# phiReport

## Table of contents

Introduction ........ 4
Getting Started ........ 4
System requirements ........ 5
Installation / Upgrade ........ 5
Pre-Requisit ........ 5
Installation ........ 5
AccuTerm 7 and 8 ........ 6
phiReport Configuration ........ 14
Report Configuration ........ 15
Preferences ........ 17
Account Setup ........ 18
PRSETUP ........ 19
PHIACCOUNTSETUP ........ 21
User Access Control ........ 21
Activation ........ 24
REST Data Services ........ 25
Email Configuration ........ 26
phiReport Data View Manager ........ 29
Data Views ........ 30
Column Editor ........ 33
Data Types ........ 35
Multi-Value Data ........ 37
Excel Sheet Data Format ........ 39
Sheet Controls ........ 41
Formula ........ 41
Add Comments ........ 45
Clear Data ........ 45
Clear Duplicate Data ........ 46
Repeat Detail/Formula ........ 46
Set as End of Freeze Pane ........ 48
Page Break-On ........ 49
phiReport Builder ........ 51
Report Select ........ 53
Report Criteria ........ 54
PRE and POST Operands ........ 58
Report Display Fields ........ 60
Report Parameters ........ 64
Report Output ........ 66
Report Pre/Post Query Processes ........ 67
Report Security ........ 69
Report Header/Footer ........ 69
Preview Data ........ 70
Advanced Settings ........ 72
Pre-Printed Forms ........ 72
Form Template ........ 75
Value Pair ........ 78
JSON ........ 80

OData ..... 82
Raw Data ..... 88
phiReport Query ..... 89
TCL Report ..... 91
phiReport API ..... 94
ad-hoc Reports ..... 96
User Access Control (UAC) ..... 97
System User ..... 99
Advanced Topics ..... 102
Macro Modules ..... 102
Custom Macro Demo ..... 104
Custom Macro Modules ..... 106
Demo Reports ..... 108
Installation ..... 108
Demo Reports ..... 110
Report Product List ..... 115
Report Customer List ..... 118
Report Invoice List Detail ..... 123
Report Invoice List Summary ..... 131
Report Invoice form ..... 132
Form Template ..... 134
Passing Data to the Form ..... 145
PHIDEMOBP Demo_Invoice_PreQuery ..... 147
Report Form Query ..... 150
Run the Report Form ..... 151
Report Form Options ..... 152
Appendix ..... 155
Custom Criteria ..... 155
phiReport Editions ..... 156
Row Header Text Markup ..... 158
System Replacement Tokens ..... 159

# Introduction

phiReport is a suite of reporting tools based on the Pick/MultiValue DBMS. The application is built using AccuTerm GUI, allowing any Windows user with a current AccuTerm terminal emulator to define and generate attractive Excel worksheets from a graphical user interface. Aside from AccuTerm and Microsoft Excel and Word, no additional software is required on the user workstation. Once defined, reports can be generated from character-based menus or TCL commands and exported to the user workstation. Reports can be saved in an Excel workbook, printed to any Windows printers, saved as a PDF, or e-mailed.

phiReport can also be used to define JSON document formats and OData data feeds which can be used by any 3rd party JSON REST Service and OData data feed consumers such as Google Sheets or Microsoft PowerBI and many others as listed here.
These options require additional components available from 3phi Solutions Inc.

There are 3 Editions of phiReport: Lite, Pro and Cloud.  Click here for Edition details.

Click here for the PDF version of this documentation



# Getting Started

Once installed and your data account enabled, log to that account and enter one of the following commands:

1. PRCONFIG launches the main configuration program.  From here you can set your default values and activate the product.
2. PRSETUP launches the Data View Manager which will be used to create and manage your Data Views.
3. PRRUN launches the phiReport Builder where you will create and test your reports.  This is also where you can set report security if User Access Control is turned on in PRCONFIG.
4. PRQUERY launches the phiQuery program will will allow you to run the reports.

## System requirements

AccuTerm 7 or better
MS Office Excel and Office Word 2003 or better

Options JSON/OData require the phiRest Server



# Installation / Upgrade

Installing phiReport



## Pre-Requisit

phiReport is an AccuTerm GUI application and therefore it requires AccuTerm to be setup for GUI and Object Bridge applications.

**Server Requirements:**

- phiReport supports the following multi-value database servers:
  - D3 7.x or better on Windows and Linux
  - jBase 5.6 or better on Windows and Linux
  - QM 3.4 or better on Windows and Linux
  - UniData 8 or better on Windows and Linux
  - UniVerse 10 or better on Windows and Linux

- AccuTerm 7 or 8 with GUI and Object Bridge enabled.
- On Linux, wget or curl must be installed
- On Windows, wget or curl or PowerShell 5.x or better must be installed
  - wget can be downloaded from http://3phi.cloud/phiReport/obj/UTILS/wget.exe
  - curl can be downloaded from http://3phi.cloud/phiReport/obj/UTILS/curl.exe

**Client Workstation Requirements:**

- AccuTerm 7 or better
- Microsoft Excel and Microsoft Word 2010 or better



## Installation

phiReport is an AccuTerm GUI application and therefore requires AccuTerm to be setup for GUI applications.

Please refer to the correct installation instructions matching the version of your AccuTerm.

Installation Instructions for AccuTerm 7

Installation Instructions for AccuTerm 8



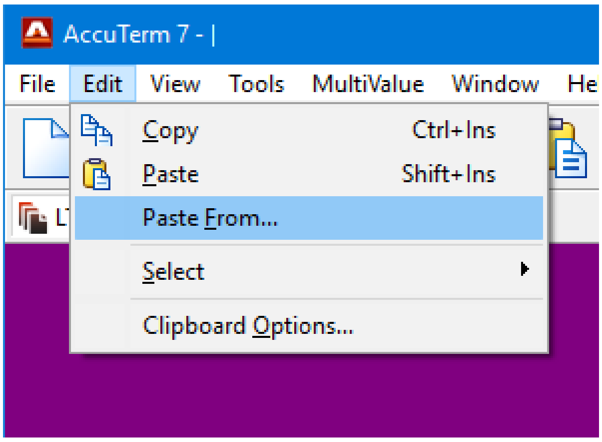
## AccuTerm 7 and 8

phiReport is an AccuTerm GUI application and therefore requires AccuTerm to be setup for GUI applications.

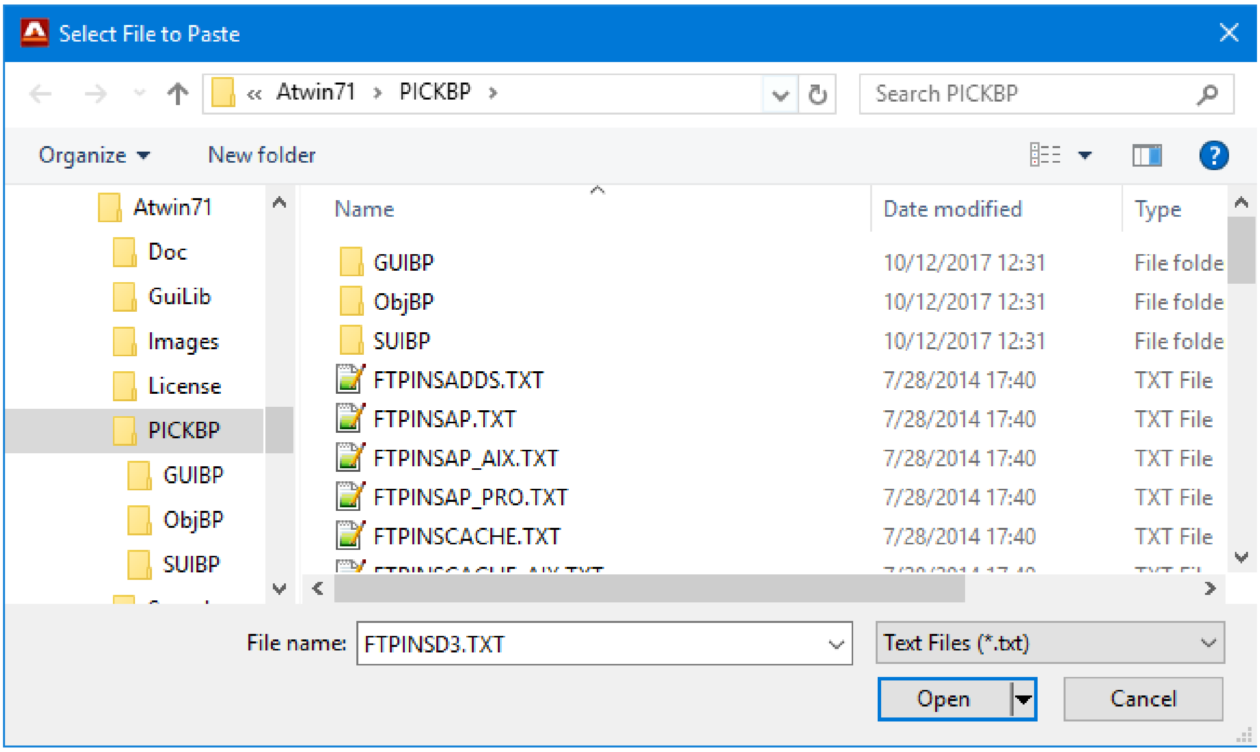
### AccuTerm 7 and 8 Installation

Follow these steps to setup AccuTerm for phiReport.  For more information about setting up AccuTerm, please refer to the AccuTerm documentation.

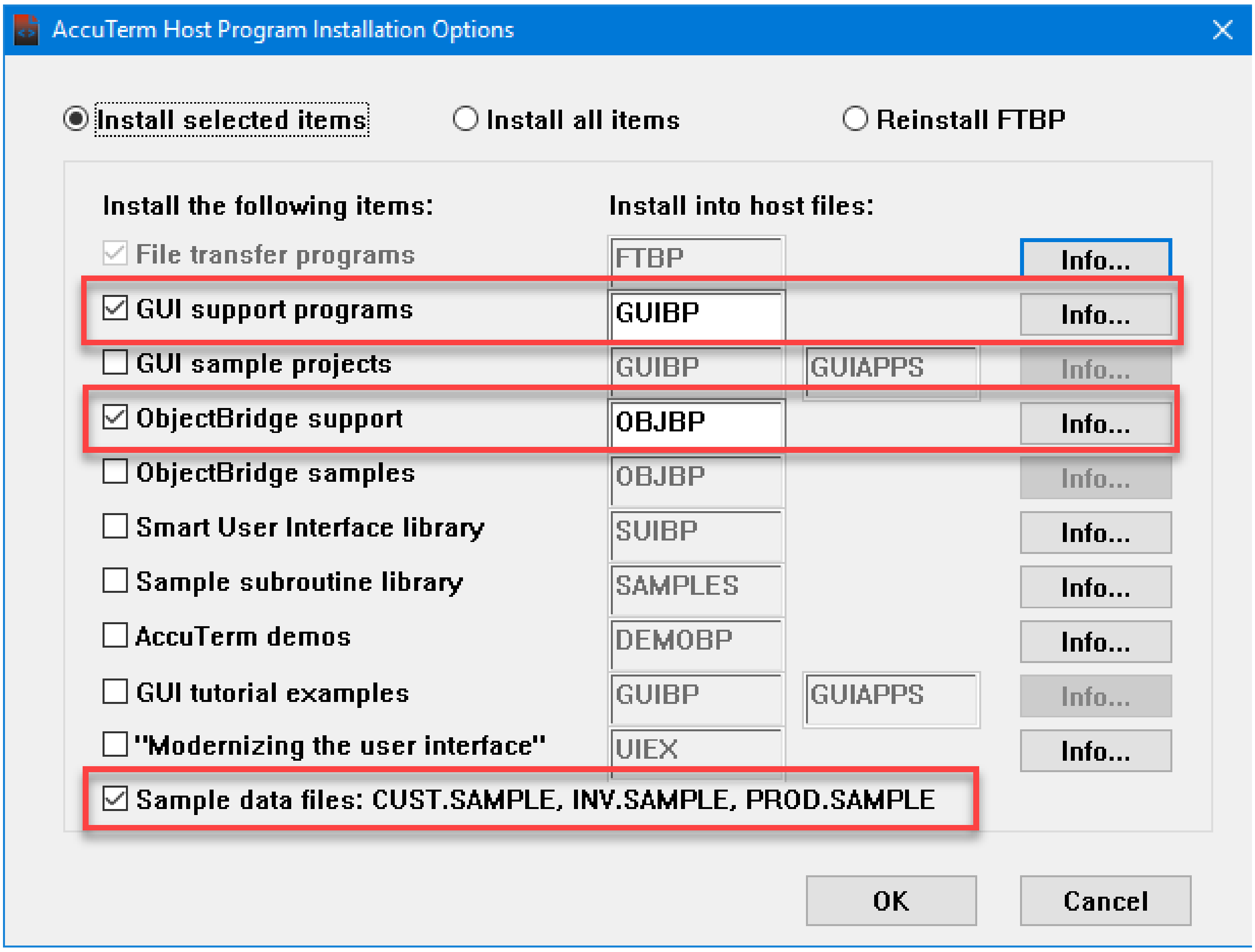
1. Create an account where to load the AccuTerm programs.  The default account name is "ACCUTERM".
2. From the AccuTerm **Edit** menu select "Paste From"



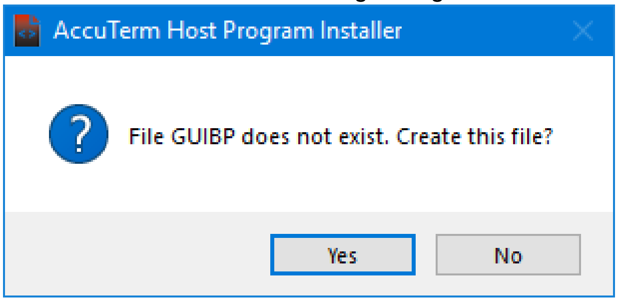

3. Locate the AccuTerm programs for your platform

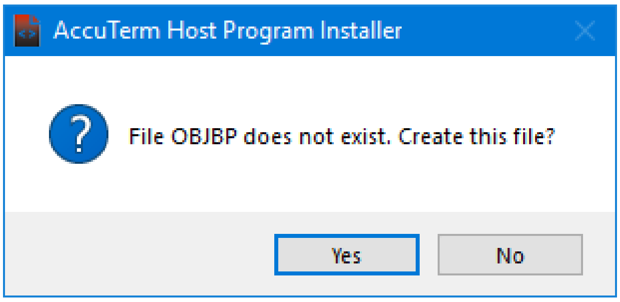


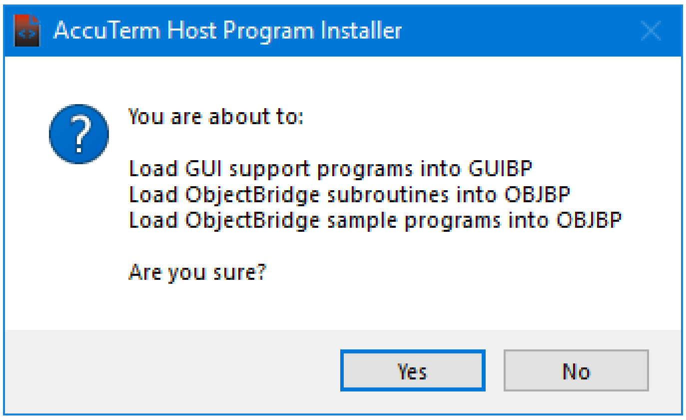

4. At the Options prompt, select "**GUI support programs**" and "**ObjectBridge support**". Select "**Sample data files**" to install the AccuTerm demo files. These files are used by the phiReport demo reports. You can install the sample files at a later stage by running **LOAD-ACCUTERM-PROGS** from the AccuTerm account.



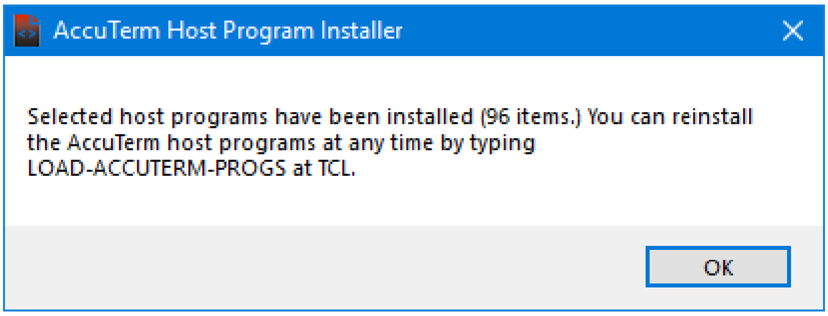
5. Answer Yes to the following dialogs




6. Click Ok when done.




7. From TCL logto your new AccuTerm account
8. Enter **FTSETUP**

```
:ftsetup

AccuTerm Account, File Transfer & Server Configuration

(1) Account Setup
(2) Kermit Configuration
(3) FT File Transfer Configuration
(4) FTD Data Transfer Configuration
(5) Pick-to-Pick File Transfer Configuration
(6) Server Configuration
(7) Miscellaneous Settings

Enter option (1-7) or X to exit: _
```

9. Select option **(1) Account Setup**
10. Enter your phiReport account name

```
This option will create the necessary file pointers
and copy the cataloged program items to the account
you specify.

Enter the name of the account you want to set up: phiReport

Setup of phiReport complete.
Press <Enter> to continue_
```

11. AccuTerm setup is complete, exit the setup menu and logto to your phiReport account.

**Installing and upgrading phiReport**

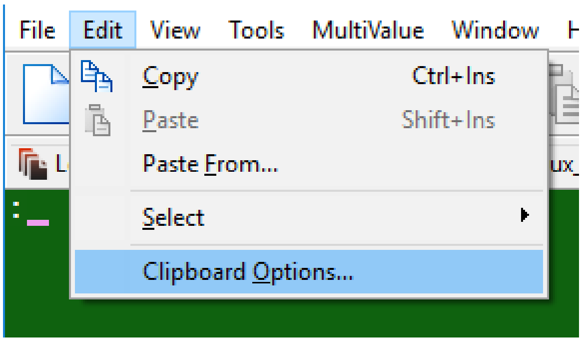
1. Open AccuTerm and connect to your database server
2. Create a new account where phiReport will be installed. For instructions on how to create an account please refer to your database platform manual.

   Note for **D3** : On D3 NT, we recommend you create an FSI account.
   Note for **UV**: On UniVerse, you must create an account in **PICK Flavor**.
   Note for **UD**: On UniData, make sure your new account is running in **ECLTYPE 'P'** and **BASICTYPE 'P'**.

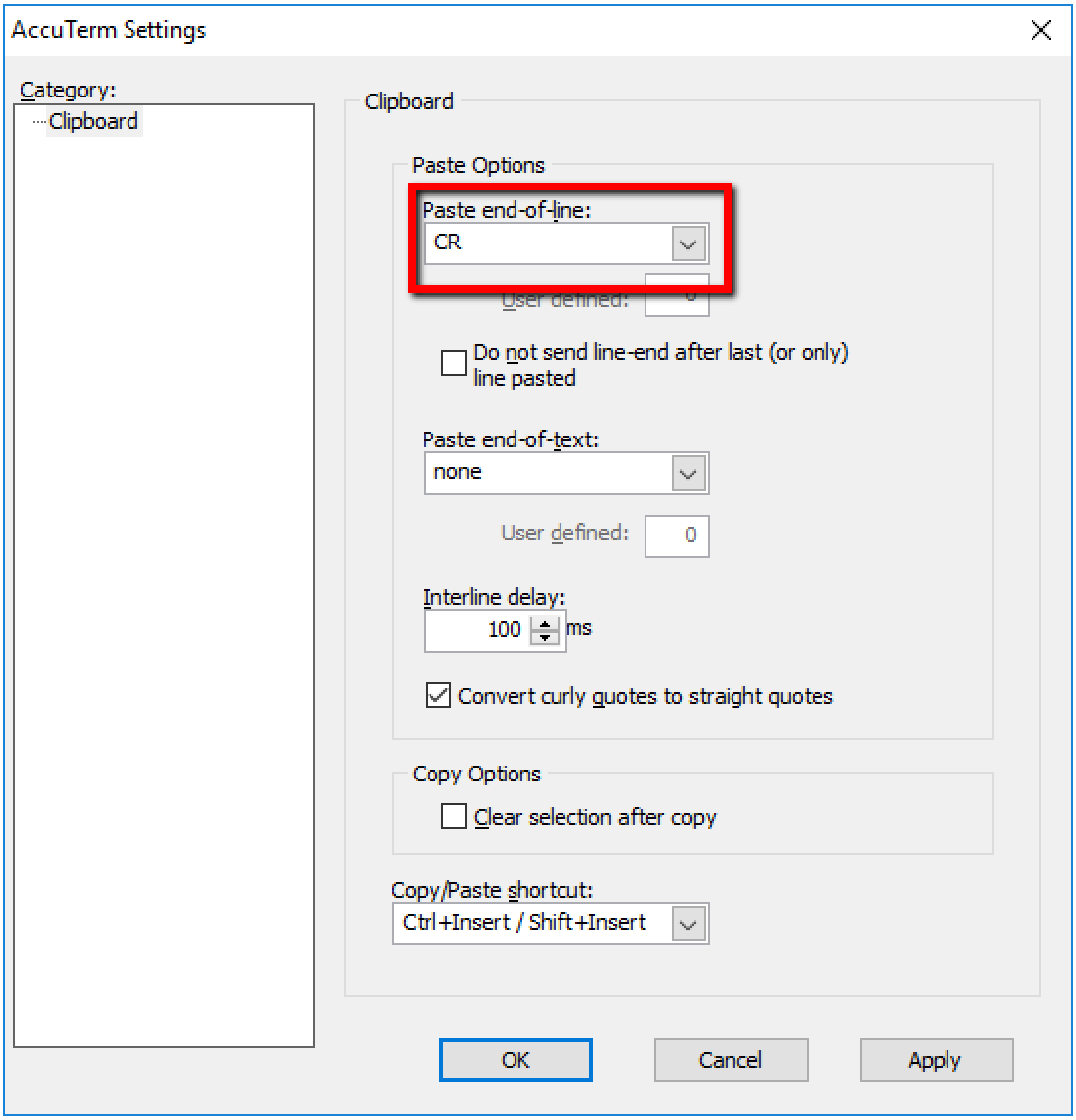
   The name of the account is not important but we recommend it be called **PHIREPORT**. Once phiReport is installed you will be able to run phiReport from your data accounts by enabling them from the PRCONFIG program.

3. Log to the new account
4. Make sure the AccuTerm Paste Options is set to "CR"

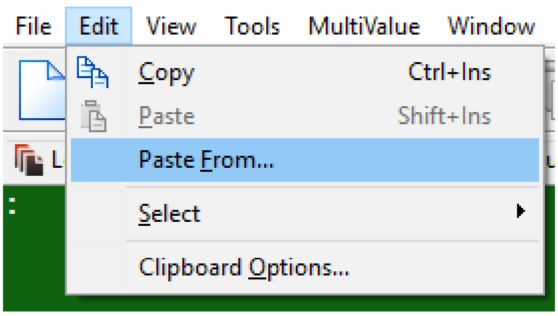
   Open the clipboard Options



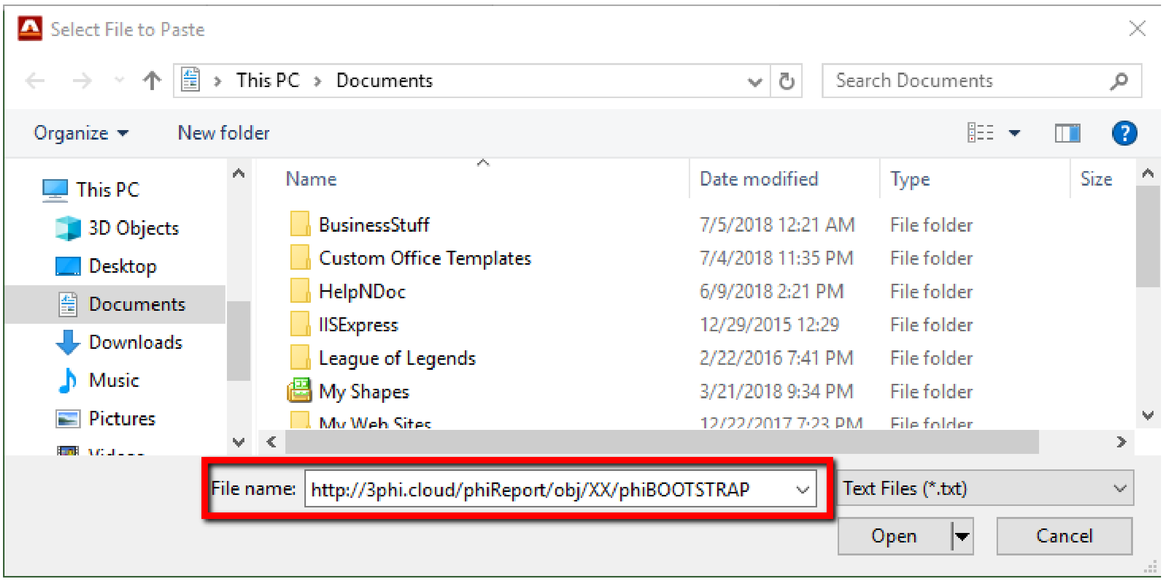

Select "CR"




5. From AccuTerm's Edit menu, select Paste From



6. At the Select File to Paste dialog-box, enter the URL to the installation bootstrap file.




The installation bootstrap file is located at http://3phi.cloud/phiReport/obj/ **XX**/phiBOOTSTRAP (URL is case sensitive)

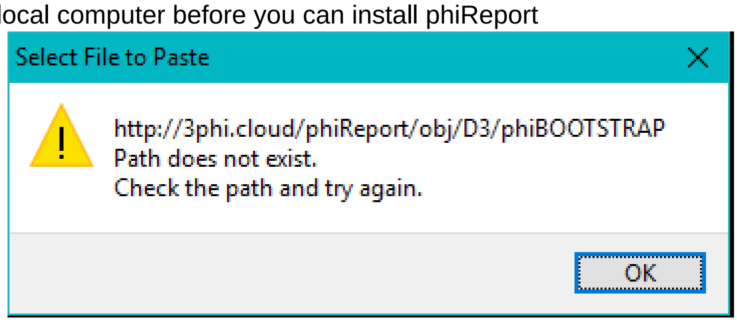
Replace "**XX**" with a supported platform name: D3, QM, UV

- To install on D3, enter http://3phi.cloud/phiReport/obj/**D3**/phiBOOTSTRAP
- To install on jBase, enter http://3phi.cloud/phiReport/obj/**JB**/phiBOOTSTRAP
- To install on QM, enter http://3phi.cloud/phiReport/obj/**QM**/phiBOOTSTRAP
- To install on UniData, enter http://3phi.cloud/phiReport/obj/**UD**/phiBOOTSTRAP
- To install on UniVerse, enter http://3phi.cloud/phiReport/obj/**UV**/phiBOOTSTRAP

Note: The installation URL will always have the latest available release.

7. click "Open" to start the installation

If you receive the error message below you will need to download and save the installation program to your local computer before you can install phiReport




To download the installation program, go to the installation URL from your browser and save the source to a text file. Repeat step 6 above but instead of entering the URL, select the text file you just downloaded then click "Open".

8. Once downloaded, the install program will automatically start. It will attempt to detect the account where AccuTerm is installed.

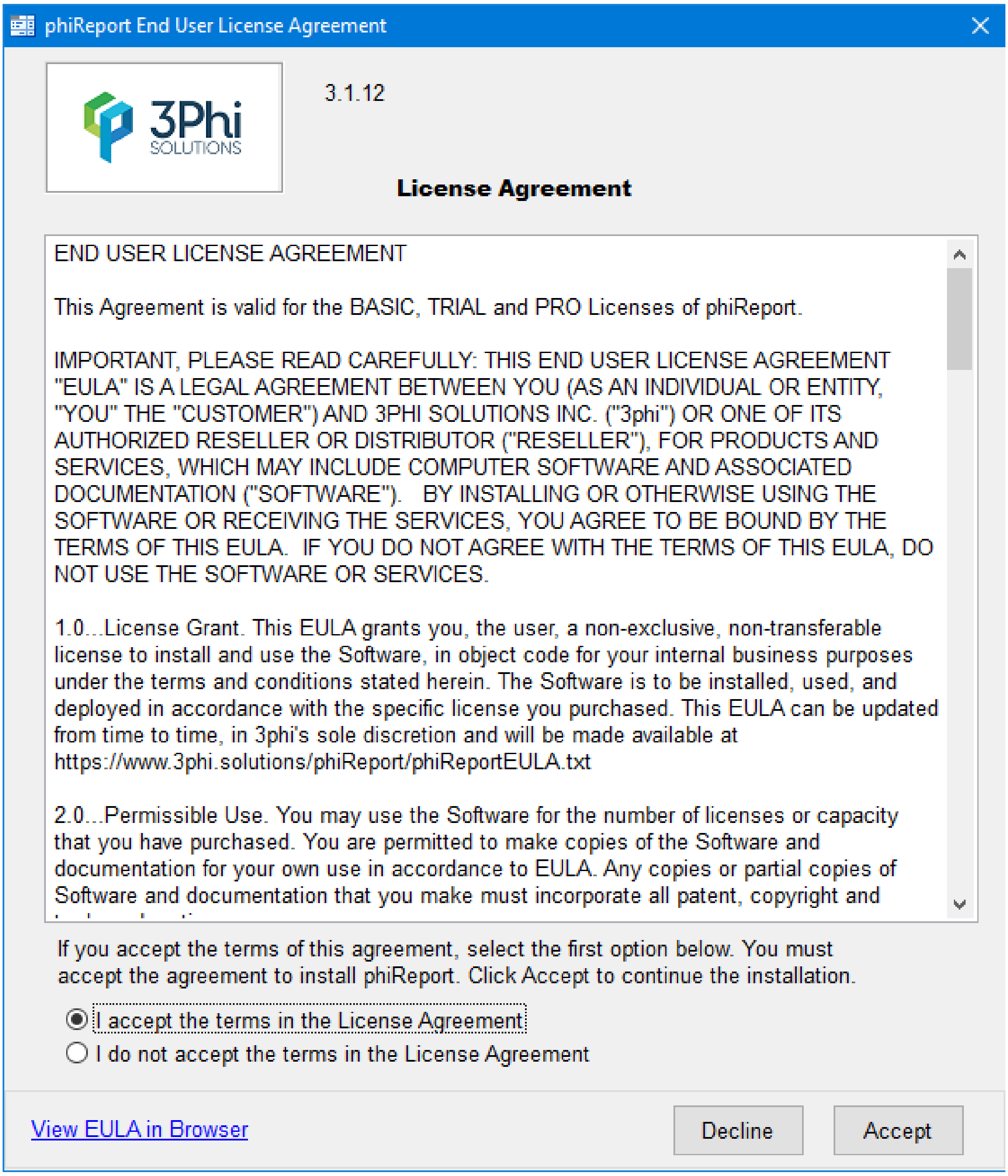
```
phiBOOTSTRAP
...................................
[241] Successful compile!    4 frame(s) used.
Download method : wget
Please enter the account name where AccuTerm is installed.
 (default=ACCUTERM), (Q)uit --> ?_
```

If AccuTerm is not installed in account ACCUTERM, enter the account name here

Press Q to quit the installation.  To resume installation, enter **PHINST** from TCL.

Press Enter to continue the installation

9. Accept the EULA to continue the installation




10. A quick summary of the installation is displayed.

```
phiReport Version. : 3.0.41
Database Type..... : D3
AccuTerm Account.. : ACCUTERM
Logged in Account. : PHIREPORT

Please make sure you are logged in the account to want to install phiReport to.

Press (C) to Continue (Q) to Quit :?
```

When upgrading or reinstalling phiReport the installer will look for the most recent release and when available will offer to reinstall the old version or install the new version.

Note: If your current version is very old it may no longer be available for re-installation.

```
Current Version.. : 3.1.1
Available Version : 3.1.2
Select the follwing options:
 (1) Install new version
 (2) Re-Install old version
 (C)ancel
?
```

If the account you are installing phiReport to is not called "PHIREPORT" a warning is displayed.

```
 (*** it is recommanded to install the product in account PHIREPORT ***)
```

It is not required to install phiReport in account PHITREPORT. The warning message is just a confirmation notice.

Press C to Continue the installation

11. Installation is completed.

The installer creates all necessary files, downloads the programs and catalogs them. If the AccuTerm sample files are installed the phiReport demo reports will also be installed. Once the installation is complete the installer will attempt to activate your system. If you are upgrading from a previous PRO version you will automatically get a PRO activation. Click here for more information on activating your product.

If you would like to install the phiReport demo reports at later time you can do so by entering RPTDEMOSETUP from your PHIREPORT account. Click here for more detail on the demo reports.

To run the demo enter XL.DEMO from TCL in your PHIREPORT account.

```
Downloading PHIDEMOBP .....
Demo reports setup completed.
-------------------------------------------------
 **** Installation Completed *****
-------------------------------------------------
.

phiReport version          : 3.1.4 Pro
Database System            :
Account name               :
Unique ID                  :
Serial Number              :
Licensed Database Users    :

Activation Status          : Permanent
Create Excel Workbooks     : Enabled
Json Rest Services         : Enabled
OData Data Feed            : Enabled

To start using phiReport from your data accounts you must enable them from the
config program. Once your accounts are enabled you will be able to launch the
phiReport programs directly from them.

Would you like to enable your data accounts now (Y/N) ?_
```

In order to use phiReport in your own accounts, you need to enable them by setting them up for phiReport programs. This process creates program pointers in your account. Click here for instructions on how to enable your accounts.

12. Press Y to launch PRCONFIG to enable your accounts and configure phiReport.
    To launch the PRCONFIG program enter PRCONFIG at TCL.

At the end of the installation the following is displayed:

```
Log to the phiReport enabled account and enter one of the following commands.

phiReport programs:

 PHIMENU.. : phiReport Menu
 PRVERSION : Display phiReport Version
 PRCONFIG. : Configure phiReport
 PRSETUP.. : Data View Maintenance
 PRRUN.... : Report Builder
 PRQUERY.. : phiReport Query

Online documention : http://3phi.solutions/phiReport/help/
```

Upgrading phiReport

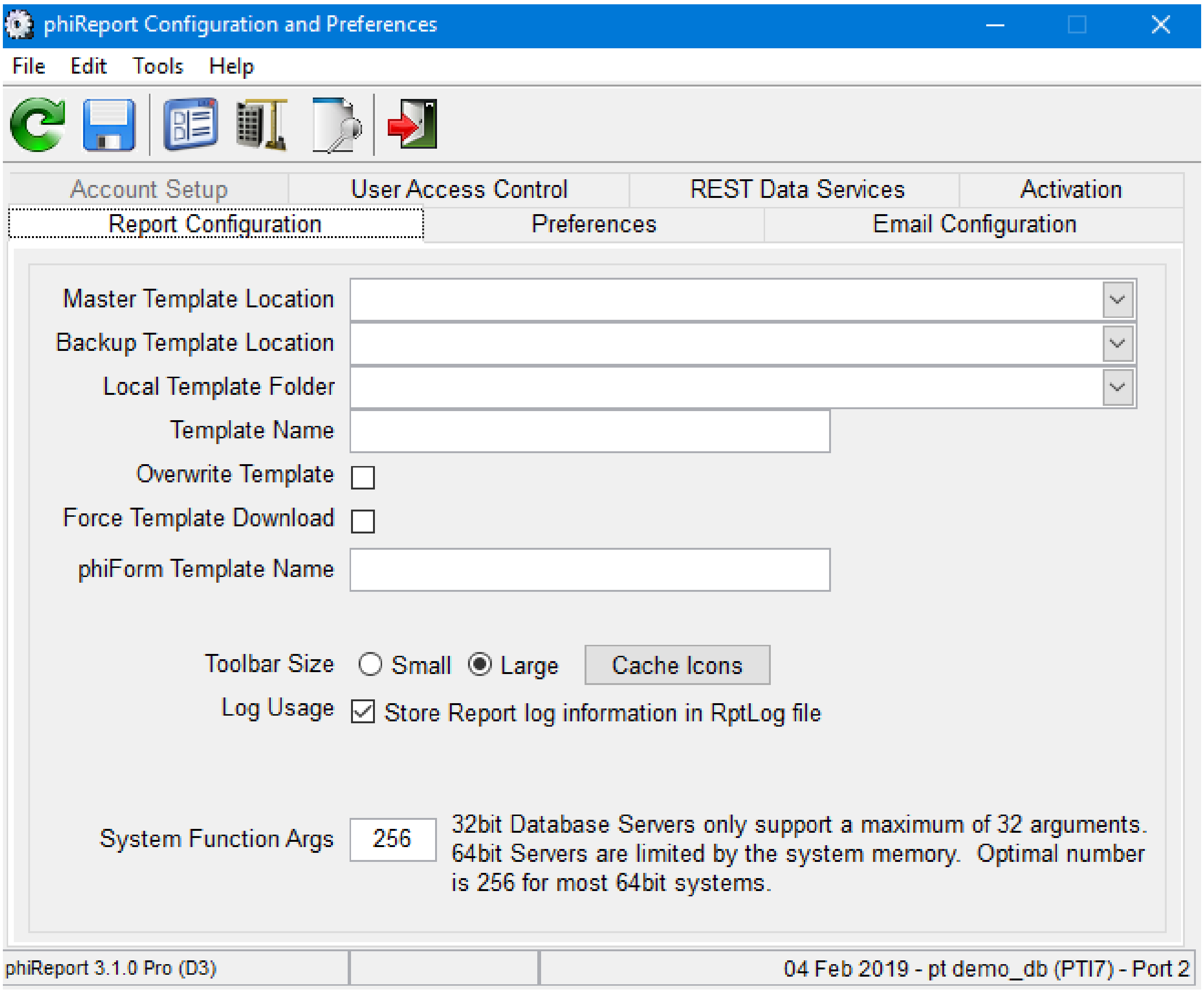
To upgrade an existing installation of phiReport, repeat from step 5 above.



# phiReport Configuration

The Configuration program is run in the phiREPORT account. It is used to set system-wide parameters and to setup application accounts for use with this software. Each tab on the PRCONFIG screen is described here.

# Report Configuration




### *Master Template Location*

This is a file path or URL to the Excel template. When creating an excel report, phiReport will check the local workstation for the latest version of the template. If the local workstation does not have the latest version of the template it will download it from the provided path/URL.

### *Backup Template Location*

Sets the secondary path/URL of the template. If phiReport is unable to download the Excel template from the Master Template Location, it will attempt to download it from this Backup Template Location.

### *Local Template Folder*

Folder for local templates. Can be an environment variable like $TEMP or $HOME
$TEMP is the user's temp folder.
$HOME is the user's home folder

### *Template Name*

The name of the Excel template used to create the resulting Excel workbook.

### *Overwrite Template*

When checked the local workstation template is overwritten regardless of its version.

### *Force Template Download*

When checked download the template for every report.

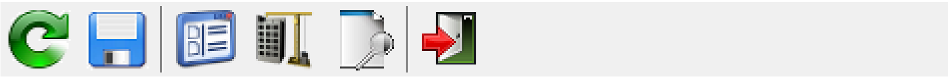
### *phiForm Template Name*

phiForm is a feature of phiReport that allows you to created pre-printed type reports instead of tabular type reports. A pre-printed report is a report that comprises a complex header, a complex footer, a tabular or complex body and complex paging mechanism. Think of pre-printed reports as invoices, quotes, purchase orders,... where the header defines a "from" and a "to" box (ship from, bill to,...), an invoice or purchase order number and any non-repeated data printed on top of each page. The complex footer could include a page total, grand total, tax amounts,... The body of the report could be the invoice's line items.

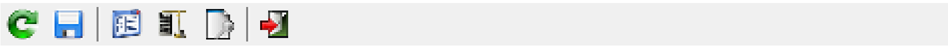
### *Toolbar Size*

Sets the toolbar icon size.

Large:



Small:



### *Cache Icons*

By default icons are stored on the internet and downloaded everytime they are required by the application. Click on this button to download the application icons to the local workstation.

### *Log Usage*

When checked a report log is maintained with execution with date, time, user, report run, parameters, tcl statement, options… The log is stored in file RptLog in the data account.

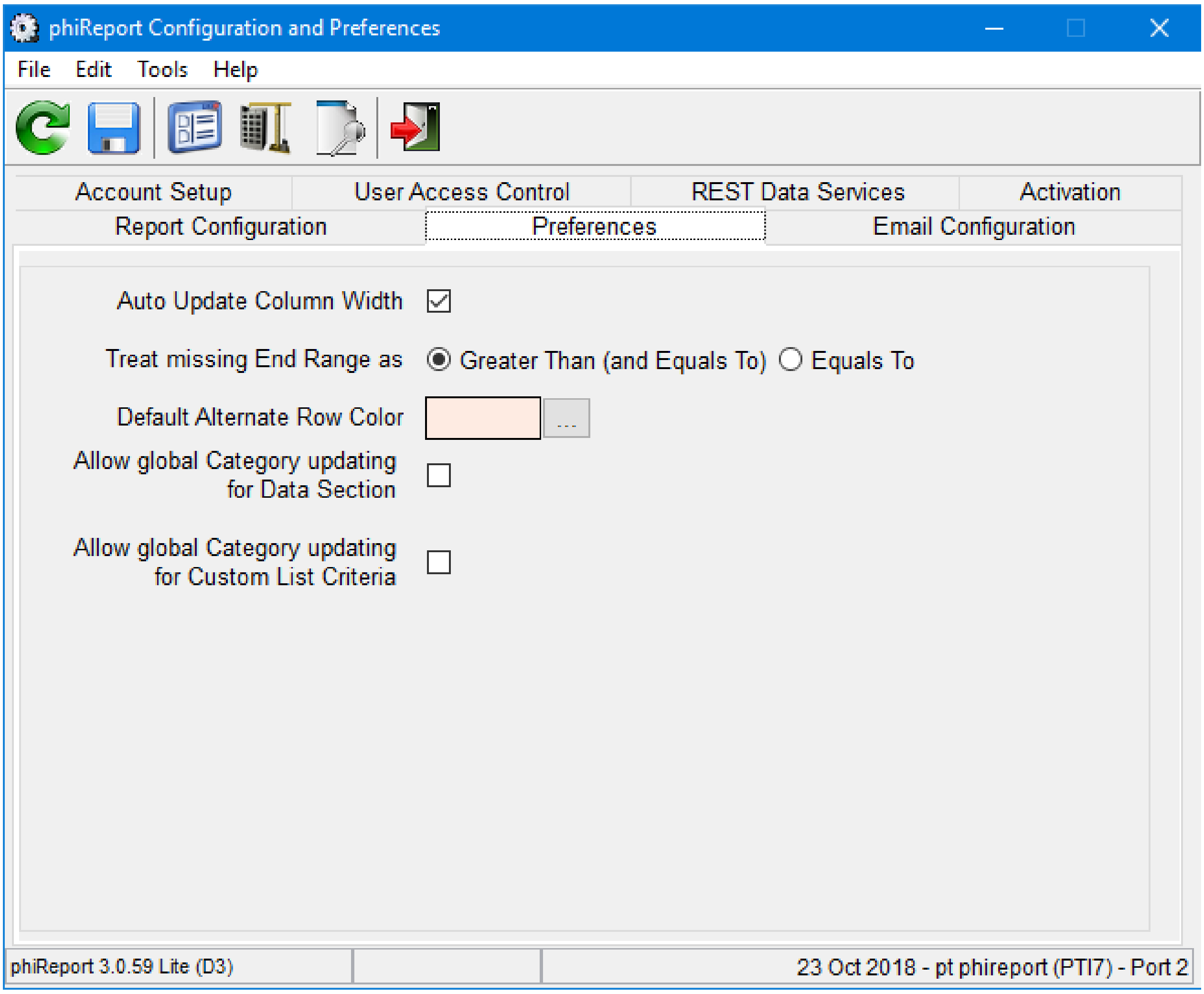
RptLog file format:

| Attribute | Description |
|---|---|
| 0 | ItemID: Unique Id in Pick internal DATE and TIME format. |
| 1 | Date in Pick internal format |
| 2 | Time in Pick internal format |
| 3 | Username |
| 4 | Account |
| 5 | Report Name |
| 6 | Query/TCL statement run |
| 7 | Report Header |
| 8 | Report Footer |
| 9 | Report options (multiValue/subValue list of option flags) |
| 10 | Workstation name |
| 11 | Report result |

**** Warning *** : Note that there is no automatic cleanup on this file which means that it could get very large. If this feature is turned on we recommand you create your own housekeeping process to maintain the size of this file.*

# Preferences

The Preferences tab allows you to set default phiReport settings




### *Auto Update Column Width*

When checked, resizing the data columns from the preview grid on the phiReport application automatically updates the column width definition of the active Data View.

### *Treat missing End Range*

When using the "is Between (Inclusive)" or "is Between (Exclusive)" operators and the End Range value is not provided, phiReport will either use "is Greater Than" / "is Greater or Equals" or "Equals To" operator.

### *Default Alternate Color*

Sets the color of alternating rows in phiReport preview, Excel, and final printing. Can be overridden at the report level.

### *Allow global Category updating for Data Section*

When checked, phiReport will prompt the user to apply Data Section changes to all reports within the Active category.

### *Allow global Category updating for Custom List Criteria*

When checked, phiReport will prompt the user to apply Custom List Criteria changes to all reports within the Active category.  If the Custom List Criteria is not defined it will be appened to the end of the report's criteria.

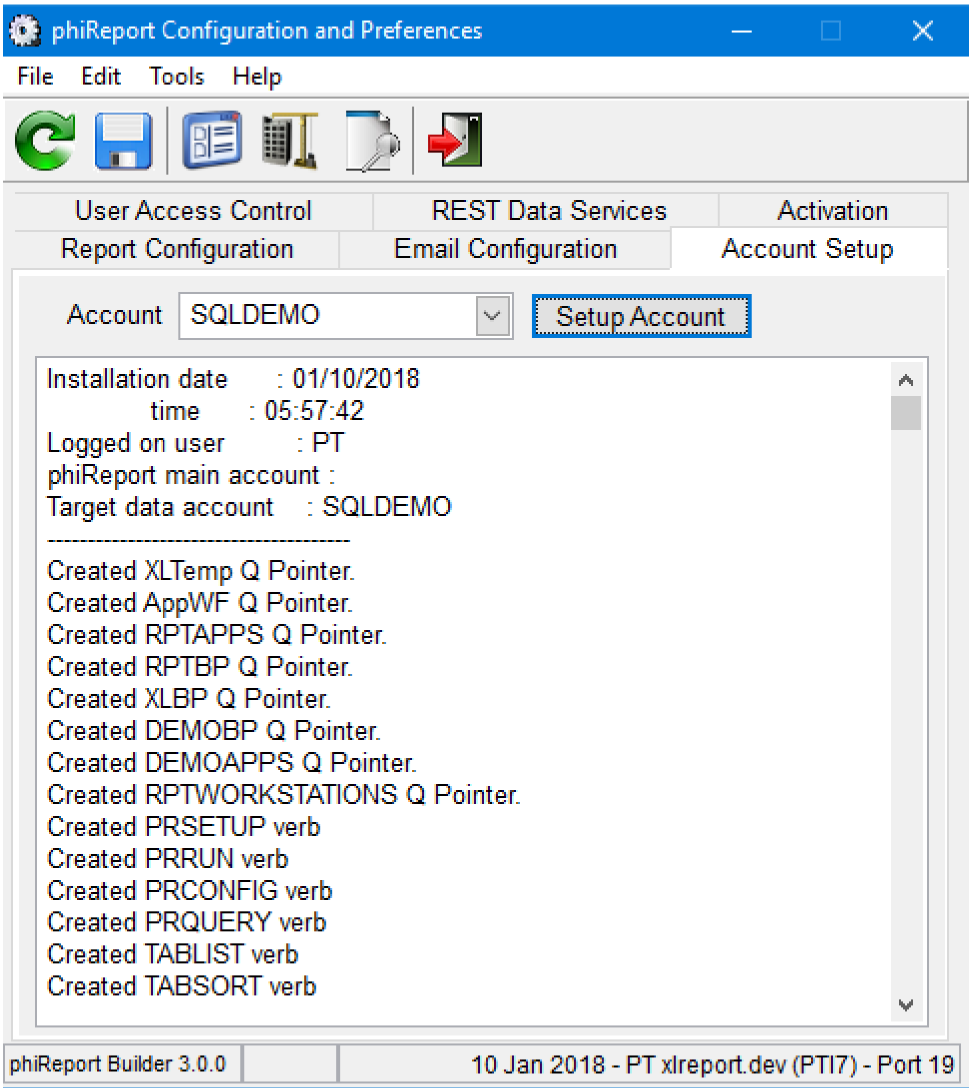


# Account Setup

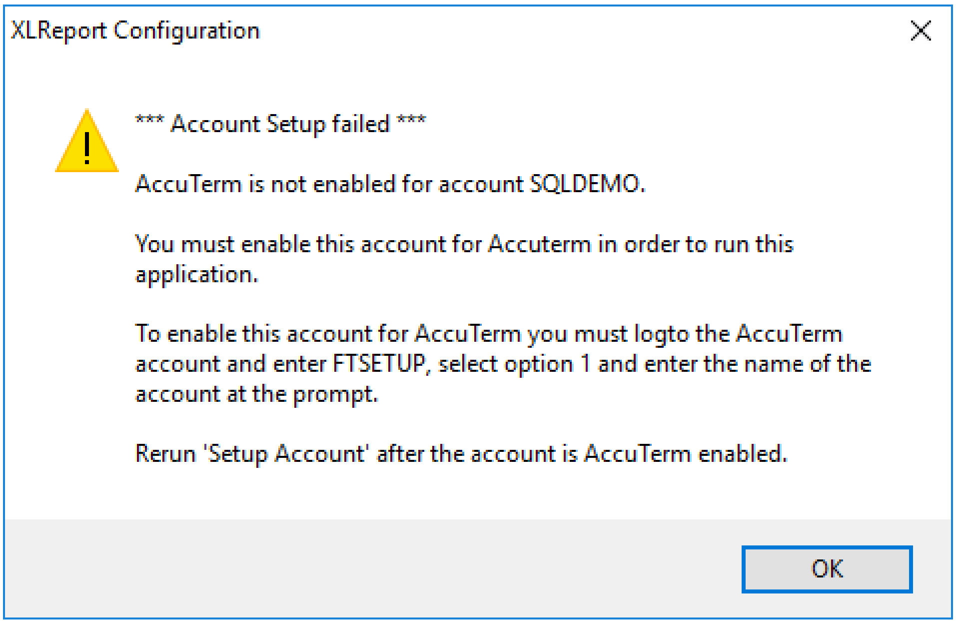
This option is only available when **PRCONFIG** is run from the **phiReport** account. It copies a set of q-pointers, create local files and BASIC program catalog items to the MD/VOC of application accounts.

You can also run **PHIACCOUNSETUP** from TCL to enable accounts directly from TCL.  Unlike **PRCONFIG**, **PHIACCOUNSETUP** is be run directly from your AccuTerm enabled application/data accounts.

