPTIONS

## Multiple Report Generation

- Dependent on report grouping
  - E.g. When the Invoice number or Client code changes
  - [Group Header Option](#) - When group changes:
    - *Continue with in-line placement*
    - *Start new page* – Starts a new page for each new group
    - *Start new report* – Creates a separate individual report for the group, including report summary, header and footer sections

Group Definition

Item to be grouped: ?

(Grouped items may have their own header and/or footer, with summary lines, totals, counts, etc.)

Group 02: InvoiceNumber (Break when InvoiceNumber changes)

Group Header Options

When group changes:  
Start new report

Group Footer Options

Lock group footer to bottom of page

Reset page number to one (1)

Repeat group header on each new page

Ok Cancel



# DYNAMIC RUN-TIME FILTERS

# DYNAMIC RUN-TIME FILTERS

## Static Filters

- Previously...
  - Set specific filters and parameters within the report definition
  - Filter values entered as parameters at run-time
  - E.g. Client list for a specific salesman
  - One-use report

### Report Parameters

Parameter Name	Class	Prompt / Description	Type	Maximum Length	Minimum Value	Maximum Value	Default Value
SalesCode		Sales Rep Code	Text	3			
			Text				

Define Static Filters

Set #1 of 1 Accept data if all conditions in this set are met

Element	Condition	Case Sensitive	Value 1	Value 2
ZipCode (Zip code/Postal Code)	None	<input type="checkbox"/> Yes		
PhoneNumber (Phone Number)	None	<input type="checkbox"/> Yes		
PhoneExtension (Phone Extension)	None	<input type="checkbox"/> Yes		
Email (Email Address)	None	<input type="checkbox"/> Yes		
ContactName (Contact Name)	None	<input type="checkbox"/> Yes		
SalesRep (Sales Rep Id)	Equal to <Value1>	<input checked="" type="checkbox"/> Yes	SalesCode\$	
SalesRepName (Name)	None	<input type="checkbox"/> Yes		

Salesman Client List

Settings

Sales Rep Code AN

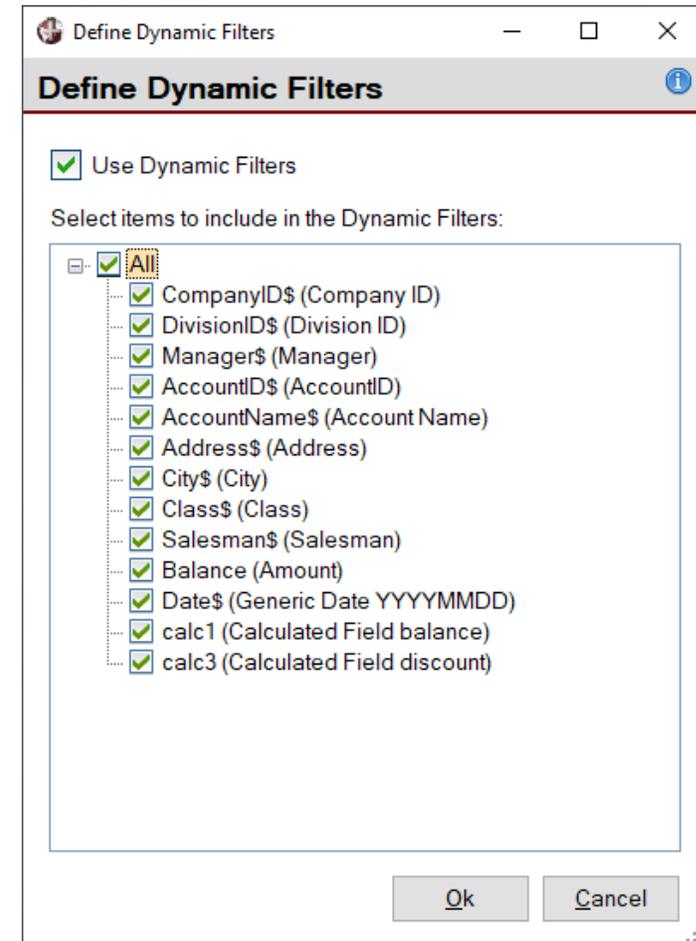
## Dynamic Filters Defined by User at Run-Time