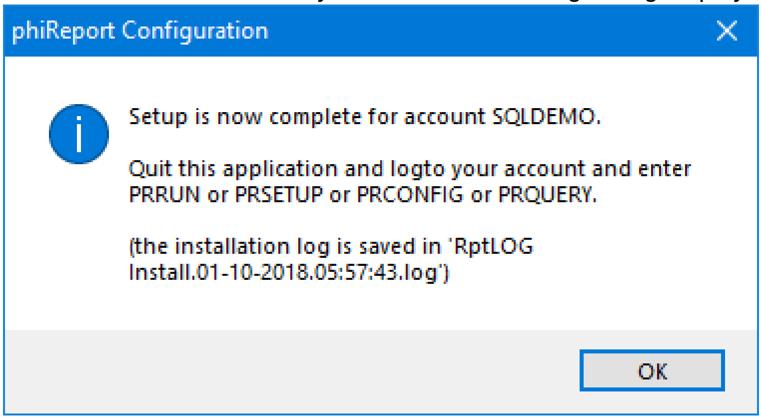
Accounts must be AccuTerm enabled before you can enable them for phiReport.  Log to the AccuTerm account, enter FTSETUP, and choose option (1) Account Setup.
On the Account Setup tab, select an application account from the dropdown list which has been built from the DBMS, and click “Setup Account”. System security must allow this operation whenever it is used.




Before you can enable your account for phiReport, it needs to be AccuTerm enabled.




If the account is successfully enabled the following dialog displays:



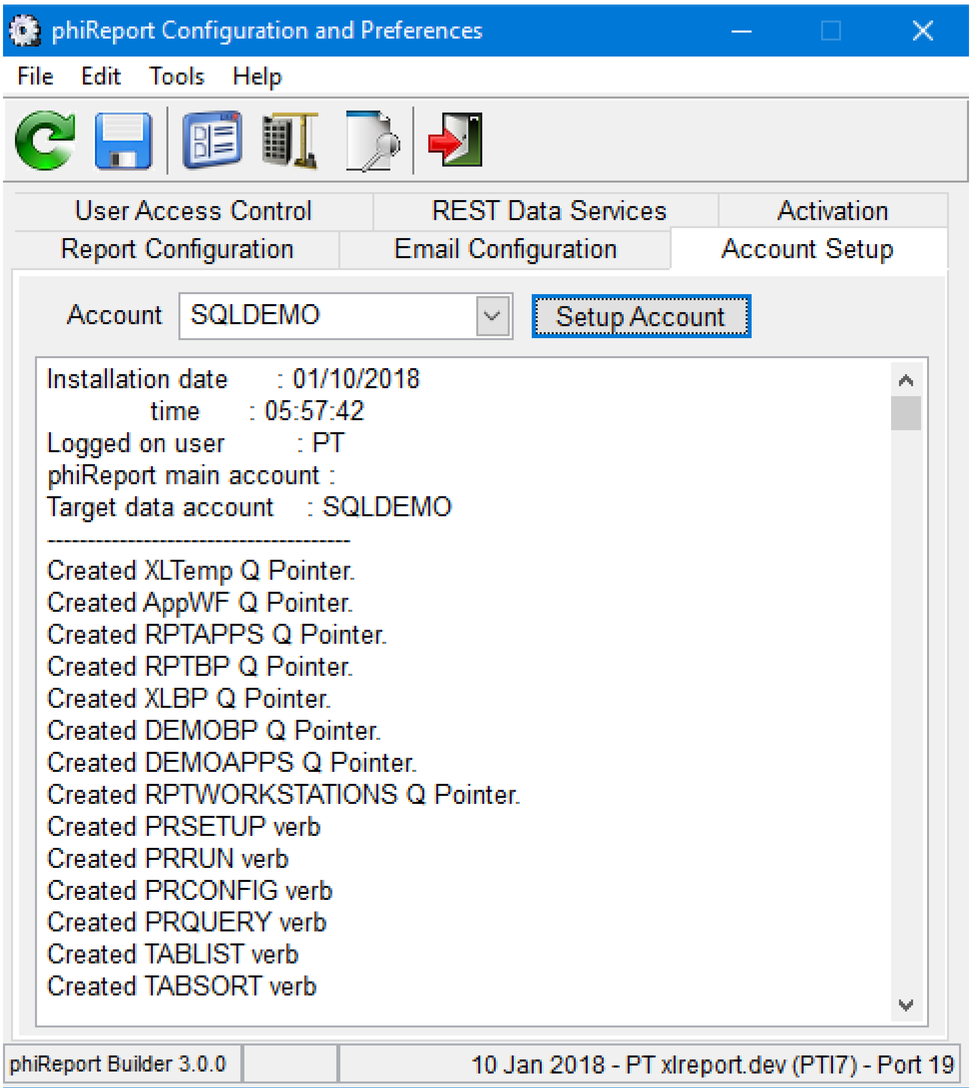

To review the installation log edit file RptLog in your account.



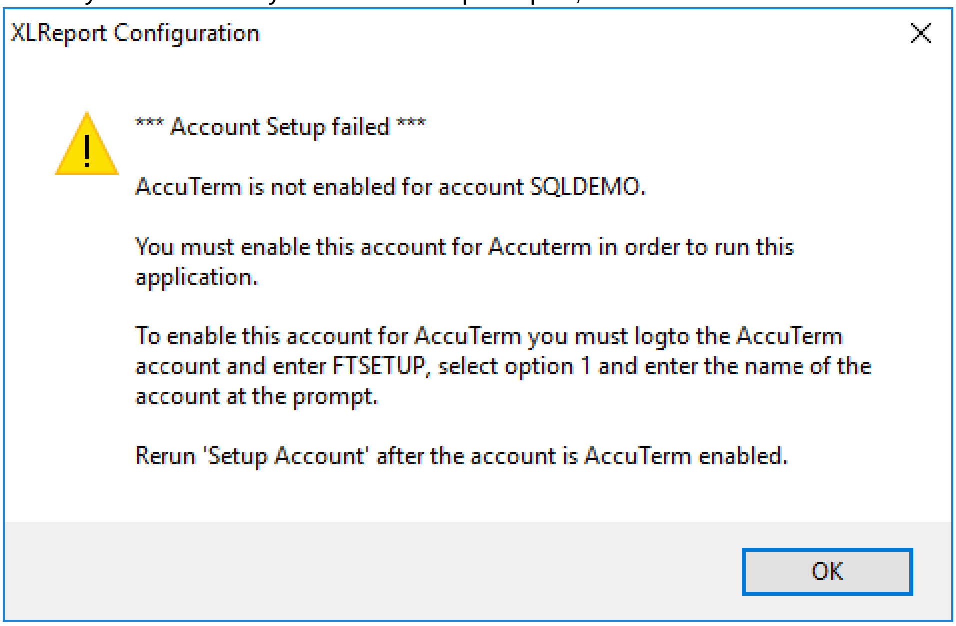
## PRSETUP

This option is only available when **PRCONFIG** is run from the **phiReport** account. It copies a set of q-pointers, create local files and BASIC program catalog items to the MD/VOC of application accounts.

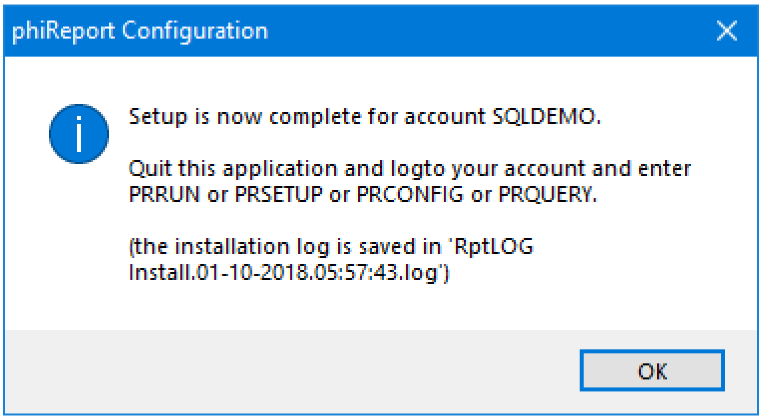
Accounts must be AccuTerm enabled before you can enable them for phiReport.  Log to the AccuTerm account, enter FTSETUP, and choose option (1) Account Setup.
On the Account Setup tab, select an application account from the dropdown list which has been built from the DBMS, and click “Setup Account”. System security must allow this operation whenever it is used.




Before you can enable your account for phiReport, it needs to be AccuTerm enabled.




If the account is successfully enabled the following dialog displays:



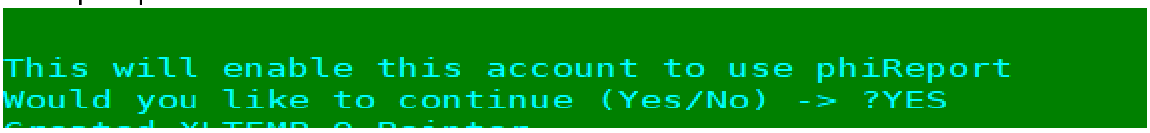

To review the installation log edit file RptLog in your account.



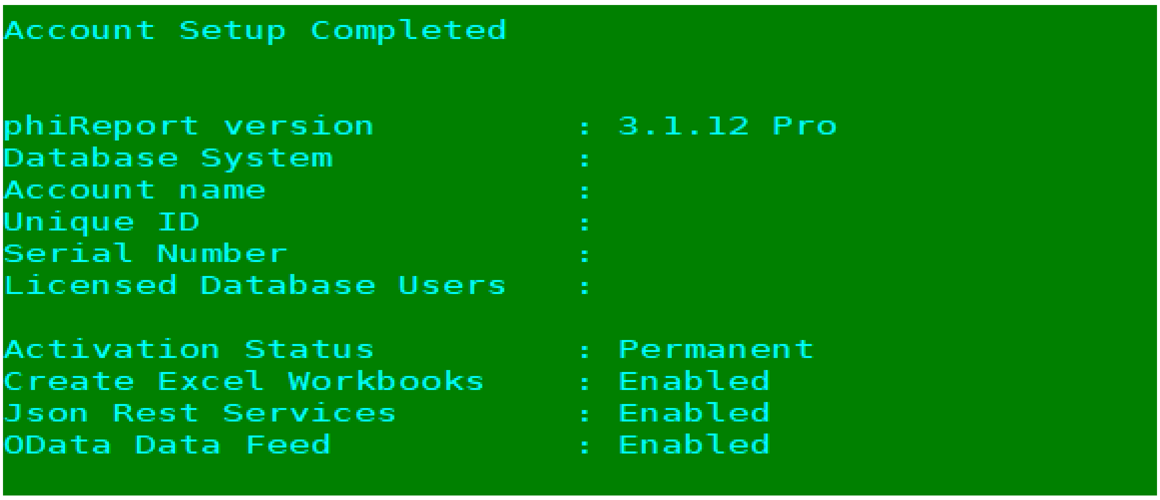
## PHIACCOUNTSETUP

You can also run **PHIACCOUNSETUP** from TCL to enable accounts directly from TCL.  Unlike **PRCONFIG**, **PHIACCOUNSETUP** is be run directly from your AccuTerm enabled application/data accounts.

At the prompt enter "YES"




Once completed a similar screen is displayed:




*Note: Your account must be AccuTerm enabled In order to run this command.*

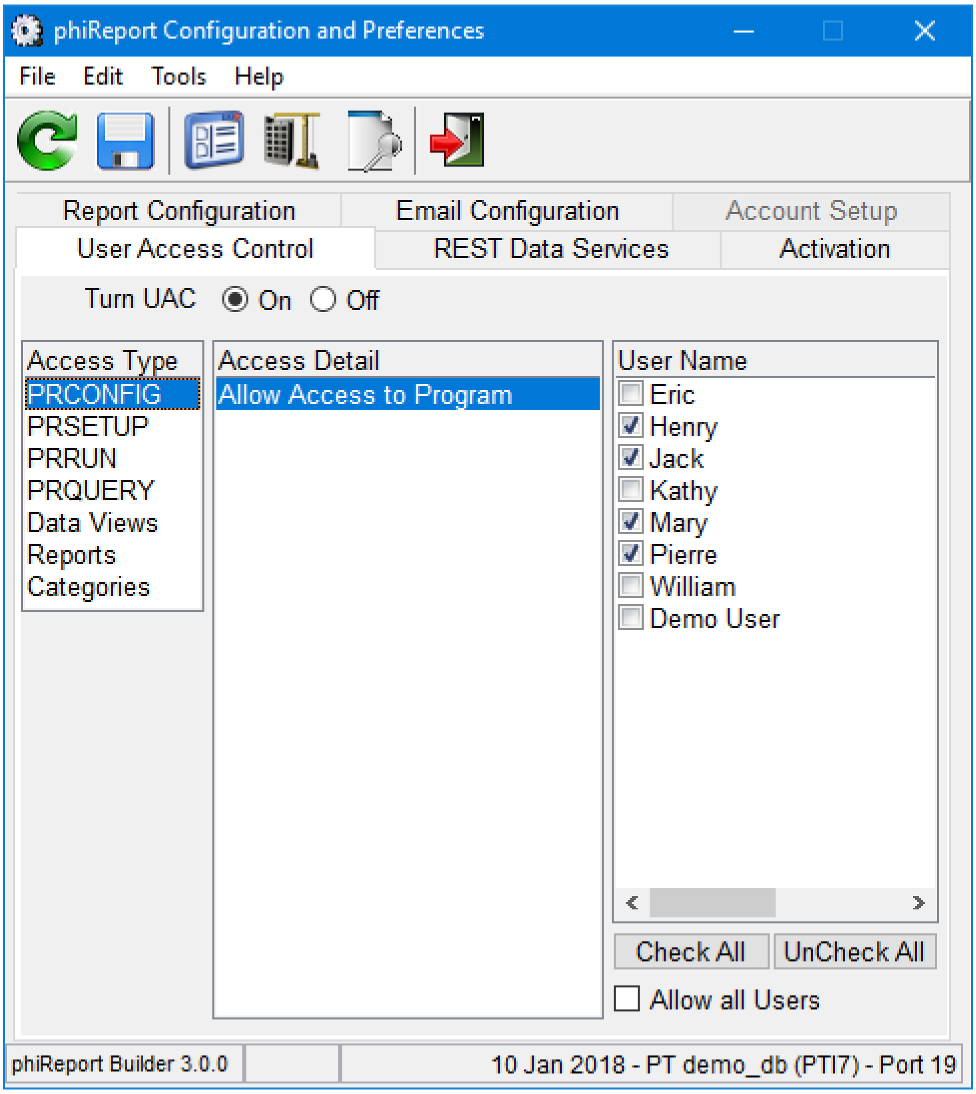


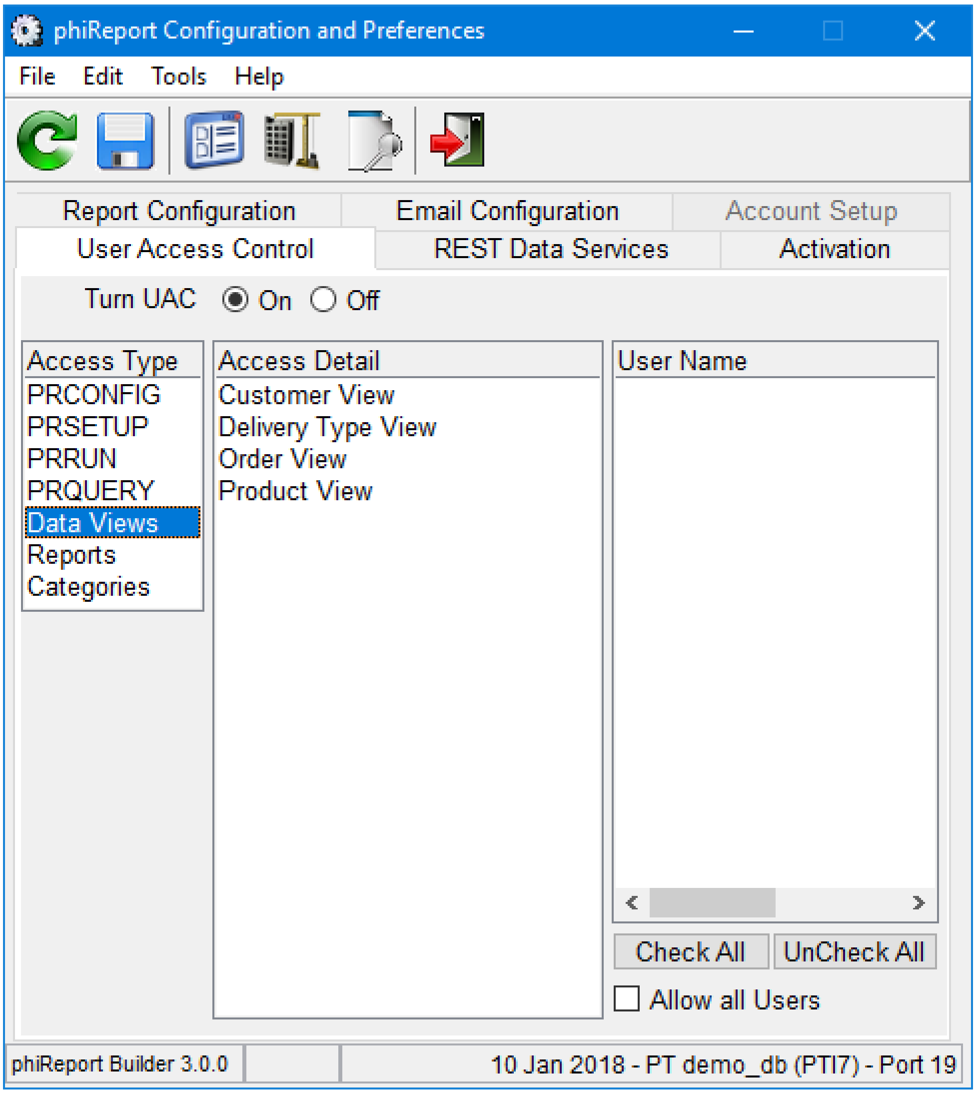
## User Access Control

This tab is used to configure individual user access to reports and features.

For access to phiReport functions, the settings are system-wide, and PRSETUP can be run from any

account for these access types.
In user accounts, the Access Detail section only lists local Data Views, Reports, and Categories. So depending on how files are shared between accounts, this PRSETUP may need to be run in individual accounts in order to secure access to these specific access types.






### *Turn UAC On/Off*

This allows phiREPORT security to be toggled for all accounts. When Off, all users can use all functions and see all reports and data.

### *Access Type*

There are two basic Access Types, one for phiReport itself and one for data and reports. Select a specific Access Type to change user access to each type.

### *Access Detail*

For phiReport programs, this shows "Allow Access to Program" as the only option. With this selected, select User Names that will have access to the selected program. For Data Views, Reports, and Categories, the Access Detail shows a list of the created access types. For example, to give access to all reports in category Accounting, select the Access Type Categories, Access Detail is the Accounting category, and then select the Users that have access to those reports.

### *User Name*

When UAC is On, checked users have access to the specific Access Type/Detail options selected. Unchecked users are not able to execute the phiReport programs, to access reports that are in specific categories, or to make use of specific data views.

### *Check All / Uncheck All*

These buttons provide a quick on/off for all items. Individuals can then be toggled.

### *Allow all Users*

This check is equivalent to clicking Check All. This might be preferable as a fast way to recognize that all users have access to a function. When this is checked, individual user selection is disabled.

*TIP: User Access Control can be accessed directly from TCL using the PRUAC verb.*

*See "User Access Control" Topic for more detail.*



## Activation

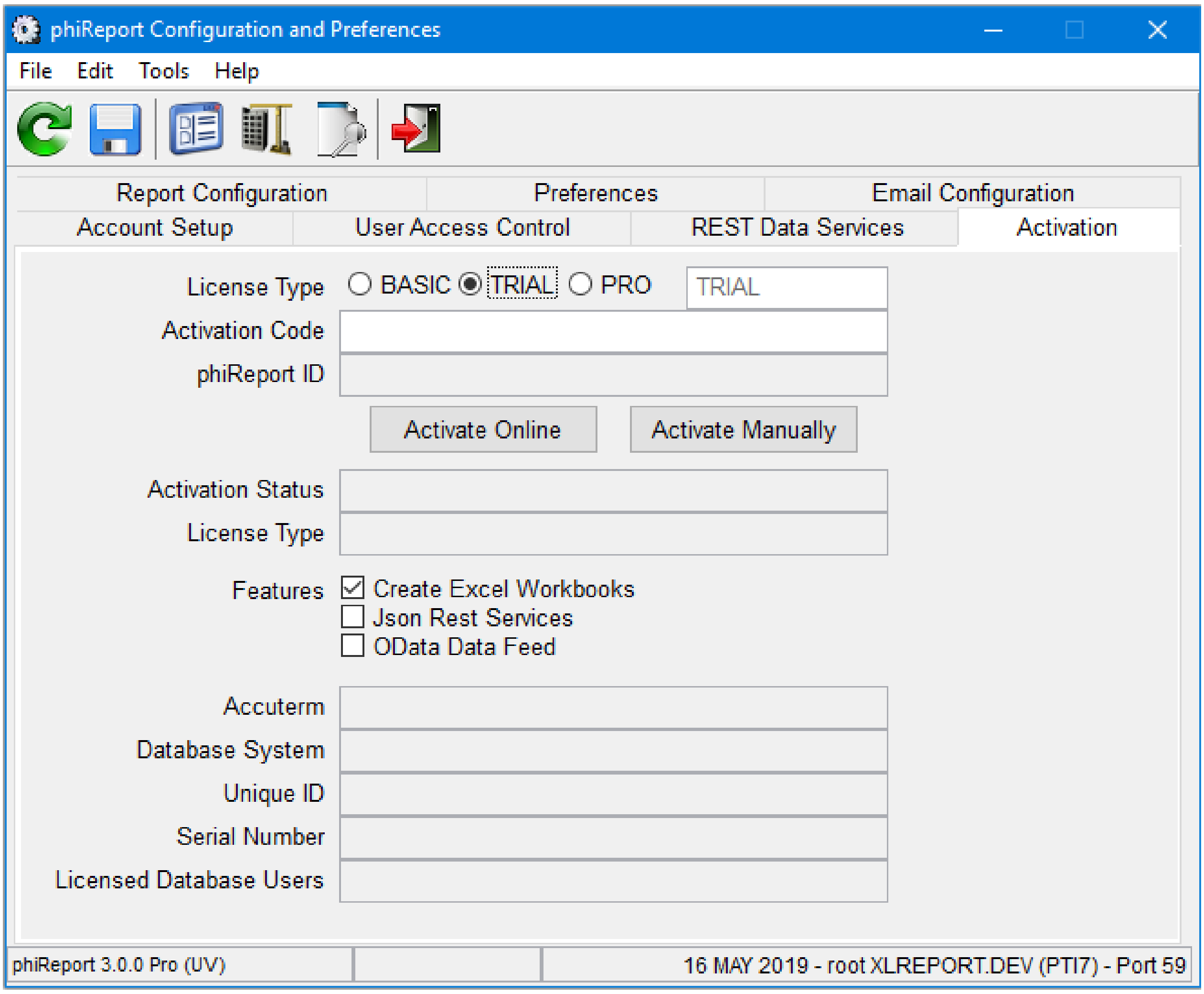
phiReport must be acticated in order to generate Excel sheets and JSON/OData documents.

Each system will generate a unique phiReportID required to activate your license of phiReport. Before activating, you must either be granted a temporary license or purchase a permanent license. Your system information will be stored on our activation server to which you can connect to activate your copy of the product.

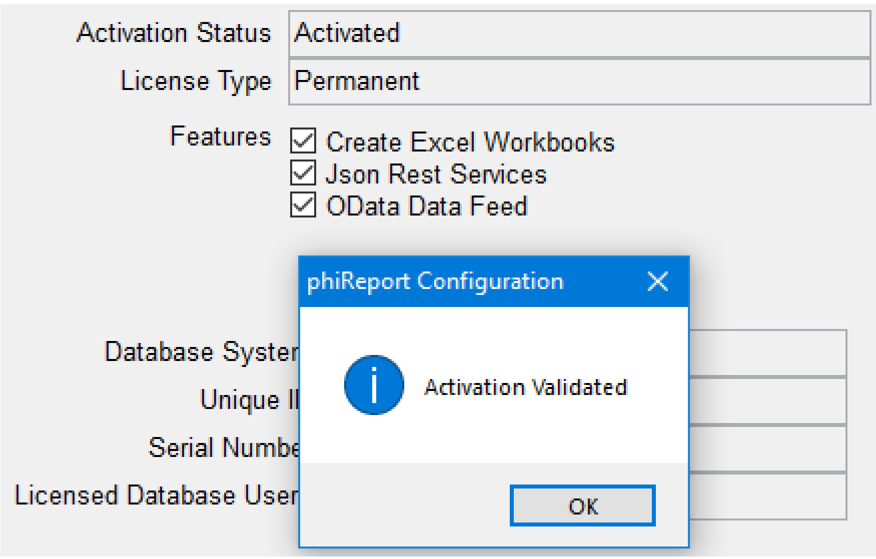
An internet connection is required to activate online. Click on the "Activate Online" button. This should not take more than a few seconds.
If no internet connection is available you can request an activation code from our customer support or from our activation web page.

To request a free 30 day temporary activation code, enter the word "TRIAL" in the license number field.

If you have purchased a Pro or Cloud license, enter the license number in the license number field.



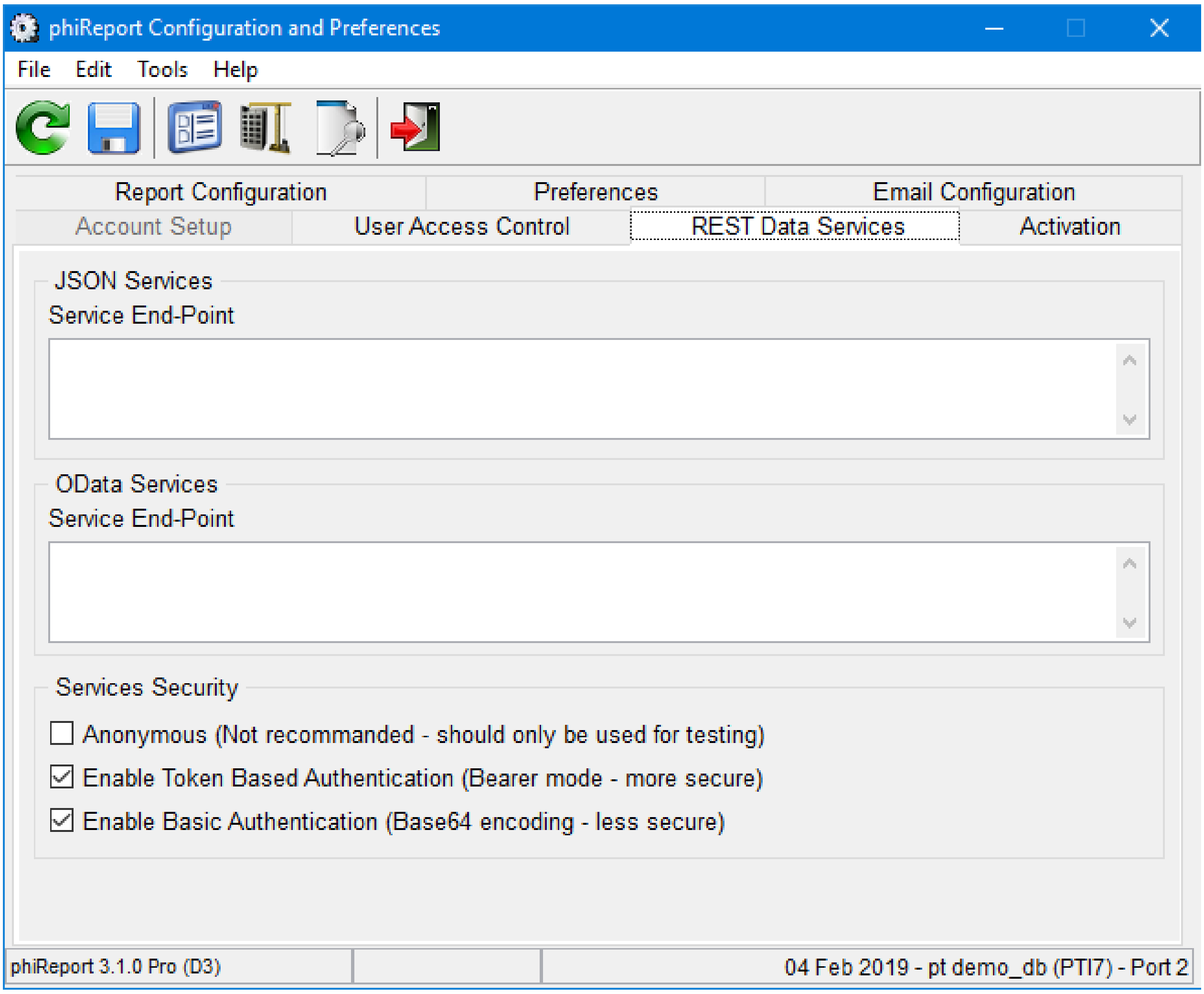

A successful activation will display the type of activation and the enabled features.  The version number and activation type is also displayed in the bottom left of every form.






## REST Data Services

phiReport can be used to create JSON and OData documents.  These are optional features that require access to our phiREST RESTful service server.  This phiREST server can be installed on your local IIS web server or you can use our cloud enabled phiREST server.  The later option requires minimal installation and maintenance on your part.




In the "Services End-Point" enter the URL where your JSON/OData service provider is installed.

Is the Service Security frame, select the security
Check "Enable Service Authentication" to secure access to the services.  When unchecked, all services will run annonymously.

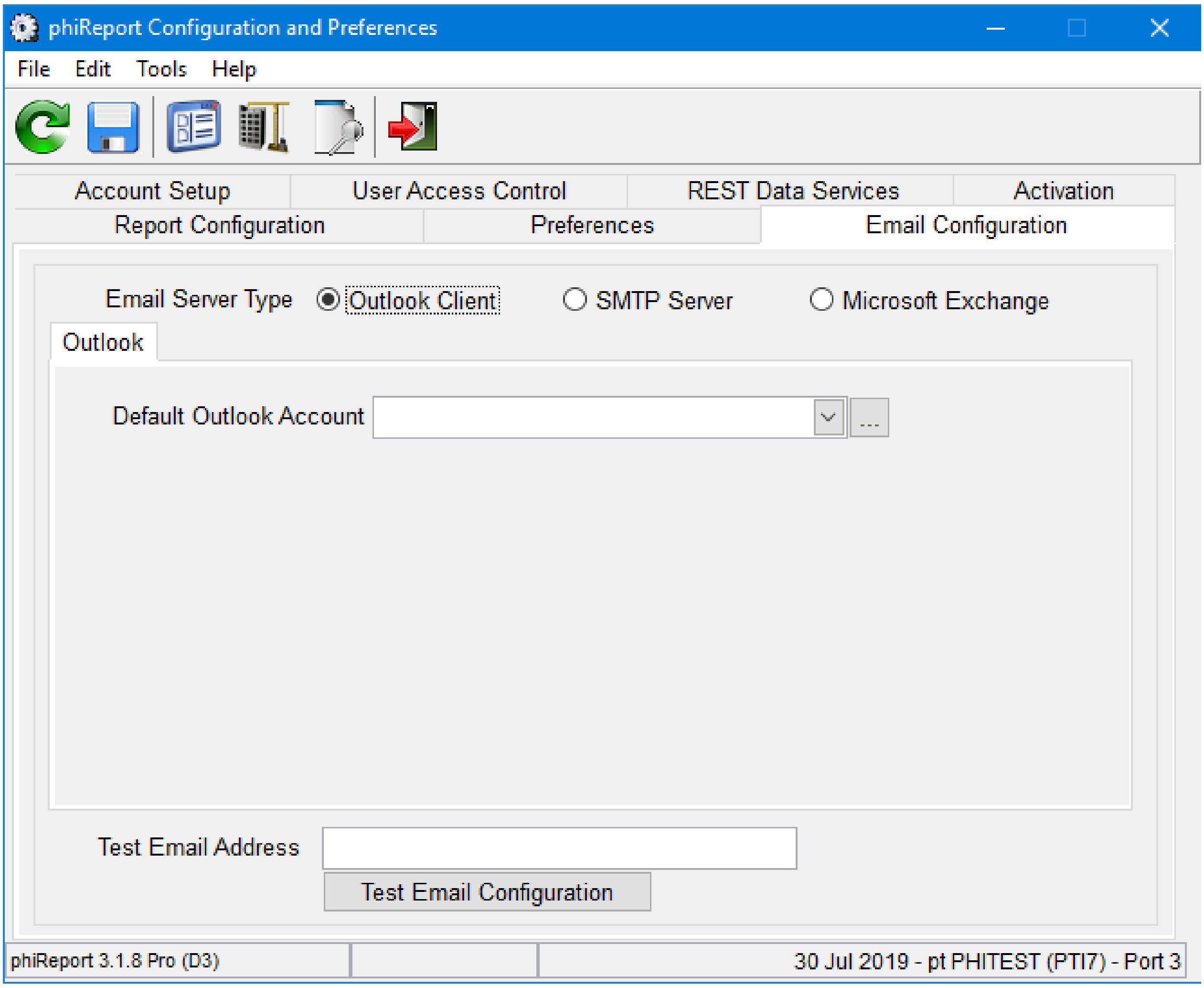


## Email Configuration

This tab provides email settings to email reports.  Email settings can be setup system wide (one email account for all users) or per user.

***Outlook Client***

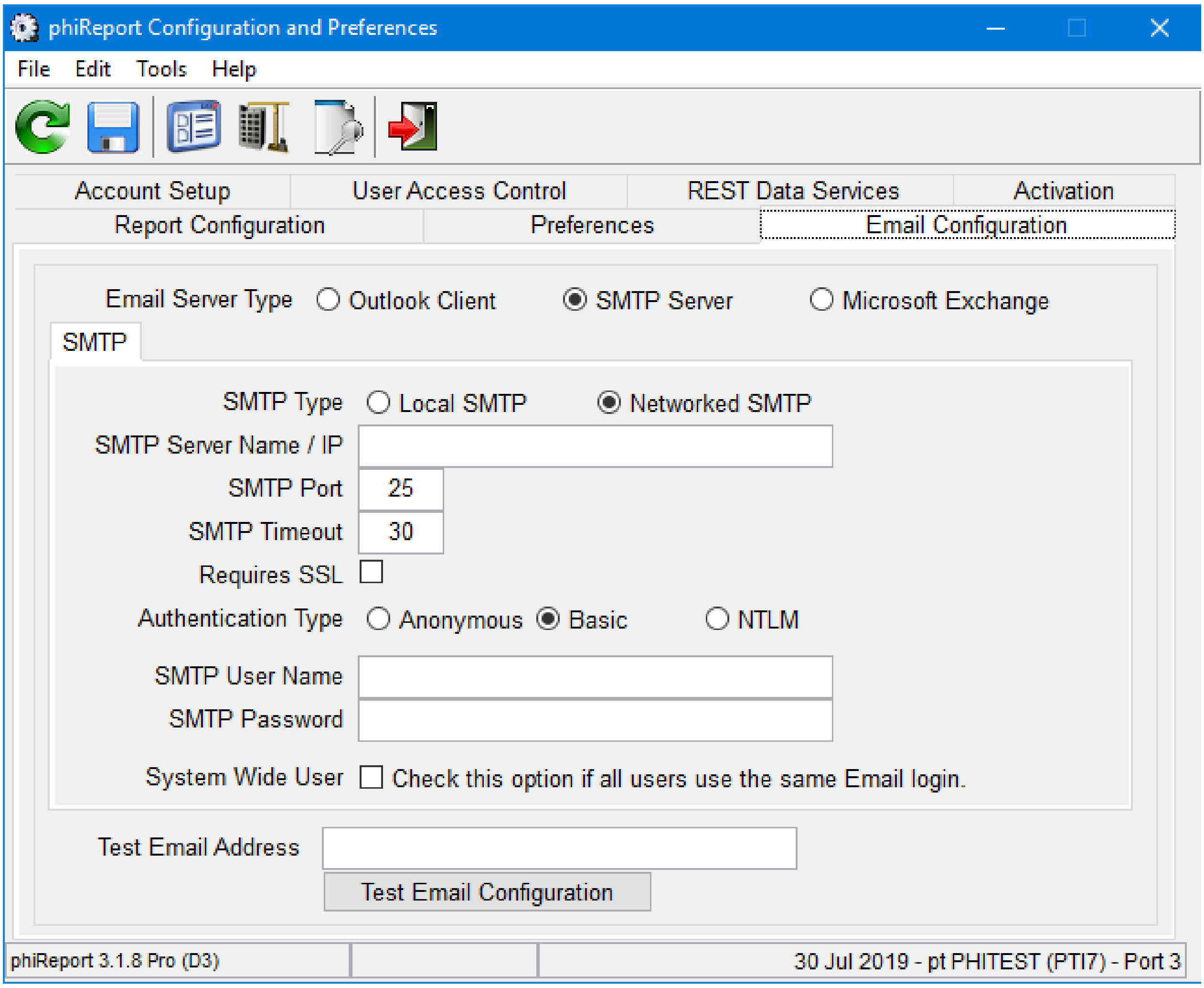
When selected, reports will be emailed using the local workstation Outlook accounts.




- ***Default Outlook Account***
  Select the Outlook account that will be used to send emails.  Emails sent will appear in the Sent box of this Outlook account.

### *SMTP Server*

When selected, emails will be sent using the provided SMTP parameters.
*Note: Email sent will not appear in the SMTP's account sent box.*



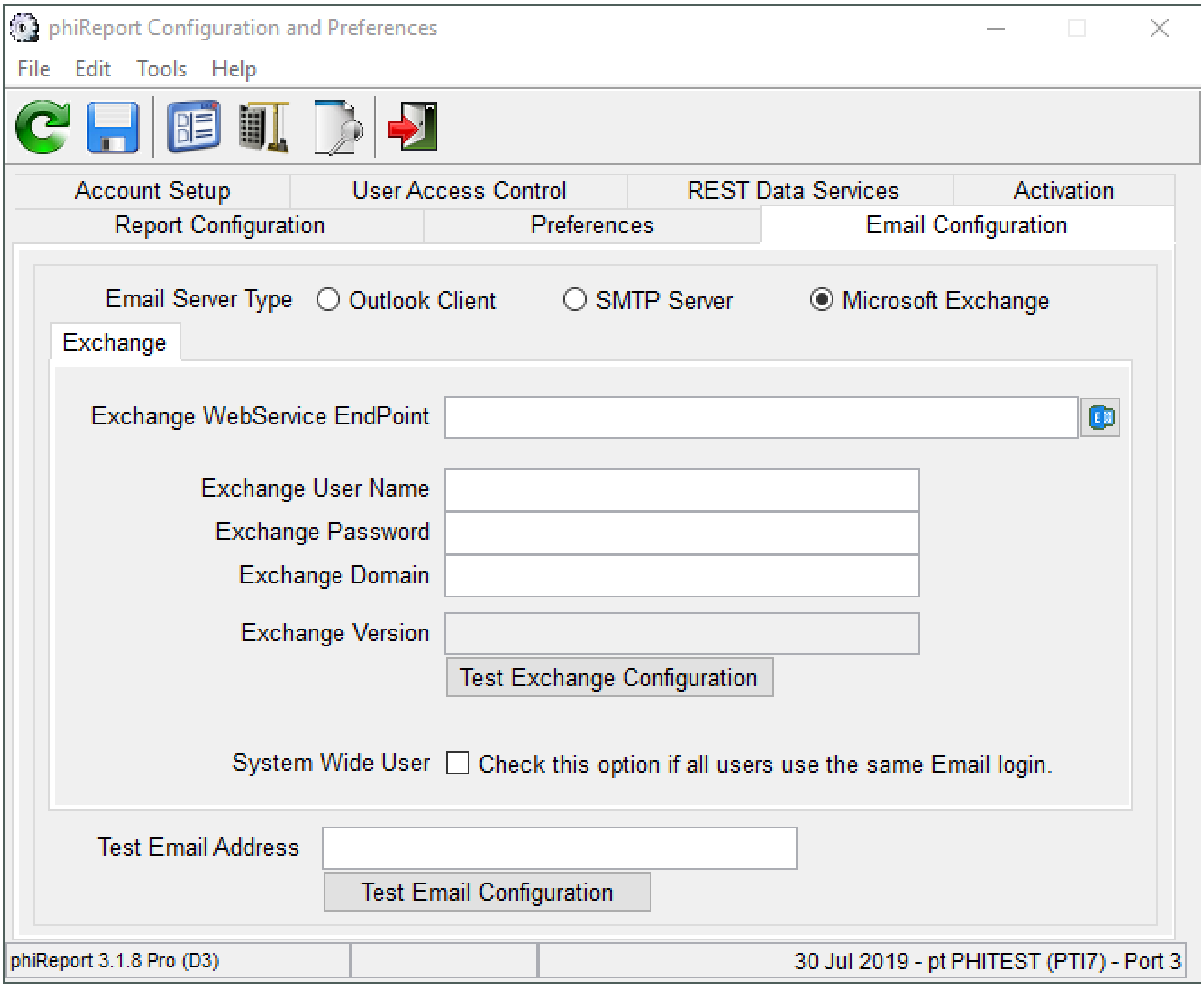

- ***Local or Networked SMTP***
  Set to local SMTP if you are hosting your own SMTP server.  Set to Networked SMTP if you use any external SMTP servers.

- ***SMTP Server Name, Port, SSL, Authentication Type, User, and Password***
  Enter the SMTP settings for the email server used.

- ***System Wide User***
  While most users have individual email accounts for retrieving email, many users can use a single account to send e-mail. Other examples of this would be accounts for Sales@ or Support@.  This option is only available with external SMTP servers.

### *Microsoft Exchange*

When selected, emails will be sent using the provided Exchange server and credentials




- ***Exchange WebService EndPoint***
  phiReport uses the Microsoft Exchange WebService (EWS) API to connect to your Exchange server. This feature is only available if EWS is enabled on your Exchange server.

- ***Exchange Credentials (User Name, Password and optional Domain***
  Enter your Microsoft Exchange credentials

- ***System Wide User***
  While most users have individual email accounts for retrieving email, many users can use a single account to send e-mail. Other examples of this would be accounts for Sales@ or Support@.

***Test Email Address***

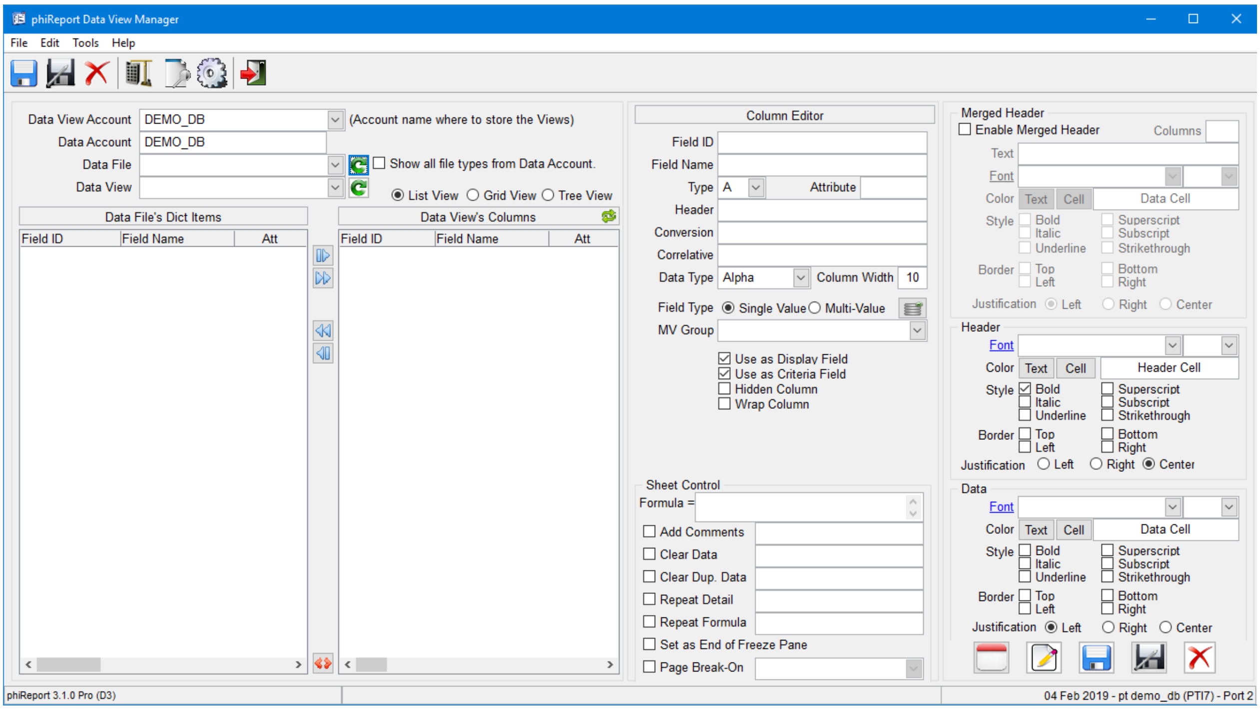
To test the email settings, enter an email address in this textbox and click on "Test Email Configuration". A test email is sent to the provided email address within a few seconds. If no email is received, check your spam box and/or email settings.



# phiReport Data View Manager

*Available with Edition: PRO and CLOUD*

The Data View Manager is where Data Views are created and managed. A Data View is a virtual view of your Data File structure.  Queries use these Data Views as field reference to your Data Files.  Your application dictionary items are not affected by these Data Views.  You can create as many Data Views as needed against a Data File.




In this chapter:

1. Create Data Views
2. Report Fields
3. Sheet Control

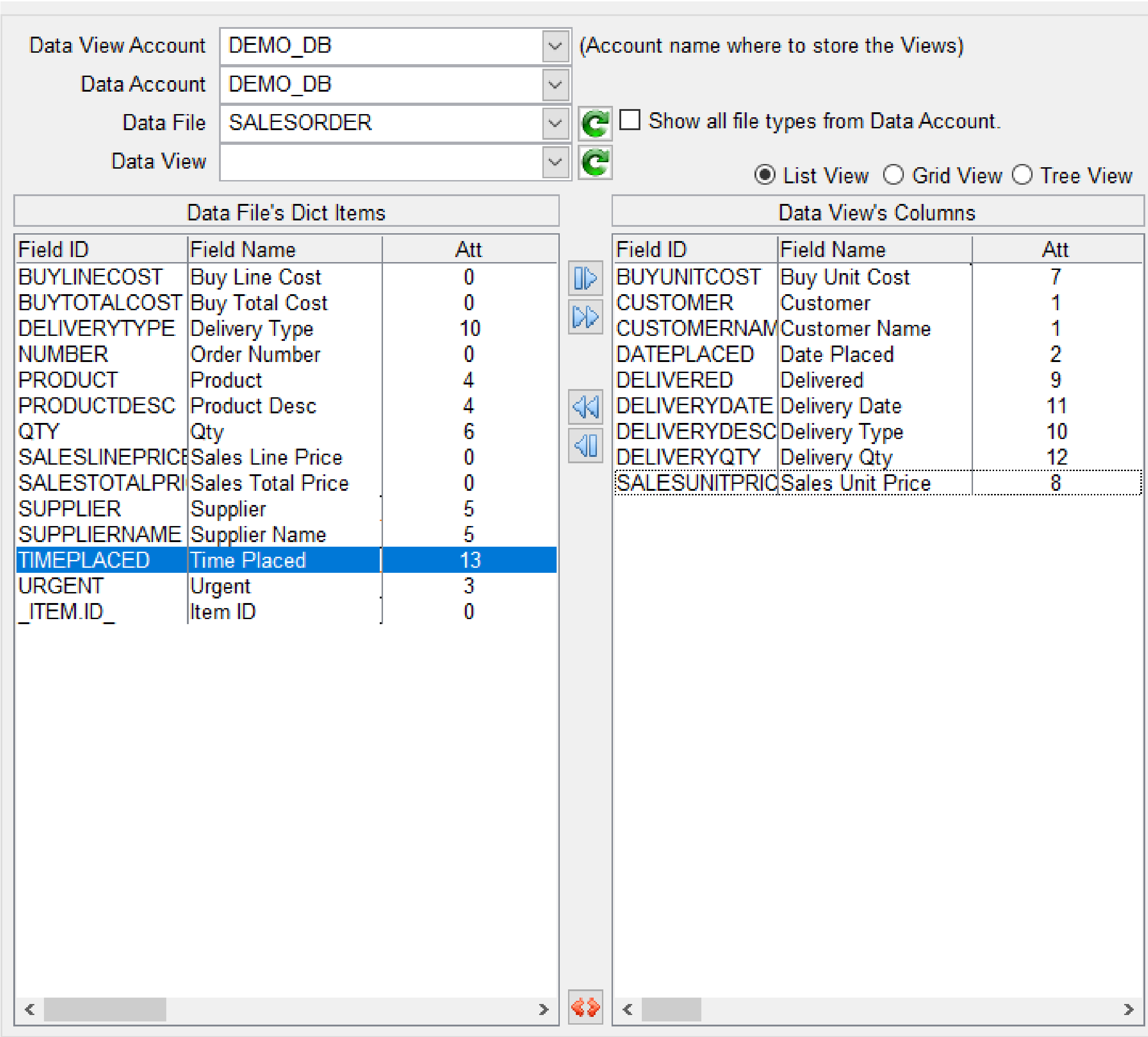


# Data Views

1. Select a Data File from the dropdown list.  A list of dictionary items is displayed in the "Data File's Dict Items"  list.
2. Select 1 or more dictionary item from the list and click on the  button to add them to the "Data View's Columns" or click on  to add all dictionary items.  Dictionary items added to the "Data View's Columns" are removed from the "Data File's Dict Items" list.  You can move them back by selecting them on the "Data View's Columns" list and clicking on  or .

*NOTE: Dictionary items moved from the "Data File's Dict Items" list are NOT deleted from the actual Dict file, they are only removed from the display to avoid adding the same item multiple times.*

*NOTE: When dictionary items are moved to the "Data View's Columns", phiReport uses the dictionary content to "guess" it's data type.  Other parameters such as Field Name and Column Width are extracted directly from the dictionay item.*




- Data View Account

  This is the account where to store the Data Views.
- Data Account

  This is the account where Data Files are listed from. Data Files can be local files or remote files via Q-Pointers. By default only local files are displayed. To display remote Q files, check the "Show all file types from Data Account" checkbox.
- Data File

  The Data File to extract dictionary items from.

  *NOTE: By default, only D or F type files are displayed in the Data File list. Check "Show all file types from Data Account" to add Q type files to the list*

  *NOTE: You can create a custom list of files by creating a "Saved List" of files where the list name is XLDataFiles_{AccountName}. If a GET-LIST XLDataFiles_{AccountName} returns an active list, it will be used to produce the list of files.*
- Data View

  The name of the Data View.

Data View's Columns can be viewed in three different ways; list, grid or tree.

1. The list is a quick way to look at what's been added to the list. It can be used to quickly remove items

from the list by clicking and dragging the mouse.

2. The grid view provides a more complete view of the data columns and its parameters.  It also allows you to make cerchanges without going to the column editor.
3. The tree view provides a comprehensive way to look at multi-values structures where nested mvulti-valued fields are showned as nested tree branches.

You can switch between the three view using the select buttons above the list.

◉ List View ○ Grid View ○ Tree View

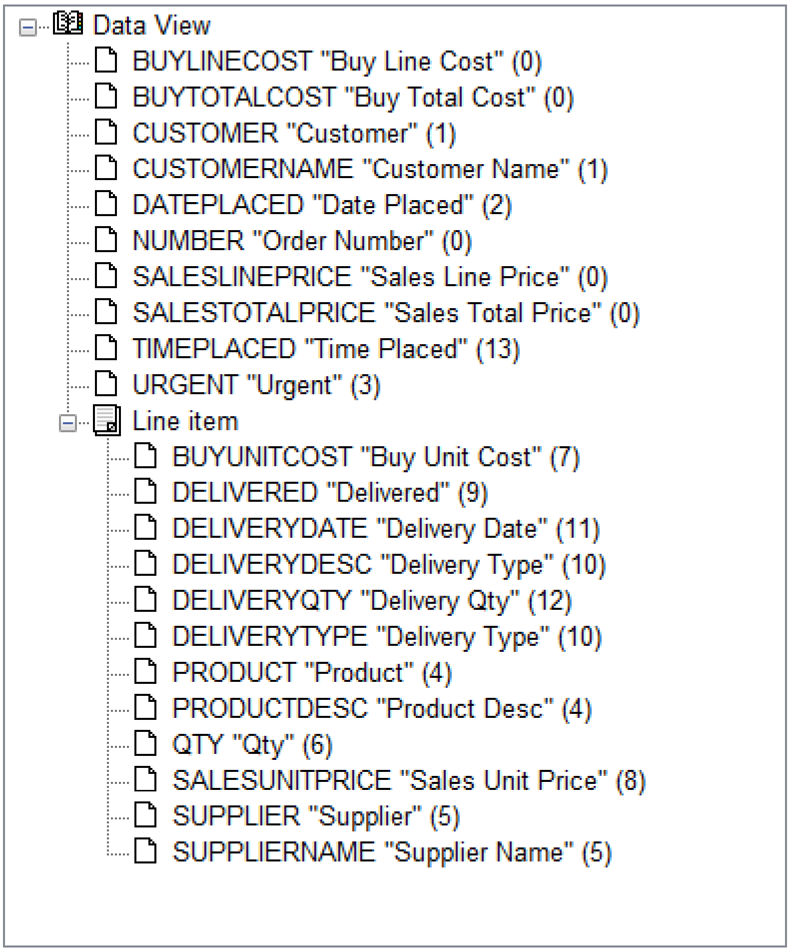
List view:

| Field ID | Field Name | Att | Data Type | MV Group | Display | Criteria | Hidden | Wrap |
|---|---|---|---|---|---|---|---|---|
| BUYLINECOST | Buy Line Cost | 0 | Numeric | | Y | Y | N | N |
| BUYTOTALCOST | Buy Total Cost | 0 | Numeric | | Y | Y | N | N |
| BUYUNITCOST | Buy Unit Cost | 7 | Numeric | Line item | Y | Y | N | N |
| CUSTOMER | Customer | 1 | Alpha | | Y | Y | N | N |
| CUSTOMERNAM | Customer Name | 1 | Alpha | | Y | Y | N | N |
| DATEPLACED | Date Placed | 2 | Date | | Y | Y | N | N |
| DELIVERED | Delivered | 9 | Alpha | Line item | Y | Y | N | N |
| DELIVERYDATE | Delivery Date | 11 | Date | Line item | Y | Y | N | N |
| DELIVERYDESC | Delivery Type | 10 | Alpha | Line item | Y | Y | N | N |
| DELIVERYQTY | Delivery Qty | 12 | Numeric | Line item | Y | Y | N | N |
| DELIVERYTYPE | Delivery Type | 10 | Alpha | Line item | Y | Y | N | N |
| NUMBER | Order Number | 0 | Alpha | | Y | Y | N | N |
| PRODUCT | Product | 4 | Alpha | Line item | Y | Y | N | N |
| PRODUCTDESC | Product Desc | 4 | Alpha | Line item | Y | Y | N | N |
| QTY | Qty | 6 | Numeric | Line item | Y | Y | N | N |
| SALESLINEPRIC | Sales Line Price | 0 | Alpha | | Y | Y | N | N |
| SALESTOTALPR | Sales Total Price | 0 | Numeric | | Y | Y | N | N |
| SALESUNITPRIC | Sales Unit Price | 8 | Numeric | Line item | Y | Y | N | N |
| SUPPLIER | Supplier | 5 | Alpha | Line item | Y | Y | N | N |
| SUPPLIERNAME | Supplier Name | 5 | Alpha | Line item | Y | Y | N | N |
| TIMEPLACED | Time Placed | 13 | Numeric | | Y | Y | N | N |
| URGENT | Urgent | 3 | Alpha | | Y | Y | N | N |

Grid view:

| # | Sel | Field Id | Header Name | Att | Data Type | Header Just | Data Just | Display | Criteria | Hidden | Wrap | MV Group | Form. | Com. | CD | CDD | RD | RF | FP | PB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | BUYLINECOST | Buy Line Cost | 0 | Numeric | Center | Right | ☑ | ☑ | ☐ | ☐ | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 2 | ☐ | BUYTOTALCOST | Buy Total Cost | 0 | Numeric | Center | Right | ☑ | ☑ | ☐ | ☐ | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 3 | ☐ | BUYUNITCOST | Buy Unit Cost | 7 | Numeric | Center | Right | ☑ | ☑ | ☐ | ☐ | Line item | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 4 | ☐ | CUSTOMER | Customer | 1 | Alpha | Center | Right | ☑ | ☑ | ☐ | ☐ | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 5 | ☐ | CUSTOMERNAME | Customer Name | 1 | Alpha | Center | Left | ☑ | ☑ | ☐ | ☐ | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 6 | ☐ | DATEPLACED | Date Placed | 2 | Date | Center | Left | ☑ | ☑ | ☐ | ☐ | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 7 | ☐ | DELIVERED | Delivered | 9 | Alpha | Center | Left | ☑ | ☑ | ☐ | ☐ | Line item | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 8 | ☐ | DELIVERYDATE | Delivery Date | 11 | Date | Center | Right | ☑ | ☑ | ☐ | ☐ | Line item | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 9 | ☐ | DELIVERYDESC | Delivery Type | 10 | Alpha | Center | Left | ☑ | ☑ | ☐ | ☐ | Line item | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 10 | ☐ | DELIVERYQTY | Delivery Qty | 12 | Numeric | Center | Right | ☑ | ☑ | ☐ | ☐ | Line item | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 11 | ☐ | DELIVERYTYPE | Delivery Type | 10 | Alpha | Center | Right | ☑ | ☑ | ☐ | ☐ | Line item | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 12 | ☐ | NUMBER | Order Number | 0 | Alpha | Center | Right | ☑ | ☑ | ☐ | ☐ | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 13 | ☐ | PRODUCT | Product | 4 | Alpha | Center | Left | ☑ | ☑ | ☐ | ☐ | Line item | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 14 | ☐ | PRODUCTDESC | Product Desc | 4 | Alpha | Center | Left | ☑ | ☑ | ☐ | ☐ | Line item | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 15 | ☐ | QTY | Qty | 6 | Numeric | Center | Right | ☑ | ☑ | ☐ | ☐ | Line item | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 16 | ☐ | SALESLINEPRICE | Sales Line Price | 0 | Alpha | Center | Left | ☑ | ☑ | ☐ | ☐ | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 17 | ☐ | SALESTOTALPRICI | Sales Total Price | 0 | Numeric | Center | Right | ☑ | ☑ | ☐ | ☐ | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 18 | ☐ | SALESUNITPRICE | Sales Unit Price | 8 | Numeric | Center | Right | ☑ | ☑ | ☐ | ☐ | Line item | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 19 | ☐ | SUPPLIER | Supplier | 5 | Alpha | Center | Left | ☑ | ☑ | ☐ | ☐ | Line item | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 20 | ☐ | SUPPLIERNAME | Supplier Name | 5 | Alpha | Center | Left | ☑ | ☑ | ☐ | ☐ | Line item | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 21 | ☐ | TIMEPLACED | Time Placed | 13 | Numeric | Center | Right | ☑ | ☑ | ☐ | ☐ | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 22 | ☐ | URGENT | Urgent | 3 | Alpha | Center | Left | ☑ | ☑ | ☐ | ☐ | | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |

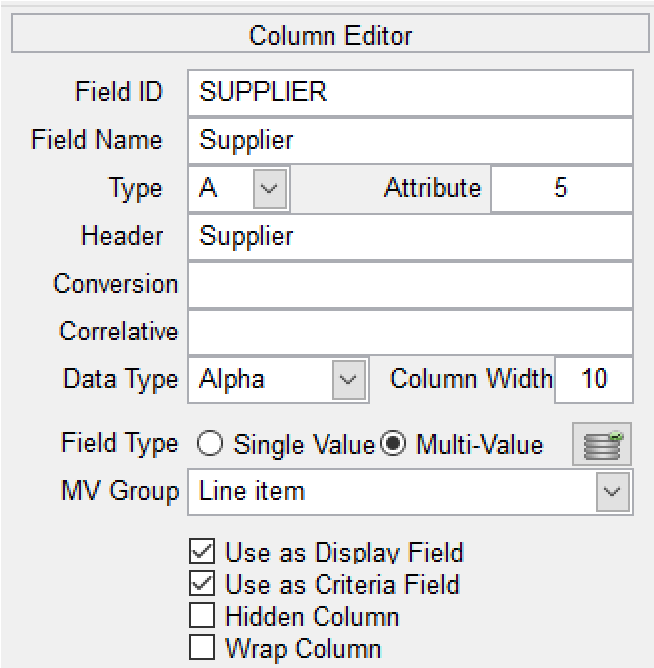
Tree view:





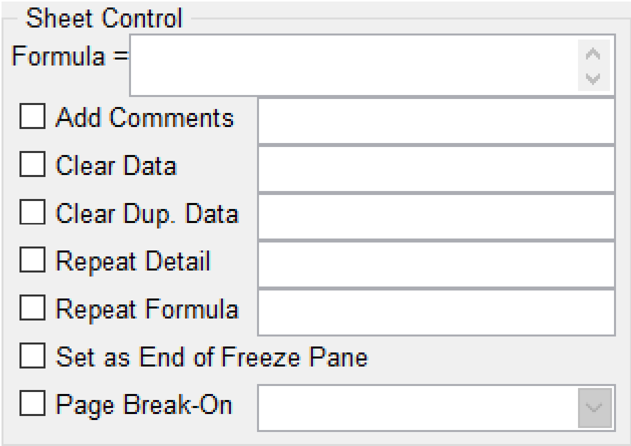

## Column Editor

The Column Editor allows you to customize the output of your data on the Excel sheet.  Use this editor to set the data type, column width, certain data display rules, Excel formula and many other features described below.




Basic settings

| Field | Description |
|---|---|
| Field ID | The item ID of the field |
| Field Name | Field name copy from the dictionary item |
| Type | Dictionary type |
| Attribute | Attribute number of the data |
| Header | Text used as Excel header. This defaults to the Field Name |
| Conversion | Standard Pick conversion. Use any valid conversion code. |
| Correlative | Standard Pick correlative. Use any valid correlative. |
| Data Type | By default the data type is "assumed" based on the content of the dictionary iter be a Date. Change the data type as required. Valid data types are: Alpha, Date "Data Type" section for more detail. |
| Column Width | The width of the column. By default this value is copied from the dictionary item |
| Field Type | Single Value or Multi-Value. This flag instructs the query engine if a BY-EXP is |
| MV Group | This field allows you to create Multi-Value grouping for controlling-dependent st |
| Use as Display Field | Set as Display field. |
| Use as Criteria Fields | Set as Criteria field. |
| Hidden Column | Set as hidden column. |
| Wrap Column | If the length of the data is longer than the cell width, the data will be wrapped. I |
| | |



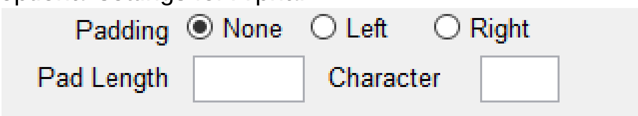

Sheet Control allows you to control how certain data is displayed (or hidden) on the Excel sheet. See Sheet Controls for more detail.



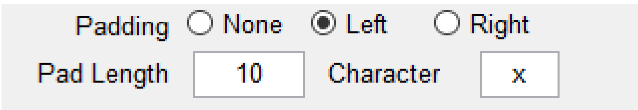
## Data Types

Alpha

optional settings for Alpha:




Padding allows you to add characters before or after the alpha string.




If the alpha string returned is "ABC", the above settings would display "xxxxxxxABC"; Pad left 10 characters with 'x'.

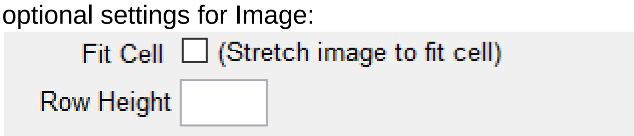
Date
Sets the Excel cells data type to "Custom" type "m/d/yyyy"

Formula
Sets the Excel cells data type to "Text". This is usefull if the data returned starts with a "=" equal sign. Equal signs are considered formula in Excel, using the format data type ignores the "=" and displays the full data as intended.

General
Sets the Excel cells data type to "General".

Image
This data type requires the images be accessible from the workstation generating the report. The data sent to these cells is the full path and file name to the image.

optional settings for Image:



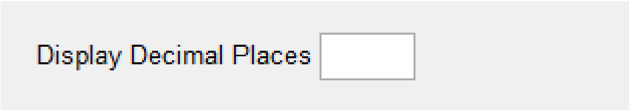

Fit Cell: This option resizes the image to fit the cell.

Row Height: Set the height of the row containing the image.

Numeric

Data with MR2 conversion is automatically detected as Numeric. The number of decimal places is defined by the database and the sent to Excel as instructed.

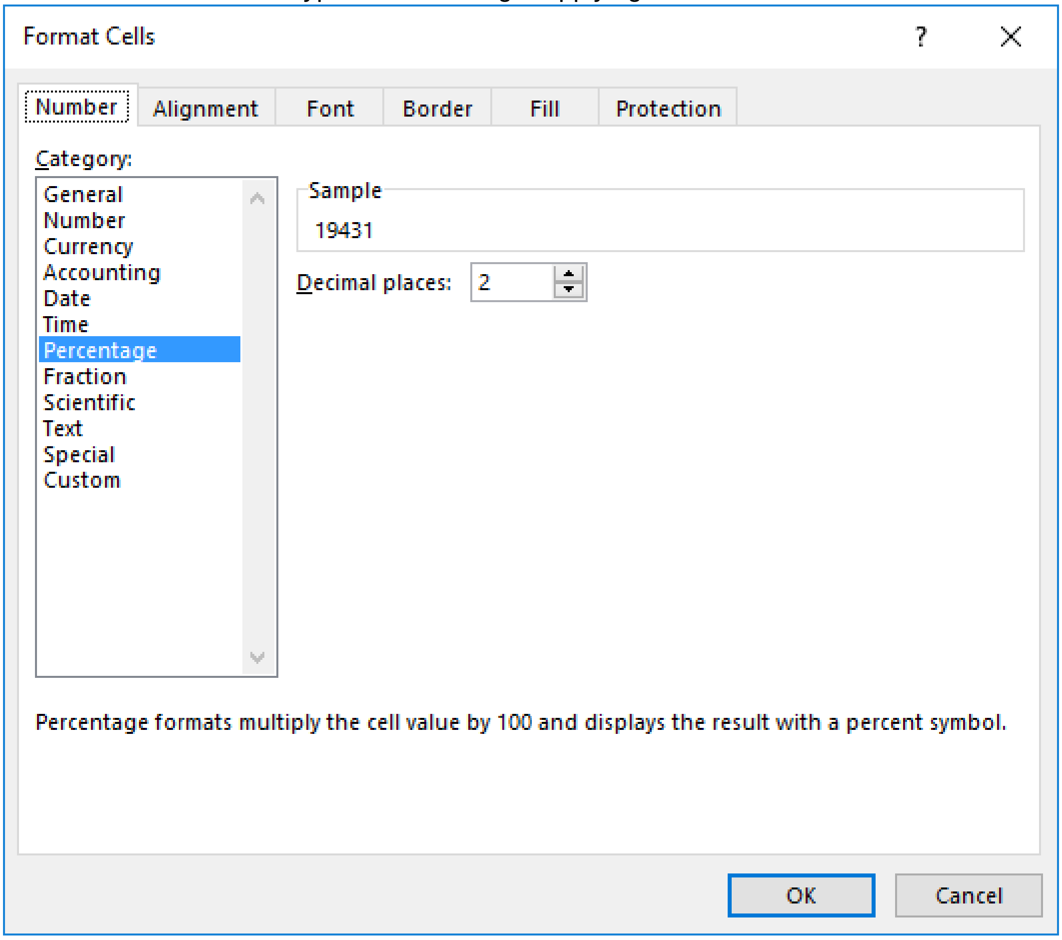
optional settings for Numeric:




This option overwrites the number of decimals set by the database for display only. If the data returned is 1.23 and the "Display Decimal Places" is set to 1, the data displayed on the sheet is "1.2" but the actual data stored on the sheet is still 1.23.

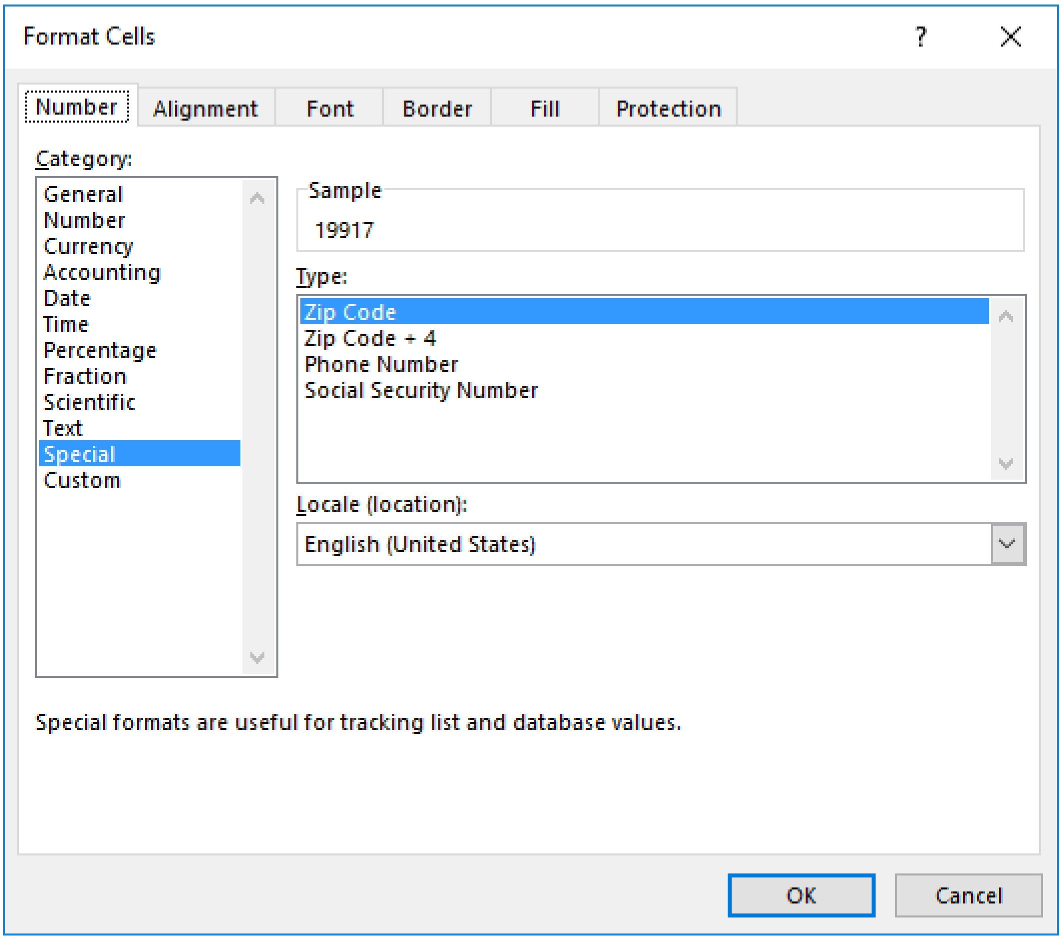
Percentage

Sets the Excel cells data type to "Percentage" applying the automatic conversion and the "%" sign.



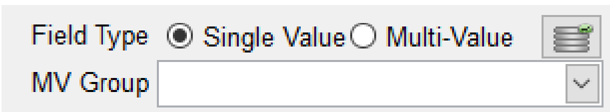

Zip Code, Zip Code+4, Phone and SSN

These data types are set in Excel as "Special" types.



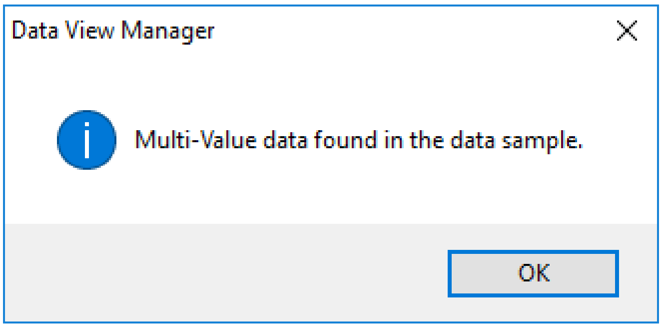



## Multi-Value Data

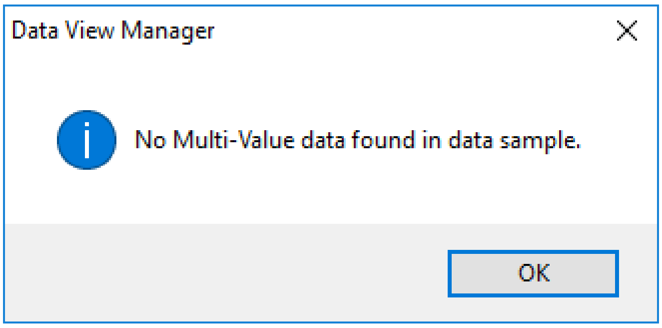



Select the Multi-Vlue option iIf a field is multi-valued.  This will ensure that the query engine will generate the correct extraction statement against that data.  If more than 1 field is multi-valued in a controlling-dependent structure, make sure they are all set as multi-valued and that they all have the same "MV Group" name.
MV Groups are groups of multi-valued data in a controlling-dependent structure.  To create a new group just enter a name in the MV Group field.  This automatically creates a new group.  To add fields to the group just select the field from the Data View's Column list and select the MV Group name from the dropdown list.  An MV Group with a single field is equivalent to a "stand-alone" multi-value field.

If you are unsure a field is multi-valued, you can click on the  button which will scan a sample of your data and determine if there are multi-valued data in the selected sample of 50,000 items.  Note that this method relies on the selected sample and therefore does not garantee 100% accuracy.

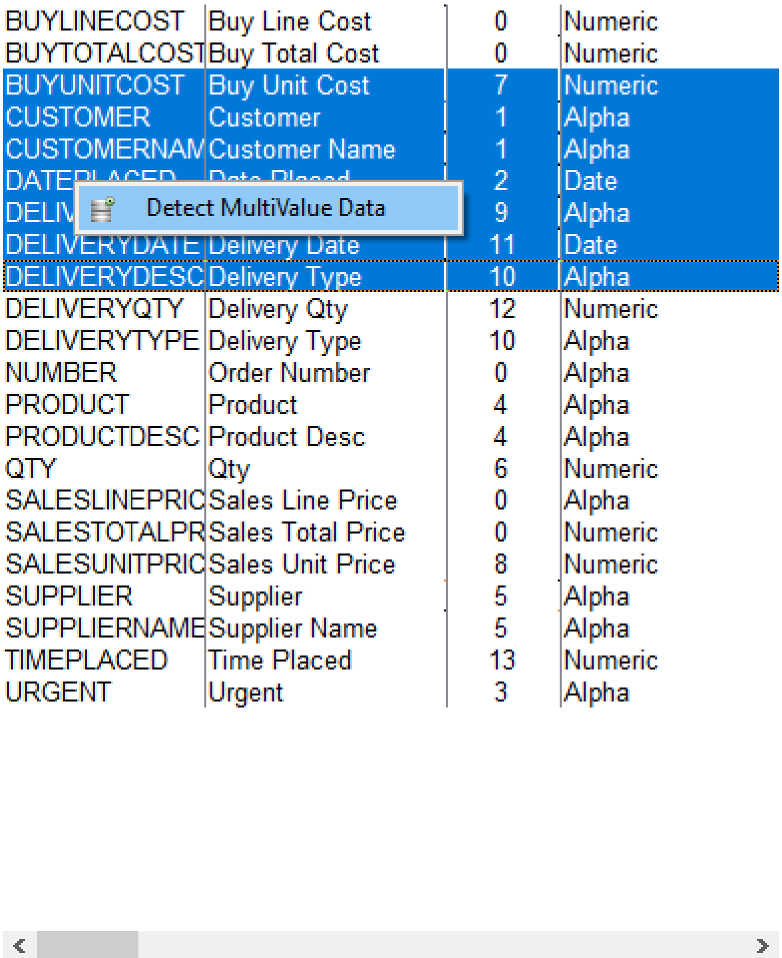



or

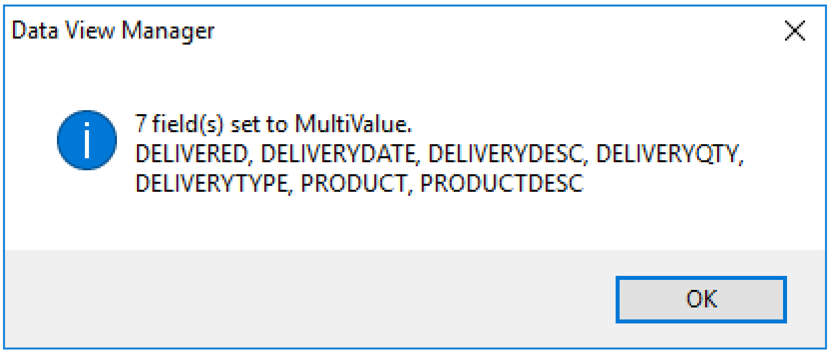



To detect multiple fields, select the desired fields from the Data View's Column list and right click to display the context menu.  Select "Detect MultiValue Data" to start the detection.  Again, this method scans a sample of 50,000 items and may not be 100% accurate.

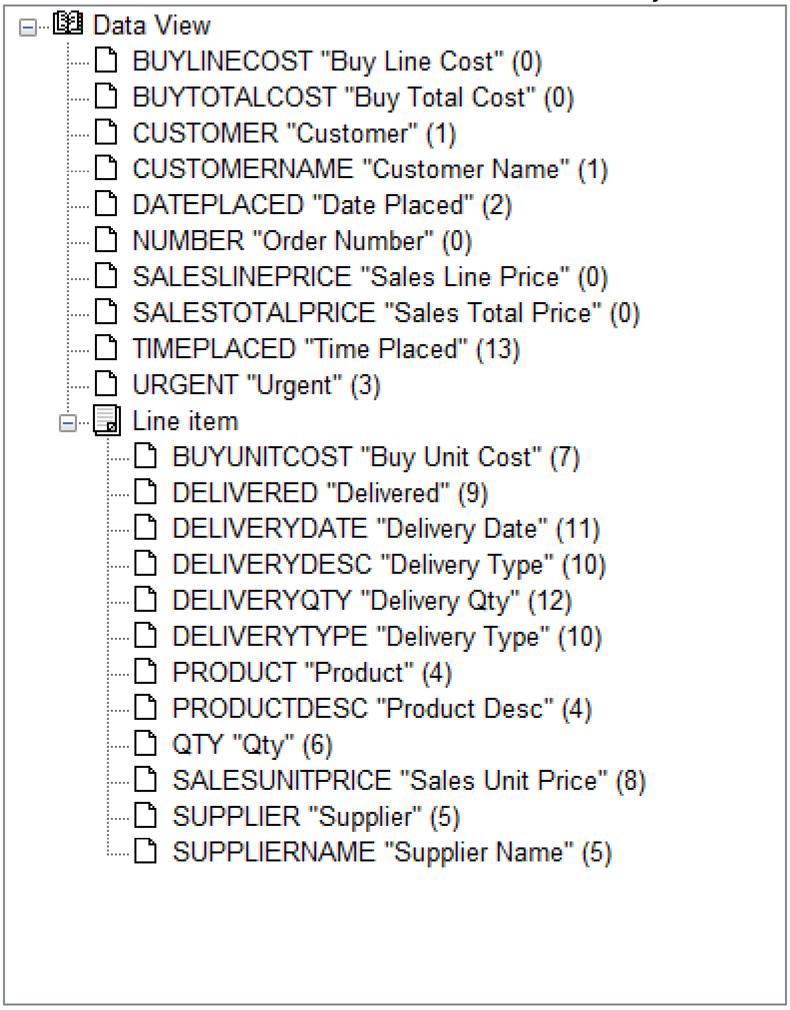
The advantage of using the method vs the single field method described above is in the case we only scan the 50,000 items once for all selected fields and fields that are detected as Multi-Valued are automatically marked as "Multi-Value".  MV Group is however not automated.



| | | | |
|---|---|---|---|
| BUYLINECOST | Buy Line Cost | 0 | Numeric |
| BUYTOTALCOST | Buy Total Cost | 0 | Numeric |
| BUYUNITCOST | Buy Unit Cost | 7 | Numeric |
| CUSTOMER | Customer | 1 | Alpha |
| CUSTOMERNAM | Customer Name | 1 | Alpha |
| DATEPLACED | Date Placed | 2 | Date |
| DELIV | | 9 | Alpha |
| DELIVERYDATE | Delivery Date | 11 | Date |
| DELIVERYDESC | Delivery Type | 10 | Alpha |
| DELIVERYQTY | Delivery Qty | 12 | Numeric |
| DELIVERYTYPE | Delivery Type | 10 | Alpha |
| NUMBER | Order Number | 0 | Alpha |
| PRODUCT | Product | 4 | Alpha |
| PRODUCTDESC | Product Desc | 4 | Alpha |
| QTY | Qty | 6 | Numeric |
| SALESLINEPRIC | Sales Line Price | 0 | Alpha |
| SALESTOTALPR | Sales Total Price | 0 | Numeric |
| SALESUNITPRIC | Sales Unit Price | 8 | Numeric |
| SUPPLIER | Supplier | 5 | Alpha |
| SUPPLIERNAME | Supplier Name | 5 | Alpha |
| TIMEPLACED | Time Placed | 13 | Numeric |
| URGENT | Urgent | 3 | Alpha |




Switch to "Tree View" to see the Multi-Value structure of your Data View.

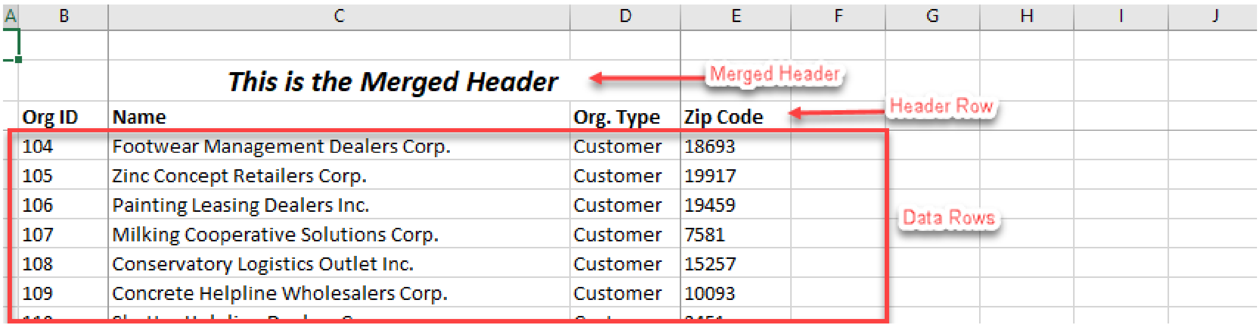



This Data View shows an MV Group called "Line item" with several fields belonging to that group.

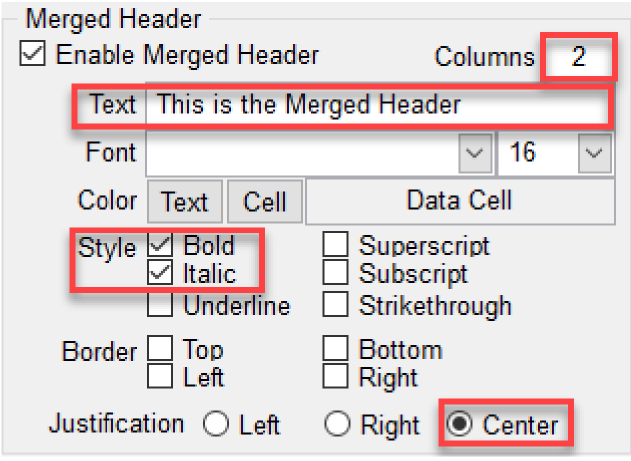


## Excel Sheet Data Format

This section allows you to control how headers and data are displayed on the Excel sheet. Three group of settings are customizable.

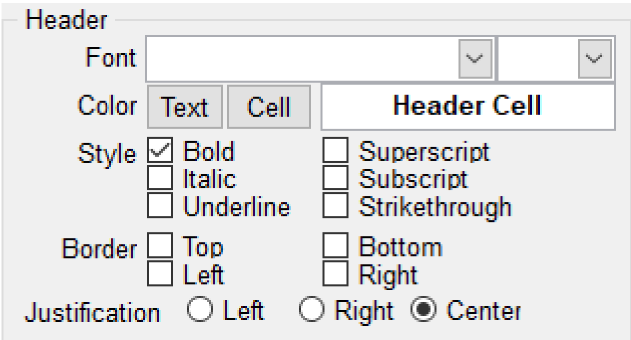



Merged Header Row is the row displayed above the Header row. Use Merged Header row to group mulitple rows under a single main header. Regular row headers are not affected by this setting.



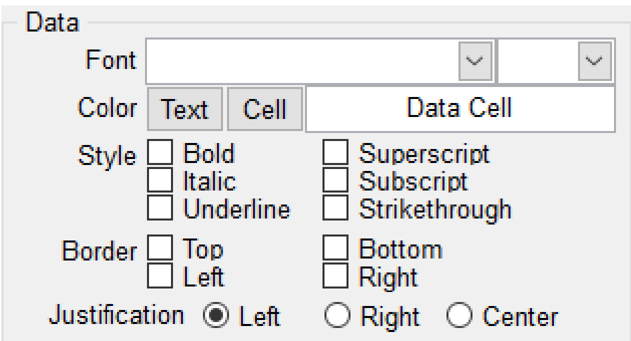

"This is the Merger Header" spans **2** columns from column C to column D to create a merged cell as shown below.

Header Row




The header row displays the data set in the Header field of the Column Editor.

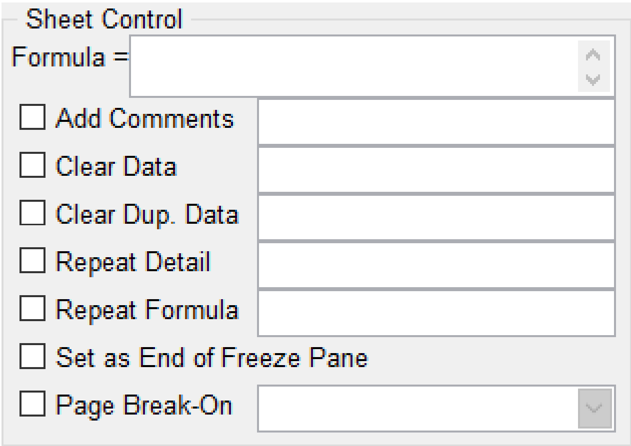
Data Rows




The Data Rows are rows of data returned by the query.

# Sheet Controls

Sheet Control allows you to control how certain data is displayed (or hidden) on the Excel sheet.





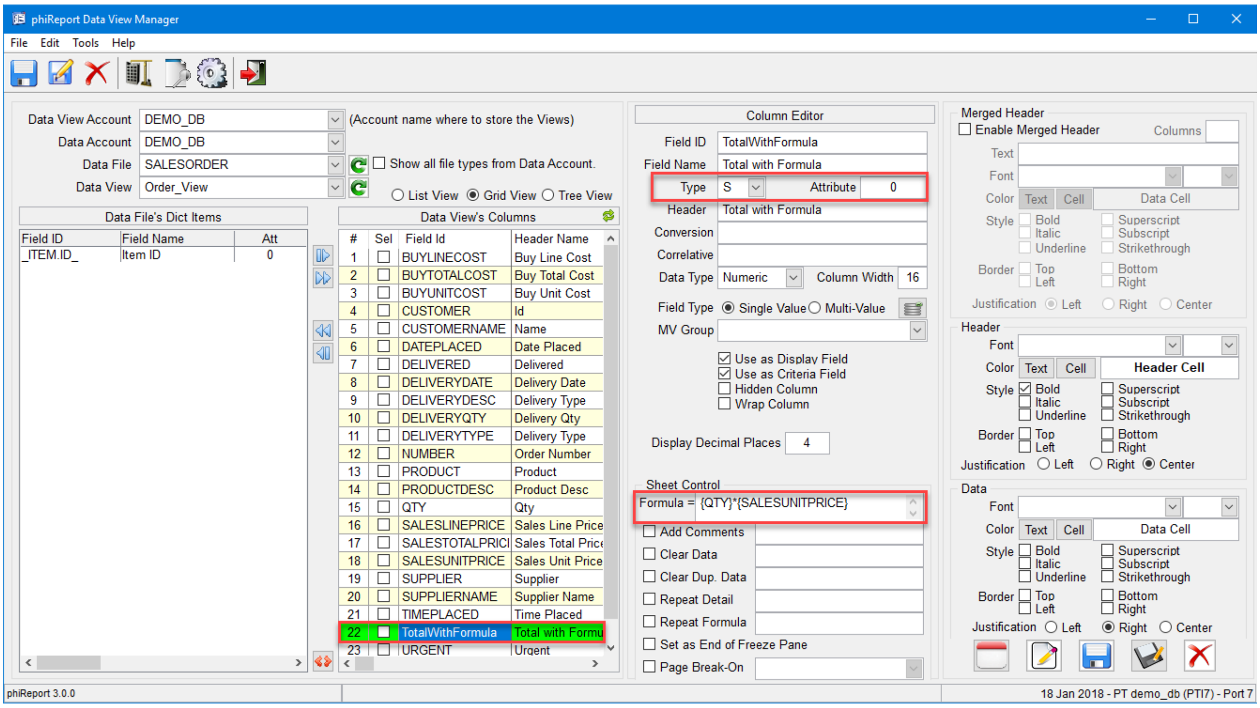

## Formula

**Formula**

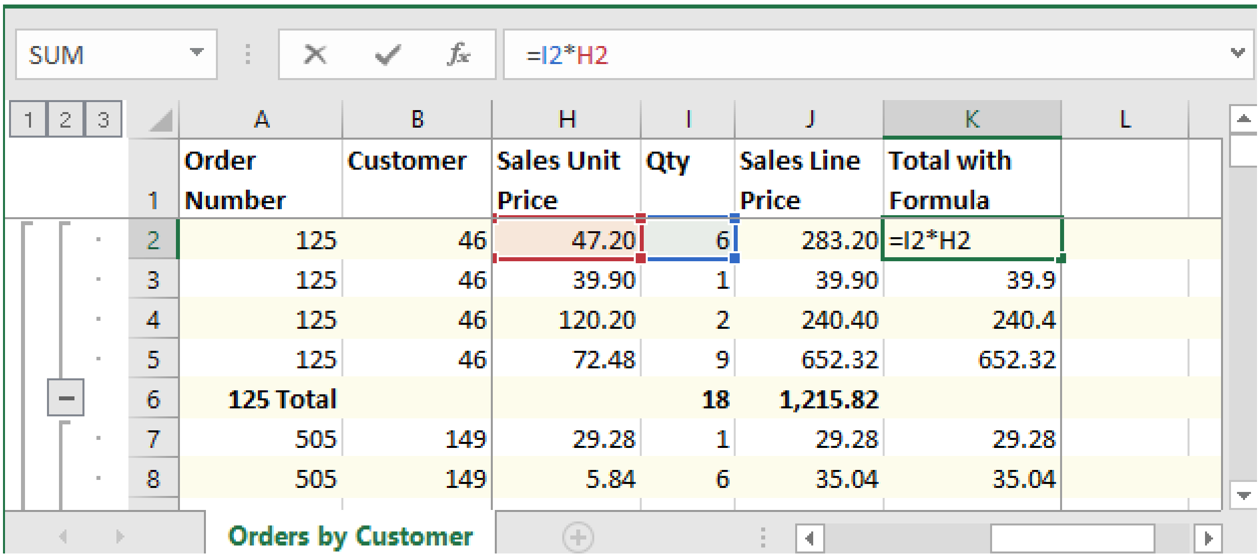
Enter any supported Excel formula or function in the textbox.  Though Excel formulas start with an "=" equal sign, you do not need to add one in the provided textbox, it will be added automatically if not present.

A simple Excel formula would look something like "**=F10*G10**" where F and G are column positions and 10 the row number.  Since we do not know the column position until the data is imported to Excel, we would write that formula by using Dictionary names instead.

**={QTY}*{SALESUNITPRICE}** where QTY and SalesUnitPrice are columns defined in the Data View Manager.  The curly braces '{' and '}' indicate a dictionary name and the report engine will find it's Excel column equivalent at runtime.

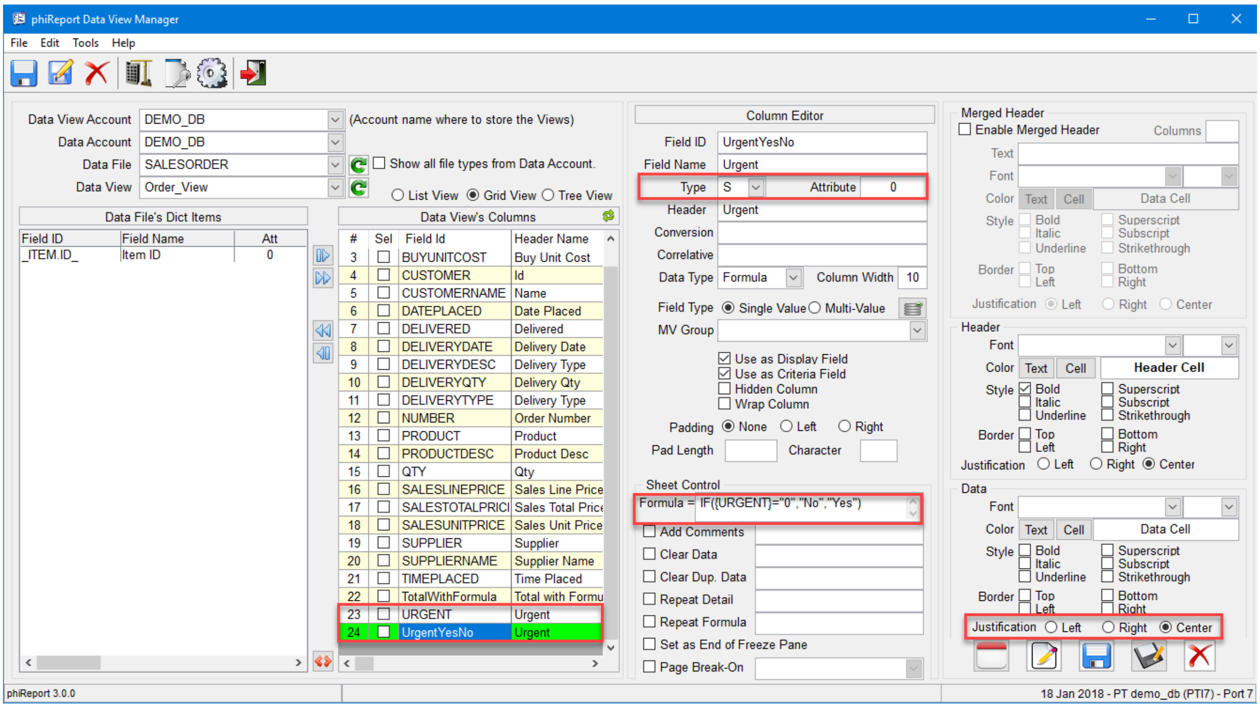


Column QTY and SALESUNITPRICE are automatically converted to H2 and I2 respectively and the formula =I2*H2 is added to column K.

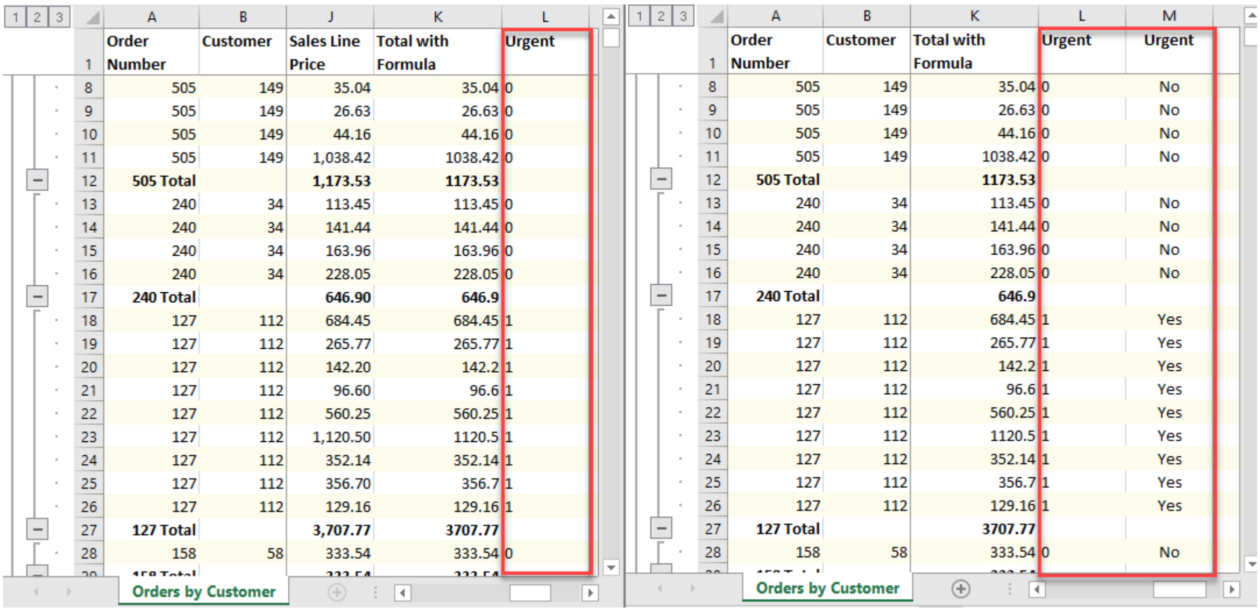


Any Excel formula and functions can be used, ex: AVERAGE, MAX, ABS...

The folowing example uses the **IF** function to convert data on the sheet. The data returned by the database in column URGENT is a number 0 or 1. To the report reader a 0 or 1 is not as meaningful as a Yes or No. To convert 0 and 1 to No and Yes we create a new field and assign it the Excel **IF** function.

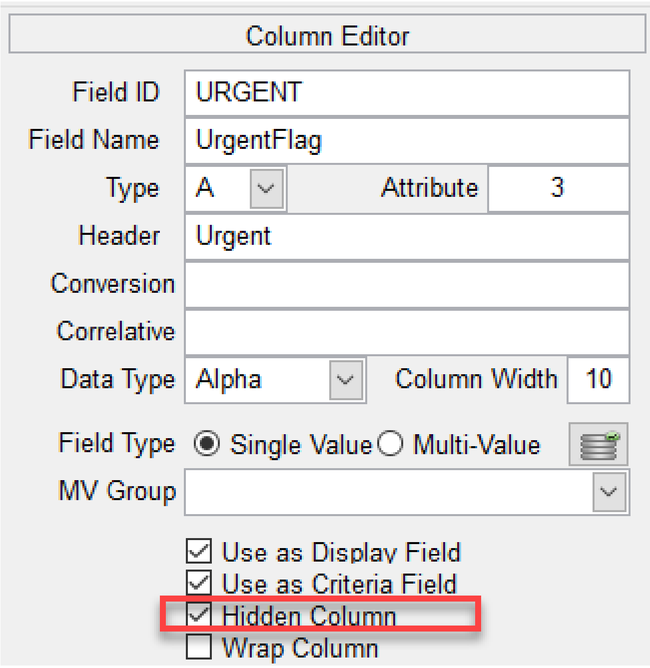


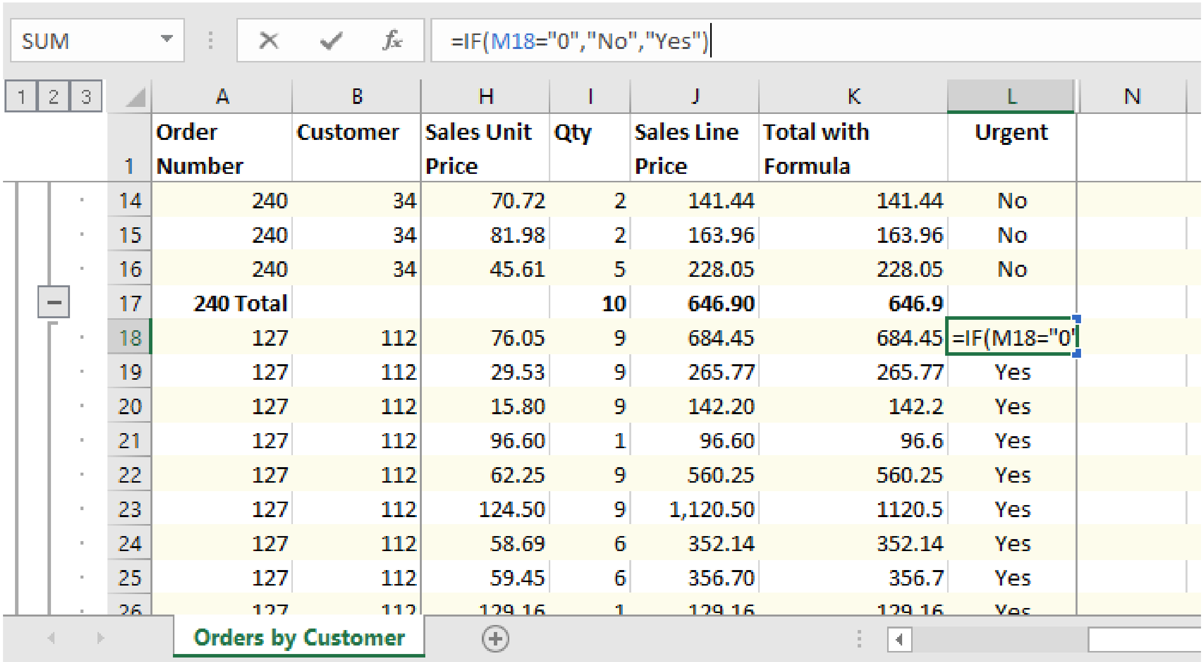

The formula reads: **IF({URGENT}="0","No","Yes")**




The sheet on the right shows the original URGENT column and the new UrgentYesNo column. At this point the original URGENT colum is only required by the **IF** function and can be "hidden" from the user.