- Now...
  - The user can define their own filters at run-time
  - Results in *flexible multi-use* reports
    - E.g. Client list for a salesman, contact person, region, etc.
    - Can include/exclude records based on multiple conditions

# DYNAMIC RUN-TIME FILTERS

## Setting up Dynamic Filters for a Report

- *Data > Filters > Dynamic Filters*
  - *Define Dynamic Filters*
    - *Use Dynamic Filters* option
    - *Select the items to include*



# DYNAMIC RUN-TIME FILTERS

## Filters Defined by User at Run-Time

- At run-time...

The screenshot shows a dialog box titled "Define Filters" with a table of filter rules. The table has five columns: "Include / Exclude / And", "Field to test", "Condition", "Case Sensitive", and "Value to compare". The first row is "Include if..." with "CompanyID\$ (Company ID)", "Is Equal To", and "ABC". The second row is "And". A dropdown menu is open for the "Condition" column, showing options like "Is Equal To", "Is Not Equal To", "Is Less Than", "Is Greater Than", "Is Less Than Or Equal To", "Is Greater Than Or Equal To", "Is Any Of: ?|?|?...", and "Contains". The "And" option in the first column is highlighted in blue. At the bottom right, there are "Apply Filters" and "Skip Filters" buttons.

Include / Exclude / And	Field to test	Condition	Case Sensitive	Value to compare
Include if...	CompanyID\$ (Company ID)	Is Equal To	<input type="checkbox"/>	ABC
And			<input type="checkbox"/>	
Include if...	CompanyID\$ (Company ID)	Is Equal To		
Exclude if...	DivisionID\$ (Division ID)	Is Not Equal To		
And	Manager\$ (Manager)	Is Less Than		
	AccountID\$ (AccountID)	Is Greater Than		
	AccountName\$ (Account Name)	Is Less Than Or Equal To		
	Address\$ (Address)	Is Greater Than Or Equal To		
	City\$ (City)	Is Any Of: ? ? ...		
	Class\$ (Class)	Contains		

# DYNAMIC RUN-TIME FILTERS

## Filters Defined by User at Run-Time

The 'Define Filters' dialog box contains the following table:

Include / Exclude / And	Field to test	Condition	Case Sensitive	Value to compare
Include if...	Description\$ (Product Descrip...	Contains	<input type="checkbox"/>	camper
And	Price (Price)	Is Less Than	<input type="checkbox"/>	10
And			<input type="checkbox"/>	

The 'Product List' report shows the following data:

Product Code	Description	Price	Std Cost
VAN-1120-LME	Camper Van - Lime	8.25	6.19
VAN-1122-PNK	Camper Van - Fuschia	8.50	6.38
VAN-1123-GRN	Camper Van - Green	8.00	6.00
VAN-1125-VIO	Camper Van - Violet	8.50	6.38

Total number of products: 4

Include if Description\$ contains 'camper' and Price<10

System *Dynamic Filter* variable available to include in your report

# OBJECT-ORIENTED PROGRAMMING

All of the features and options described in this presentation are supported in the Report Writer Object-Oriented interface.

```
! Change the output destination to HTML file
!  
  rpt=new("**rpt/pvxreport");  
  if rpt=0 \  
    then end  
!  
  serial "myrpt.htm ",err=*next  
  open purge (hfn,err=WrapUp)"myrpt.htm";  
  prt=lfo  
!  
  if rpt'open("MyRptDef.pvr")=0 \  
    then goto WrapUp ! open and init the report definition  
  rpt'OutputHTML(prt) ! set the output channel  
  if rpt'ParamCount()>0 \  
    then rpt'AcceptParameters() ! get parameter values from user  
  rpt'RunReport() ! generate the report  
  rpt'close() ! close the report object  
  close (prt)  
!  
  system_help "myrpt.htm"  
!  
WrapUp: \  
  drop object rpt  
end
```