Check "Hidden Column" to hide the column from the user. The data is still exported to Excel because it is required by the **IF** function.



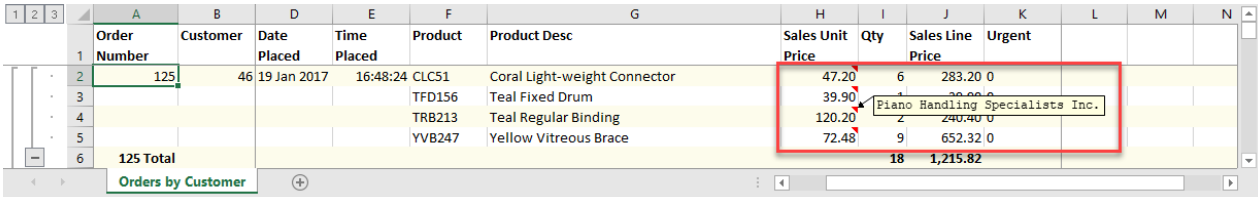

Column M is used in the IF function but hidden from the user.

| Order Number | Customer | Customer Name | Date Placed | Time Placed | Product | Product Desc | Sales Unit Price | Qty | Sales Line Price | Total with Formula | Urgent |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 125 | 46 | Baking Development Services Inc. | 19 Jan 2017 | 16:48:24 | CLC51 | Coral Light-weight Connector | 47.20 | 6 | 283.20 | 283.2 | No |
| 125 | 46 | Baking Development Services Inc. | 19 Jan 2017 | 16:48:24 | TFD156 | Teal Fixed Drum | 39.90 | 1 | 39.90 | 39.9 | No |
| 125 | 46 | Baking Development Services Inc. | 19 Jan 2017 | 16:48:24 | TRB213 | Teal Regular Binding | 120.20 | 2 | 240.40 | 240.4 | No |
| 125 | 46 | Baking Development Services Inc. | 19 Jan 2017 | 16:48:24 | YVB247 | Yellow Vitreous Brace | 72.48 | 9 | 652.32 | 652.32 | No |
| **125 Total** | | | | | | | | **18** | **1,215.82** | **1215.82** | |
| 505 | 149 | Boating Logistics Agency Corp. | 18 Jan 2017 | 13:41:15 | CAC140 | Crimson Amalgamated Cylinder | 29.28 | 1 | 29.28 | 29.28 | No |
| 505 | 149 | Boating Logistics Agency Corp. | 18 Jan 2017 | 13:41:15 | MRS242 | Mauve Rigid Socket | 5.84 | 6 | 35.04 | 35.04 | No |
| 505 | 149 | Boating Logistics Agency Corp. | 18 Jan 2017 | 13:41:15 | SPC271 | Salmon Pressurized Conduit | 26.63 | 1 | 26.63 | 26.63 | No |
| 505 | 149 | Boating Logistics Agency Corp. | 18 Jan 2017 | 13:41:15 | TMB231 | Turquoise Medium Barrel | 22.08 | 2 | 44.16 | 44.16 | No |
| 505 | 149 | Boating Logistics Agency Corp. | 18 Jan 2017 | 13:41:15 | WOC220 | White Over-sized Crank | 115.38 | 9 | 1,038.42 | 1038.42 | No |
| **505 Total** | | | | | | | | **19** | **1,173.53** | **1173.53** | |
| 240 | 34 | Chimney Handling Services Inc. | 24 Jan 2017 | 16:20:18 | AAS198 | Amber Adjustable Sleeve | 113.45 | 1 | 113.45 | 113.45 | No |
| 240 | 34 | Chimney Handling Services Inc. | 24 Jan 2017 | 16:20:18 | BSB141 | Black Semi-rigid Barrel | 70.72 | 2 | 141.44 | 141.44 | No |
| 240 | 34 | Chimney Handling Services Inc. | 24 Jan 2017 | 16:20:18 | CLB46 | Crimson Large Barrel | 81.98 | 2 | 163.96 | 163.96 | No |
| 240 | 34 | Chimney Handling Services Inc. | 24 Jan 2017 | 16:20:18 | SEC160 | Silver Elastic Conduit | 45.61 | 5 | 228.05 | 228.05 | No |
| **240 Total** | | | | | | | | **10** | **646.90** | **646.9** | |
| 127 | 112 | Coal Framework Merchants Corp. | 06 Jan 2017 | 09:34:32 | AMH229 | Aqua Medium Hose | 76.05 | 9 | 684.45 | 684.45 | Yes |
| 127 | 112 | Coal Framework Merchants Corp. | 06 Jan 2017 | 09:34:32 | GAL136 | Gold Adjustable Lining | 29.53 | 9 | 265.77 | 265.77 | Yes |
| 127 | 112 | Coal Framework Merchants Corp. | 06 Jan 2017 | 09:34:32 | MEM93 | Mauve Elastic Mounting | 15.80 | 9 | 142.20 | 142.2 | Yes |
| 127 | 112 | Coal Framework Merchants Corp. | 06 Jan 2017 | 09:34:32 | MOF193 | Maroon Over-sized Fixing | 96.60 | 1 | 96.60 | 96.6 | Yes |
| 127 | 112 | Coal Framework Merchants Corp. | 06 Jan 2017 | 09:34:32 | PPP239 | Peach Pressurized Pump | 62.25 | 9 | 560.25 | 560.25 | Yes |
| 127 | 112 | Coal Framework Merchants Corp. | 06 Jan 2017 | 09:34:32 | SAS175 | Salmon Adjustable Socket | 124.50 | 9 | 1,120.50 | 1120.5 | Yes |

## Add Comments

**Add Comments**

This option allows you to add comments to each row of a column. The comments must come from a column defined on the report. The comment column is automatically deleted from the sheet onces it's been rendered.

| | Order Number | Customer | Date Placed | Time Placed | Product | Product Desc | Sales Unit Price | Qty | Sales Line Price | Urgent |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 125 | 46 | 19 Jan 2017 | 16:48:24 | CLC51 | Coral Light-weight Connector | 47.20 | 6 | 283.20 | 0 |
| 3 | | | | | TFD156 | Teal Fixed Drum | 39.90 | | | |
| 4 | | | | | TRB213 | Teal Regular Binding | 120.20 | | | |
| 5 | | | | | YVB247 | Yellow Vitreous Brace | 72.48 | 9 | 652.32 | 0 |
| 6 | 125 Total | | | | | | | 18 | 1,215.82 | |



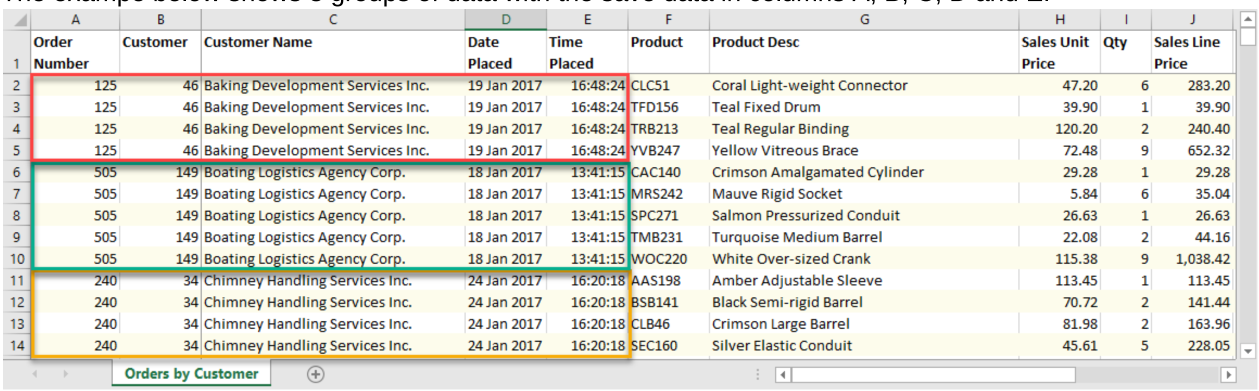


## Clear Data

**Clear Data**

Clear cell data based on repeated data.

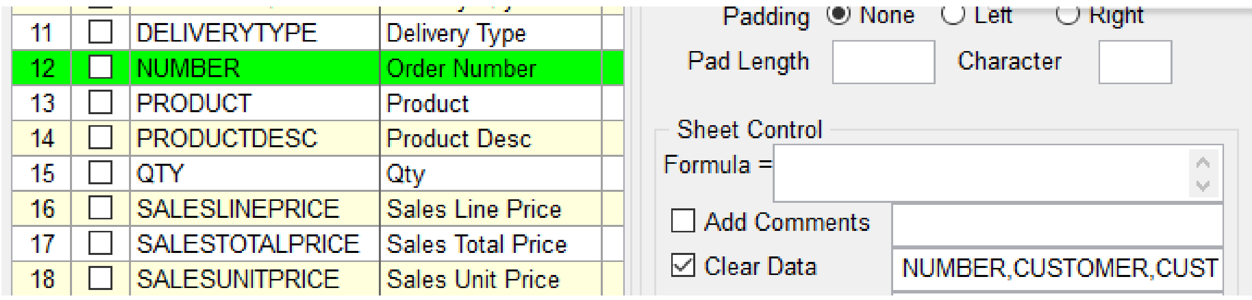
The exampe below shows 3 groups of data with the save data in columns A, B, C, D and E.



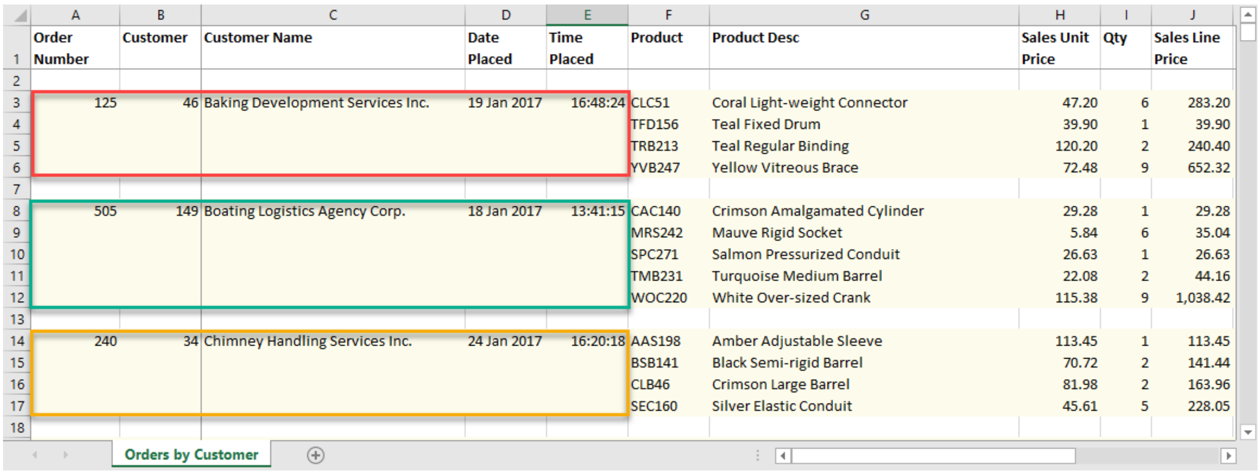
| | Order Number | Customer | Customer Name | Date Placed | Time Placed | Product | Product Desc | Sales Unit Price | Qty | Sales Line Price |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 125 | 46 | Baking Development Services Inc. | 19 Jan 2017 | 16:48:24 | CLC51 | Coral Light-weight Connector | 47.20 | 6 | 283.20 |
| 3 | 125 | 46 | Baking Development Services Inc. | 19 Jan 2017 | 16:48:24 | TFD156 | Teal Fixed Drum | 39.90 | 1 | 39.90 |
| 4 | 125 | 46 | Baking Development Services Inc. | 19 Jan 2017 | 16:48:24 | TRB213 | Teal Regular Binding | 120.20 | 2 | 240.40 |
| 5 | 125 | 46 | Baking Development Services Inc. | 19 Jan 2017 | 16:48:24 | YVB247 | Yellow Vitreous Brace | 72.48 | 9 | 652.32 |
| 6 | 505 | 149 | Boating Logistics Agency Corp. | 18 Jan 2017 | 13:41:15 | CAC140 | Crimson Amalgamated Cylinder | 29.28 | 1 | 29.28 |
| 7 | 505 | 149 | Boating Logistics Agency Corp. | 18 Jan 2017 | 13:41:15 | MRS242 | Mauve Rigid Socket | 5.84 | 6 | 35.04 |
| 8 | 505 | 149 | Boating Logistics Agency Corp. | 18 Jan 2017 | 13:41:15 | SPC271 | Salmon Pressurized Conduit | 26.63 | 1 | 26.63 |
| 9 | 505 | 149 | Boating Logistics Agency Corp. | 18 Jan 2017 | 13:41:15 | TMB231 | Turquoise Medium Barrel | 22.08 | 2 | 44.16 |
| 10 | 505 | 149 | Boating Logistics Agency Corp. | 18 Jan 2017 | 13:41:15 | WOC220 | White Over-sized Crank | 115.38 | 9 | 1,038.42 |
| 11 | 240 | 34 | Chimney Handling Services Inc. | 24 Jan 2017 | 16:20:18 | AAS198 | Amber Adjustable Sleeve | 113.45 | 1 | 113.45 |
| 12 | 240 | 34 | Chimney Handling Services Inc. | 24 Jan 2017 | 16:20:18 | BSB141 | Black Semi-rigid Barrel | 70.72 | 2 | 141.44 |
| 13 | 240 | 34 | Chimney Handling Services Inc. | 24 Jan 2017 | 16:20:18 | CLB46 | Crimson Large Barrel | 81.98 | 2 | 163.96 |
| 14 | 240 | 34 | Chimney Handling Services Inc. | 24 Jan 2017 | 16:20:18 | SEC160 | Silver Elastic Conduit | 45.61 | 5 | 228.05 |



Check the "Clear Data" checkbox and enter the list of columns to clear data.




The "Clear Data" option removes the repeated data and creates groups by inserting an empty row between groups.



| Order Number | Customer | Customer Name | Date Placed | Time Placed | Product | Product Desc | Sales Unit Price | Qty | Sales Line Price |
|---|---|---|---|---|---|---|---|---|---|
| 125 | 46 | Baking Development Services Inc. | 19 Jan 2017 | 16:48:24 | CLC51 | Coral Light-weight Connector | 47.20 | 6 | 283.20 |
| | | | | | TFD156 | Teal Fixed Drum | 39.90 | 1 | 39.90 |
| | | | | | TRB213 | Teal Regular Binding | 120.20 | 2 | 240.40 |
| | | | | | YVB247 | Yellow Vitreous Brace | 72.48 | 9 | 652.32 |
| 505 | 149 | Boating Logistics Agency Corp. | 18 Jan 2017 | 13:41:15 | CAC140 | Crimson Amalgamated Cylinder | 29.28 | 1 | 29.28 |
| | | | | | MRS242 | Mauve Rigid Socket | 5.84 | 6 | 35.04 |
| | | | | | SPC271 | Salmon Pressurized Conduit | 26.63 | 1 | 26.63 |
| | | | | | TMB231 | Turquoise Medium Barrel | 22.08 | 2 | 44.16 |
| | | | | | WOC220 | White Over-sized Crank | 115.38 | 9 | 1,038.42 |
| 240 | 34 | Chimney Handling Services Inc. | 24 Jan 2017 | 16:20:18 | AAS198 | Amber Adjustable Sleeve | 113.45 | 1 | 113.45 |
| | | | | | BSB141 | Black Semi-rigid Barrel | 70.72 | 2 | 141.44 |
| | | | | | CLB46 | Crimson Large Barrel | 81.98 | 2 | 163.96 |
| | | | | | SEC160 | Silver Elastic Conduit | 45.61 | 5 | 228.05 |

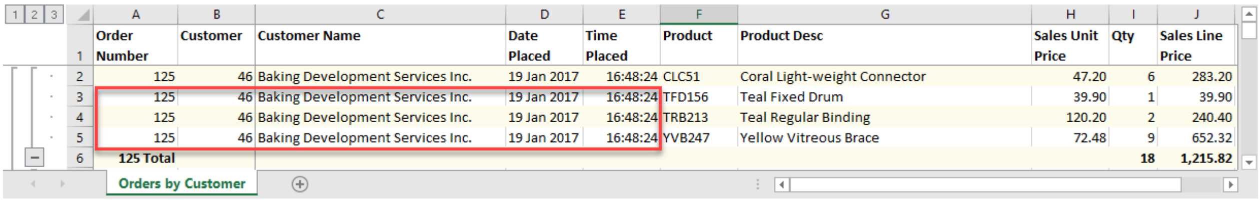
Orders by Customer



## Clear Duplicate Data

**Clear_Duplication_Data**

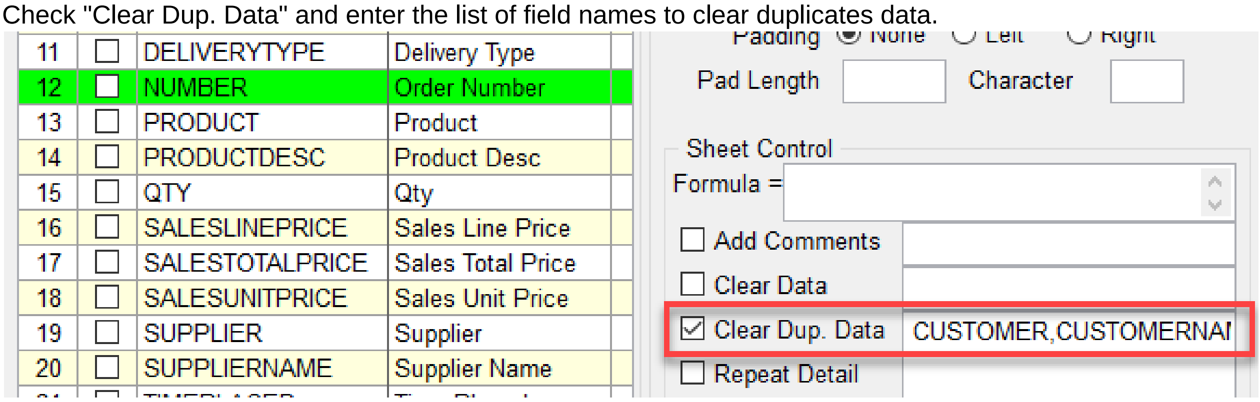
When data grouping (GROUP-BY/BREAK-ON) is used, this option allows you to turn on or off repeated data within the group.



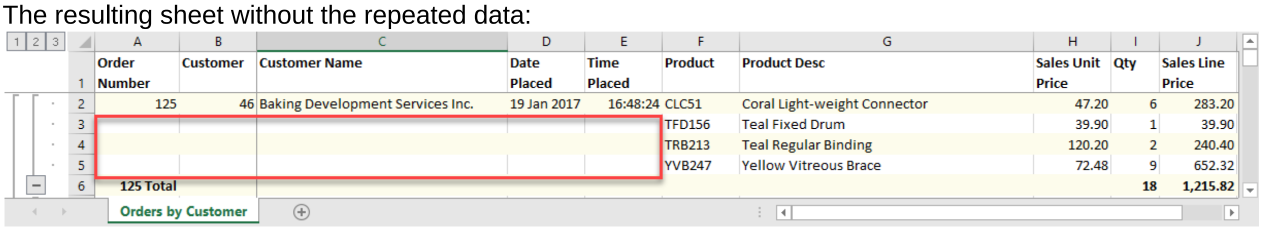
| Order Number | Customer | Customer Name | Date Placed | Time Placed | Product | Product Desc | Sales Unit Price | Qty | Sales Line Price |
|---|---|---|---|---|---|---|---|---|---|
| 125 | 46 | Baking Development Services Inc. | 19 Jan 2017 | 16:48:24 | CLC51 | Coral Light-weight Connector | 47.20 | 6 | 283.20 |
| 125 | 46 | Baking Development Services Inc. | 19 Jan 2017 | 16:48:24 | TFD156 | Teal Fixed Drum | 39.90 | 1 | 39.90 |
| 125 | 46 | Baking Development Services Inc. | 19 Jan 2017 | 16:48:24 | TRB213 | Teal Regular Binding | 120.20 | 2 | 240.40 |
| 125 | 46 | Baking Development Services Inc. | 19 Jan 2017 | 16:48:24 | YVB247 | Yellow Vitreous Brace | 72.48 | 9 | 652.32 |
| 125 Total | | | | | | | | 18 | 1,215.82 |

Orders by Customer

Check "Clear Dup. Data" and enter the list of field names to clear duplicates data.




The resulting sheet without the repeated data:



| Order Number | Customer | Customer Name | Date Placed | Time Placed | Product | Product Desc | Sales Unit Price | Qty | Sales Line Price |
|---|---|---|---|---|---|---|---|---|---|
| 125 | 46 | Baking Development Services Inc. | 19 Jan 2017 | 16:48:24 | CLC51 | Coral Light-weight Connector | 47.20 | 6 | 283.20 |
| | | | | | TFD156 | Teal Fixed Drum | 39.90 | 1 | 39.90 |
| | | | | | TRB213 | Teal Regular Binding | 120.20 | 2 | 240.40 |
| | | | | | YVB247 | Yellow Vitreous Brace | 72.48 | 9 | 652.32 |
| 125 Total | | | | | | | | 18 | 1,215.82 |

Orders by Customer

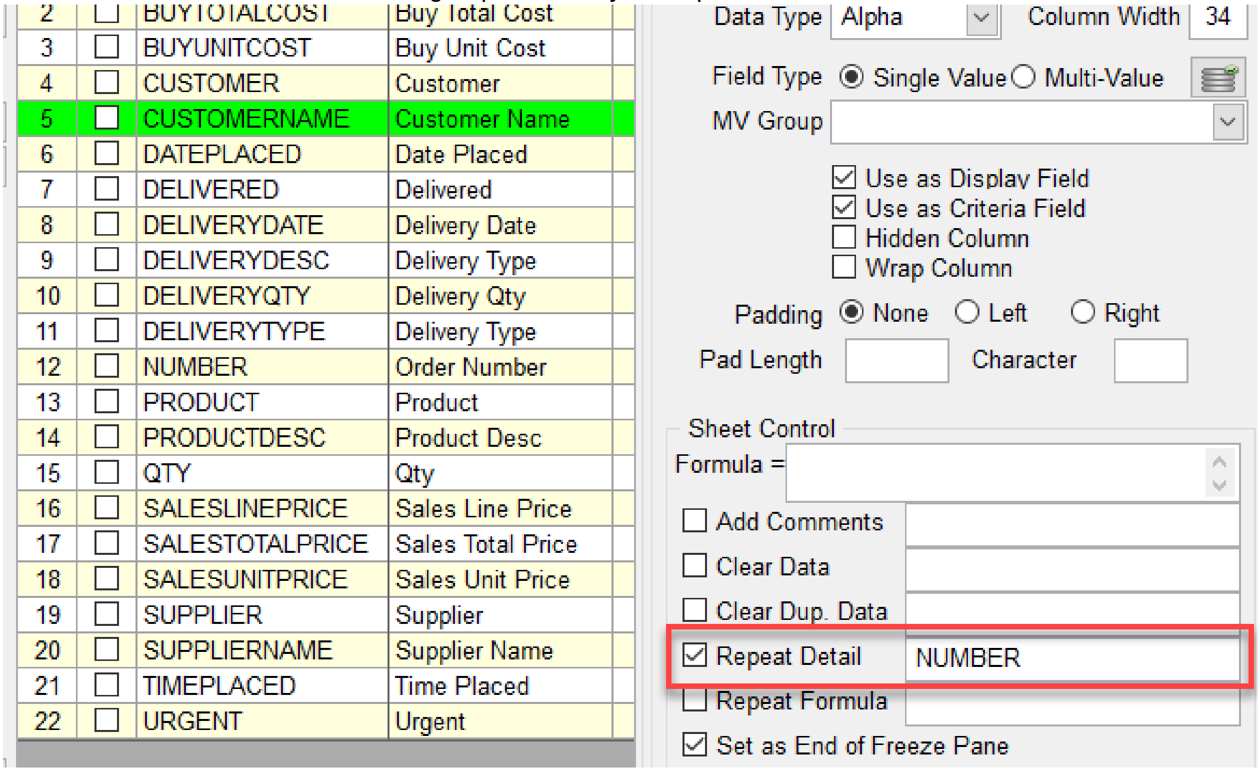


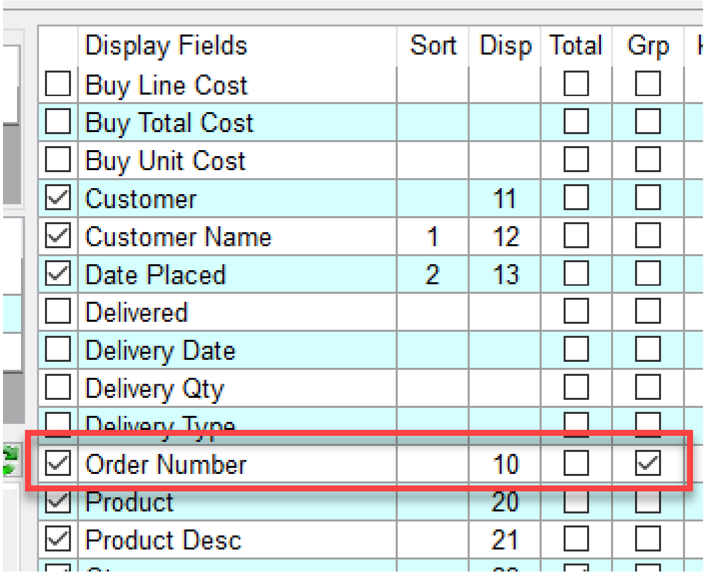
## Repeat Detail/Formula

**Repeat_Detail/Repeat_Formula**

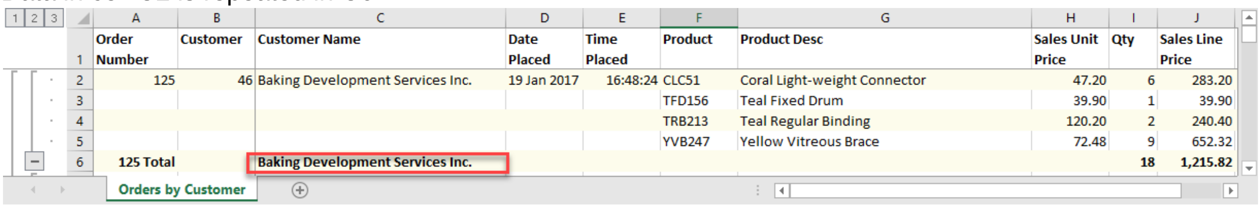
This option allows you to repeat the group data on the total line.

Select the column to repeat the data and click on "Repeat Detail". In the textbox to the right, enter the name of the column that controls the group defined by the report




Data in cell C2 is repeated in C6.



| | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Order Number | Customer | Customer Name | Date Placed | Time Placed | Product | Product Desc | Sales Unit Price | Qty | Sales Line Price |
| 2 | 125 | 46 | Baking Development Services Inc. | 19 Jan 2017 | 16:48:24 | CLC51 | Coral Light-weight Connector | 47.20 | 6 | 283.20 |
| 3 | | | | | | TFD156 | Teal Fixed Drum | 39.90 | 1 | 39.90 |
| 4 | | | | | | TRB213 | Teal Regular Binding | 120.20 | 2 | 240.40 |
| 5 | | | | | | YVB247 | Yellow Vitreous Brace | 72.48 | 9 | 652.32 |
| 6 | 125 Total | | Baking Development Services Inc. | | | | | | 18 | 1,215.82 |



## Repeat Formula

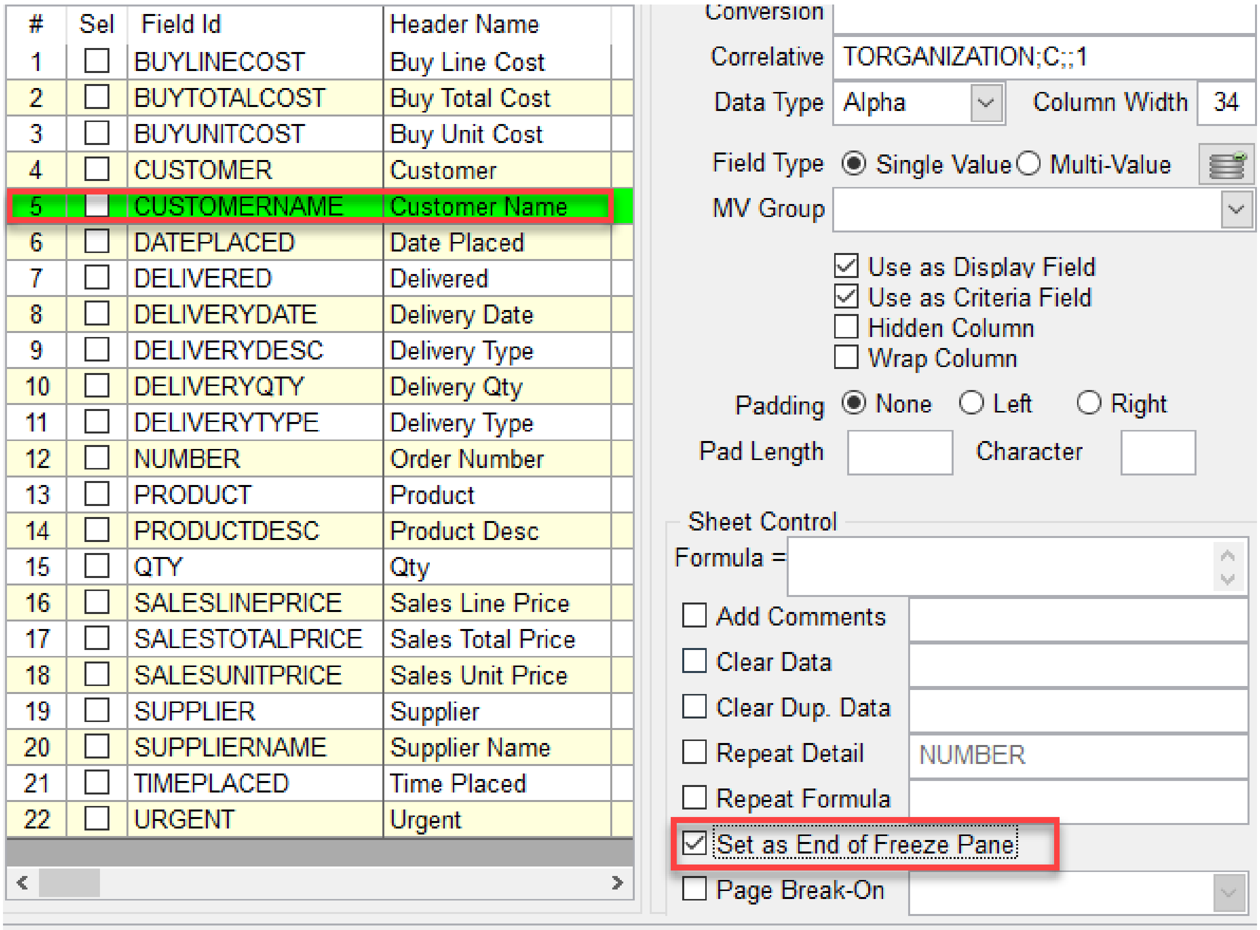
Same functionality as Repeat Detail but instead of repeating the data this repeats the formula.

# Set as End of Freeze Pane

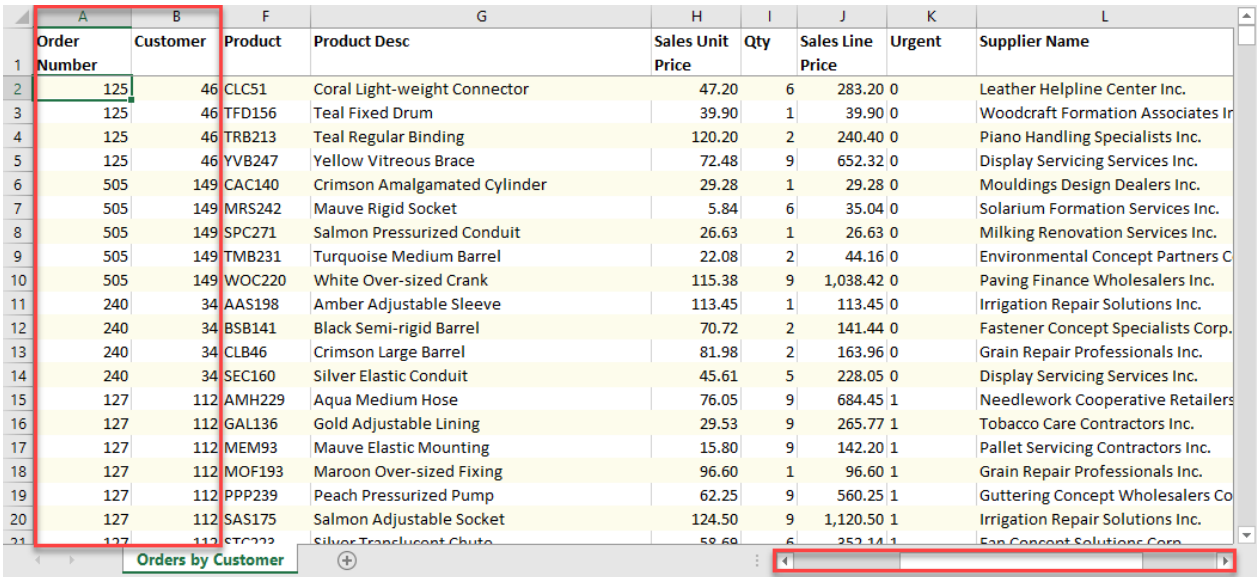
**Set as End of Freeze Pane**

Define the freeze pane column.  Freeze panes in an Excel sheet are left most columns that do not scroll when scrolling the sheet left and right.  By default, column A is set as freeze pane.

To set a freeze pane, check "Set as End of Freeze Pane" to indicate the column that ends the freeze pane.  In the example below column CUSTOMERNAME is marked as End of Freeze Pane which means this column will be the first to scroll left and right and all columns to its left are "frozen" and do not scroll off the screen.




Columns A and B are "frozen" and do not scroll off the screen when the sheet is scrolled left and right. Notice that columns C, D and E are "off" the screen.



| Row | Order Number | Customer | Product | Product Desc | Sales Unit Price | Qty | Sales Line Price | Urgent | Supplier Name |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 125 | 46 | CLC51 | Coral Light-weight Connector | 47.20 | 6 | 283.20 | 0 | Leather Helpline Center Inc. |
| 3 | 125 | 46 | TFD156 | Teal Fixed Drum | 39.90 | 1 | 39.90 | 0 | Woodcraft Formation Associates Ir |
| 4 | 125 | 46 | TRB213 | Teal Regular Binding | 120.20 | 2 | 240.40 | 0 | Piano Handling Specialists Inc. |
| 5 | 125 | 46 | YVB247 | Yellow Vitreous Brace | 72.48 | 9 | 652.32 | 0 | Display Servicing Services Inc. |
| 6 | 505 | 149 | CAC140 | Crimson Amalgamated Cylinder | 29.28 | 1 | 29.28 | 0 | Mouldings Design Dealers Inc. |
| 7 | 505 | 149 | MRS242 | Mauve Rigid Socket | 5.84 | 6 | 35.04 | 0 | Solarium Formation Services Inc. |
| 8 | 505 | 149 | SPC271 | Salmon Pressurized Conduit | 26.63 | 1 | 26.63 | 0 | Milking Renovation Services Inc. |
| 9 | 505 | 149 | TMB231 | Turquoise Medium Barrel | 22.08 | 2 | 44.16 | 0 | Environmental Concept Partners C |
| 10 | 505 | 149 | WOC220 | White Over-sized Crank | 115.38 | 9 | 1,038.42 | 0 | Paving Finance Wholesalers Inc. |
| 11 | 240 | 34 | AAS198 | Amber Adjustable Sleeve | 113.45 | 1 | 113.45 | 0 | Irrigation Repair Solutions Inc. |
| 12 | 240 | 34 | BSB141 | Black Semi-rigid Barrel | 70.72 | 2 | 141.44 | 0 | Fastener Concept Specialists Corp. |
| 13 | 240 | 34 | CLB46 | Crimson Large Barrel | 81.98 | 2 | 163.96 | 0 | Grain Repair Professionals Inc. |
| 14 | 240 | 34 | SEC160 | Silver Elastic Conduit | 45.61 | 5 | 228.05 | 0 | Display Servicing Services Inc. |
| 15 | 127 | 112 | AMH229 | Aqua Medium Hose | 76.05 | 9 | 684.45 | 1 | Needlework Cooperative Retailers |
| 16 | 127 | 112 | GAL136 | Gold Adjustable Lining | 29.53 | 9 | 265.77 | 1 | Tobacco Care Contractors Inc. |
| 17 | 127 | 112 | MEM93 | Mauve Elastic Mounting | 15.80 | 9 | 142.20 | 1 | Pallet Servicing Contractors Inc. |
| 18 | 127 | 112 | MOF193 | Maroon Over-sized Fixing | 96.60 | 1 | 96.60 | 1 | Grain Repair Professionals Inc. |
| 19 | 127 | 112 | PPP239 | Peach Pressurized Pump | 62.25 | 9 | 560.25 | 1 | Guttering Concept Wholesalers Co |
| 20 | 127 | 112 | SAS175 | Salmon Adjustable Socket | 124.50 | 9 | 1,120.50 | 1 | Irrigation Repair Solutions Inc. |



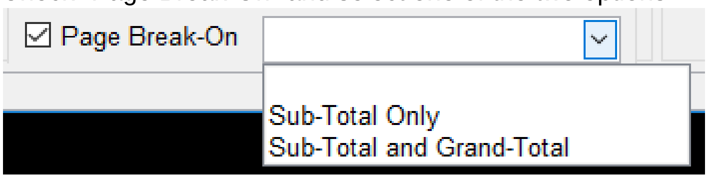


## Page Break-On

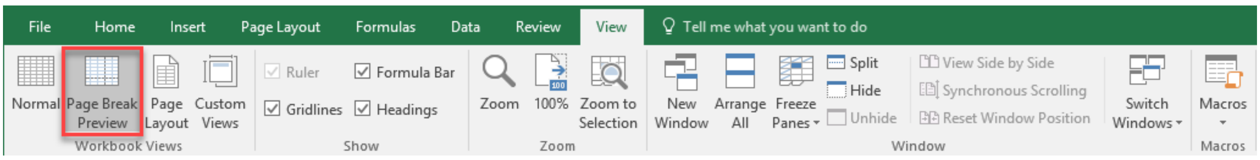
**Page Break-On**

By default, Excel will add an automatic page break at the bottom of each page. The bottom of the page is defined by the default paper size set by the default or selected printer. This option allows you to force a page break after each Sub-Total or after each Sub-Total and Grand-Total.

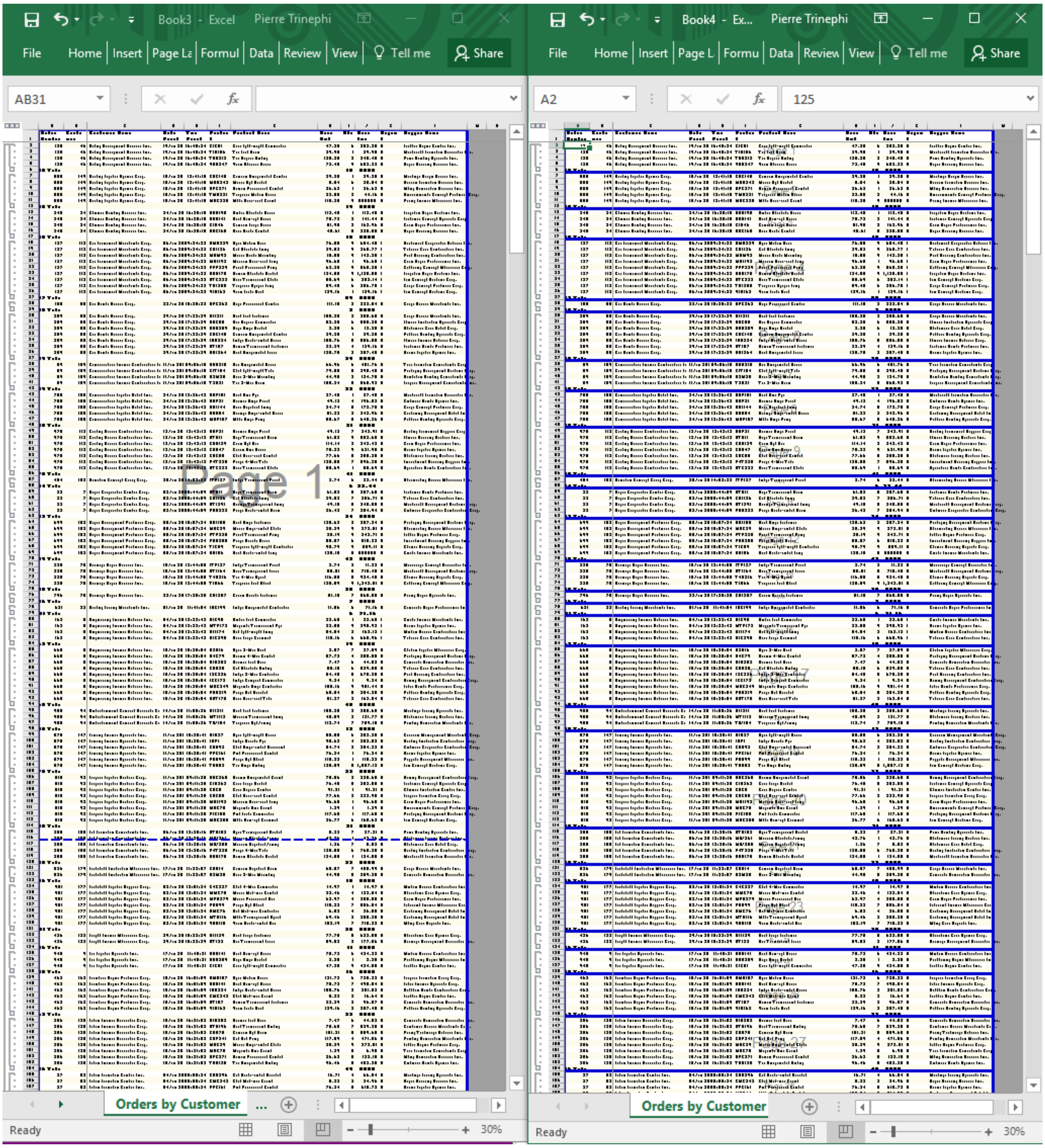
Check "Page Break-On" and select one of the two options.



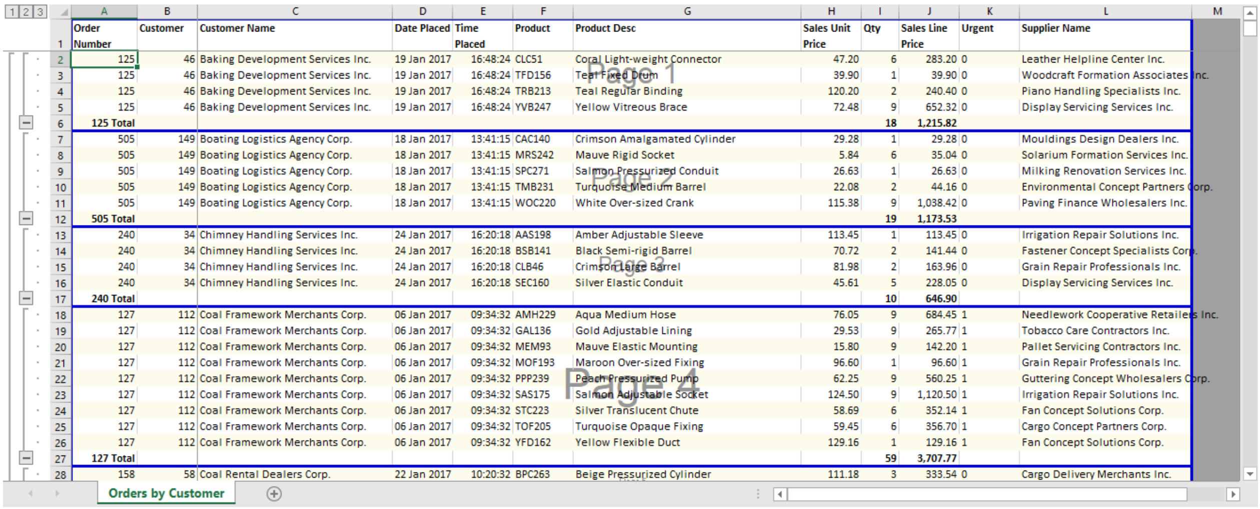

In Excel click on "Page Break Preview" to see the result.




The left view shows the regular page break based on page size and default printer. The right view shows page breaks between every data group defined by "total"




Page breaks between every "Total" groups



| | Order Number | Customer | Customer Name | Date Placed | Time Placed | Product | Product Desc | Sales Unit Price | Qty | Sales Line Price | Urgent | Supplier Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 125 | 46 | Baking Development Services Inc. | 19 Jan 2017 | 16:48:24 | CLC51 | Coral Light-weight Connector | 47.20 | 6 | 283.20 | 0 | Leather Helpline Center Inc. |
| 3 | 125 | 46 | Baking Development Services Inc. | 19 Jan 2017 | 16:48:24 | TFD156 | Teal Fixed Drum | 39.90 | 1 | 39.90 | 0 | Woodcraft Formation Associates Inc. |
| 4 | 125 | 46 | Baking Development Services Inc. | 19 Jan 2017 | 16:48:24 | TRB213 | Teal Regular Binding | 120.20 | 2 | 240.40 | 0 | Piano Handling Specialists Inc. |
| 5 | 125 | 46 | Baking Development Services Inc. | 19 Jan 2017 | 16:48:24 | YVB247 | Yellow Vitreous Brace | 72.48 | 9 | 652.32 | 0 | Display Servicing Services Inc. |
| 6 | 125 Total | | | | | | | | 18 | 1,215.82 | | |
| 7 | 505 | 149 | Boating Logistics Agency Corp. | 18 Jan 2017 | 13:41:15 | CAC140 | Crimson Amalgamated Cylinder | 29.28 | 1 | 29.28 | 0 | Mouldings Design Dealers Inc. |
| 8 | 505 | 149 | Boating Logistics Agency Corp. | 18 Jan 2017 | 13:41:15 | MRS242 | Mauve Rigid Socket | 5.84 | 6 | 35.04 | 0 | Solarium Formation Services Inc. |
| 9 | 505 | 149 | Boating Logistics Agency Corp. | 18 Jan 2017 | 13:41:15 | SPC271 | Salmon Pressurized Conduit | 26.63 | 1 | 26.63 | 0 | Milking Renovation Services Inc. |
| 10 | 505 | 149 | Boating Logistics Agency Corp. | 18 Jan 2017 | 13:41:15 | TMB231 | Turquoise Medium Barrel | 22.08 | 2 | 44.16 | 0 | Environmental Concept Partners Corp. |
| 11 | 505 | 149 | Boating Logistics Agency Corp. | 18 Jan 2017 | 13:41:15 | WOC220 | White Over-sized Crank | 115.38 | 9 | 1,038.42 | 0 | Paving Finance Wholesalers Inc. |
| 12 | 505 Total | | | | | | | | 19 | 1,173.53 | | |
| 13 | 240 | 34 | Chimney Handling Services Inc. | 24 Jan 2017 | 16:20:18 | AAS198 | Amber Adjustable Sleeve | 113.45 | 1 | 113.45 | 0 | Irrigation Repair Solutions Inc. |
| 14 | 240 | 34 | Chimney Handling Services Inc. | 24 Jan 2017 | 16:20:18 | BSB141 | Black Semi-rigid Barrel | 70.72 | 2 | 141.44 | 0 | Fastener Concept Specialists Corp. |
| 15 | 240 | 34 | Chimney Handling Services Inc. | 24 Jan 2017 | 16:20:18 | CLB46 | Crimson Large Barrel | 81.98 | 2 | 163.96 | 0 | Grain Repair Professionals Inc. |
| 16 | 240 | 34 | Chimney Handling Services Inc. | 24 Jan 2017 | 16:20:18 | SEC160 | Silver Elastic Conduit | 45.61 | 5 | 228.05 | 0 | Display Servicing Services Inc. |
| 17 | 240 Total | | | | | | | | 10 | 646.90 | | |
| 18 | 127 | 112 | Coal Framework Merchants Corp. | 06 Jan 2017 | 09:34:32 | AMH229 | Aqua Medium Hose | 76.05 | 9 | 684.45 | 1 | Needlework Cooperative Retailers Inc. |
| 19 | 127 | 112 | Coal Framework Merchants Corp. | 06 Jan 2017 | 09:34:32 | GAL136 | Gold Adjustable Lining | 29.53 | 9 | 265.77 | 1 | Tobacco Care Contractors Inc. |
| 20 | 127 | 112 | Coal Framework Merchants Corp. | 06 Jan 2017 | 09:34:32 | MEM93 | Mauve Elastic Mounting | 15.80 | 9 | 142.20 | 1 | Pallet Servicing Contractors Inc. |
| 21 | 127 | 112 | Coal Framework Merchants Corp. | 06 Jan 2017 | 09:34:32 | MOF193 | Maroon Over-sized Fixing | 96.60 | 1 | 96.60 | 1 | Grain Repair Professionals Inc. |
| 22 | 127 | 112 | Coal Framework Merchants Corp. | 06 Jan 2017 | 09:34:32 | PPP239 | Peach Pressurized Pump | 62.25 | 9 | 560.25 | 1 | Guttering Concept Wholesalers Corp. |
| 23 | 127 | 112 | Coal Framework Merchants Corp. | 06 Jan 2017 | 09:34:32 | SAS175 | Salmon Adjustable Socket | 124.50 | 9 | 1,120.50 | 1 | Irrigation Repair Solutions Inc. |
| 24 | 127 | 112 | Coal Framework Merchants Corp. | 06 Jan 2017 | 09:34:32 | STC223 | Silver Translucent Chute | 58.69 | 6 | 352.14 | 1 | Fan Concept Solutions Corp. |
| 25 | 127 | 112 | Coal Framework Merchants Corp. | 06 Jan 2017 | 09:34:32 | TOF205 | Turquoise Opaque Fixing | 59.45 | 6 | 356.70 | 1 | Cargo Concept Partners Corp. |
| 26 | 127 | 112 | Coal Framework Merchants Corp. | 06 Jan 2017 | 09:34:32 | YFD162 | Yellow Flexible Duct | 129.16 | 1 | 129.16 | 1 | Fan Concept Solutions Corp. |
| 27 | 127 Total | | | | | | | | 59 | 3,707.77 | | |
| 28 | 158 | 58 | Coal Rental Dealers Corp. | 22 Jan 2017 | 10:20:32 | BPC263 | Beige Pressurized Cylinder | 111.18 | 3 | 333.54 | 0 | Cargo Delivery Merchants Inc. |

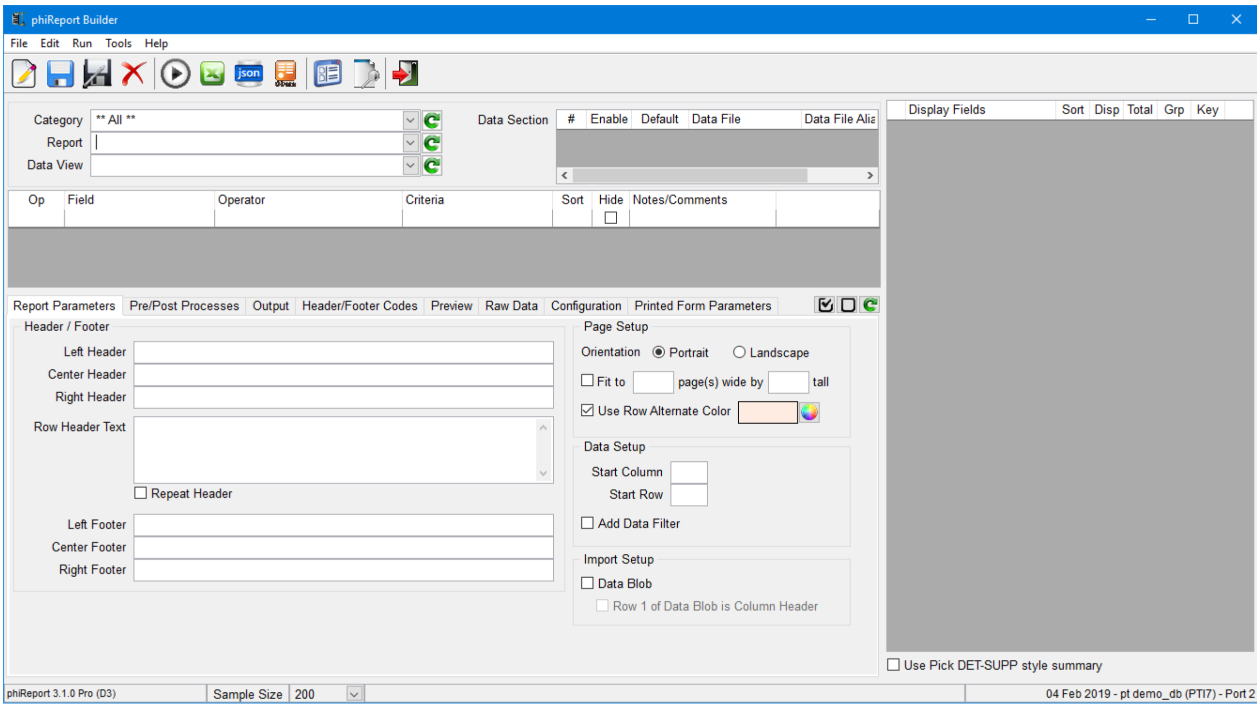




# phiReport Builder

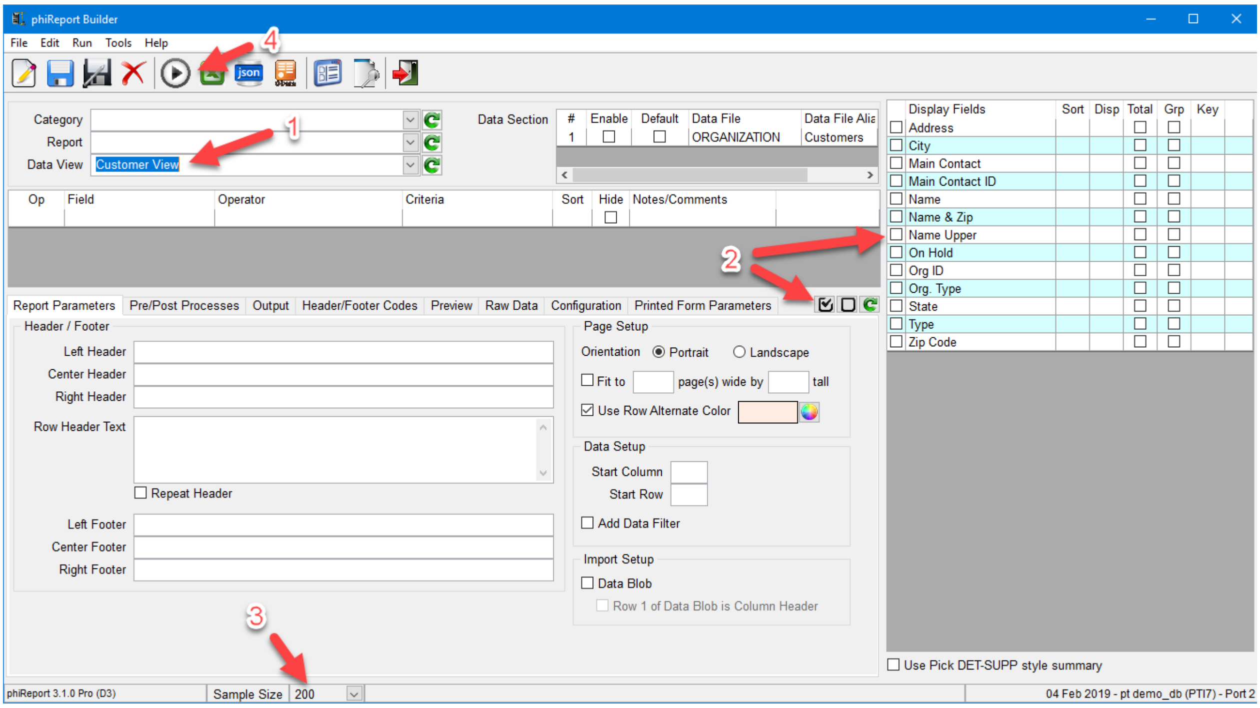
*Available with Edition: PRO and CLOUD*

Use phiReport Builder to create and test reports and generate JSON/OData documents.



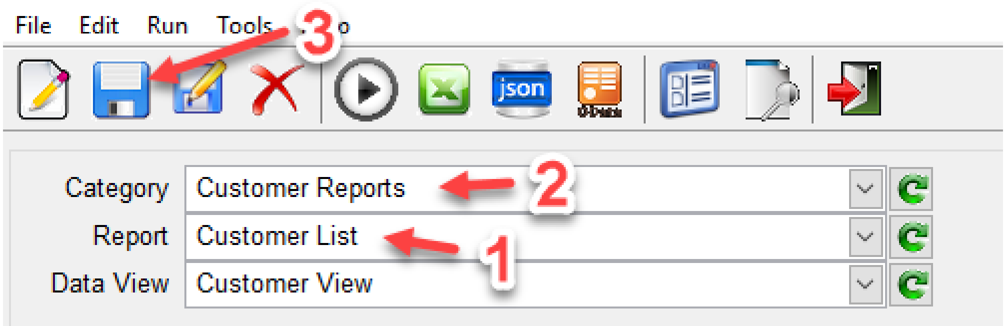

The Report Builder interface allows you to create report definitions.

Quick Start

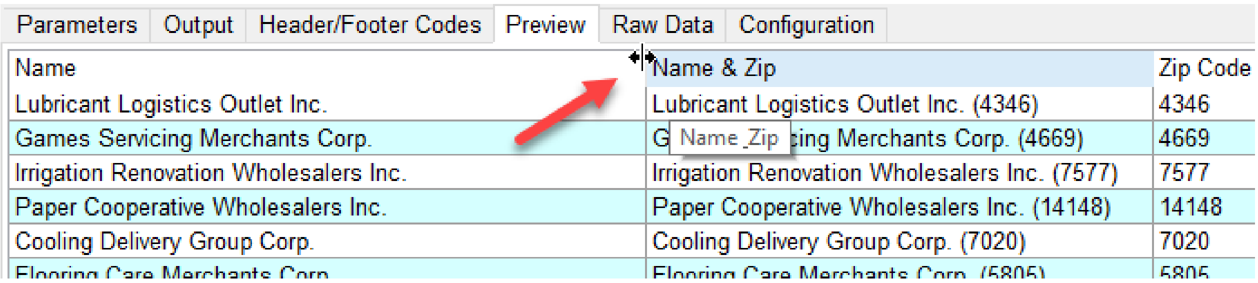



1. Select a Data View created in the Data View Manager
2. Select 1 or more or all Display Fields to include in the report
3. Select the Sample Size (default is 200)
4. Click on "Run Query" to preview the selected data in the preview tab.

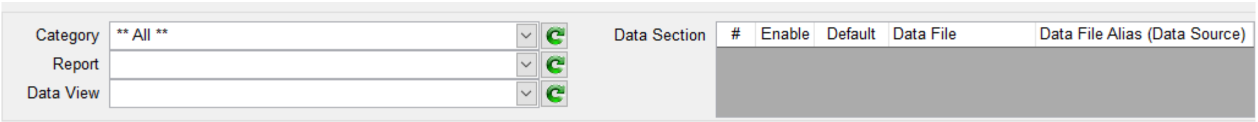
To save the report
1. Enter a name in the "Report" field
2. Optionaly enter a Category name
3. Click "Save"




To resize a column, place your mouse on the preview header between 2 columns until the cursor changes to the double arrow. Click then drag left or right to resize the column. The new column size is automatically saved with the Data View definition.

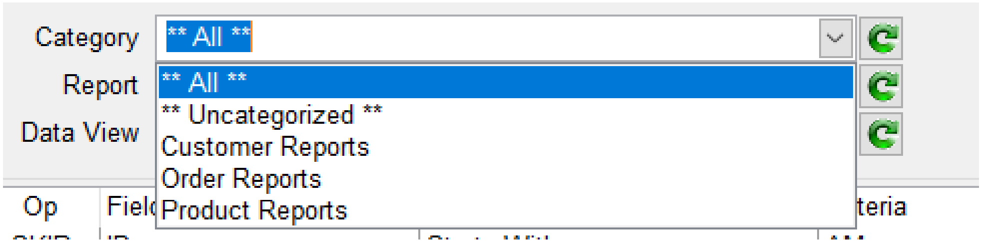


# Report Select



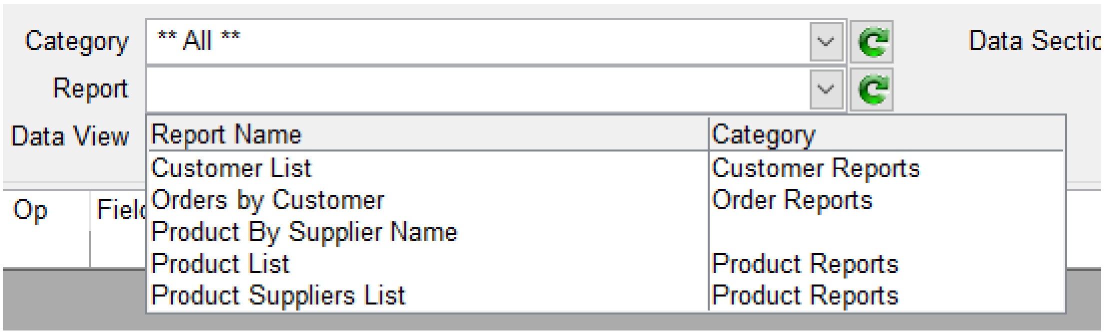

The report select frame contains 3 dropdownlists and a grid

Category list



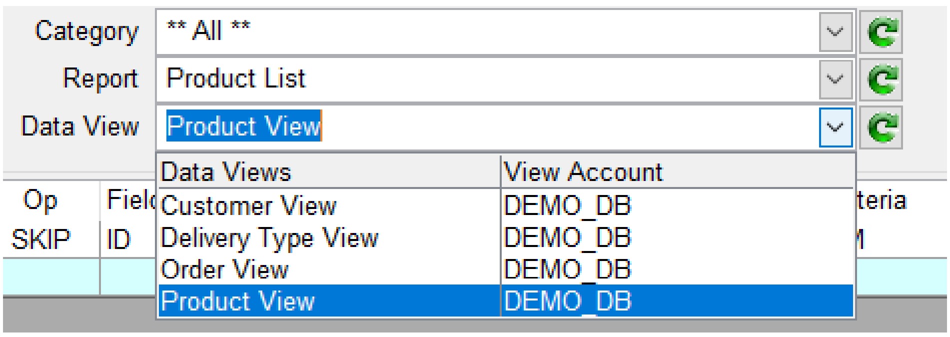

Lists Categories defined in the active account. Categories are created when saving a report. To create a new category, enter a nane in the Category field and save the report. To delete a category you need to update all reports associated with that category by editing each report and removing or changing the Category name.

Report list




Lists saved reports. The report list can be filtered by Data View or by Category. To apply a filter, select a Data View or Category and click on the refresh button to the right of the Report dropdownload. This will reload the list applying the filters.

Data View list




Lists Data Views defined in the Data View Manager. Data Views

Data Section grid

Data Section

| # | Enable | Default | Data File | Data File Alias (Data Source) |
|---|---|---|---|---|
| 1 | ☑ | ☑ | PRODUCT | PRODUCT |
| 2 | ☐ | ☐ | DISCONTINUED | Discontinued Items |
| 3 | ☐ | ☐ | OBSOLETE | Obsolete Products |

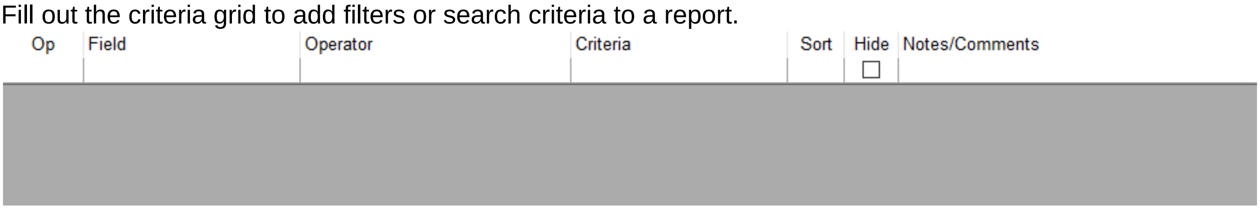
Lists Data Sections associated with the select Data View.  Data Sections are defined by Pick file structures.  If a DICT section contains multiple Data sections, they will automatically be displayed in this grid.  From this grid check the Data Sections you want to appear in the list of available "Data Sources" in [PRQUERY](#) by checking the "Enable" checkbox.  The Default checkbox indicates the default Data Source to use.

If none is selected that system default data section is used.

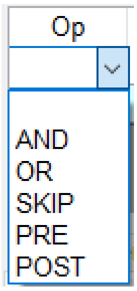


## Report Criteria

Fill out the criteria grid to add filters or search criteria to a report.

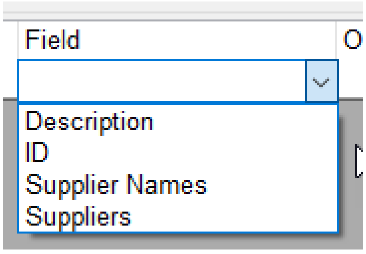



Op: Operand

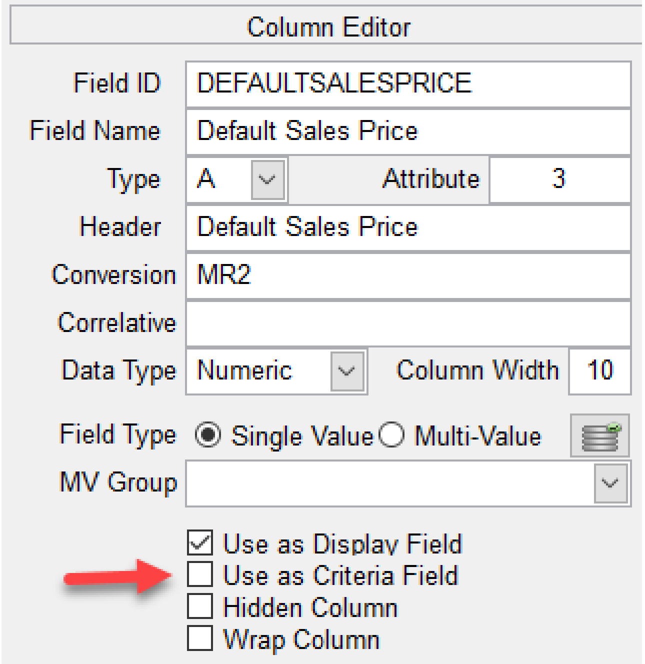



{blank}: A {blank} selection indicates the first selection clause
AND:    Use AND Operand to AND 2 filters
OR:    Use OR Operand to OR 2 filters
SKIP:    Use SKIP to excluse the current filter from the selection.  A SKIP flag is the same as deleting the criteria.  A SKIP allows you to "skip" the clause without deleting it.
PRE:    Use PRE to pass user prompt data to "Pre-Query Process"
POST:   Use POST to pass user prompt data to "Post-Query Process"

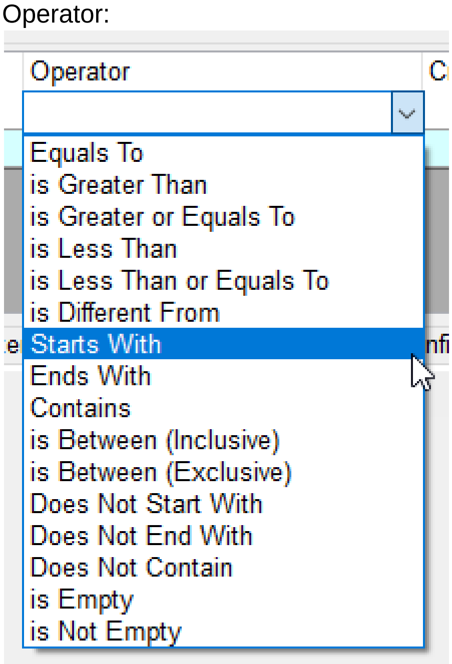
Field: Select criteria fields.



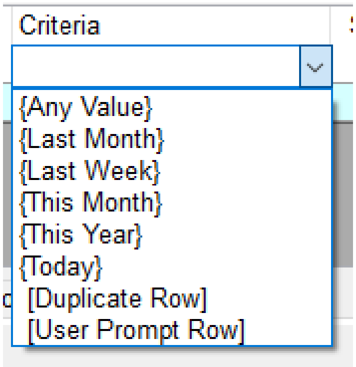

Only fields flagged as "Use as Critefia Field" in the "[Data View Manager]" are display on this list.




Operator:




Select the appropriate operator for your selection.




You can enter a search string or a search token or a pre-defined custom criteria.

| Op | Field | Operator | Criteria |
|---|---|---|---|
| | Supplier Names | Starts With | a |
| | | | |

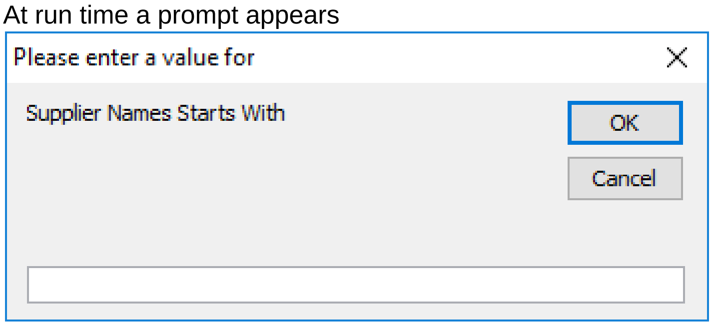
This will return all items with Supplier Names that starts with letter a.
SELECT PRODUCTS WITH SUPPLIERNAME = "a]"

A **Search String** is any string entered in the Criteria column. This string become the default criteria whenever the report is run. If the criteria is flagged as "Hide" it becomes hidden and cannot not be modified. When the report is run from TCL or through the PRAPI this criteria will not be accessible.

A **Search Token** is a special token that instructs the report that a user input is required. **Search Token** is any text enclosed between %%@ and %%. For example, %%@Name%% creates a **Search Token** called Name. When the report is run, the user is prompted to enter a value for the **Search Token**.

| Op | Field | Operator | Criteria |
|---|---|---|---|
| | Supplier Names | Starts With | %%@Name%% |
| | | | |

At run time a prompt appears




When run from TCL

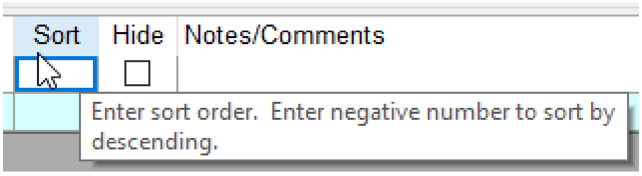
```
PT demo_db:rptrun product by supplier name
Enter value for 'NAME' : (enter '_quit_' to quit) : ?
```

Custom Criteria are stored in CustomCrit file which is created in your work account. Default values are copied from phiReport account to your work account. See Custom Criteria from detail on how to create your own custom criteria.

Operators "is Between (Inclusive)" and "is Between (Exclusive)" require a starting value and an ending value. The two values have to be separated by a semi-colon ';'. If value1 is omited, a blank is assumed. If value2 is omited, a greater-then or greate-or-equals-to value1 is assumed.

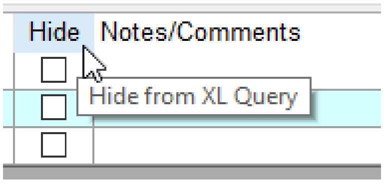
| Op | Field | Operator | Criteria |
|---|---|---|---|
| | ID | is Between (Inclusive) | value1;value2 |
| OR | ID | is Between (Exclusive) | %%@value1%%;%%value2%% |
| | | | |

Sort:



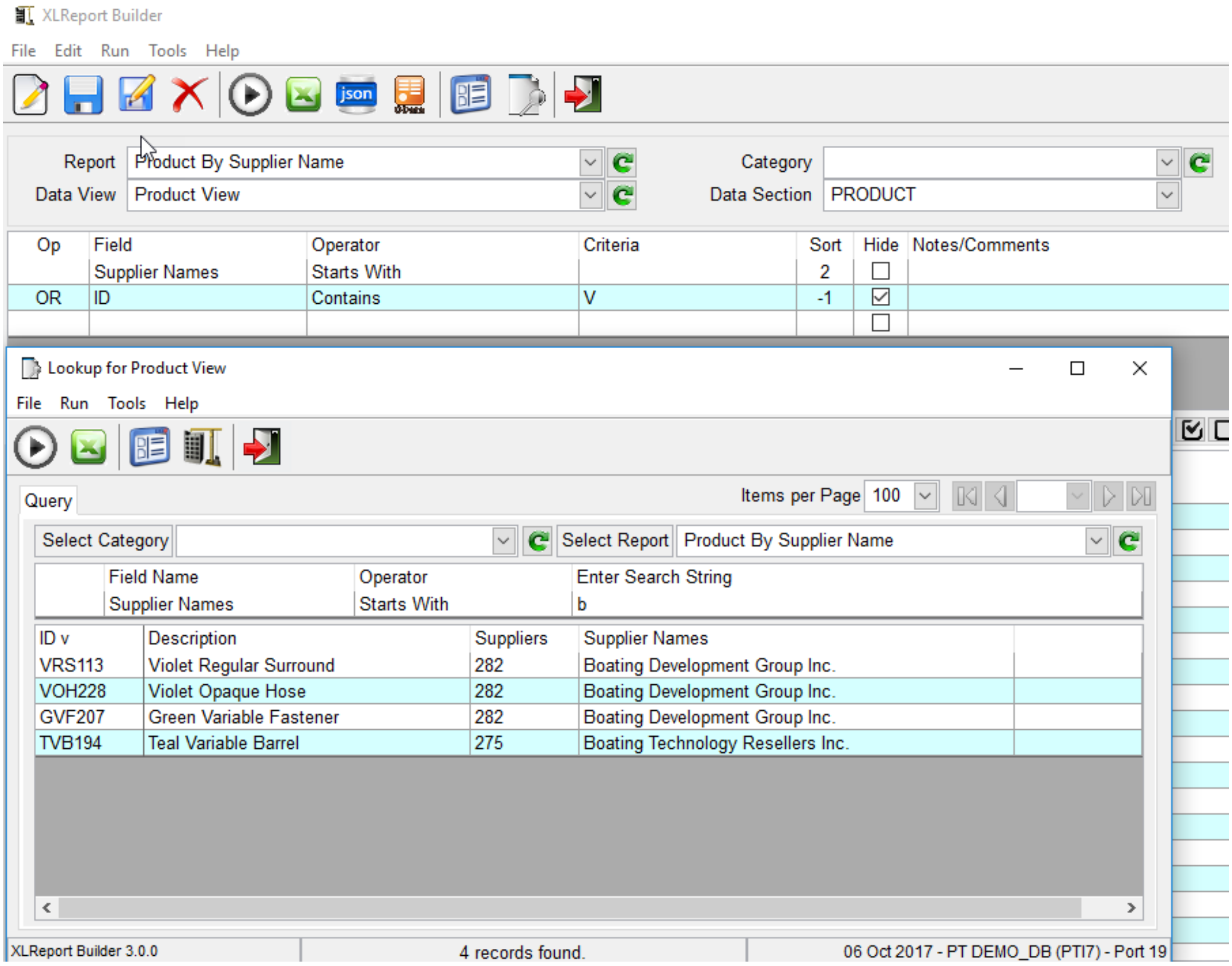

You can specify a sort direction by entering a positive or negative number in the Sort column. Use a negative number to indicate a reverse sort (BY-DSNS). The sort order is executed in the order the criteria is created.

Hide:




Use this option to "hide" the criteria from user when run from [PRQUERY](). This is useful when you don't want users to change the search value. You can mix visible and hidden criteria in the same report.

Example:



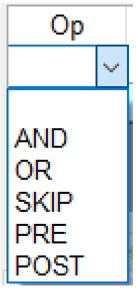

In the above example, we have defined 2 criteria where the second one is flagged as "Hide".  Notice that the second criteria is not displayed in PRQUERY

The generated query statement is as follows:
SORT PRODUCT ID DESCRIPTION SUPPLIERS SUPPLIERNAMES  BY SUPPLIERNAMES EQ "]" OR WITH ID EQ "[V]" BY-DSND ID



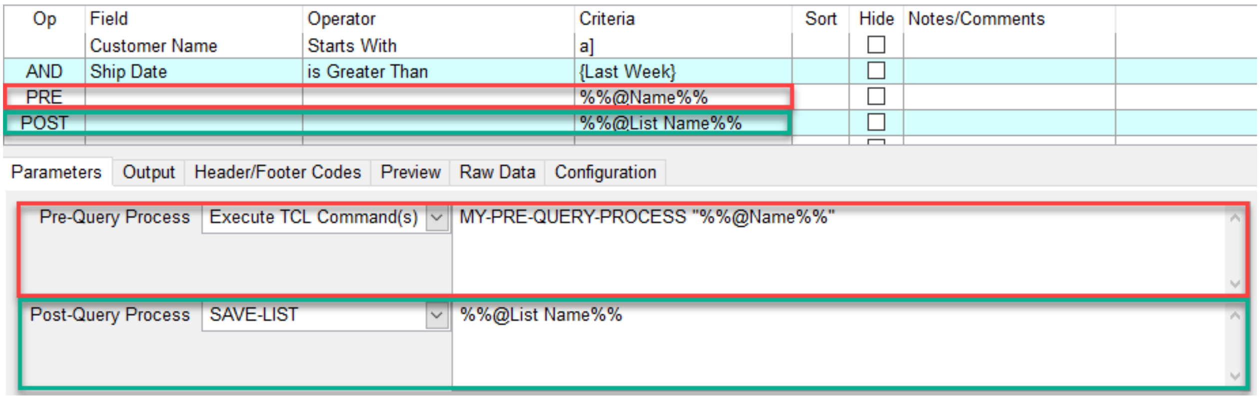
## PRE and POST Operands

PRE and POST operands are special options that are not operands used in the generated quesry statement.  PRE and POST must be used in conjunction with Pre-Query and Post-Query Processes.  They are the mechanism to pass data to the Pre and Post Query Processes.

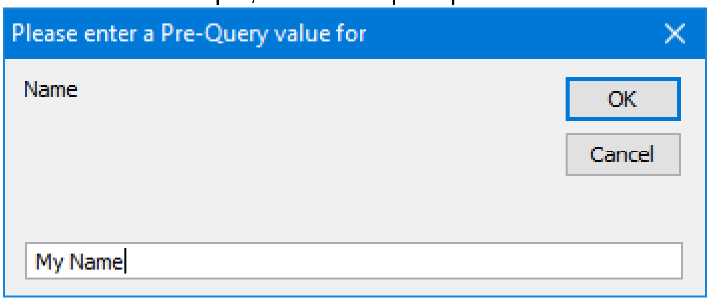


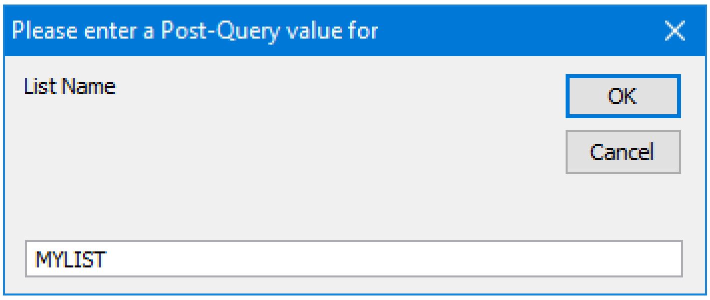

To pass data to the Pre/Post query processes, select PRE or POST from the Op droplist and enter a "**Search Token**" in the Criteria column.  The other columns are not used with PRE and POST.

A **Search Token** is a special token that instructs the report that a user input is required.  **Search Token** is any text enclosed between %%@ and %%.  For example, %%@Name%% creates a Search Token called Name.  When the report is run, the user is prompted to enter a value for the **Search Token**.




In the above example, the user is prompted a "Name" and a "List Name".




phiReport will execute the Pre-Query TCL command MY-PRE-QUERY-PROCESS passing it the value entered for Name.

**MY-PRE-QUERY-PROCESS "My Name"**

and the Post-Query command **SAVE-LIST MYLIST**

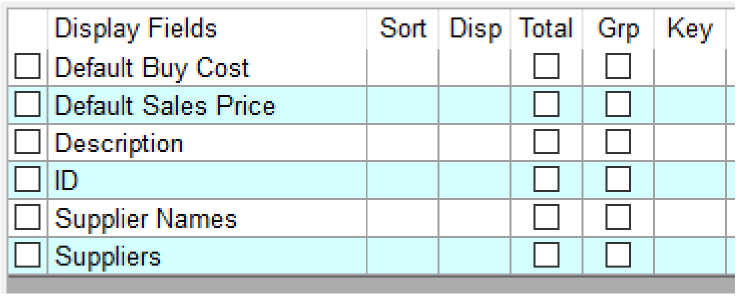
*Note: PRE and POST can be inserted anywhere in the criteria grid, they will not be included in the*

*generated query.*
*With PRE and POST, only the value in the "Criteria" column is used.*

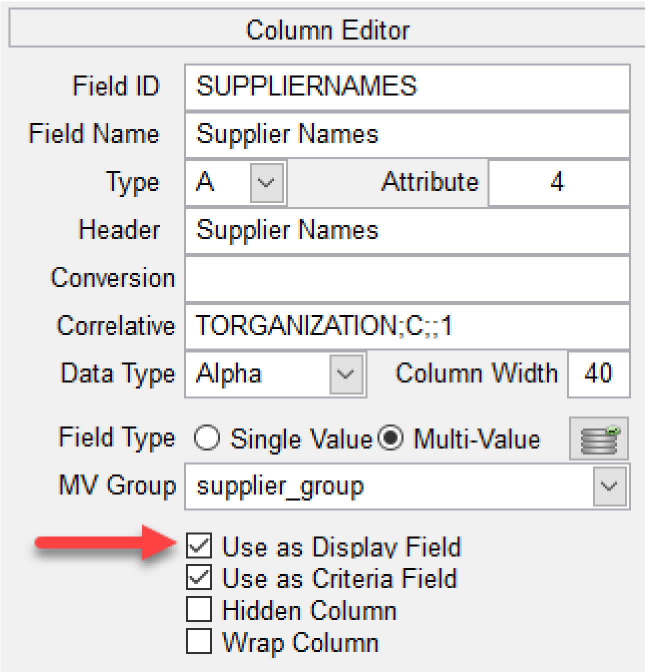


## Report Display Fields

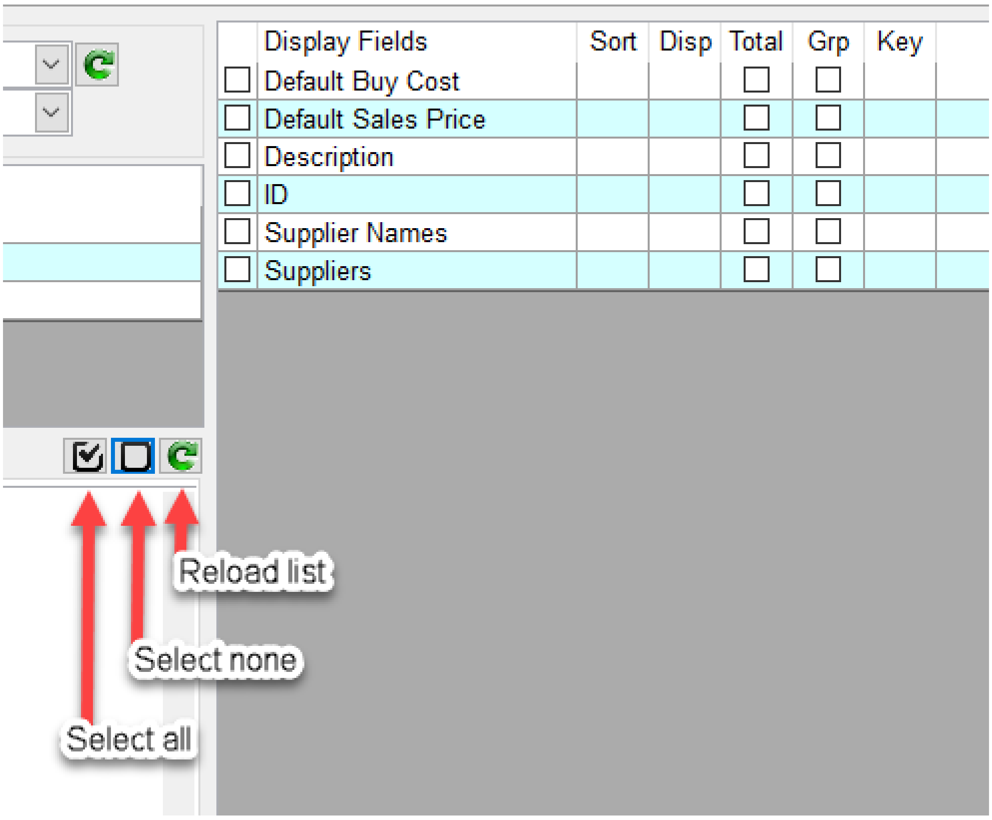
Report Display Fields are listed in the grid on the right of the phiReport Builder form.




The application only lists the fields flagged as "Display Field" in the "Data View Manager"




To include a field to the report, Click on the checkbox on the left of the grid.  Use the speed buttons to select/deselect all fields and to reload the list of fields.




<u>Sort</u>
Specify the Sort direction and sort order. A positive number indicates an ascending sort while a negative number indicates a descending sort. The absolute value of the number indicates the sort order.

For example:

| v | Display Fields | Sort | Disp | Total | Grp | Key |
|---|---|---|---|---|---|---|
| ☑ | Default Buy Cost | -2 | | ☐ | ☐ | |
| ☑ | Default Sales Price | | | ☐ | ☐ | |
| ☑ | Description | | | ☐ | ☐ | |
| ☑ | ID | 1 | | ☐ | ☐ | |
| ☐ | Supplier Names | | | ☐ | ☐ | |
| ☐ | Suppliers | | | ☐ | ☐ | |

SORT .... **BY** ID **BY-DSND** DEFAULTBUYCOST

| v | Display Fields | Sort | Disp | Total | Grp | Key |
|---|---|---|---|---|---|---|
| ☑ | Default Buy Cost | -1 | | ☐ | ☐ | |
| ☑ | Default Sales Price | | | ☐ | ☐ | |
| ☑ | Description | | | ☐ | ☐ | |
| ☑ | ID | 2 | | ☐ | ☐ | |
| ☐ | Supplier Names | | | ☐ | ☐ | |
| ☐ | Suppliers | | | ☐ | ☐ | |

SORT ... **BY-DSND** DEFAULTBUYCOST **BY** ID

If a field is defined as multi-value, phiReport will automatically use BY-EXP and BY-EXP-DSND instead of BY and BY-DSND respectively.

If a field is not defined as multi-value, you can force the use of BY-EXP and BY-EXP-DSND by prefixing the sort number with '*' for BY-EXP and '@' for BY-EXP-DSND; (negative numbers are ignored in this case)

| | | | | | |
|---|---|---|---|---|---|
| ☐ | ADDRESS | | | ☐ | ☐ |
| ☑ | INVOICE NUMBER | 10 | 10 | ☐ | ☑ |
| ☑ | PO # | | 15 | ☐ | ☐ |
| ☑ | DATE | *1 | 20 | ☐ | ☐ |
| ☑ | CUSTOMER | | 30 | ☐ | ☐ |
| ☑ | NAME | | 35 | ☐ | ☐ |
| ☑ | EXT PRICE2 | | 70 | ☑ | ☐ |
| ☑ | TAX AMOUNT2 | | 80 | ☑ | ☐ |
| ☑ | FREIGHT AMOUNT | | 90 | ☑ | ☐ |
| ☑ | INVOICE TOTAL2 | | 100 | ☑ | ☐ |

SORT ... **BY-EXP** DATE

By default the sort clause is placed at the end of the statement as follows:

SORT <Filename> USING <Dict Filename> <List of display fields> <Criteria> <Sort Clause>

In some cases you may need to perform the sort before the criteria especially when using complex statements with multi-values. In this case append an asterisk "*" after the sort number.

| | | | | | |
|---|---|---|---|---|---|
| ☐ | ADDRESS | | | ☐ | ☐ |
| ☑ | INVOICE NUMBER | 10 | 10 | ☐ | ☑ |
| ☑ | PO # | | 15 | ☐ | ☐ |
| ☑ | DATE | 1* | 20 | ☐ | ☐ |
| ☑ | CUSTOMER | | 30 | ☐ | ☐ |
| ☑ | NAME | | 35 | ☐ | ☐ |
| ☑ | EXT PRICE2 | | 70 | ☑ | ☐ |
| ☑ | TAX AMOUNT2 | | 80 | ☑ | ☐ |
| ☑ | FREIGHT AMOUNT | | 90 | ☑ | ☐ |
| ☑ | INVOICE TOTAL2 | | 100 | ☑ | ☐ |

SORT ... **BY** DATE <some criteria> **BY** INVNUMBER

You can mix sort instructions as required by your statement:

| | | | | | |
|---|---|---|---|---|---|
| ☐ | ADDRESS | | | ☐ | ☐ |
| ☑ | INVOICE NUMBER | -10 | 10 | ☐ | ☑ |
| ☑ | PO # | | 15 | ☐ | ☐ |
| ☑ | DATE | @1* | 20 | ☐ | ☐ |
| ☑ | CUSTOMER | | 30 | ☐ | ☐ |
| ☑ | NAME | 1 | 35 | ☐ | ☐ |
| ☑ | EXT PRICE2 | | 70 | ☑ | ☐ |
| ☑ | TAX AMOUNT2 | | 80 | ☑ | ☐ |
| ☑ | FREIGHT AMOUNT | | 90 | ☑ | ☐ |
| ☑ | INVOICE TOTAL2 | | 100 | ☑ | ☐ |

SORT ...**BY-EXP-DSND** DATE <criteria> **BY** NAME **BY-DSND** INVNUMBER

Note: Notice the 2 sort clauses, the primary sort clause is performed before the criteria and the secondary sort clause is performed after the criteria.

Disp

Specify the Display order. Enter display order number to specify the order of the output columns. Numbers do not have to be contiguous but they need to indicate a 'hierarchy'.

| v | Display Fields | Sort | Disp | Total | Grp | Key |
|---|---|---|---|---|---|---|
| ☑ | Default Buy Cost | -1 | 10 | ☐ | ☐ | |
| ☑ | Default Sales Price | | 20 | ☐ | ☐ | |
| ☑ | Description | | 7 | ☐ | ☐ | |
| ☑ | ID | 2 | 5 | ☐ | ☐ | |
| ☐ | Supplier Names | | | ☐ | ☐ | |
| ☐ | Suppliers | | | ☐ | ☐ | |

fields will be displayed in numerical order, i.e.: 7,5,10 and 20.

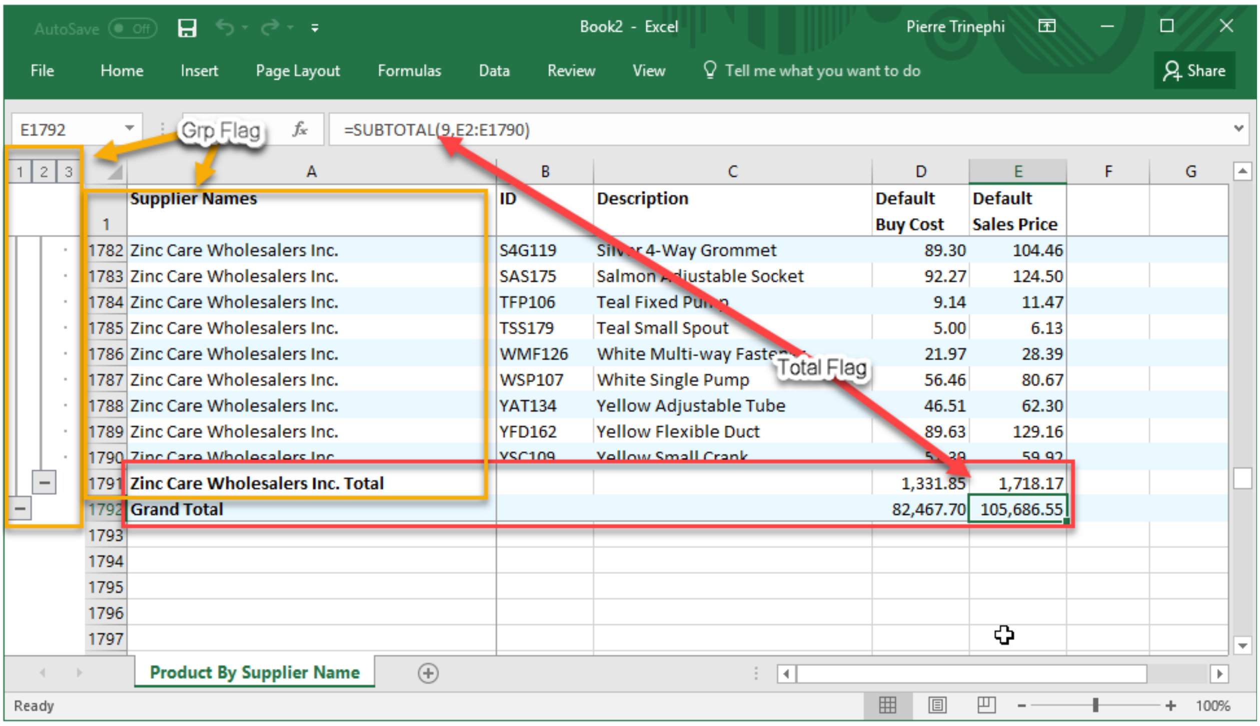
| ID | Description | Default Buy Cost | Default Sales Price |
|---|---|---|---|

The display order is independent from the sort order.

<u>Total</u>
Indicates that the values of the column needs to be totaled. This is equivalent to Pick **TOTAL** keyword. When sent to Excel, columns flagged as **TOTAL** are totaled using the "**=SUM()**" formula on the last row of the worksheet.

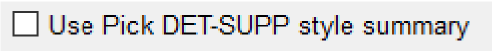
<u>Grp</u> (Group-By/Break-On)
Indicates data grouping based on the data values. The resulting output can be influenced by the sorting parameters. You can use a combination of **Total** and **Grp** to create Excel SUBTOTAL and GRANDTOTAL functions on the selected columns and to create expandable groups.

SORT PRODUCT BREAK-ON SUPPLIERNAMES ID DESCRIPTION TOTAL DEFAULTBUYCOST TOTAL DEFAULTSALESPRICE BY-EXP SUPPLIERNAMES




*Note: Grp and Total have no effect on JSON and OData documents*

In some cases, it is more efficient to use Pick's internal detail suppress (DET-SUPP) to produce a summary report.



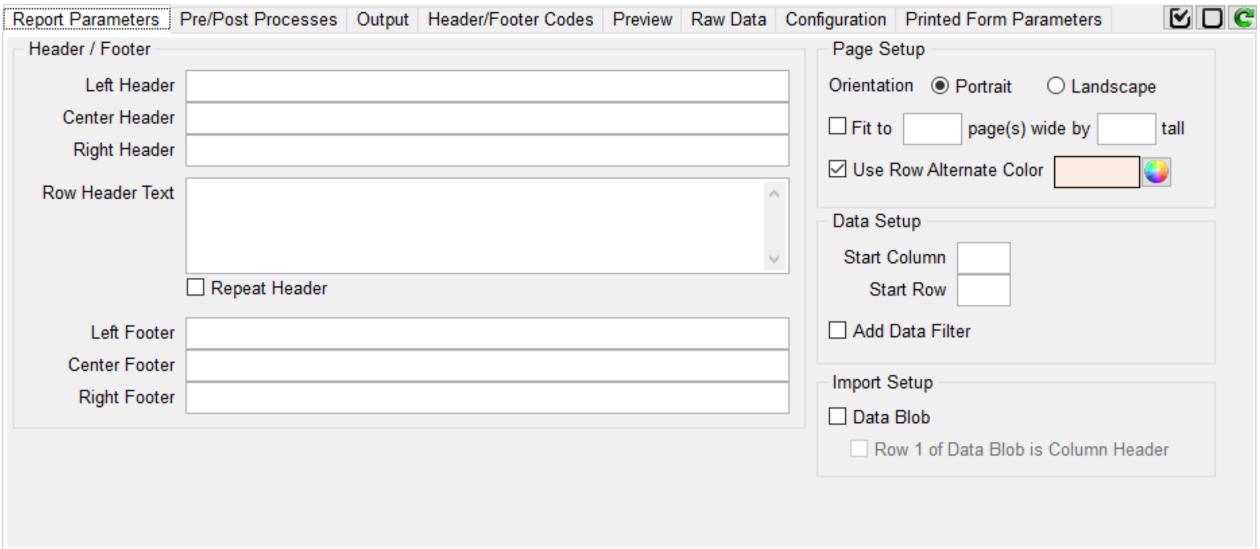

When this option is checked, the key word DEP-SUPP is appended to the end of the query statement and the Excel Grouping feature (Grp) is automatically turned off.

Key
Indicates a key column.  Use this flag to indicate the key field when creating JSON or OData documents.  Enter any character to flag as key.

*Note: Key has no effect on Excel worksheets*



## Report Parameters




**Header  /  Footer**

Left, Center, Right Header
Add Excel Headers.  Use any Excel compatible Excel special commands and built-in command defined in Header/Footer Codes.
*Note: This option has no effect with JSON/OData documents.*

Left, Cendter, Right Footer
Add Excel Footers.  Use any Excel compatible Excel special commands and built-in command defined in Header/Footer Codes.
*Note: This option has no effect with JSON/OData documents.*

Row Header Text
Row Header are the top rows of a worksheet defined as report header.  Unlike regular Excel headers (Left, Center, Right), Row Header are not limited in the number of charatecters.  Row headers are ususlly used as "Report Title" and can be repeated on each page if the "Repeat Header" option is checked.

**Page  Setup**

Orientation
Specify the paper orientation, Landscape or Portrait.

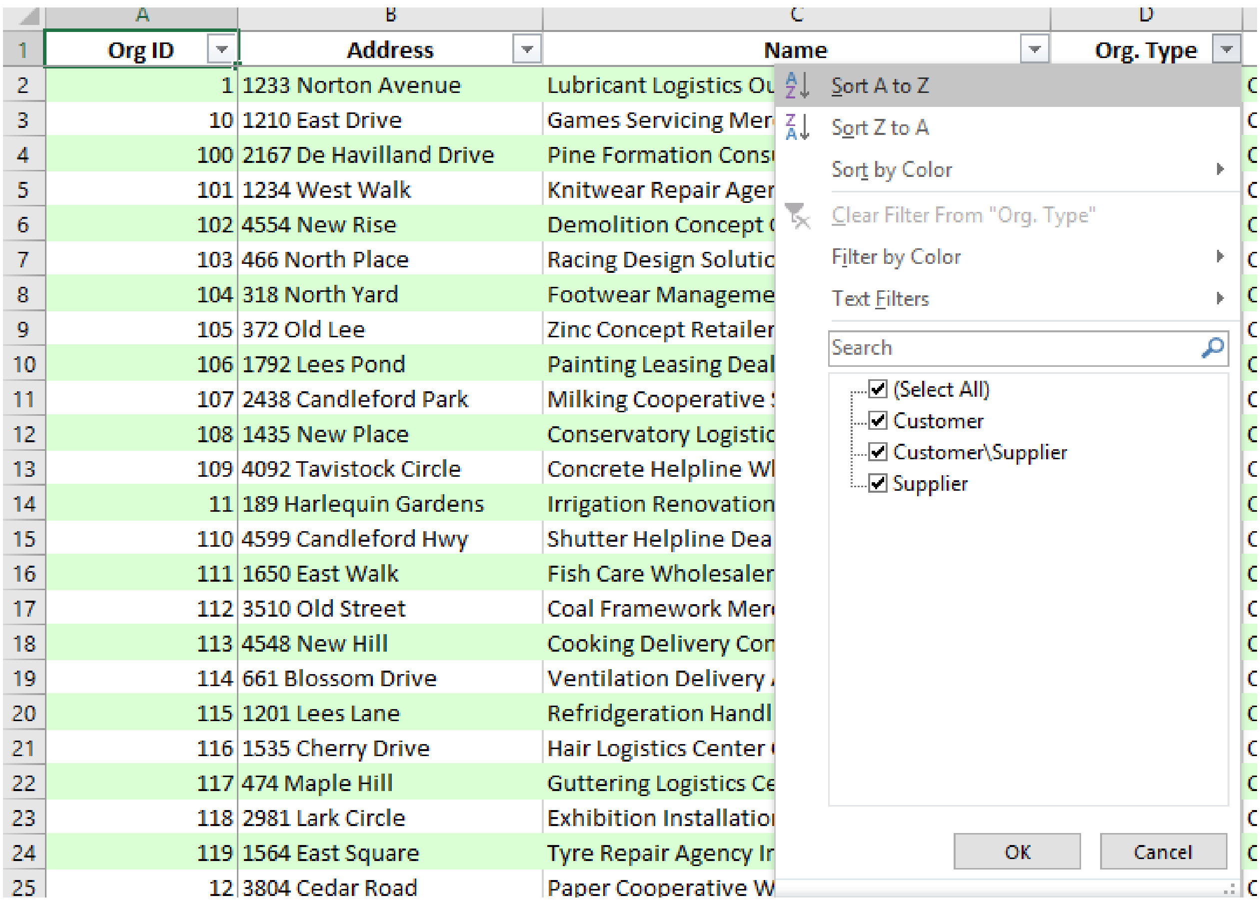
Fit to [ ] pages(s) wide by [ ] tall
This option tells Excel to fit the report within a single page wide and or height.

Alternate Color
Select the alternate row color to use or turn it off.

### Data Setup

Start Column / Start Row
By default, a report starts at cell A1 on the worksheet. You can change the default starting position by entering an alternative cell coordinates. Start Column is a letter starting with "A" and Start Row is a number stating at 1. This feature is useful when creating pre-printed type reports or when using phiForm.

Add Data Filter
Turn on Data Filters on each column. Data Filters are drop-down lists displayed on the header column. They allow you to show/hide data based on your selection. The list of available selections are build automatically by Excel.




### Import Setup

Data Blob
By default, phiReport runs a TCL SELECT statement to generate the report data source. phiReport expects the statement output to be a columnar data set with rows and columns of data.

The Data Blob option allows you to read 1 or more records based on the query built by your query options. Each record would contain a "blob" of data where each attribute corresponds to a row and each value corresponds to a column. Data Blobs can be generated ahead of time by any programs/processes or can be created by pre-query process program.

```
0001  ID]Name]Number]Firstname]Lastname]Position
0002  142]Agricultural Finance Contractors Corp.]427]Hillary]Foot]Secretary]
0003  142]Agricultural Finance Contractors Corp.]426]Jennifer]Furgusson]CEO]
0004  142]Agricultural Finance Contractors Corp.]429]Demi]Gates]Sales]
0005  142]Agricultural Finance Contractors Corp.]428]Joanne]Lawson]Engineer]
0006  142]Agricultural Finance Contractors Corp.]430]Richard]Lawson]Customer Services]
0007  268]Agricultural Rental Contractors Inc.]815]Nigel]Hughes]CEO]
```

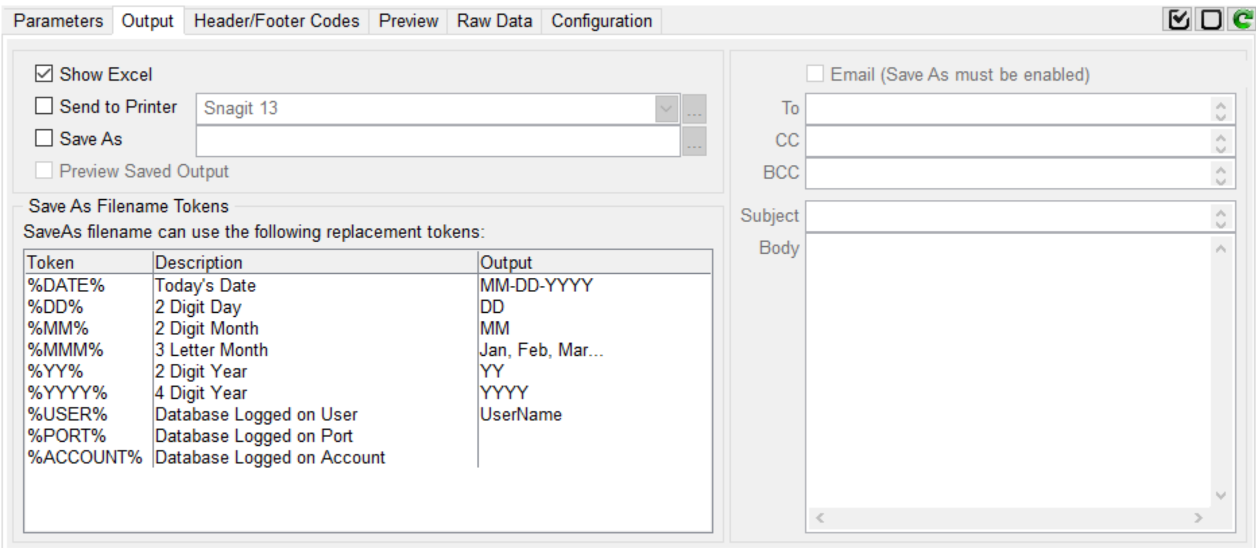
The above record has 7 rows of data and 6 columns ("]" = @VM).  Row 1 defines the report header.

<u>Row 1 of Data Blob is Column Header</u>
If row 1 contains the header, check this box to by-pass the default phiReport column definition defined by the dictionary items.

Note: When using row 1 as the column header, phiReport will not be able to apply any special column formating (column size, font, color) because that information is not available.



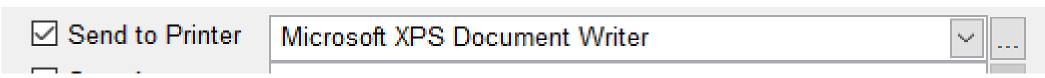
# Report Output




Select how to output the Excel report.

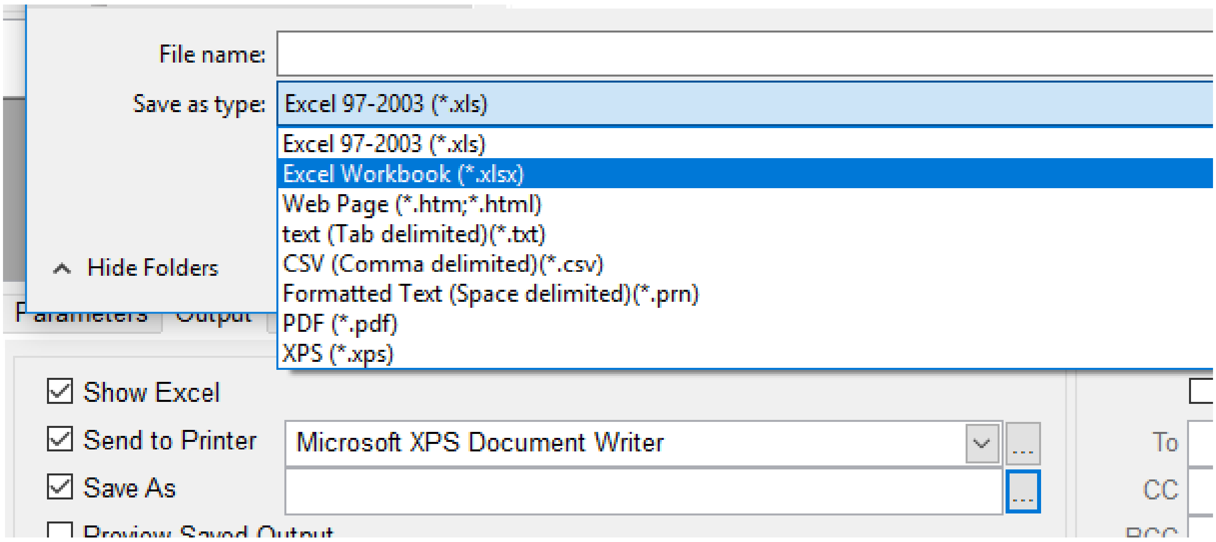
<u>Show Excel</u>
When checked, the generated report is displayed as new Excel workbook.

<u>Send to Printer</u>
Select this option to send the report to a printer.




Click on the ellipsis button to reload the list of available printers and select one from the list.  Printers must be installed as your local Windows print device.  Any valid Windows printers can be used; local and network printers.

Save As
Select this option to save the report to a file.



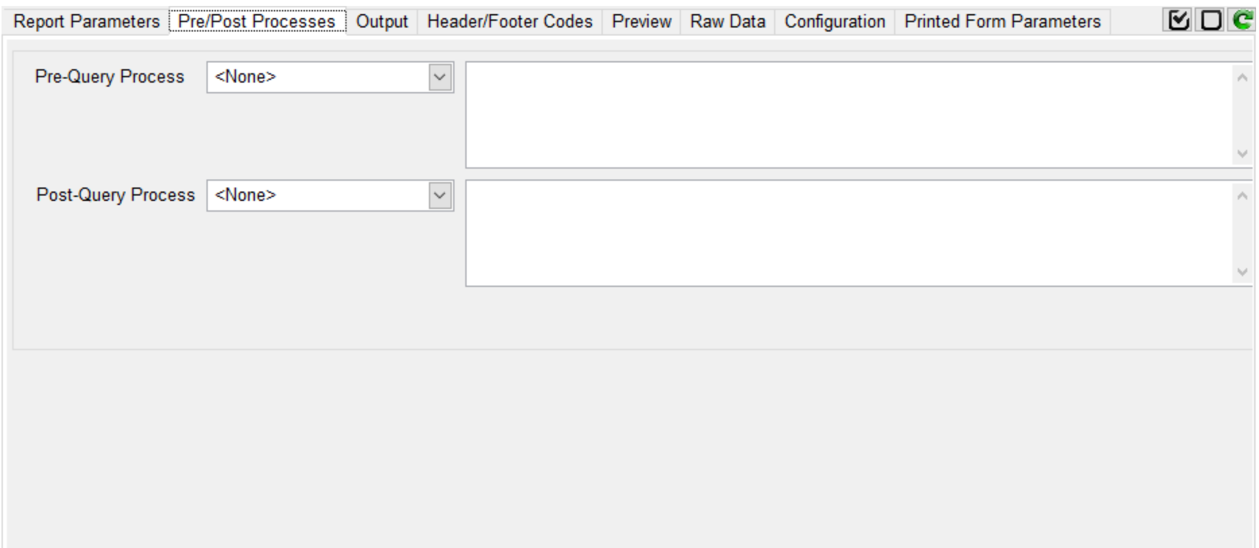

Click on the ellipsis button to open the "Save As" dialogbox. Enter a report name and select a file format. The Save As process automatically converts the saved file to the selected format. PDF format requires MS Excel 2010 or better or Excel 2007 with the PDF Add-in

Preview Saved Output
This option is only enable when the Save As option is checked. When checked, the saved file is displayed after it's created.

Email
The Email option requires the Save As option to be selected. The saved as file is sent with the email as an attachment. The email configuration is configured in PRCONFIG.



## Report Pre/Post Query Processes



Pre-Query Process

Pre-Query Processes allow you to perform certain instructions before running the report query.

1. GET-LIST: enter the list name to "get". The query will run from the active list returned by GET-LIST.
2. SELECT: enter a SELECT statement to run before the query. The query will run from the active list returned by the SELECT.
3. SSELECT: Same as SELECT but with SORT
4. Execute a TCL Command: enter a TCL command to run. This can be a cataloged BASIC program or any valid TCL commands that do not require user prompts. If the command creates an active list it will be used by the query.
5. Shell to TCL and executes the commands and or run a cataloged BASIC program. This option suspends the GUI application before running the commands. Commands can have any number/type of user prompts. The GUI application is resumed once the commands are completed.
6. Post a GUI event: Trigger an AccuTerm GUI event to open a custom GUI form. The form must be an AccuTerm subroutine form.
   Syntax: GUIAPP, GUIFRM, GUICTL, GUI Event, Apps file name
   Example: CompanySelect, FORM1,,Activate, DEMOAPPS
   The demo program is in DEMOBP CompanySelect, CompanySelect.Util and DEMOAPPS CompanySelect

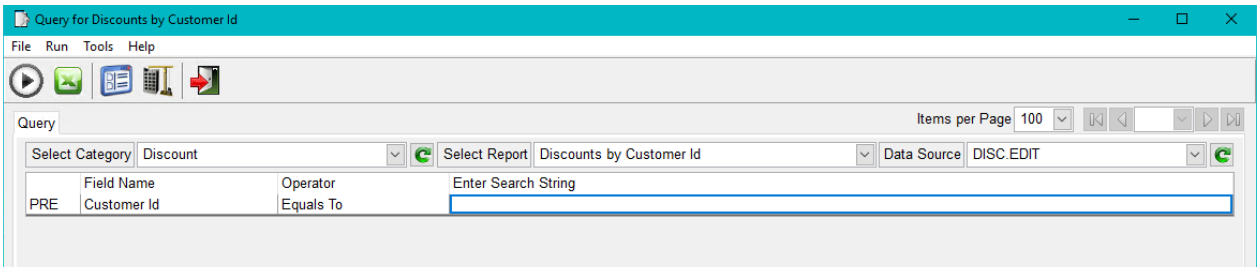
Note: By default, phiReport expects the Pre-Query Process to return an active list. If no active list is return phiReport considers that there is no data to report against. To ignore this behavior enter the keyword "STOP" on the last line of the Pre-Query Process text area. This will tell phiReprot to proceed with the report even if there's no active list. This is useful when using the Data Blob feature or phiForm.

Post-Query Process

Post-Query Processes allow you to perform certain instructions after the query is run.

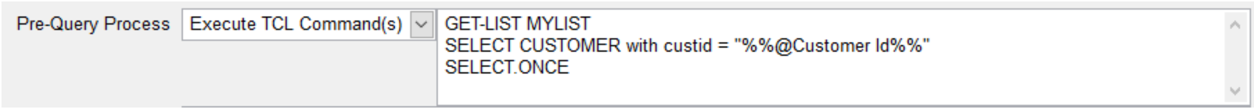
1. DELETE-LIST: Delete a saved list
2. SAVE-LIST: Save the active select list
3. Execute a TCL Command: enter a TCL command to run. This can be a catalog BASIC program or any valid TCL command.

***Note 1: Pre and Post Query Processes support the %%@Totken%% notation to prompt the user to provide a value for the command. For example, if your command requires user input, you would enter it as follows:***
***SELECT CUSTOMER WITH NAME = "%%@Customer Name%%"***
***At runtime, the user will be prompted to provide the value for "Customer Name"***
*See PRE and POST Operands for detail*




*PRQUERY will prompt for the token as part of the criteria list with the word "**PRE**" in column 1. The **Operator** selection has no effect in this case because it is defined in the Pre-Query Process.*

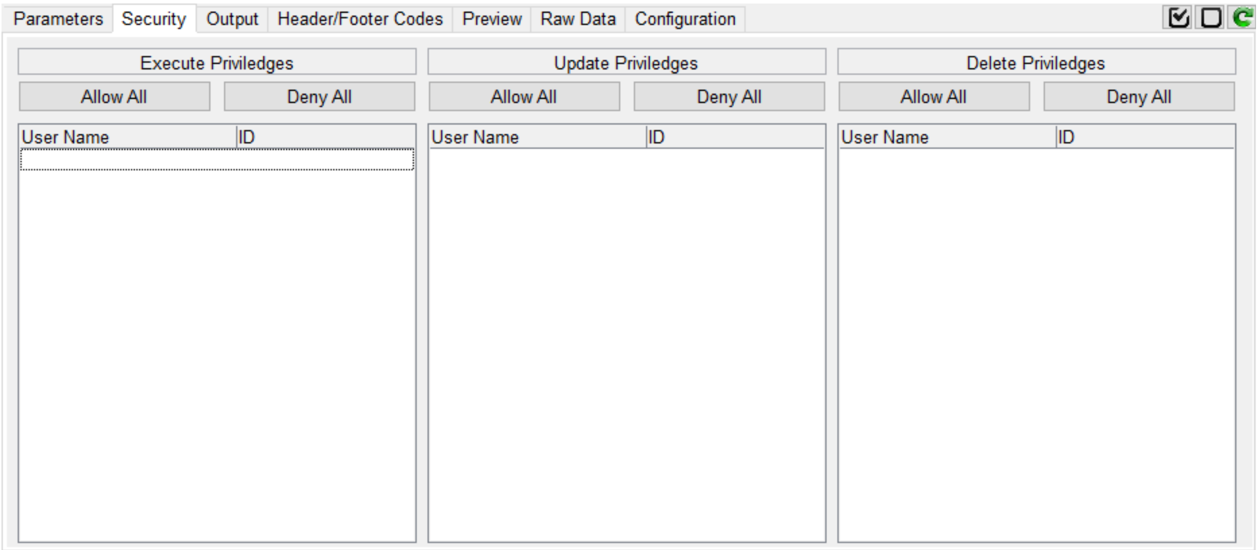
***Note 2: You may enter 1 or more command to be executed one after another in sequence. Each command must start a new line in the entry field.***




***Note 3: If the Pre-Query Process returns an error or no items, the report will not be created.***



## Report Security




This tab is only visible when [User Access Control] is enabled.

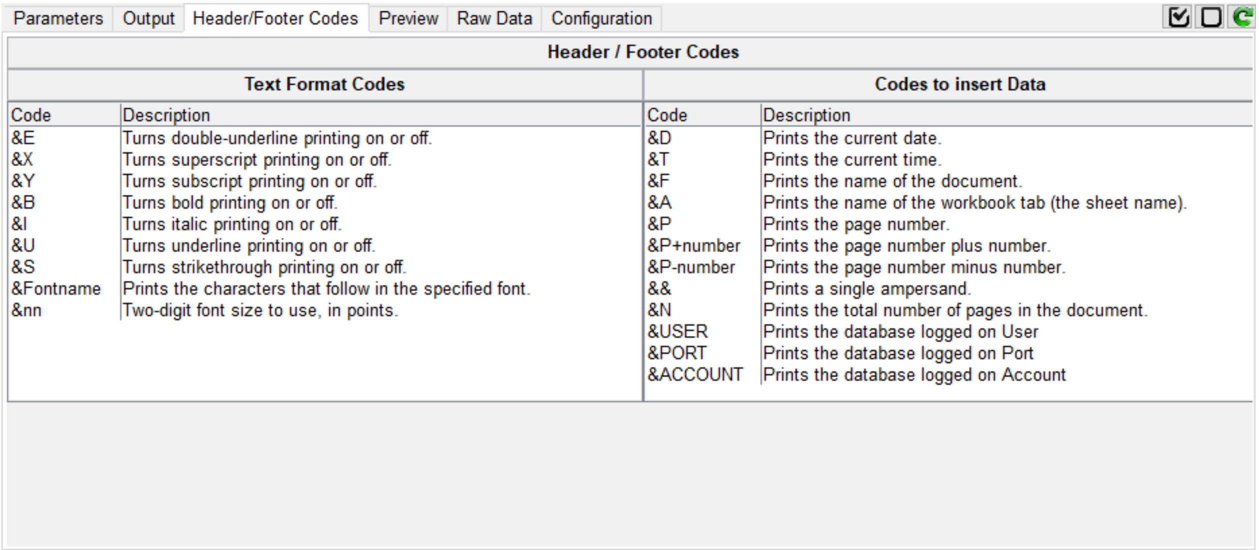
From this tab, you can set Execute, Update and Delete priviledges for your reports.  By default, all users have full priviledges to all reports.

Note: The user that creates a report is automatically the owner of that report.  The owner user name does not appear in the list of users.



## Report Header/Footer

Special Codes to use for the Exel Header and Footer.



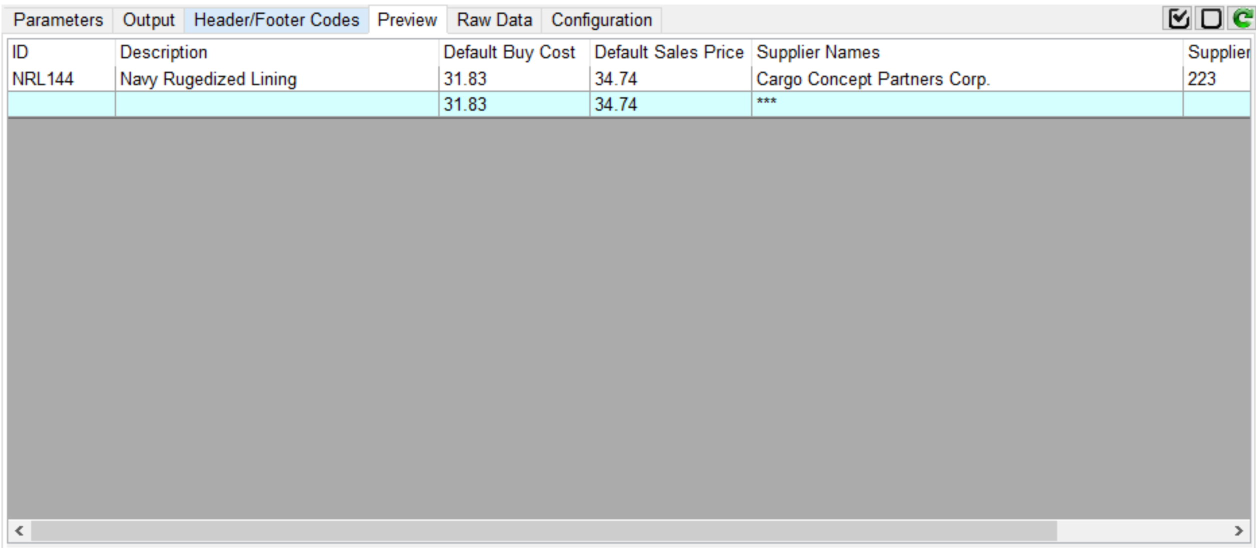

| Text Format Codes | | Codes to insert Data | |
|---|---|---|---|
| Code | Description | Code | Description |
| &E | Turns double-underline printing on or off. | &D | Prints the current date. |
| &X | Turns superscript printing on or off. | &T | Prints the current time. |
| &Y | Turns subscript printing on or off. | &F | Prints the name of the document. |
| &B | Turns bold printing on or off. | &A | Prints the name of the workbook tab (the sheet name). |
| &I | Turns italic printing on or off. | &P | Prints the page number. |
| &U | Turns underline printing on or off. | &P+number | Prints the page number plus number. |
| &S | Turns strikethrough printing on or off. | &P-number | Prints the page number minus number. |
| &Fontname | Prints the characters that follow in the specified font. | && | Prints a single ampersand. |
| &nn | Two-digit font size to use, in points. | &N | Prints the total number of pages in the document. |
| | | &USER | Prints the database logged on User |
| | | &PORT | Prints the database logged on Port |
| | | &ACCOUNT | Prints the database logged on Account |

Use these codes in the report header/footer.  You can use any Excel supported codes.



# Preview Data

Data preview tab displays the data from the query.




| ID | Description | Default Buy Cost | Default Sales Price | Supplier Names | Supplier |
|---|---|---|---|---|---|
| NRL144 | Navy Rugedized Lining | 31.83 | 34.74 | Cargo Concept Partners Corp. | 223 |
| | | 31.83 | 34.74 | *** | |

Depending on the query type, the preview output may not display the number of requested data sample. This is espcially true with multi-valued data through BY-EXP or with BREAK-ON clauses.

You can resize the column by dragging the border between two columns.  If the "Auto Update Column Width" option is set in PRCONFIG the new column size is automatically updated in the Data View.

If the preview data appears to be incorrect, it is probably due to a field definition issue.

For example:

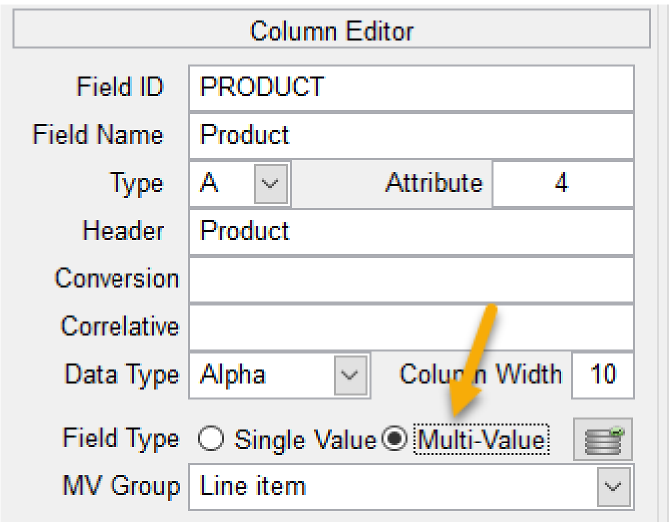
**SORT SALESORDER CUSTOMERNAME NUMBER PRODUCT BY NUMBER ID-SUPP**

```
Page    1      salesorder                                     07:13:39 09 Oct 2017

Customer Name................ Order Number Product...

Label Design Dealers Corp.                  1 WMF126
                                              PSB269
                                              OTS189
                                              BAF105
                                              BMG63
Glue Logistics Brokers Corp.                2 T3D31
                                              BTB186
                                              SFD191
                                              WSG258
                                              SMC22
                                              BSF100
Environmental Care Suppliers I              3 KMC243
nc.

                                              ATS102
                                              STS281
                                              SMC226
                                              SFD191
                                              M3G245
                                              BSS259
                                              KDF178
```

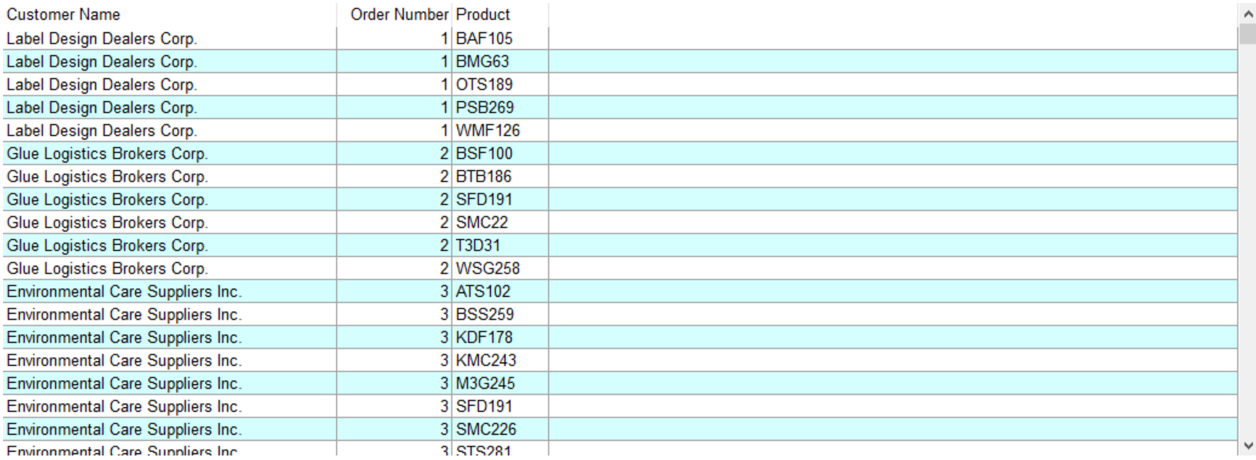
The TCL output clearly shows that the PRODUCT column is multi-valued.

Below is the same query from phiReport preview.  As you can see the display is incorrect. This is because field Product is not set as a multi-valued field.

| Customer Name | Order Number | Product |
|---|---|---|
| Label Design Dealers Corp. | 1 | WMF126 |
| PSB269 | | |
| OTS189 | | |
| BAF105 | | |
| BMG63 | | |
| Glue Logistics Brokers Corp. | 2 | T3D31 |
| BTB186 | | |
| SFD191 | | |
| WSG258 | | |
| SMC22 | | |
| BSF100 | | |
| Environmental Care Suppliers Inc. | 3 | KMC243 |
| ATS102 | | |
| STS281 | | |
| SMC226 | | |
| SFD191 | | |
| M3G245 | | |
| BSS259 | | |
| KDF178 | | |




Set the Product field as multi-value, save the Data View and rerun the query.  You may needto adjust the sort options to create the designed grouping.



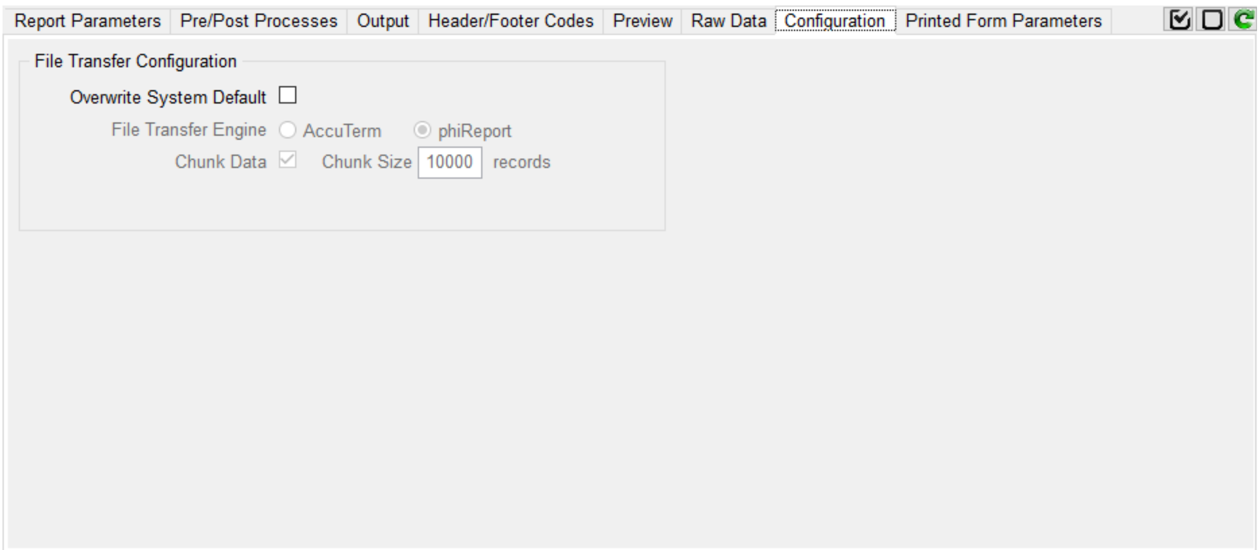
| Customer Name | Order Number | Product |
| --- | --- | --- |
| Label Design Dealers Corp. | 1 | BAF105 |
| Label Design Dealers Corp. | 1 | BMG63 |
| Label Design Dealers Corp. | 1 | OTS189 |
| Label Design Dealers Corp. | 1 | PSB269 |
| Label Design Dealers Corp. | 1 | WMF126 |
| Glue Logistics Brokers Corp. | 2 | BSF100 |
| Glue Logistics Brokers Corp. | 2 | BTB186 |
| Glue Logistics Brokers Corp. | 2 | SFD191 |
| Glue Logistics Brokers Corp. | 2 | SMC22 |
| Glue Logistics Brokers Corp. | 2 | T3D31 |
| Glue Logistics Brokers Corp. | 2 | WSG258 |
| Environmental Care Suppliers Inc. | 3 | ATS102 |
| Environmental Care Suppliers Inc. | 3 | BSS259 |
| Environmental Care Suppliers Inc. | 3 | KDF178 |
| Environmental Care Suppliers Inc. | 3 | KMC243 |
| Environmental Care Suppliers Inc. | 3 | M3G245 |
| Environmental Care Suppliers Inc. | 3 | SFD191 |
| Environmental Care Suppliers Inc. | 3 | SMC226 |
| Environmental Care Suppliers Inc. | 3 | STS281 |

To check if your data is multi-valued you can use the Raw Data tab to inspect your query results.



# Advanced Settings

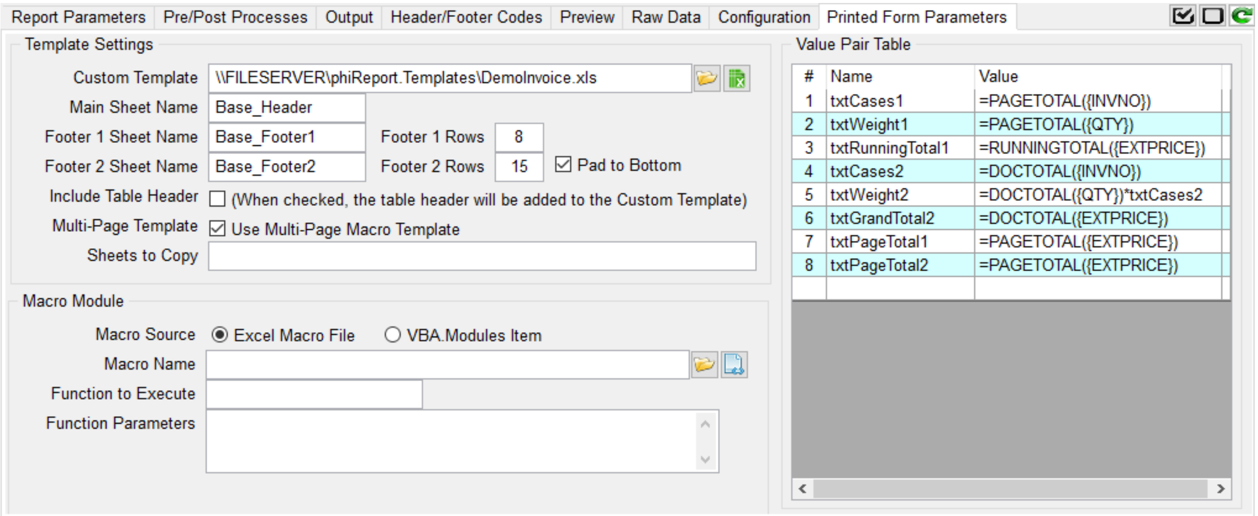
This setting allows selected reports to overwrite the default system settings.




For example, data chunking is more efficient on large reports.  The efficiency of the chunk size depends on the size of each record.



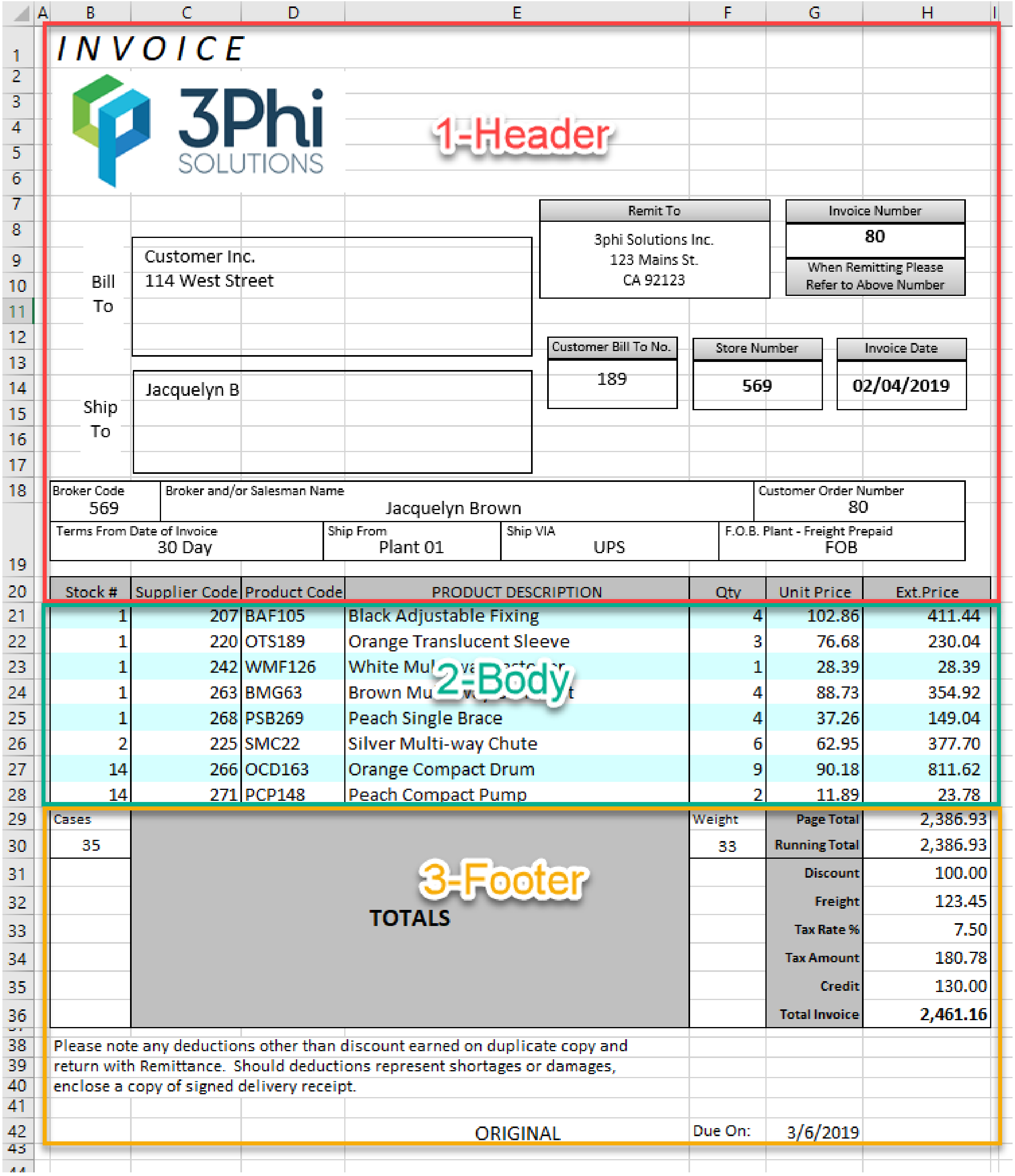
# Pre-Printed Forms




Printed Forms are non-columnar reports.  Invoices, Purchase Orders, and Quotes are a few examples of Printed Forms type reports.

A printed form is comprised of 3 parts.

1. The header
2. The body
3. The footer




**Template Settings**

Printed Forms require you create an Excel template to apply to the report.

Custom Template

Path and name of the template to use. A template is a standard Excel workbook. It can contain images, shapes... Each report can use up to three template sheets within your workbook template file. The sheets are described below.

Main Sheet Name

Name of the sheet to use as the page header. This header is repeated on every page of your report.

Footer 1 Sheet Name

Name of the sheet that contains the Footer 1. Footer 1 are footers used on all pages except the last page. Typically, this footer would contain information such as "Continue on next page", the running total, etc...

Footer 1 Rows
The number of rows used as Footer 1 in the template sheet.

Footer 2 Sheet Name
Name of the sheet that contains the Footer 2. Footer 2 is the footer used on the last page of the report. Typically, this footer would contain information such as the document total, payment terms, etc...

Footer 2 Rows
The number of rows used as Footer 1 in the sheet

Pad to Bottom
Check this box to add blank rows between the last data row and the top of the last page footer.

Include Table Header
When checked, the table header will be added on the Custom Template.

Multi-Page Template
Multi-Page Template allows Excel to create "intelligent" paging when complex footers are used. The Multi-Page template includes instructions to create page footers when printing the printed report.

Sheets to Copy
If your template requires additional sheets to be copied to the final report, enter the names of the sheets to be copied. Separate multiple sheets with semi-colon.

**Value Pair Table**
This table allows you to create data and object reference between the table and your report. In Excel you can name an object (shape) or a cell. In order to pass data from the report to Excel, you need to name each Excel element that will receive data.

The value in the pair can be hard-coded in the table or returned via a pre-query process. The value type can be any standard Excel string or an Excel formula.



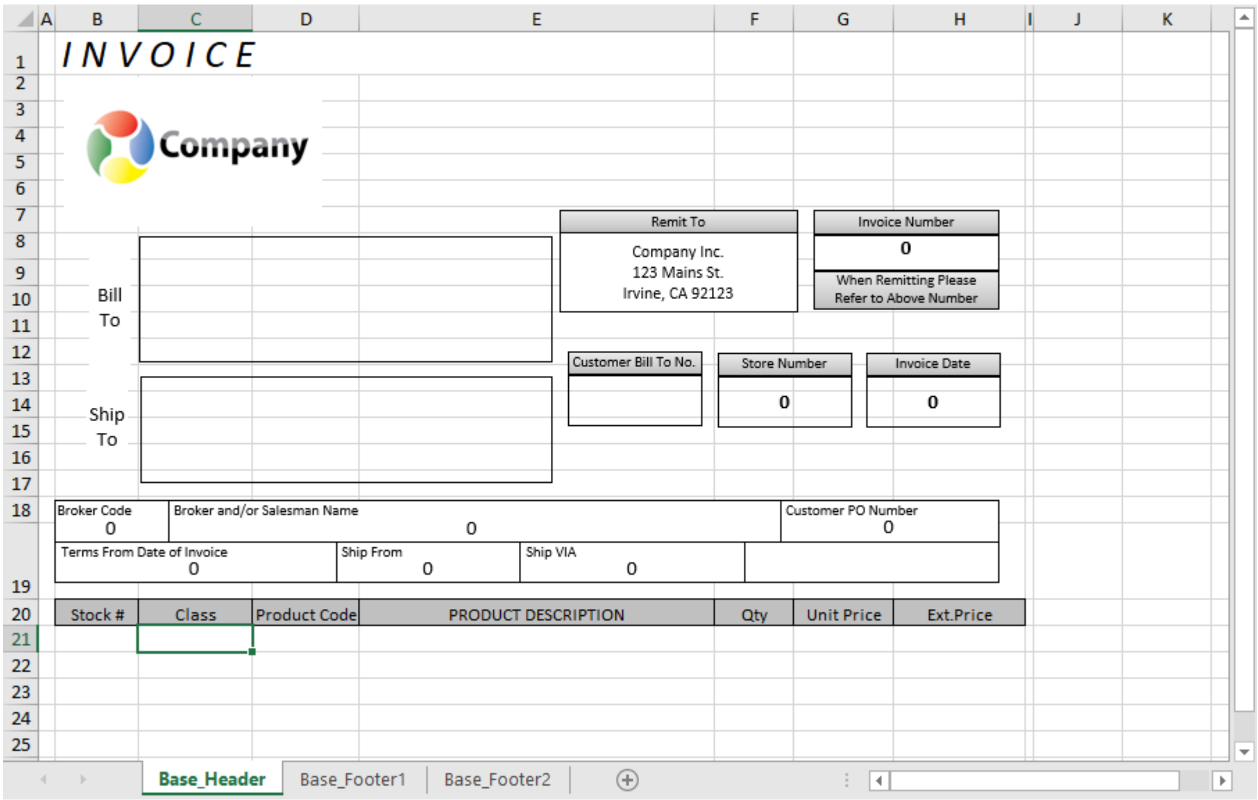
## Form Template

A Form template is an Excel workbook with 3 sheets.

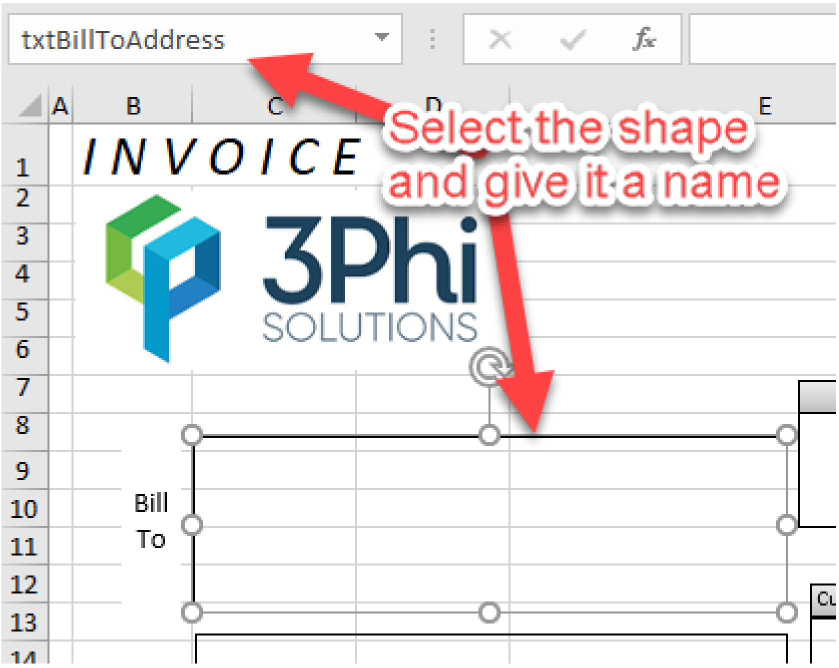
1. The Main sheet contains the header section which is repeated on every page.
2. The Footer 1 sheet contains the footer that is repeated on every page except the last page. Single page reports do not use this footer.
3. The Footer 2 sheet contains the footer that is printed on the last page of the report and shown at the bottom of the final Excel report within the Excel environment.

If only 1 footer is defined, it will be used for all footers.

**Main sheet**:
Create the layout of your template per your requirements. Add logo, column headers, Excel objects, etc.




Headers can include "Shape" objects which are floating objects in Excel. To pass data to these shapes, you need to name them in Excel.

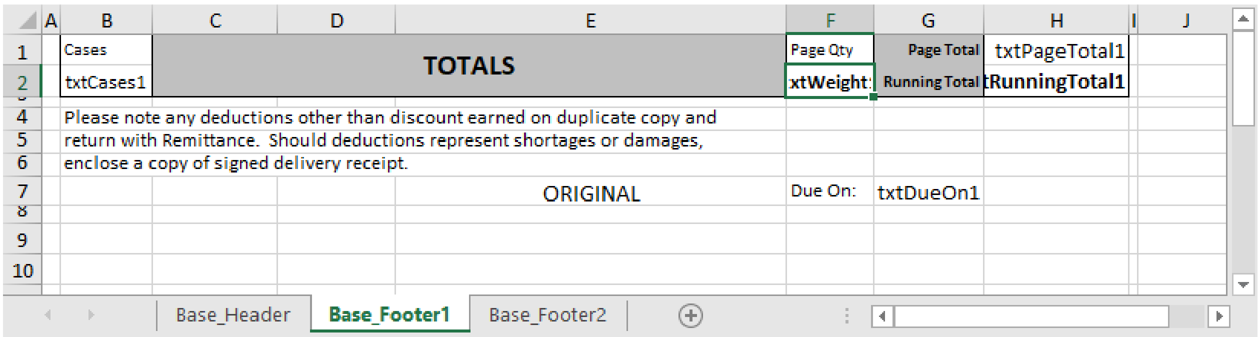



*Note: Shapes are not supported in Footer 1 and Footer 2.*

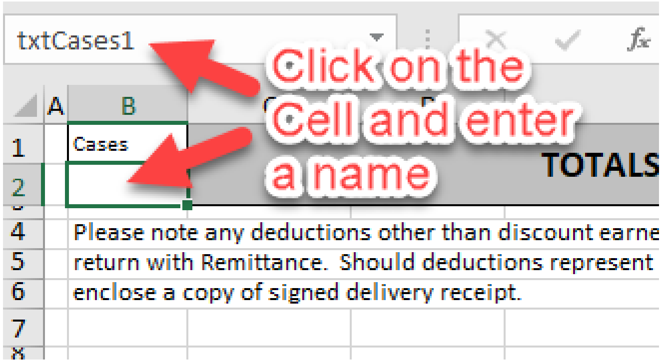
**Footers**

Because footers are placed at the bottom of each page, they must have the same number of columns and each column should have the same width as the ones defined in the Main sheet.

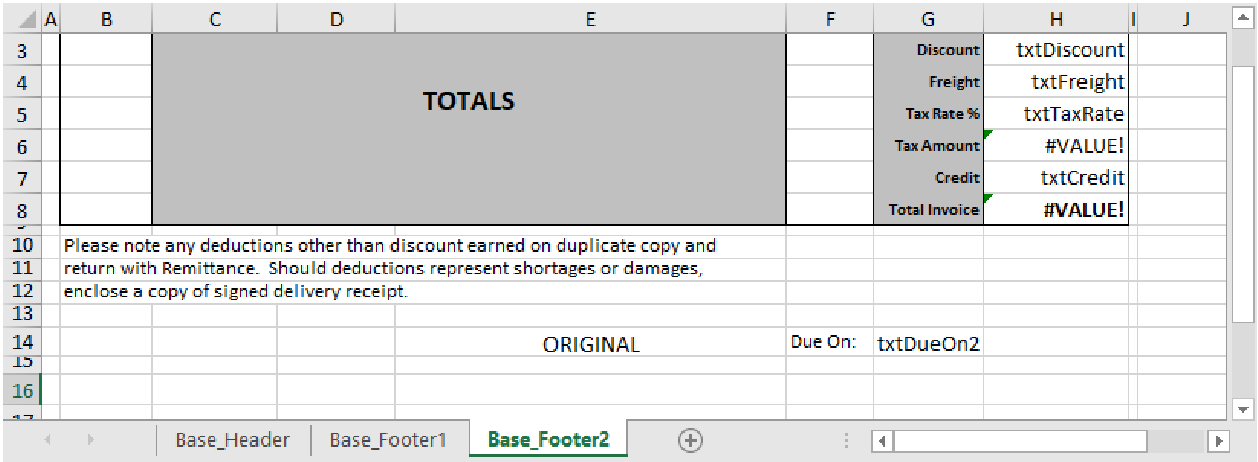
**Footer 1 sheet**



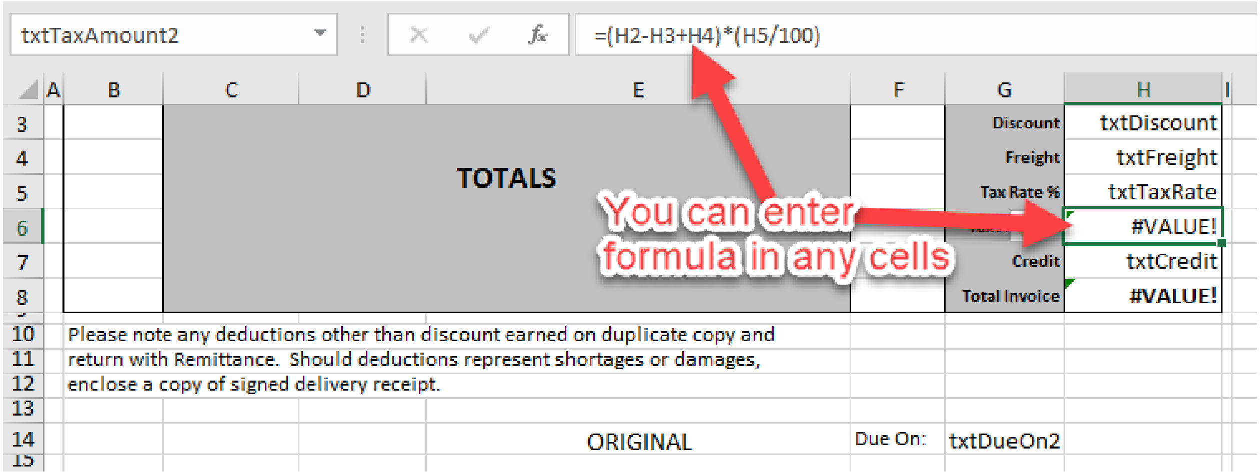

Excel Cells can also be named. Select a Cell and enter a name where its coordinate appears. Press enter to validate the name. (Clicking out of the field without pressing enter will not validate the name)




**Footer 2 sheet**




Enter formula as required

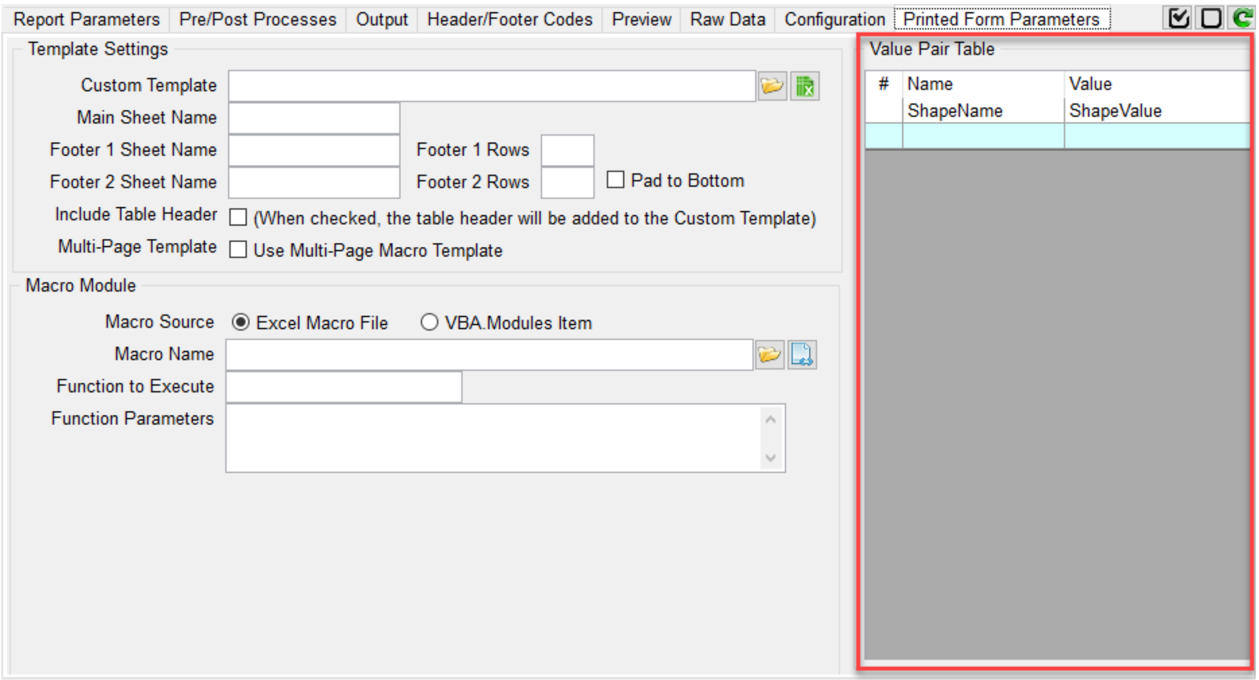



Naming the shapes and cells will allow you to place data in them using the [Value-Pair table](#).



## Value Pair

The Value-Pair table is used to place data in the named shapes and cells. To assign data to a name object (shape or cell),




Column "Name" in the Value-Pair table holds the shape/cell name as defined on your template
Column "Value" in the Value-Pair table holds the value to enter in the shape/cell. Values can be regular strings or Excel formula.

phiReport implements non-Excel functions that can be used as Values in the Value-Pair table.

Value Pair Table

| # | Name | Value | |
|---|---|---|---|
| 1 | txtCases1 | =PAGETOTAL({ORDERNO}) | |
| 2 | txtWeight1 | =PAGETOTAL({QTY}) | |
| 3 | txtRunningTotal1 | =RUNNINGTOTAL({ExtPrice}) | |
| 4 | txtCases2 | =DOCTOTAL({ORDERNO}) | |
| 5 | txtWeight2 | =DOCTOTAL({QTY})*txtCases2 | |
| 6 | txtGrandTotal2 | =DOCTOTAL({ExtPrice}) | |
| 7 | txtPageTotal1 | =PAGETOTAL({ExtPrice}) | |
| 8 | txtPageTotal2 | =PAGETOTAL({ExtPrice}) | |
| | | | |

Curley braces are used to specify a DICT item.

PAGETOTAL : Sum up data defined by {DICT} on the current page
RUNNINGTOTAL : Sum up data defined by {DICT} of all previous pages and the current page
DOCTOTAL : Sum up data defined by {DICT} of all pages

In addition to the above phiReport functions, you can use any Excel compatible functions.

Value-Pair can also be returned from a BASIC program.

In your Pre-Query process program, add the COMMON below

```
COMMON /USERVAR/ USERDATA
```

Add data to USERDATA where USERDATA<1,X,1> = Name and USERDATA<1,X,2> = Value

```
USERDATA2 = ""
USERDATA2<1,1,1>  = "txtBillToAddress"     ;  USERDATA2<1,1,2>  = BillTo
USERDATA2<1,2,1>  = "txtShipToAddress"     ;  USERDATA2<1,2,2>  = ShipTo
USERDATA2<1,3,1>  = "txtInvoiceNumber"     ;  USERDATA2<1,3,2>  = OrderNo
USERDATA2<1,4,1>  = "txtBillToNo"          ;  USERDATA2<1,4,2>  = CustID
USERDATA2<1,5,1>  = "txtStoreNumber"       ;  USERDATA2<1,5,2>  = ContactID
USERDATA2<1,6,1>  = "txtInvoiceDate"       ;  USERDATA2<1,6,2>  = OCONV(DATE(),"D4/")
USERDATA2<1,7,1>  = "txtBrokerCode"        ;  USERDATA2<1,7,2>  = ContactID
USERDATA2<1,8,1>  = "txtBrokerName"        ;  USERDATA2<1,8,2>  = ContactName
USERDATA2<1,9,1>  = "txtOrderNumber"       ;  USERDATA2<1,9,2>  = OrderNo
USERDATA2<1,10,1> = "txtTerms"             ;  USERDATA2<1,10,2> = "30 Day"
USERDATA2<1,11,1> = "txtShipFrom"          ;  USERDATA2<1,11,2> = "Plant 01"
USERDATA2<1,12,1> = "txtShipVia"           ;  USERDATA2<1,12,2> = "UPS"
USERDATA2<1,13,1> = "txtFOB"               ;  USERDATA2<1,13,2> = "FOB"
USERDATA2<1,14,1> = "txtDueOn1"            ;  USERDATA2<1,14,2> = OCONV(DATE()+30,"D4/")
USERDATA2<1,15,1> = "txtDueOn2"            ;  USERDATA2<1,15,2> = OCONV(DATE()+30,"D4/")
USERDATA2<1,16,1> = "txtFreight2"          ;  USERDATA2<1,16,2> = 123.45
USERDATA2<1,17,1> = "txtDiscount2"         ;  USERDATA2<1,17,2> = 34.56
USERDATA2<1,18,1> = "txtTaxRate2"          ;  USERDATA2<1,18,2> = 7.5
USERDATA2<1,19,1> = "txtDiscount2"         ;  USERDATA2<1,19,2> = 100.00
USERDATA2<1,20,1> = "txtCredit2"           ;  USERDATA2<1,20,2> = 130.00

USERDATA<1,-1> = USERDATA2
```

To add a Line Feed to data, enter "<lf>" in the string to return.

# JSON

JSON (JavaScript Object Notation)

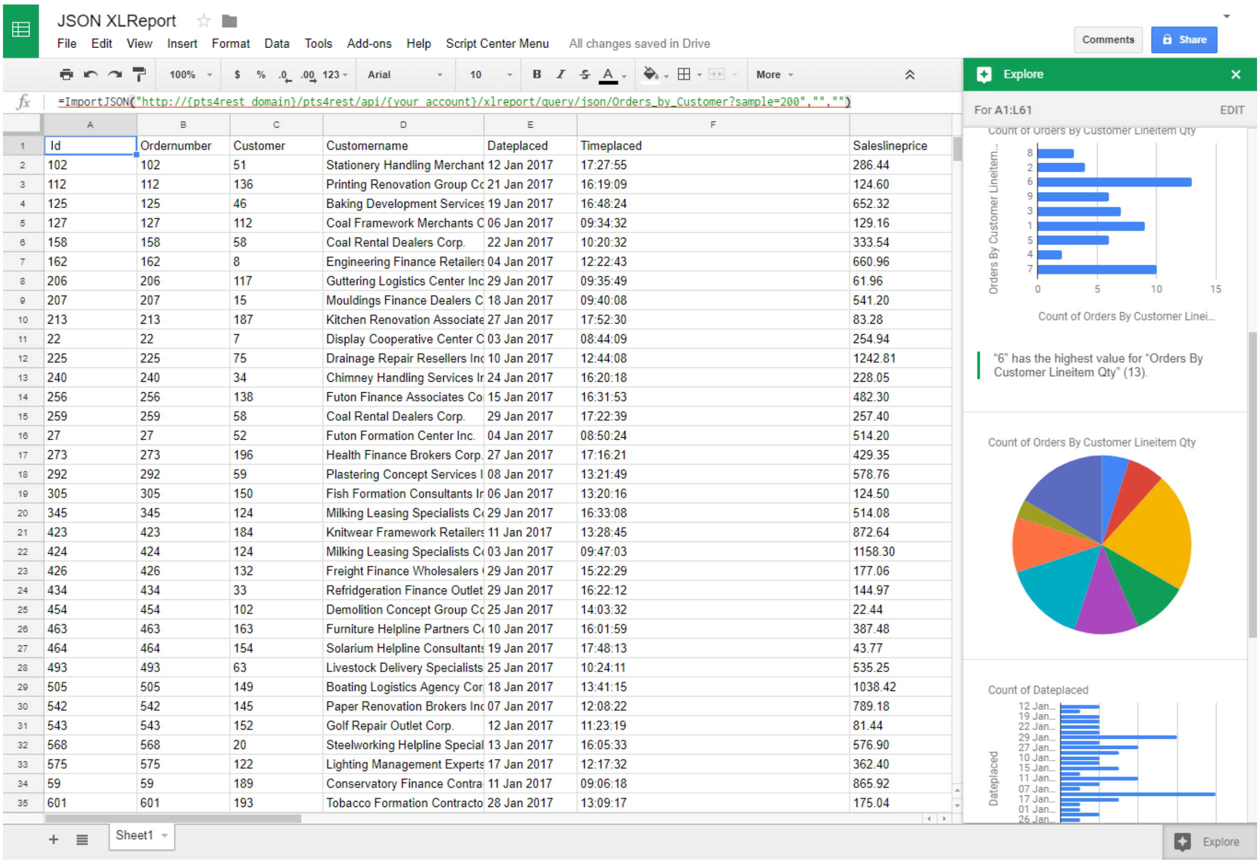
This feature requires the pts4rest service (sold as a separate product).

Use phiReport to create your JSON data format and generate JSON documents.  Multi-value and sub-value data are automatically formated in nested JSON objects.  Use your dictionary to format the output, all dictionary types are supported including subroutine calls.

JSON Request:   http{s}://{phirest service domain}/phirest/api/{your account}/phireport/query/**json**/Orders_by_Customer?**sample**=200&{query options}
JSON output:


```
{
  "OrdersbyCustomer": [
    {
      "_id": "102",
      "OrderNumber": "102",
      "Customer": "51",
      "CustomerName": "Stationery Handling Merchants Inc.",
      "DatePlaced": "12 Jan 2017",
      "TimePlaced": "17:27:55",
      "SalesLinePrice": "286.44",
      "Urgent": "0",
      "Orders_by_Customer_Lineitem": [
        {
          "Product": "AAS198",
          "ProductDesc": "Amber Adjustable Sleeve",
          "SalesUnitPrice": 113.45,
          "Qty": 8
        },
        {
          "Product": "KAT248",
          "ProductDesc": "Khaki Adjustable Tube",
          "SalesUnitPrice": 43.26,
          "Qty": 3
        },
        {
          "Product": "MSC143",
          "ProductDesc": "Maroon Small Cylinder",
          "SalesUnitPrice": 40.92,
          "Qty": 7
        }
      ]
    },
```


Example using Google Sheets




| | A | B | C | D | E | F | |
|---|---|---|---|---|---|---|---|
| 1 | Id | Ordernumber | Customer | Customername | Dateplaced | Timeplaced | Saleslineprice |
| 2 | 102 | 102 | 51 | Stationery Handling Merchant | 12 Jan 2017 | 17:27:55 | 286.44 |
| 3 | 112 | 112 | 136 | Printing Renovation Group Cc | 21 Jan 2017 | 16:19:09 | 124.60 |
| 4 | 125 | 125 | 46 | Baking Development Services | 19 Jan 2017 | 16:48:24 | 652.32 |
| 5 | 127 | 127 | 112 | Coal Framework Merchants C | 06 Jan 2017 | 09:34:32 | 129.16 |
| 6 | 158 | 158 | 58 | Coal Rental Dealers Corp. | 22 Jan 2017 | 10:20:32 | 333.54 |
| 7 | 162 | 162 | 8 | Engineering Finance Retailers | 04 Jan 2017 | 12:22:43 | 660.96 |
| 8 | 206 | 206 | 117 | Guttering Logistics Center Inc | 29 Jan 2017 | 09:35:49 | 61.96 |
| 9 | 207 | 207 | 15 | Mouldings Finance Dealers C | 18 Jan 2017 | 09:40:08 | 541.20 |
| 10 | 213 | 213 | 187 | Kitchen Renovation Associate | 27 Jan 2017 | 17:52:30 | 83.28 |
| 11 | 22 | 22 | 7 | Display Cooperative Center C | 03 Jan 2017 | 08:44:09 | 254.94 |
| 12 | 225 | 225 | 75 | Drainage Repair Resellers Inc | 10 Jan 2017 | 12:44:08 | 1242.81 |
| 13 | 240 | 240 | 34 | Chimney Handling Services Ir | 24 Jan 2017 | 16:20:18 | 228.05 |
| 14 | 256 | 256 | 138 | Futon Finance Associates Co | 15 Jan 2017 | 16:31:53 | 482.30 |
| 15 | 259 | 259 | 58 | Coal Rental Dealers Corp. | 29 Jan 2017 | 17:22:39 | 257.40 |
| 16 | 27 | 27 | 52 | Futon Formation Center Inc. | 04 Jan 2017 | 08:50:24 | 514.20 |
| 17 | 273 | 273 | 196 | Health Finance Brokers Corp. | 27 Jan 2017 | 17:16:21 | 429.35 |
| 18 | 292 | 292 | 59 | Plastering Concept Services I | 08 Jan 2017 | 13:21:49 | 578.76 |
| 19 | 305 | 305 | 150 | Fish Formation Consultants Ir | 06 Jan 2017 | 13:20:16 | 124.50 |
| 20 | 345 | 345 | 124 | Milking Leasing Specialists Cc | 29 Jan 2017 | 16:33:08 | 514.08 |
| 21 | 423 | 423 | 184 | Knitwear Framework Retailers | 11 Jan 2017 | 13:28:45 | 872.64 |
| 22 | 424 | 424 | 124 | Milking Leasing Specialists Cc | 03 Jan 2017 | 09:47:03 | 1158.30 |
| 23 | 426 | 426 | 132 | Freight Finance Wholesalers | 29 Jan 2017 | 15:22:29 | 177.06 |
| 24 | 434 | 434 | 33 | Refridgeration Finance Outlet | 29 Jan 2017 | 16:22:12 | 144.97 |
| 25 | 454 | 454 | 102 | Demolition Concept Group Cc | 25 Jan 2017 | 14:03:32 | 22.44 |
| 26 | 463 | 463 | 163 | Furniture Helpline Partners Cc | 10 Jan 2017 | 16:01:59 | 387.48 |
| 27 | 464 | 464 | 154 | Solarium Helpline Consultants | 19 Jan 2017 | 17:48:13 | 43.77 |
| 28 | 493 | 493 | 63 | Livestock Delivery Specialists | 25 Jan 2017 | 10:24:11 | 535.25 |
| 29 | 505 | 505 | 149 | Boating Logistics Agency Cor | 18 Jan 2017 | 13:41:15 | 1038.42 |
| 30 | 542 | 542 | 145 | Paper Renovation Brokers Inc | 07 Jan 2017 | 12:08:22 | 789.18 |
| 31 | 543 | 543 | 152 | Golf Repair Outlet Corp. | 12 Jan 2017 | 11:23:19 | 81.44 |
| 32 | 568 | 568 | 20 | Steelworking Helpline Special | 13 Jan 2017 | 16:05:33 | 576.90 |
| 33 | 575 | 575 | 122 | Lighting Management Experts | 17 Jan 2017 | 12:17:32 | 362.40 |
| 34 | 59 | 59 | 189 | Conservatory Finance Contra | 11 Jan 2017 | 09:06:18 | 865.92 |
| 35 | 601 | 601 | 193 | Tobacco Formation Contracto | 28 Jan 2017 | 13:09:17 | 175.04 |

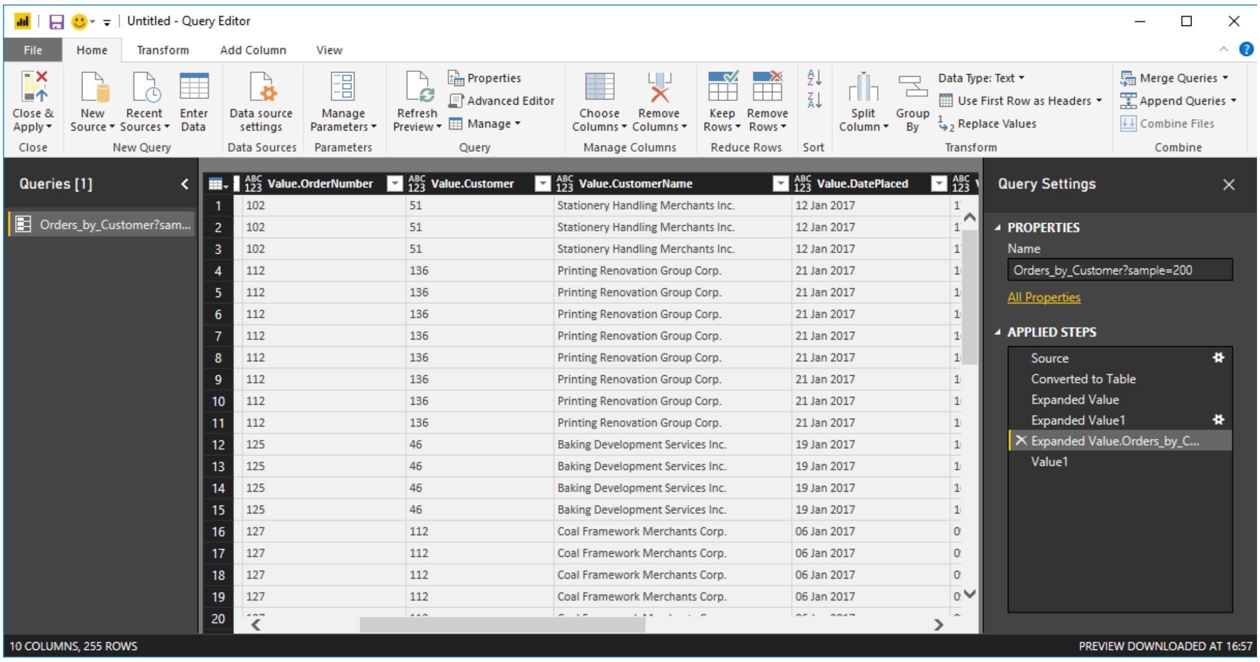
```
ImportJSON(url, query, options)
```

Example

```
ImportJSON(Object, Object, Object)
```

Summary
Imports a JSON feed and returns the results to be inserted into a Google Spreadsheet. The JSON feed is flattened to create a two-dimensional array. The first row contains the headers, with each column header indicating the path to that data in the JSON feed. The remaining rows contain the data. By default, data gets transformed so it looks more like a normal data import. Specifically: - Data from parent JSON elements gets inherited to their child elements, so rows representing child elements contain the values of the rows representing their parent elements. - Values longer than 256 characters get truncated. - Headers have slashes converted to spaces, common prefixes removed and the resulting text converted to title case. To change this behavior, pass in one of these values in the options parameter: noInherit: Don't inherit values from parent elements noTruncate: Don't truncate values rawHeaders: Don't prettify headers noHeaders: Don't include headers, only the data debugLocation: Prepend each value with the row & column it belongs in For example: =ImportJSON("http://gdata.youtube.com/feeds/api/standardfeeds/most_popular?v=2&alt=json", "/feed/entry/title,/feed/entry/content", "noInherit,noTruncate,rawHeaders")

## Example using Microsoft Power BI




These documents in conjunction with the pts4rest RESTfull service can be consumed by any remote clients (desktop apps, web apps, mobile apps and any REST data consumer...) through standard HTTP/HTTPS calls.

JSON limitation:

- JSON data is read-only.  JSON update is only supported with the OData.
- JSON does not define a query structure or format, all query functions are proprietary to phiReport.



# OData

OData (Open Data Protocol) is an ISO/IEC approved, OASIS standard that defines a set of best practices for building and consuming RESTful APIs.  OData uses the JSON data format

This feature requires the phiRest service (sold as a separate product).

Use phiReport to create your OData feeds.  Multi-value and sub-value data are automatically formated in OData nested JSON objects.  Use your dictionary to format the output, all dictionary types are supported including subroutine calls.

Unlike JSON, OData implements a full database type query language and supports data updates.  In short, OData is a the "new" standard way to distribute your Pick MV data to the rest of the world.  OData consumers do not need to understand the underlying structure of your database.

phiReport implements OData version 4 for query and updates.

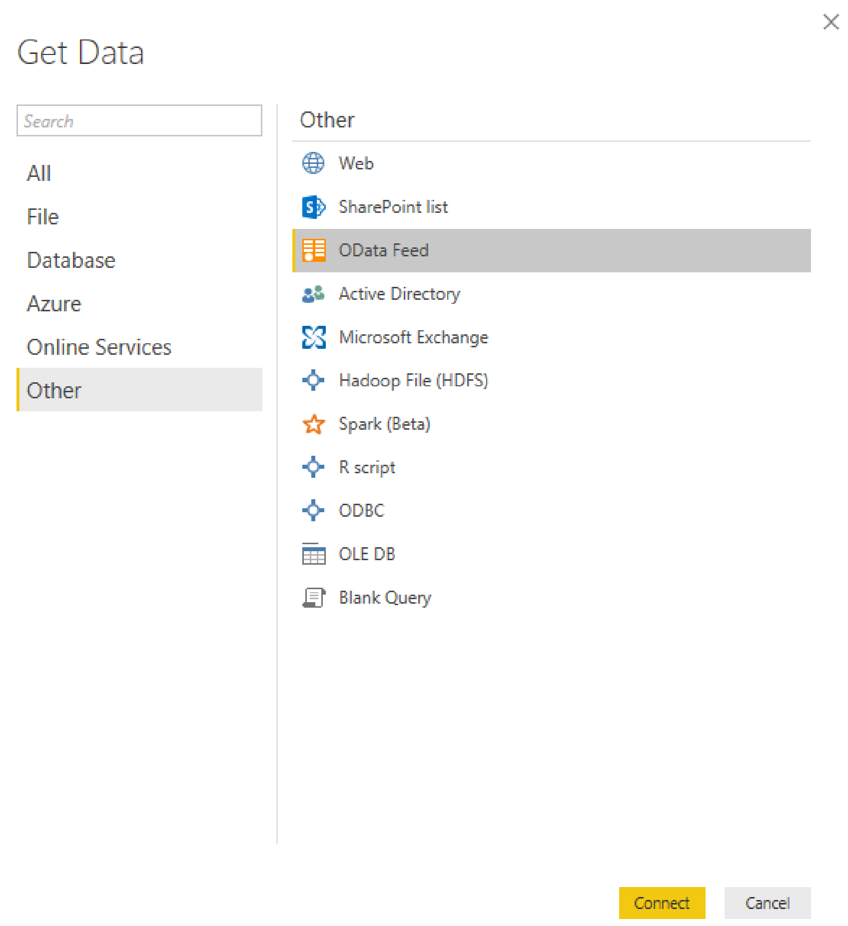
OData Request:   http{s}://{phirest service domain}/phirest/api/{your account}/phireport/query/**odata**/Orders_by_Customer?**$top**=200&{query options}
OData output:

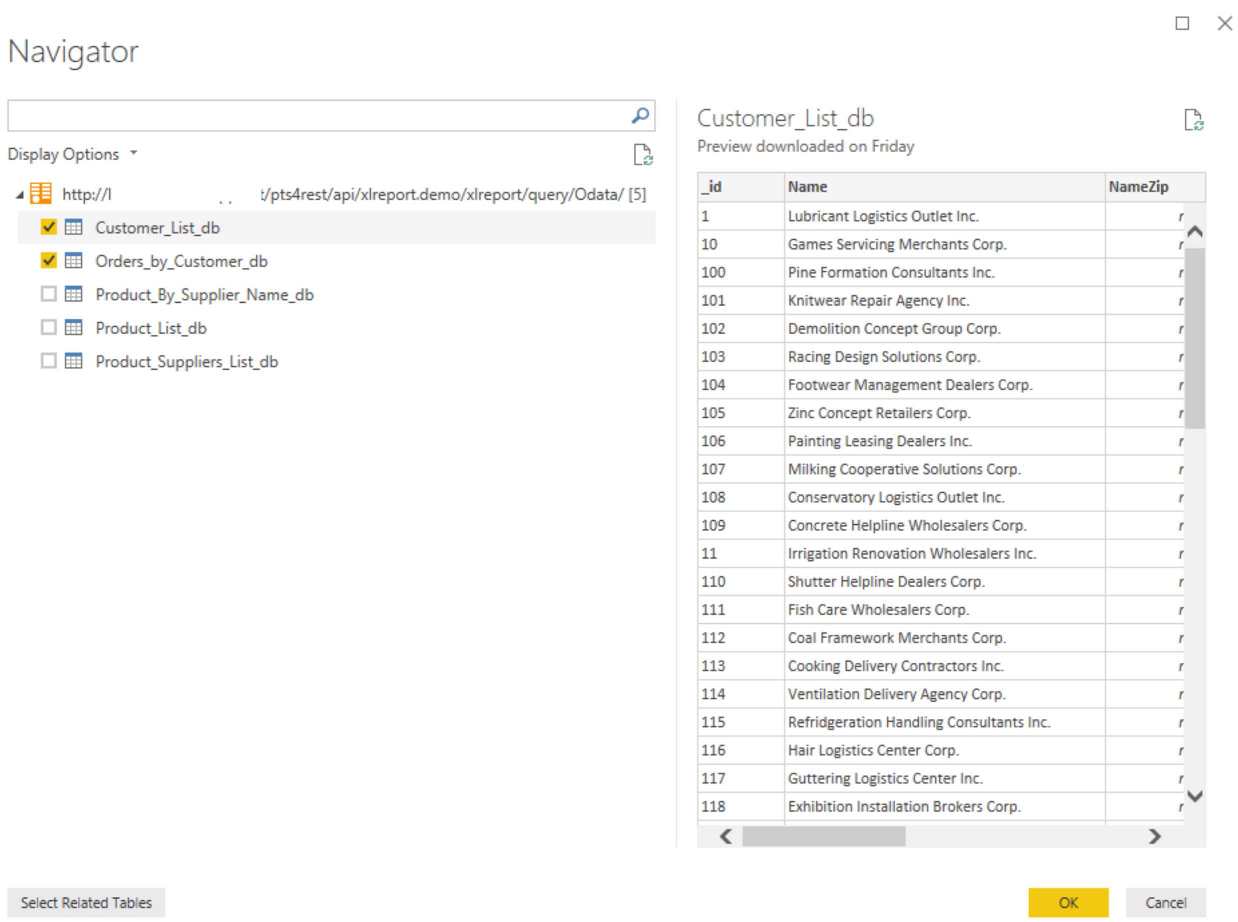
```
{
  "@odata.context": "http://[illegible]/pts4rest/api/xlreport.demo/xlreport/query/odata/$metadata#Orders_by_Customer",
  "value": [
    {
      "@odata.id": "http://[illegible]3/pts4rest/api/xlreport.demo/xlreport/query/odata/Orders_by_Customer('102')",
      "@odata.etag": "W/\"C87B2612\"",
      "_id": "102",
      "OrderNumber": "102",
      "Customer": "51",
      "CustomerName": "Stationery Handling Merchants Inc.",
      "DatePlaced": "12 Jan 2017",
      "TimePlaced": "17:27:55",
      "SalesLinePrice": "286.44",
      "Urgent": "0",
      "Orders_by_Customer_Lineitem": [
        {
          "Product": "AAS198",
          "ProductDesc": "Amber Adjustable Sleeve",
          "SalesUnitPrice": 113.45,
          "Qty": 8
        },
        {
          "Product": "KAT248",
          "ProductDesc": "Khaki Adjustable Tube",
          "SalesUnitPrice": 43.26,
          "Qty": 3
        },
        {
          "Product": "MSC143",
          "ProductDesc": "Maroon Small Cylinder",
          "SalesUnitPrice": 40.92,
          "Qty": 7
        }
      ]
```

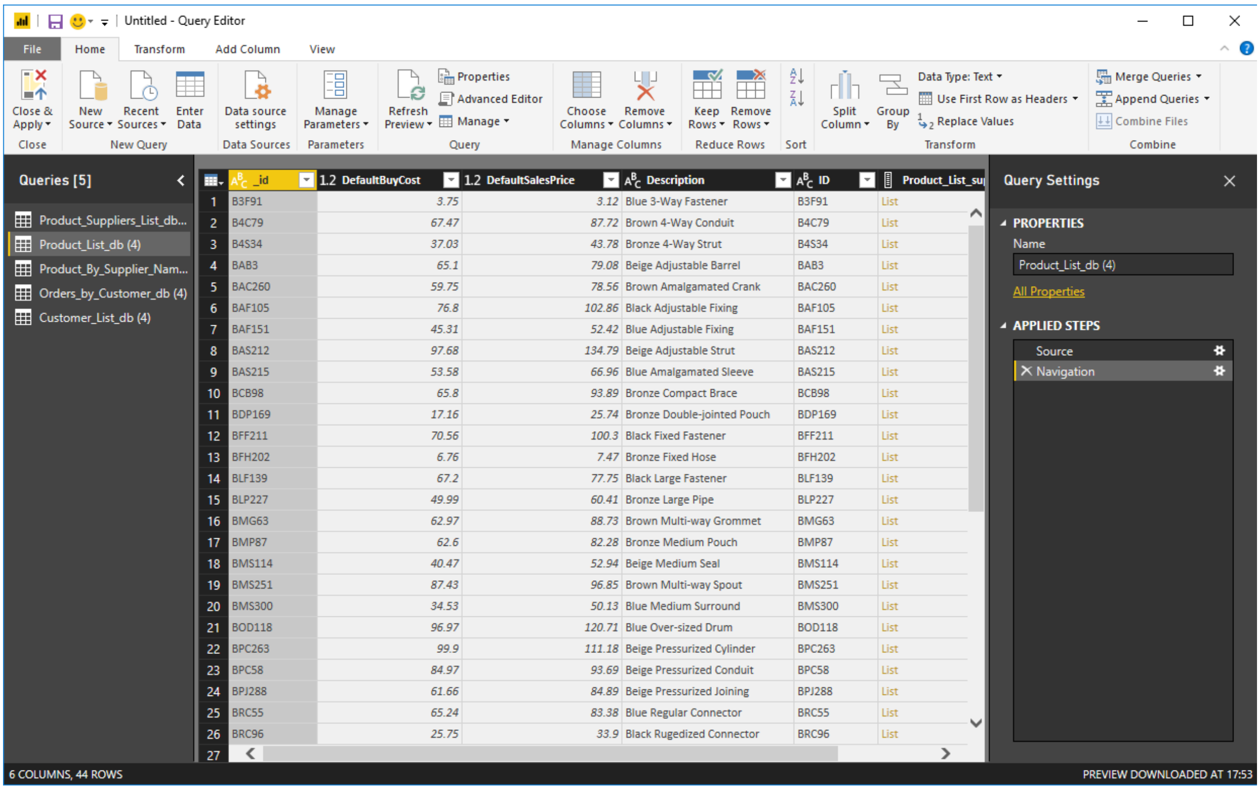

Sample generated OData metadata:

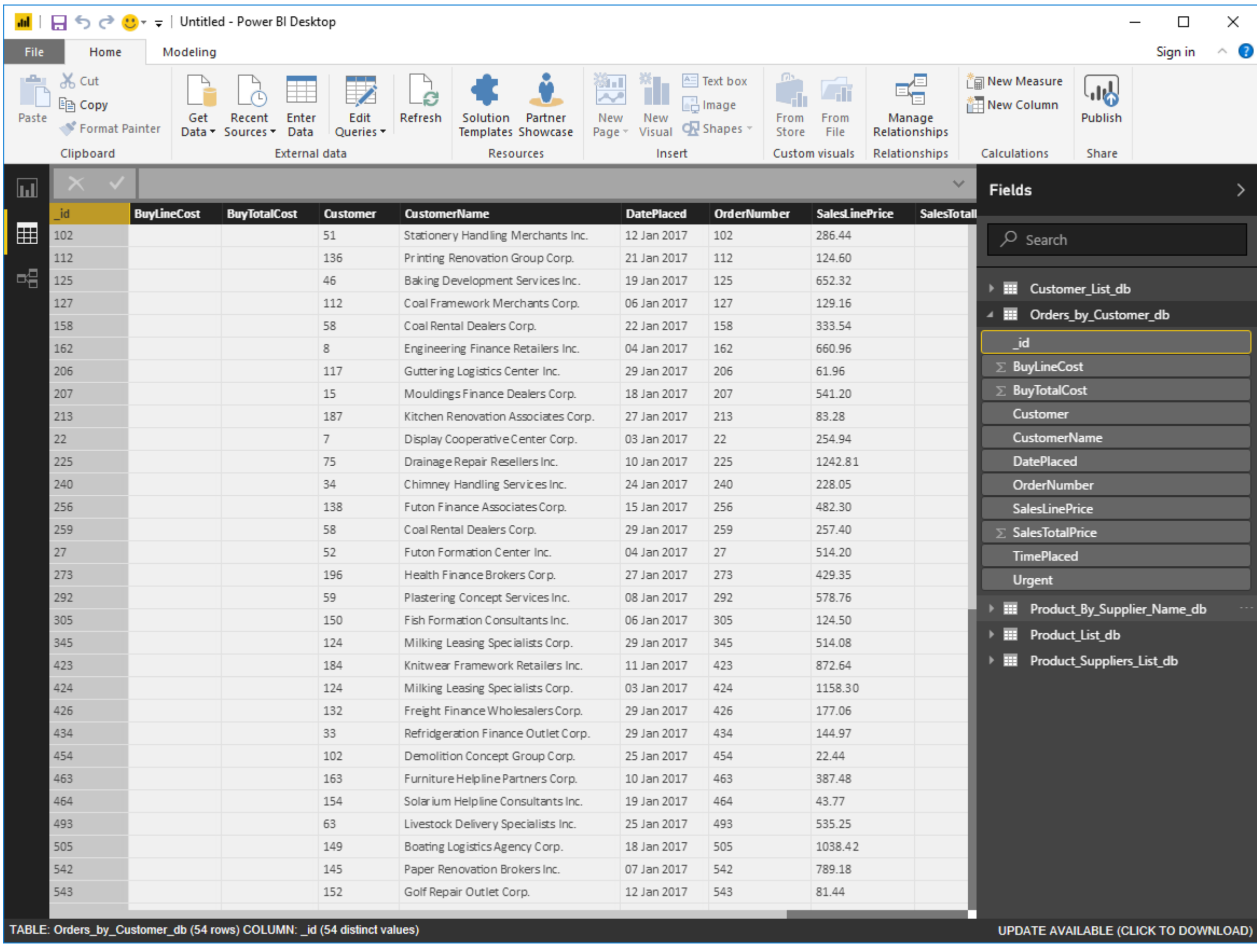
```xml
<edmx:Edmx xmlns:edmx="http://docs.oasis-open.org/odata/ns/edmx" Version="4.0">
  <edmx:DataServices>
    <Schema xmlns="http://docs.oasis-open.org/odata/ns/edm" Namespace="pts4oData">
      <EntityType Name="Product_List">...</EntityType>
      <EntityType Name="Customer_List">...</EntityType>
      <EntityType Name="Orders_by_Customer">
        <Key>
          <PropertyRef Name="_id"/>
        </Key>
        <Property Name="_id" Type="Edm.String" Nullable="false"/>
        <Property Name="BuyLineCost" Type="Edm.Decimal" Nullable="true"/>
        <Property Name="BuyTotalCost" Type="Edm.Decimal" Nullable="true"/>
        <Property Name="Customer" Type="Edm.String" Nullable="true"/>
        <Property Name="CustomerName" Type="Edm.String" Nullable="true"/>
        <Property Name="DatePlaced" Type="Edm.String" Nullable="true"/>
        <Property Name="OrderNumber" Type="Edm.String" Nullable="true"/>
        <Property Name="SalesLinePrice" Type="Edm.String" Nullable="true"/>
        <Property Name="SalesTotalPrice" Type="Edm.Decimal" Nullable="true"/>
        <Property Name="TimePlaced" Type="Edm.String" Nullable="true"/>
        <Property Name="Urgent" Type="Edm.String" Nullable="true"/>
        <Property Name="Orders_by_Customer_Lineitem" Type="Collection(pts4oData.Orders_by_Customer_Lineitem)"/>
      </EntityType>
      <EntityType Name="Product_Suppliers_List">...</EntityType>
      <EntityType Name="Product_By_Supplier_Name">...</EntityType>
      <ComplexType Name="Product_List_supplier_group" OpenType="true">...</ComplexType>
      <ComplexType Name="Customer_List_mvGroup_1" OpenType="true">...</ComplexType>
      <ComplexType Name="Customer_List_Type" OpenType="true">...</ComplexType>
      <ComplexType Name="Orders_by_Customer_Lineitem" OpenType="true">
        <Property Name="BuyUnitCost" Type="Edm.Decimal" Nullable="true"/>
        <Property Name="Delivered" Type="Edm.String" Nullable="true"/>
        <Property Name="DeliveryDate" Type="Edm.String" Nullable="true"/>
        <Property Name="DeliveryQty" Type="Edm.Decimal" Nullable="true"/>
        <Property Name="DeliveryType" Type="Edm.String" Nullable="true"/>
        <Property Name="Product" Type="Edm.String" Nullable="true"/>
        <Property Name="ProductDesc" Type="Edm.String" Nullable="true"/>
        <Property Name="Qty" Type="Edm.Decimal" Nullable="true"/>
        <Property Name="SalesUnitPrice" Type="Edm.Decimal" Nullable="true"/>
        <Property Name="Supplier" Type="Edm.String" Nullable="true"/>
        <Property Name="SupplierName" Type="Edm.String" Nullable="true"/>
      </ComplexType>
      <ComplexType Name="Product_Suppliers_List_supplier_group" OpenType="true">
        <Property Name="SupplierNames" Type="Edm.String" Nullable="true"/>
        <Property Name="Suppliers" Type="Edm.String" Nullable="true"/>
      </ComplexType>
      <ComplexType Name="Product_By_Supplier_Name_supplier_group" OpenType="true">
        <Property Name="SupplierNames" Type="Edm.String" Nullable="true"/>
        <Property Name="Suppliers" Type="Edm.String" Nullable="true"/>
      </ComplexType>
      <EntityContainer Name="Container">
        <EntitySet Name="Product_List_db" EntityType="pts4oData.Product_List"/>
        <EntitySet Name="Customer_List_db" EntityType="pts4oData.Customer_List"/>
        <EntitySet Name="Orders_by_Customer_db" EntityType="pts4oData.Orders_by_Customer"/>
        <EntitySet Name="Product_Suppliers_List_db" EntityType="pts4oData.Product_Suppliers_List"/>
        <EntitySet Name="Product_By_Supplier_Name_db" EntityType="pts4oData.Product_By_Supplier_Name"/>
      </EntityContainer>
    </Schema>
  </edmx:DataServices>
</edmx:Edmx>
```


Example using Microsoft Power BI

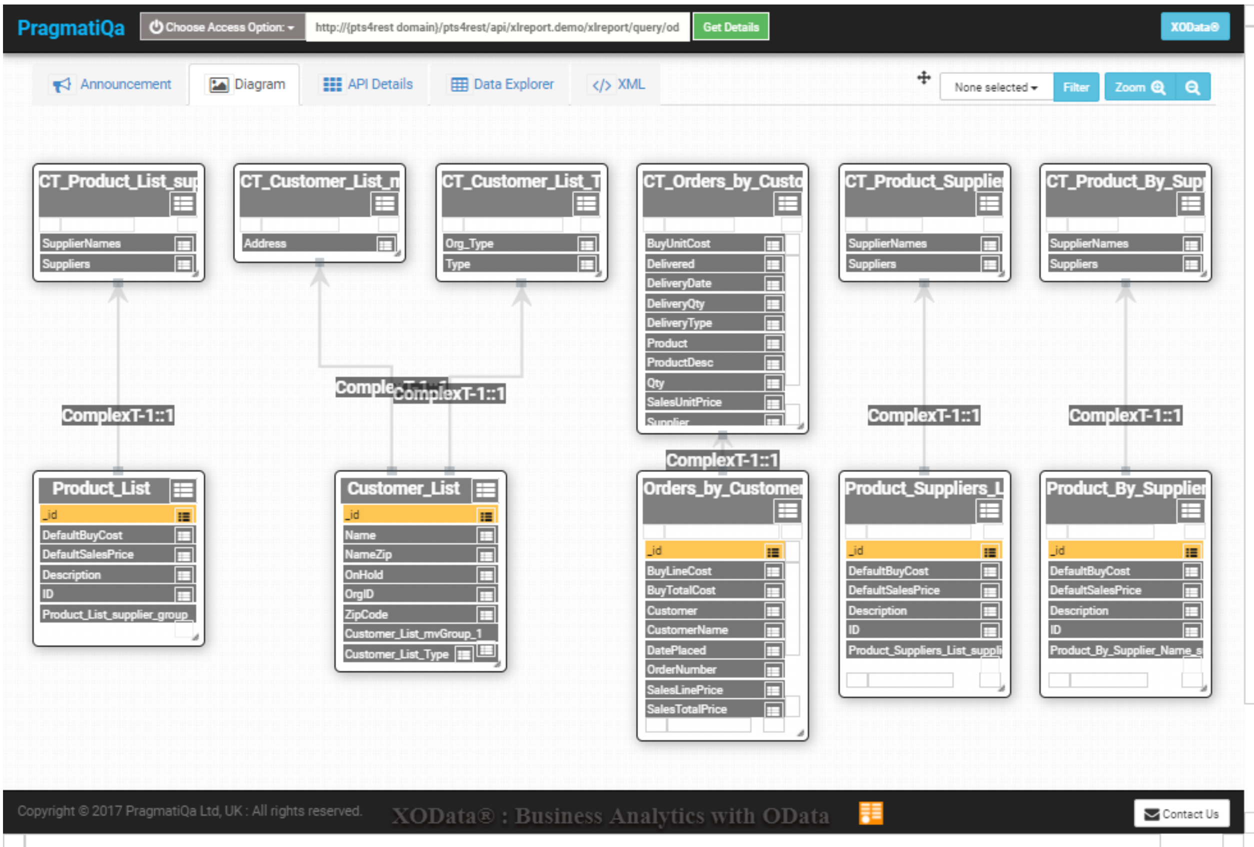

Get Data
Search
All
File
Database
Azure
Online Services
Other
Other
Web
SharePoint list
OData Feed
Active Directory
Microsoft Exchange
Hadoop File (HDFS)
Spark (Beta)
R script
ODBC
OLE DB
Blank Query
Connect
Cancel


Navigator
Display Options
http://l
:/pts4rest/api/xlreport.demo/xlreport/query/Odata/ [5]
Customer_List_db
Orders_by_Customer_db
Product_By_Supplier_Name_db
Product_List_db
Product_Suppliers_List_db
Customer_List_db
Preview downloaded on Friday
_id
Name
NameZip
1
Lubricant Logistics Outlet Inc.
10
Games Servicing Merchants Corp.
100
Pine Formation Consultants Inc.
101
Knitwear Repair Agency Inc.
102
Demolition Concept Group Corp.
103
Racing Design Solutions Corp.
104
Footwear Management Dealers Corp.
105
Zinc Concept Retailers Corp.
106
Painting Leasing Dealers Inc.
107
Milking Cooperative Solutions Corp.
108
Conservatory Logistics Outlet Inc.
109
Concrete Helpline Wholesalers Corp.
11
Irrigation Renovation Wholesalers Inc.
110
Shutter Helpline Dealers Corp.
111
Fish Care Wholesalers Corp.
112
Coal Framework Merchants Corp.
113
Cooking Delivery Contractors Inc.
114
Ventilation Delivery Agency Corp.
115
Refridgeration Handling Consultants Inc.
116
Hair Logistics Center Corp.
117
Guttering Logistics Center Inc.
118
Exhibition Installation Brokers Corp.
Select Related Tables
OK
Cancel

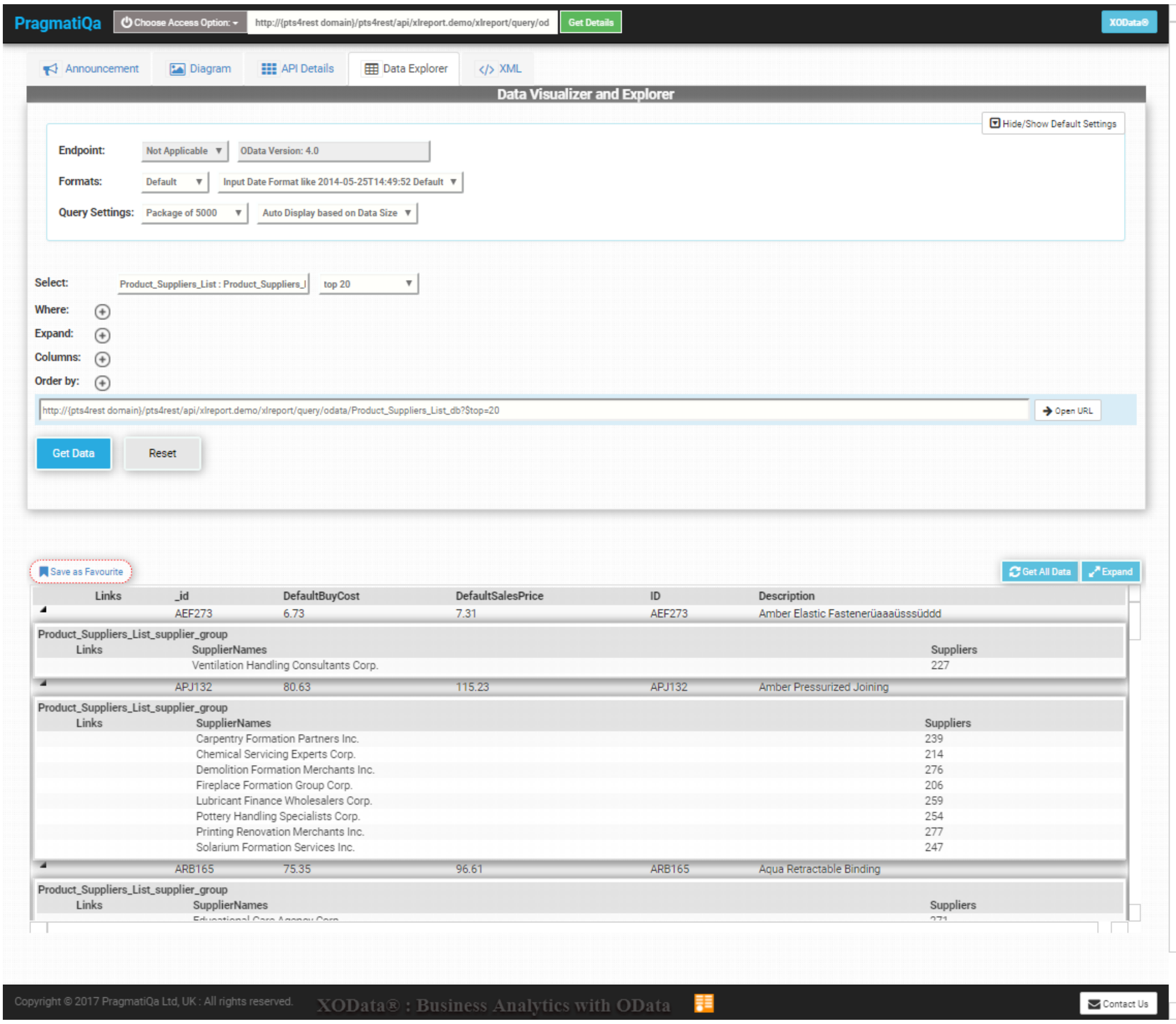



Example using PragmatiQa XOData



PragmatiQa
Choose Access Option:
http://{pts4rest domain}/pts4rest/api/xlreport.demo/xlreport/query/od
Get Details
XOData®
Announcement
Diagram
API Details
Data Explorer
XML
None selected
Filter
Zoom
CT_Product_List_sup
SupplierNames
Suppliers
CT_Customer_List_n
Address
CT_Customer_List_T
Org_Type
Type
CT_Orders_by_Custo
BuyUnitCost
Delivered
DeliveryDate
DeliveryQty
DeliveryType
Product
ProductDesc
Qty
SalesUnitPrice
CT_Product_Supplie
SupplierNames
Suppliers
CT_Product_By_Sup
SupplierNames
Suppliers
ComplexT-1::1
ComplexT-1::1
ComplexT-1::1
ComplexT-1::1
ComplexT-1::1
Product_List
_id
DefaultBuyCost
DefaultSalesPrice
Description
ID
Product_List_supplier_group
Customer_List
_id
Name
NameZip
OnHold
OrgID
ZipCode
Customer_List_mvGroup_1
Customer_List_Type
Orders_by_Customer
_id
BuyLineCost
BuyTotalCost
Customer
CustomerName
DatePlaced
OrderNumber
SalesLinePrice
SalesTotalPrice
Product_Suppliers_L
_id
DefaultBuyCost
DefaultSalesPrice
Description
ID
Product_Suppliers_List_suppli
Product_By_Supplier
_id
DefaultBuyCost
DefaultSalesPrice
Description
ID
Product_By_Supplier_Name_s
Copyright © 2017 PragmatiQa Ltd, UK : All rights reserved.
XOData® : Business Analytics with OData
Contact Us

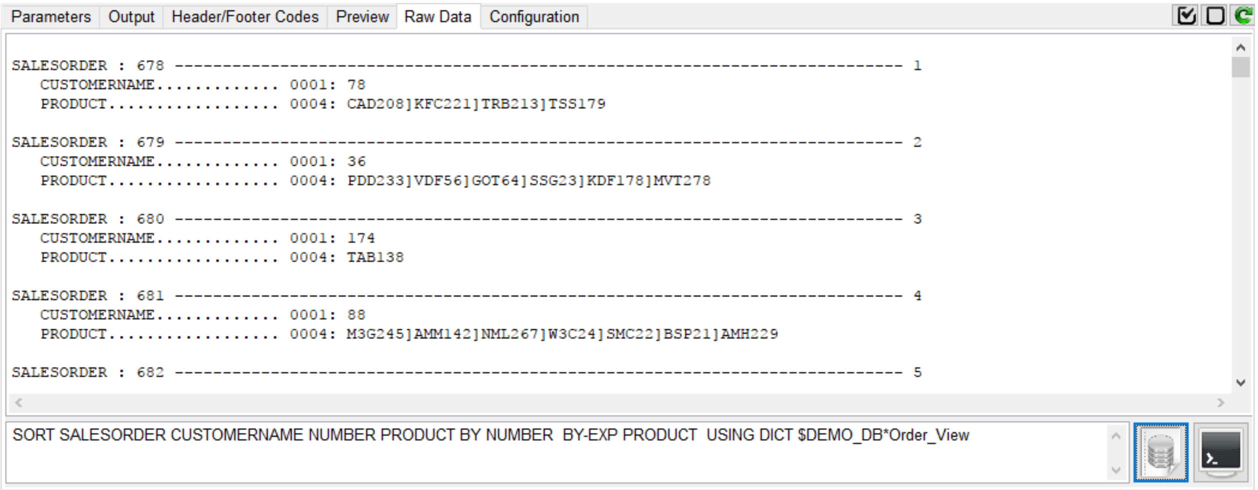




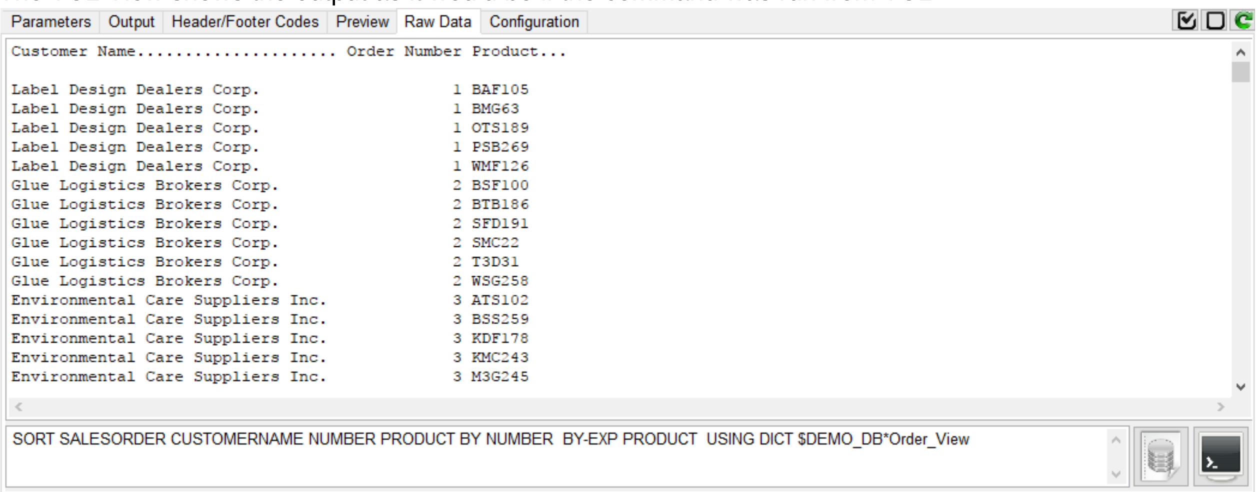
# Raw Data

The Raw Data tab allows you to view the data in its raw format.

Data Raw format only shows physical attributes without any conversions and formating.  Use this feature to check for multi-value and sub-value fields




The TCL View shows the output as it would be if the command was run from TCL.




You can edit the TCL command and execute them to preview their raw data format.

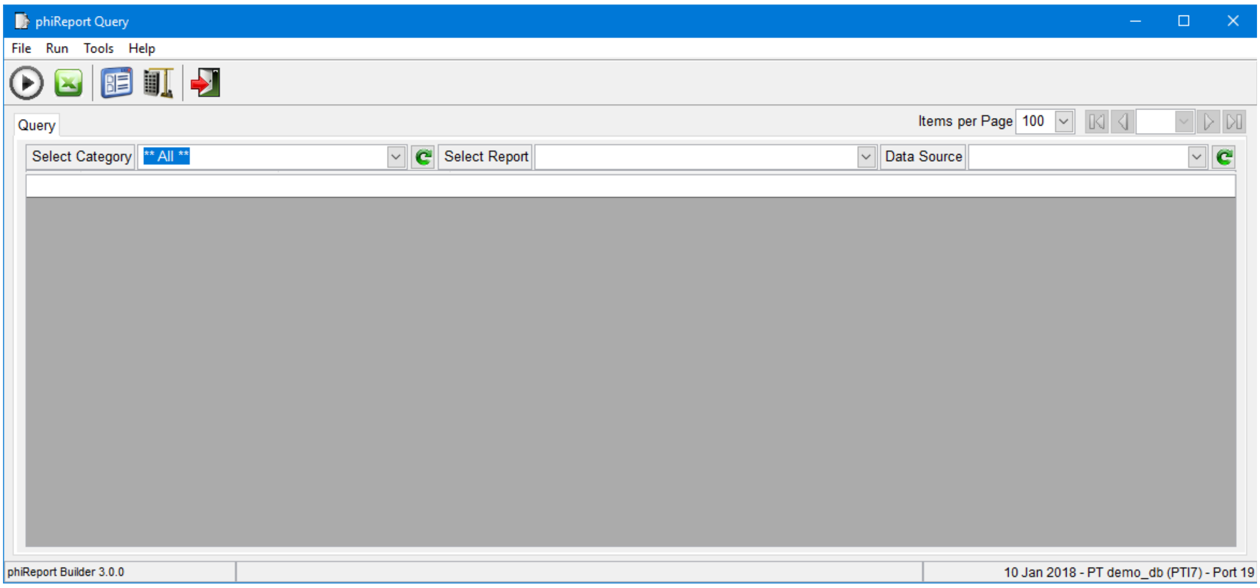
***Note: These two functions do not execute the Pre and Post processes. They do however apply the selected sample size.***
***Note: Changes made to the TCL statements do no affect the report definition. They are only used to preview data and are not saved with the report.***



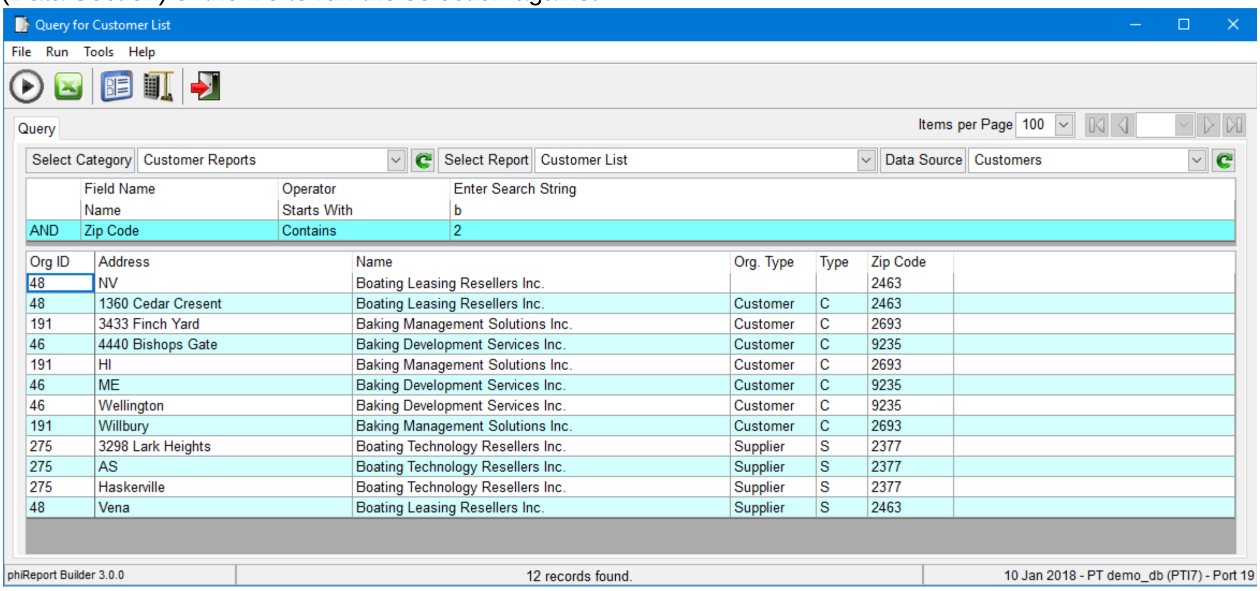
# phiReport Query

*Available with Edition: PRO and CLOUD*

phiReport Query is a simple GUI interface to run report and create Excel workbooks.



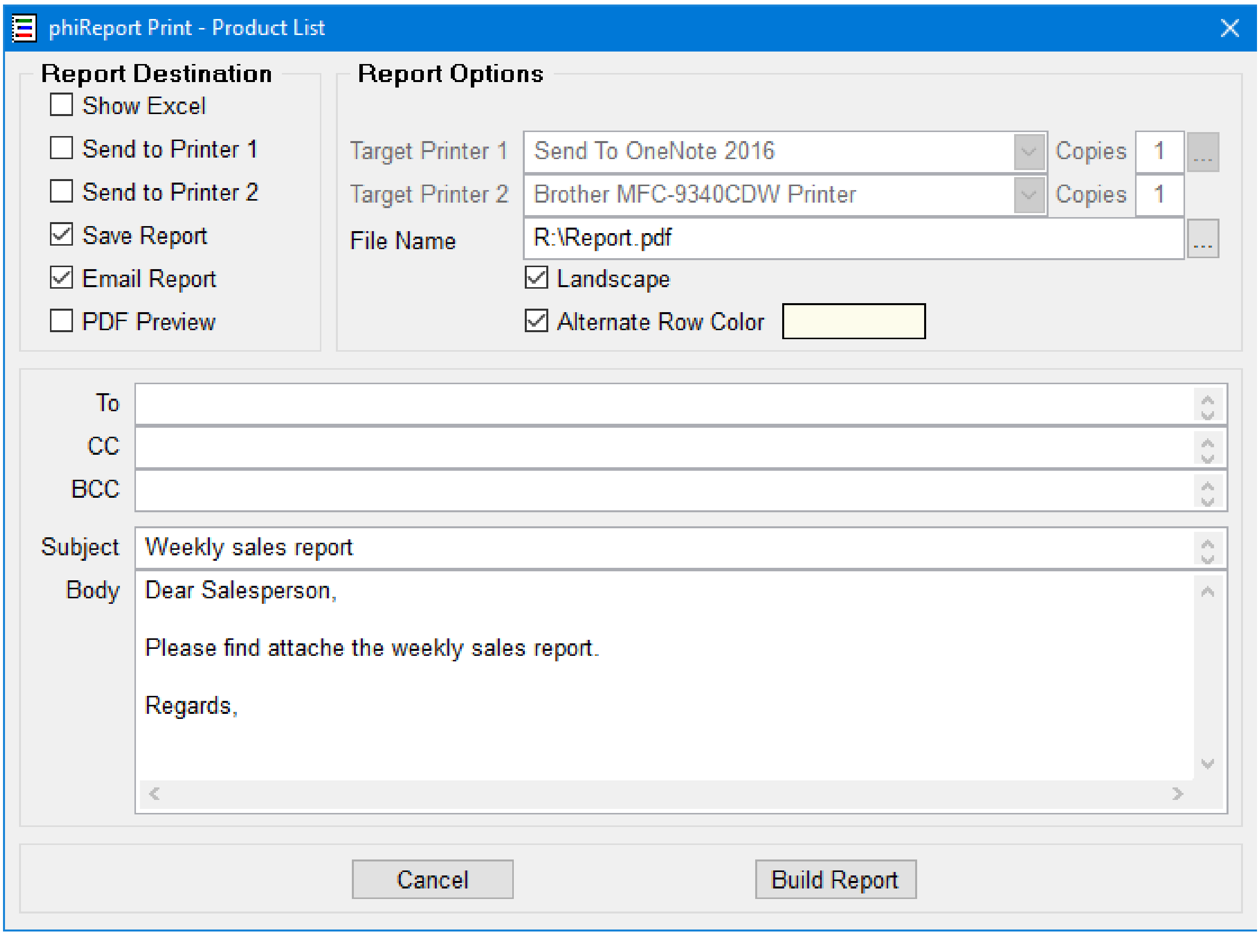

Select a report from the Select Report dropdownlist to load the report definition. You can use the Category dropdownlist to filter the list of reports. The Data Source dropdownlist allows you to select the Data Source (Data Section) of the file to run the selection against.




Click on the "Run Query" button to execute the query.
Click on the "Run Excel" button to create the MS Excell workbook.

Use the navigation buttons to set the number of items to display per page and to move between pages.


The Excel button opens the output dialog box:




You can select any combination of report destinations.

Note: The "Email Report" option is only available when the "Save Report" option is checked.  This is because phiReport will use the saved report as the email attachment.
Note: The "PDF Preview" option is only available when the "Save Report" option is checked and the seleted report format is PDF.  When checked, phiReport will open the PDF file onces it's created.  When unchecked, the PDF is saved at the desired location but it is not opened.



# TCL Report

*Available with Edition: PRO and CLOUD*

You can create Excel reports directly from TCL instead of using the GUI interface.  Use the [Data View Manager] to create your data views then use [phiReport Builder] to build the reports.  Once saved, they can be run using the [phiReport Query] application or from TCL or from a BASIC program using the [phiReport API].

From TCL, log to your data account and enter RPTRUN.

RPTRUN {Report Name} {options}
If no report name is provided you will be prompted to enter one.
Use the "-d" options parameter to indicate the Data Source (Data Section) to use.

```
PT demo_db:RPTRUN Orders by Customer
Preparing Data for sheet "Orders by Customer".  Please wait...
creating Excel Worksheet(s).  Please wait...
----------------------------------------
>>>>> Report Completed at 09:31:16 <<<<<
>>>>> Report Completed in 00:00:13 <<<<<
----------------------------------------
Excel Report Completed.
```

If the report has criteria token(s) defined, RPTRUN will prompt you to enter them before the report is created. The prompts can be answered through DATA statements if you are EXECUTEing from a BASIC program.

Report: Customer List  Category: Customer Reports
Data View: Customer View  Data Section: ORGANIZATION

| Op | Field | Operator | Criteria | Sort | Hide | Notes/Comments |
|---|---|---|---|---|---|---|
| | Name | Starts With | %%@name%%] | | ☐ | |
| AND | Zip Code | Contains | %%@zip%% | | ☐ | |
| | | | | | ☐ | |

```
PT demo_db:RPTRUN
Enter Name of Report to Run :?Customer List
Enter value for 'NAME' : (enter '_quit_' to quit) : ?Co
Enter value for 'ZIP' : (enter '_quit_' to quit) : ?1
Preparing Data for sheet "Customer List".  Please wait...
creating Excel Worksheet(s).  Please wait...
----------------------------------------
>>>>> Report Completed at 09:29:46 <<<<<
>>>>> Report Completed in 00:00:09 <<<<<
----------------------------------------
Excel Report Completed.
```

If your report definition allows for multiple data sections, you can specify the one to use with the "-d" option. The "-d" option must appear at the end of the statement and be directly followed by the data section name.

```
PT demo_db:rptrun Product Suppliers List -dDELETED_
```

or

```
PT demo_db:rptrun -dDELETED
Enter Name of Report to Run :?Product Suppliers List
```

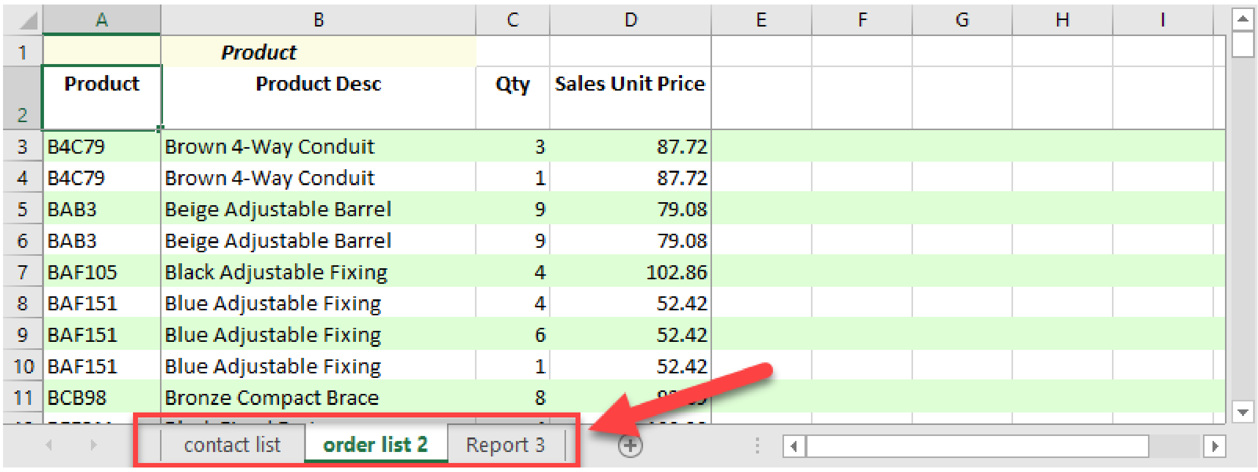
In the above 2 commands, the "-d" option instructs PRReport to use the data section "DELETED" in the query statement.

If the "-d" option is omited, the default data section is used.  If no default data section is defined, the main data file is used.

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| 1 | | ***This is the Merged Header*** | | | | |
| 2 | **Org ID** | **Name** | **Org. Type** | **Type** | **Zip Code** | |
| 3 | 108 | Conservatory Logistics Outlet Inc. | Customer | C | 15257 | |
| 4 | 109 | Concrete Helpline Wholesalers Corp. | Customer | C | 10093 | |
| 5 | 112 | Coal Framework Merchants Corp. | Customer | C | 3165 | |
| 6 | 127 | Container Finance Resellers Corp. | Customer | C | 18486 | |
| 7 | 157 | Communications Logistics Services Inc. | Customer | C | 19751 | |
| 8 | 161 | Cooling Leasing Professionals Corp. | Customer | C | 13067 | |
| 9 | 182 | Computing Installation Group Corp. | Customer | C | 18891 | |
| 10 | 199 | Cooking Care Wholesalers Corp. | Customer | C | 16689 | |
| 11 | 56 | Computing Delivery Associates Corp. | Customer | C | 11829 | |
| 12 | 68 | Container Formation Services Inc. | Customer | C | 18680 | |
| 13 | 78 | Confectionery Installation Agency Corp. | Customer | C | 1018 | |
| 14 | 95 | Communications Design Outlet Corp. | Customer | C | 17158 | |
| 15 | 202 | Concrete Repair Professionals Inc. | Supplier | S | 16555 | |
| 16 | 221 | Container Delivery Merchants Corp. | Supplier | S | 19533 | |
| 17 | 262 | Concrete Renovation Associates Inc. | Supplier | S | 16201 | |
| 18 | 270 | Cooling Installation Experts Inc. | Supplier | S | 14468 | |
| 19 | | | | | | |
| 20 | | | | | | |

The RPTRUN command can also be used to generate multi-sheet report. A multi-sheet report is an Excel workbook that has more than one worksheet. Each worksheet will contain one report.
The create multi-sheet reports with RPTRUN, enter RPTRUN at TCL and press enter. You will be prompted for a report name or TCL statement. After pressing enter on the first report, RPTRUN will prompt you for another report name/TCL statement. Enter as many as required. When done, press enter again to start generating the report.

```
PT demo_db:rptrun
phiReport 3.0.0 Copyright (c) 2018 3phi Solutions Inc.
* Create single or multi-sheet reports.

Enter the Name of the Report or a TCL command to Run :?contact list
Enter the Name of the Report or a TCL command to Run :?order list 2
Enter the Name of the Report or a TCL command to Run :?SORT ORGANIZATION NUMBER
TYPE TYPEDESC BY NUMBER  BY-EXP TYPE
Enter the Name of the Report or a TCL command to Run :?
Creating Excel Report.  Please wait...
Preparing Data for sheet "contact list".  Please wait...
Preparing Data for sheet "order list 2".  Please wait...
Preparing Data for sheet "Report 3".  Please wait...
creating Excel Worksheet(s).  Please wait...
----------------------------------------
>>>>> Report Completed at 13:01:39 <<<<<
>>>>> Report Completed in 00:00:19 <<<<<
>>>>> Excel Run Time      00:00:13
----------------------------------------
Sending Email...Email Sent Successfully.
Excel Report Completed.

PT demo_db:
```



| | A | B | C | D |
|---|---|---|---|---|
| 1 | | *Product* | | |
| 2 | **Product** | **Product Desc** | **Qty** | **Sales Unit Price** |
| 3 | B4C79 | Brown 4-Way Conduit | 3 | 87.72 |
| 4 | B4C79 | Brown 4-Way Conduit | 1 | 87.72 |
| 5 | BAB3 | Beige Adjustable Barrel | 9 | 79.08 |
| 6 | BAB3 | Beige Adjustable Barrel | 9 | 79.08 |
| 7 | BAF105 | Black Adjustable Fixing | 4 | 102.86 |
| 8 | BAF151 | Blue Adjustable Fixing | 4 | 52.42 |
| 9 | BAF151 | Blue Adjustable Fixing | 6 | 52.42 |
| 10 | BAF151 | Blue Adjustable Fixing | 1 | 52.42 |
| 11 | BCB98 | Bronze Compact Brace | 8 | |





# phiReport API

*Available with Edition: PRO and CLOUD*

Reports can run from a BASIC program using the built-in API.

Program PHIDEMOBP XL.DEMO illustrates the use of the API.

API Features

- Create multi-sheet workbooks where each report is in a separate sheet within the same workbook.
- Run Pre-built reports (created in phiReport) or standard TCL SORT/LIST statements.
- Customize each sheet independently from one another (alternate color, header, footer...)
- Automatically execute reports pre-built settings (save as, email, print...)
- Print reports on upto two separate printers.
- Only ONE API call to know!

```
CALL XL.BuildReport(ReportName, TCL, Header, Footer, RptOptions, RptPrompts, ERR)
```

```
PROGRAM XL.DEMO
*************************************************************************
* Excel Report Builder
*------------------------------------------------------------------------
* API Demo Program
*************************************************************************
*  Create the following arrays for XL.BuildReport.
*  'n' denotes the report number.
*------------------------------------------------------------------------
*  ReportName:
*     n,1 : Report Name or Name of worksheet.
*           If a TCL command is provided, this parameter is the name of the worksheet.
*           If a TCL command is not provided, this is the report name defined in phiReport Builder
*     n,2 : Optional Data File Section
*     n,3 : Sheet Name.  By default the name of the sheet defaults to the report name
*
*  TCL:
*     n   : TCL command to run.  Leave blank if using reports defined in phiReport Builder.
*  Header :
*     n   : Header to use for each report
*     n,1 : Left Header
*     n,2 : Center Header
*     n,3 : Right Header
*  Footer :
*     n   : Footer to use for each report
*     n,1 : Left Footer
*     n,2 : Center Footer
*     n,3 : Right Footer
*
*  RptOptions:
*     1,n,1 : Enable or disable Alternate row color.  0=Off else On.
*     1,n,2 : Alternate color
*     2,n   : Export Mode, Skip formating
*     3,n   : Run in Account
*     4,n   : SaveAs File name
*     5,n   : 1=Hide Excel else Show Excel.
*     6,n,1 : PreProcess Type
*     6,n,2 : PreProcess Command
*     7,n,1 : PostProcess Type
*     7,n,2 : PostProcess Command
*     8,n   : Preview Output
*     9,n,1 : Send to printer 1   (0=don't print, n = number of copies)
*     9,n,2 : Printer 1 Name
*     9,n,3 : Send to Printer 2   (0=don't print, n = number of copies)
*     9,n,4 : Printer 2 name
*
* Send Email: RptOptions<4,n> must have a file name to SaveAs
*             IF previewing the output file using Excel, RptOptions<5,1> must be set to 1 (hide excel).
*
*    10,1   : Email 1=send else don't send
*    10,2,1 : Send To
*    10,2,2 : CC
*    10,2,3 : BCC
*    10,3,1 : Subject
*    10,3,2 : Body.  Use | for LF
*
*    11,n   : Landscape.  Enter the word "Landscape" to create landscape mode. (Case sensitive)
*
* For multi-sheets.  When creating multi-sheet reports, you can save and preview the workbook.
*        12 : workbook name
*        13 : workbook preview
*
*    14,n   : Custom Template
*    15,n   : Starting Cell.  Defautl = "A1"
*    16,n   : Custom Template Sheet
*    17,n   : Include Custom Header
*    18,n   : Macro Name
*    19,n   : Function Name
*    20,n   : Function Params
*    21,n   : Module Type
*    22,n   : List of Value Pair
*    23,n   : Text Header.  Use "<lf>" for line feed
*    24,n   : Repeat Header
*    25,n   : Fit2Page Wide
*    26,n   : Fit2Page Tall
*    27,n   : Footer1Name
*    28,n   : Footer1Rows
*    29,n   : Footer2Name
*    30,n   : Footer3Rows
*    31,n   : Footer2Pad
*    32     : Multi-Page Template
*    33,n   : Global Filter Flag
*    34,n,1 : DataBlob Flag
*    34,n21 : DataBlob Row 1 header
*
*************************************************************************
```

Prepare the data arrays and call the XL.BuildReport subroutine.

```
        CRT "Running XL.DEMO..."

        GOSUB InitReport           ;* Initialize report variables

        RptCount = 0

        GOSUB Report1      ;* Product List
        GOSUB Report2      ;* Invoice Form 1
        GOSUB Report3      ;* Invoice Form 2
        GOSUB Report4      ;* Invoice List Detail
        GOSUB Report5      ;* Customer List

        CALL XL.BuildReport(ReportName, TCL, Header, Footer, RptOptions, RptPrompts, ERR)

        IF ERR # "" THEN PRINT ERR

        CRT "Demo Completed."
        STOP
        **********************************************************
        **********************************************************
        **********************************************************
InitReport:
        ReportName       = ""
        TCL              = ""
        Header           = ""
        Footer           = ""
        RptOptions       = ""
        RptPrompts       = ""
        ERR              = ""
        DBG              = ""

        RETURN

Report1:
        RptCount = RptCount + 1
        ReportName<RptCount>      = "Product List"        ;* Report Name
        ReportName<RptCount,3>    = "Live Products"       ;* Sheet Name

        RptOptions<1,RptCount,1> = "1"                    ;* Enable Alternate Colors
        RptOptions<1,RptCount,2> = "16644567"             ;* Color code
                                                          ;* Report Header text
        RptOptions<23,RptCount>  = "Product Listing as of <B>%%@DATE%%</B><lf>This is the list of <B><U>Active</U></B> products<lf>"

        RETURN
Report2:
        RptCount = RptCount + 1
        ReportName<RptCount>      = "Invoice Form"        ;* Report Name
        RptPrompts<RptCount,1>    = "Invoice Number"      ;* User Prompt defined as %%@Invoice Number%% in Report
        RptPrompts<RptCount,2>    = "12345"               ;* Answer to above user prompt
        RETURN
Report3:
        RptCount = RptCount + 1
        ReportName<RptCount>      = "Invoice Form"        ;* Report Name
        RptPrompts<RptCount,1>    = "Invoice Number"      ;* User Prompt defined as %%@Invoice Number%% in Report
        RptPrompts<RptCount,2>    = "12121"               ;* Answer to above user prompt
        RETURN
Report4:
        RptCount = RptCount + 1
        ReportName<RptCount>      = "Invoice List Detail"    ;* Report Name
        RETURN
Report5:
        RptCount = RptCount + 1
        ReportName<RptCount>      = "Customer List"          ;* Report Name

        * TCL command to execute
        TCL<RptCount>             = "LIST CUST.SAMPLE NAME ADDRESS.1 CITY STATE ZIP BY NAME"

        * Alternate colors
        RptOptions<1,RptCount,1> = "1"
        RptOptions<1,RptCount,2> = "16644567"

        * Header
        Header<RptCount,1>      = "Printed on &D at &T"
        Header<RptCount,2>      = "List of Customers"
        Header<RptCount,3>      = "Printer by &USER"

        * Footer
        Footer<RptCount,2>      = "Customer List"
        Footer<RptCount,3>      = "Page &P or &N"

        RETURN

        END
```



# ad-hoc Reports

*Available with Edition: PRO and CLOUD*

It is possible to create Excel workbooks directly from TCL without creating Data Views and Report Definitions from phiReport Builder.  Verbs XLSORT and XLLIST use the same syntax as regular SORT and LIST verbs but with Excel extensions.

Run XLLIST or XLSORT without any parameters will display the verbs' options.

```
Usage   : (same syntax as SORT command)
options : A : Use Alternate Row Color.
          L : Set Landscape mode.  (Default = Portrait)
          P : Sent output to printer defined with XL-ASSIGN
          F : Send output to PDF file, prompt for file name.
          X : Send output to PDF file, don't prompt for file name.
          V : preView PDF file.  Must be used with option F or X.
          S : Run in Silent mode.
```

XL-ASSIGN works similarly to SP-ASSIGN except that XL-ASSIGN works with local Windows printers

Run XL-ASSIGN without any parameters display its current status.

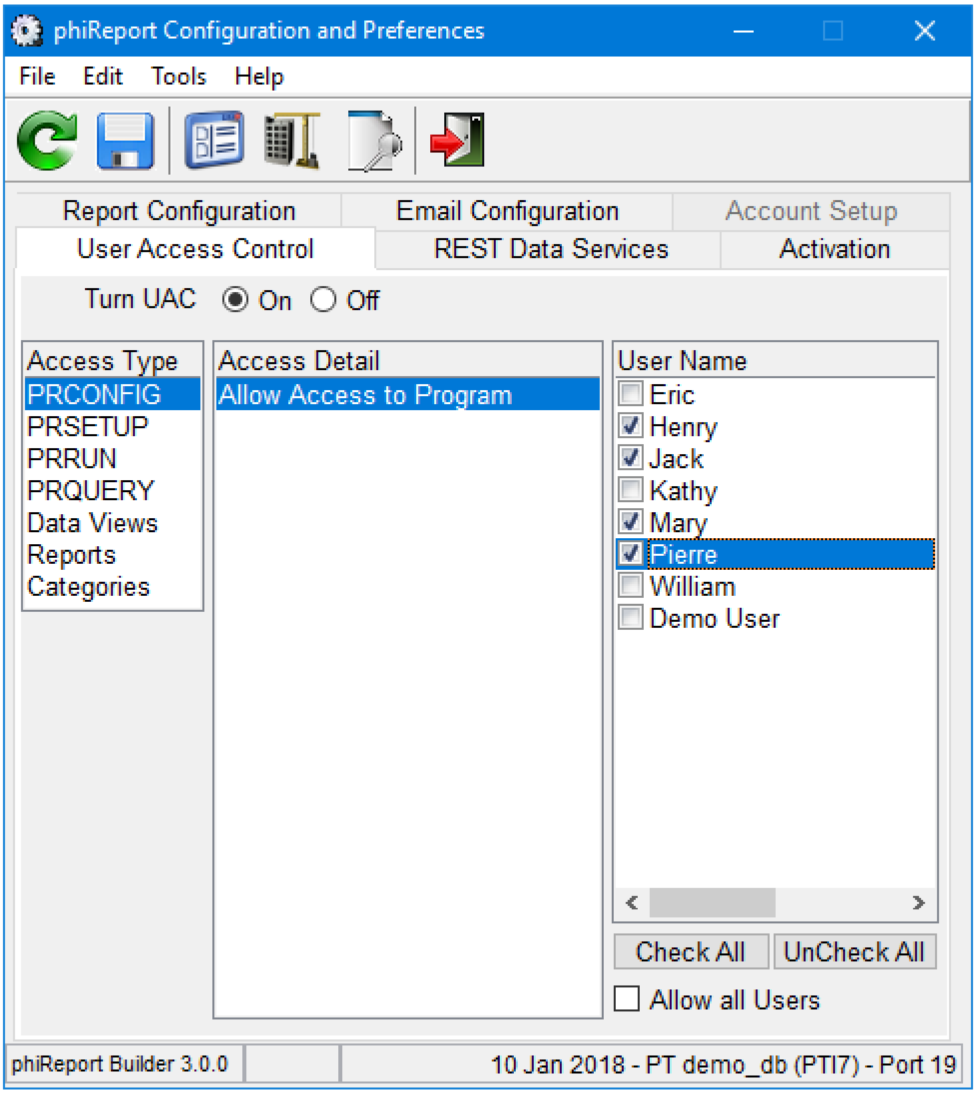
```
*#001:Snagit 13
  002:Microsoft XPS Document Writer
  003:Microsoft Print to PDF
  004:Foxit Reader PDF Printer
  005:Fax
  006:Brother PC-FAX v.3.1
  007:Brother MFC-9340CDW Printer (Copy 1)
  008:Brother MFC-9340CDW Printer

* Denotes Windows' system default printer.
# Denotes user's current active printer.
  Number of copies to print: 1

XL-ASSIGN useage:
   XL-ASSIGN {Number of Copies}F{Printer Number | Printer Name}
ex:
   XL-ASSIGN F1
   XL-ASSIGN 2FText Printer
```



# User Access Control (UAC)

*Available with Edition: PRO and CLOUD*

User Access Control is used to control user access to certain features of the application and reports.  When turned off, all users have access to every features and every reports on the system.




To set UAC for the PR features (PRCONFIG, PRSETUP, PRRUN and PRQUERY), select the Access Type. The Access Detail is automatically selected and the list of user is displayed on the User Name checklist. By default the "Allow all Users" checkbox is checked which is equivalent to selecting all users in the list. To selectively select users, uncheck "Allow all Users" to "turn on" the User Name list and click on the user to grant access.

Use "Check All" and "UnCheck All" to quickly select or unselect all users.  The "Check All" option is equivalent to the "Allow all Users" option.

Don't forget to click on the save button  to save your changes before moving on to the next Access Type or changing tab.

Alternatively you can setup UAC from TCL using the PRUAC verb.

```
PRUAC 3.0.0              phiReport USER ACCESS CONTROL              (Currently ON)
-------------------------------------------------------------------------------

     1. Turn User Access Control (UAC) On or Off.
     2. List of users with access to PRCONFIG
     3. List of users with access to PRSETUP
     4. List of Users with access to PRRUN
     5. List of Users with access to PRQUERY

  Please enter your selection or RETURN to end : _
```

And finally you can maintain the UAC settings in your own programs by updating the phiReport.UAC item in DICT XLBP file.

```
001 ON/OFF
002 Multi-value list of users with access to XLCONFIG
003 Multi-value list of users with access to XLSETUP
004 Multi-value list of users with access to XLRUN
005 Multi-value list of users with access to XLQUERY
eoi 005
```

Example:

```
001 ON
002 HENRY]JACK]MARY
003 Henry]JACK]Peter]XLDemoUser
004 Henry]Jack]Peter]XLDemoUser
005 Henry]Kathy]Mary]XLDemoUser
eoi 005
```



## System User

The list of users displayed in "User Name" on the "User Access Control" tab can programatically be customized based on your application requirements.  Some applications use non-system users in which case you will need to create your own subroutine to return the list of users.  This is done by editing the subroutine **RPT.GET_USER_LIST** in the **USERBP** file.

The standard **RPT.GET_USER_LIST** subroutine for D3 is as follows:

```
      SUBROUTINE RPT.GET_USER_LIST(lstUsers, ERR)
      ***********************************************************************
      * Subroutine to return the list of users.
      *----------------------------------------------------------------------
      * lstUsers format:
      *        lstUsers<1,n,1> = User Name displayed
      *        lstUsers<1,n,2> = User ID
      *
      *        where n is the user count.
      *
      * ERR : Return any error message to be displayed in an error dialogbox
      ***********************************************************************
      lstUsers = ""

      OPEN "Users" TO f.Users ELSE
         ERR = "Unable to open USERS file."
         RETURN
      END

      n = 0

      TCL = 'SELECT Users WITH A0 # "[$" AND WITH A1 # "" BY A1'
      EXECUTE TCL CAPTURING CAP
      LOOP
         READNEXT ID ELSE EXIT
         READ User FROM f.Users,ID THEN
            n = n + 1
            lstUsers<1,n,1> = User<1>
            lstUsers<1,n,2> = ID
         END
      REPEAT

      RETURN
      ***********************************************************************
```

You may make this subroutine as simple or as complex as required as long as the returned data is in the expected format.

**Returned format**

Parameter **lstUsers**: (single attribute, multi-value, 2 sub-values per value.)

```
lstUsers<1,1,1> = "User Name 1"
lstUsers<1,1,2> = "UserID1"

lstUsers<1,2,1> = "User Name 2"
lstUsers<1,2,2> = "UserID2"
```

*** WARNING *** When a custom **RPT.GET_USER_LIST** is used, you MUST also provide custom **RPT.GET_USER_ID** and **RPT.CHECK_USER_ID** subroutine to validate users.

The **RPT.GET_USER_ID** subroutine returns the currently logged on user.

```
       SUBROUTINE RPT.GET_USER_ID(UserID, ERR)
       ***********************************************************************
       * Subroutine to return the currently logged on user.
       *----------------------------------------------------------------------
       * UserID format:
       *
       * ERR : Return any error message
       ***********************************************************************

       UserID = @USER


       RETURN
       ***********************************************************************
       END

```

The **RPT.CHECK_USER_ID** subroutine validates if a user Id exists.

```
       SUBROUTINE RPT.CHECK_USER_ID(UserID, Result)
       ***********************************************************************
       * Subroutine to check if a user id exists.
       *----------------------------------------------------------------------
       * UserID format:
       *
       * Result : Return UserID if exists
       ***********************************************************************
       Result = OCONV(UserID,"tDM,USERS,;x;;0")

       RETURN
       ***********************************************************************
       END

```

The **RPT.LOGON_USER** subroutine validates a username and password combination. This subroutine is called by the Json/OData services to authenticate a user. This subroutine is only called when token based or basic authentication is used.

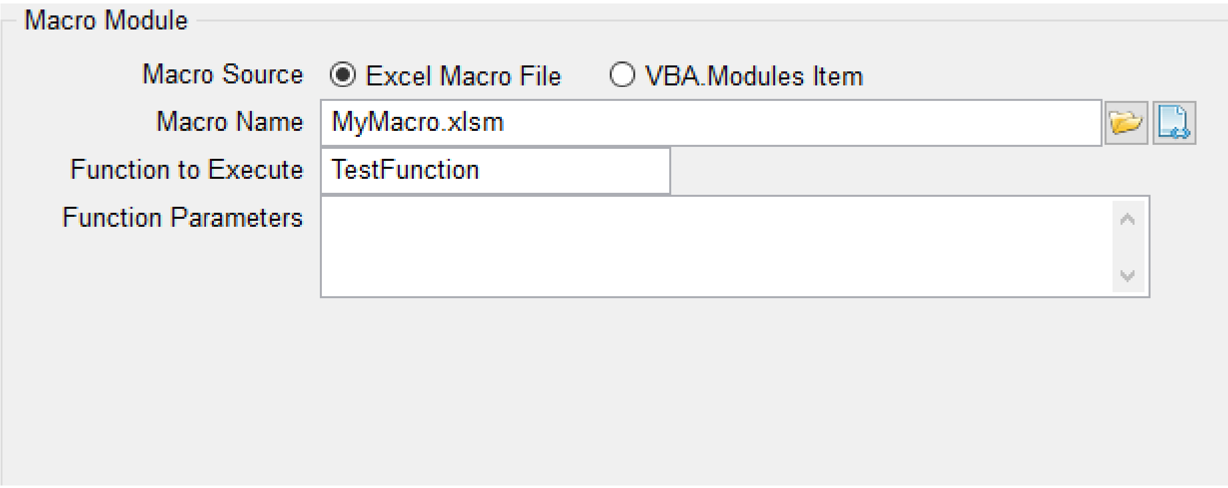
```
SUBROUTINE RPT.LOGON_USER(UserId, Password, Result)
**********************************************************************
* Subroutine to validate a username and password combination
*---------------------------------------------------------------------
* UserID format:
*
* Result : Return error message or blank
**********************************************************************

OPEN "www.Users" TO f.Users ELSE
   Result = "Unable to open www.Users file!"
   RETURN
END

READU User FROM f.Users, UserId LOCKED
   Result = "User record locked! Please try again in a few minutes."
END THEN
   IF Password = User<1> THEN
      * User is authenticated - return blank
      Result = ""
   END ELSE
      Result = "Unknown Username/Password"
   END
   RELEASE f.Users, UserId
END ELSE
   Result = "Unknown Username/Password"
END


RETURN
**********************************************************************
END
```



# Advanced Topics



## Macro Modules



**Macro Module**
If a report requires additional processing in Excel, you can instruct phiReport to run your custom VBA function once the report generation is complete.

Macro Source
phiReport supports 2 types of VBA Macro injection methods.

*Excel Macro File*
In this mode, the VBA Macro is created and saved as an Excel file. Supported Excel formats are XLS, XLSX and XLSM. To run the macro, phiReport downloads the Excel file to the local workstation and executes the function defined in "Function to Execute".

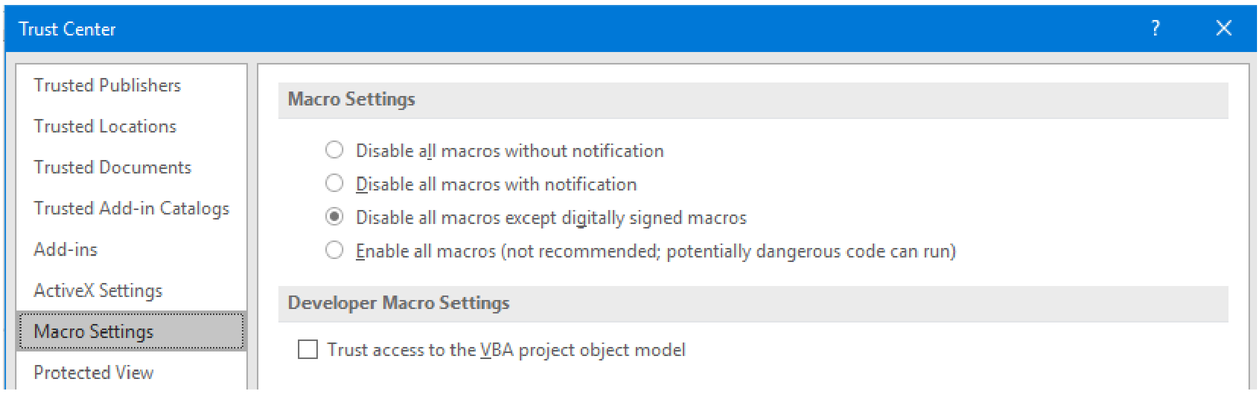
Create your VBA source in Excel and use all the debugging tools available from within Excel. Once debugged the VBA source is saved in an Excel worksheet. Place the Excel worksheet where it can be accessible by all your users. In an intranet environment, you can place it on a shared network folder. In an internet environment, you can place it on a web server. The Excel file is copied or downloaded everytime phiReport needs to run your macro.

*VBA Modules Item*
In this mode, the VBA Macro is stored in a Pick file VBA.Modules. To run the macro, phiReport "injects" the VBA source to the Excel worksheet then executes the macro.

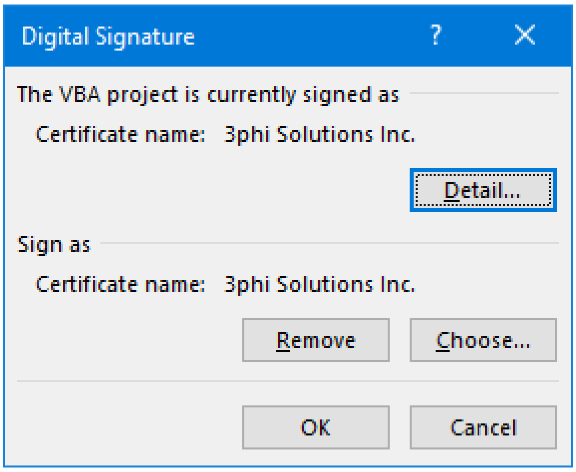
To create the VBA source you need to use Excel VBA editor/debugger then copy the source and paste it into a Pick item in VBA.Modules. Once in Pick it becomes part of the database. A database backup will save all your VBA source. There's no special consideration for deployment since everything is "injected" directly from Pick to your workstation.

***Security Consideration***

*By default, Excel disables all macros with notification. This means that everytime you try to run a macro, Excel will prompt the user with a warning message and will not run the macro. Since phiReport relies heavily on Excel VBA macros, the minimum required setting is "Disable all macros except digitally signed macros". This means that the first time a phiReport macro is run, Excel will display the 3phi Solutions security certificate to identify itself as "safe to run". Once the signature is approved, Excel will no longer ask for approval unless the certificate has expired. All VBA macros produced by 3phi Solutions are signed.*




*When using the Excel Macro file, you need at a minimum "Disable all macros except digitally signed macros" and sign all you custom VBA modules. A VBA Digital signature must be purchased through an online security provider, free certificate are also available online.*
*When using the VBA Modules method, you need to "Enable all macros" and also "Trust access to the VBA project object model" since the injection requires access to the project object model.*




<u>Macro Name</u>
Name of the Excel worksheet of the VBA.Module item to "inject"

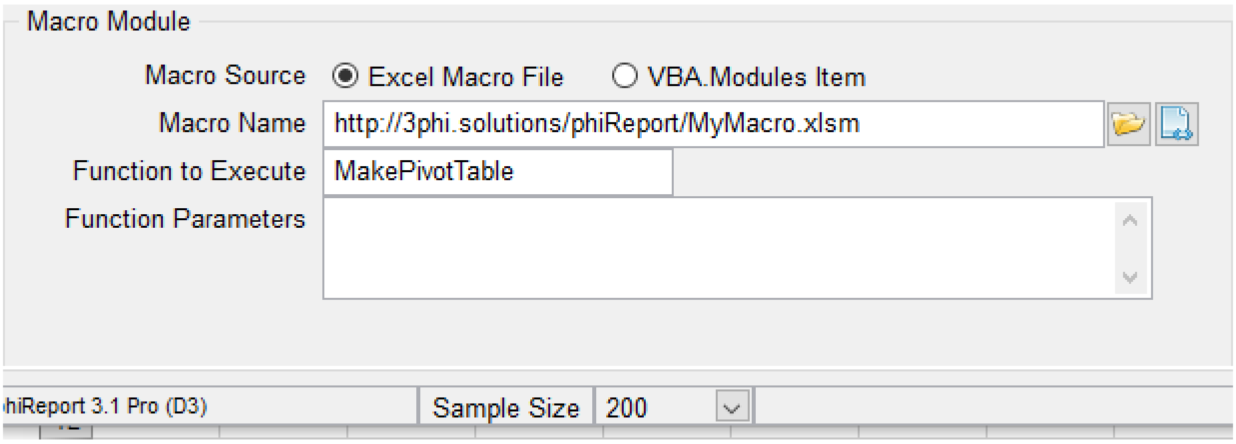
<u>Function to Execute</u>
Name of the VBA macro to execute. The function must be a VBA FUNCTION and not a SUB.

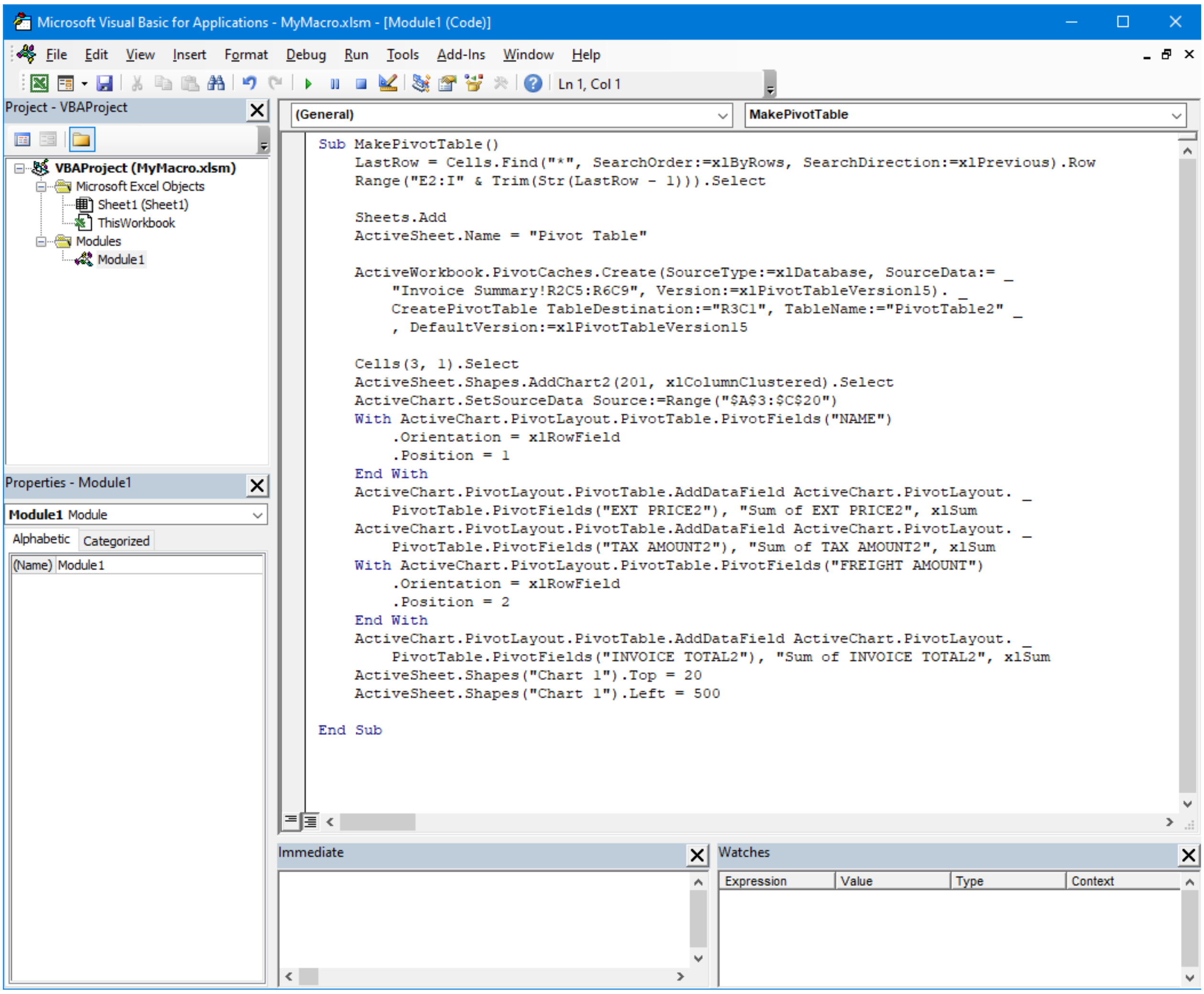
<u>Function Parameters (for future use)</u>
Function parameters to pass to the VBA Function



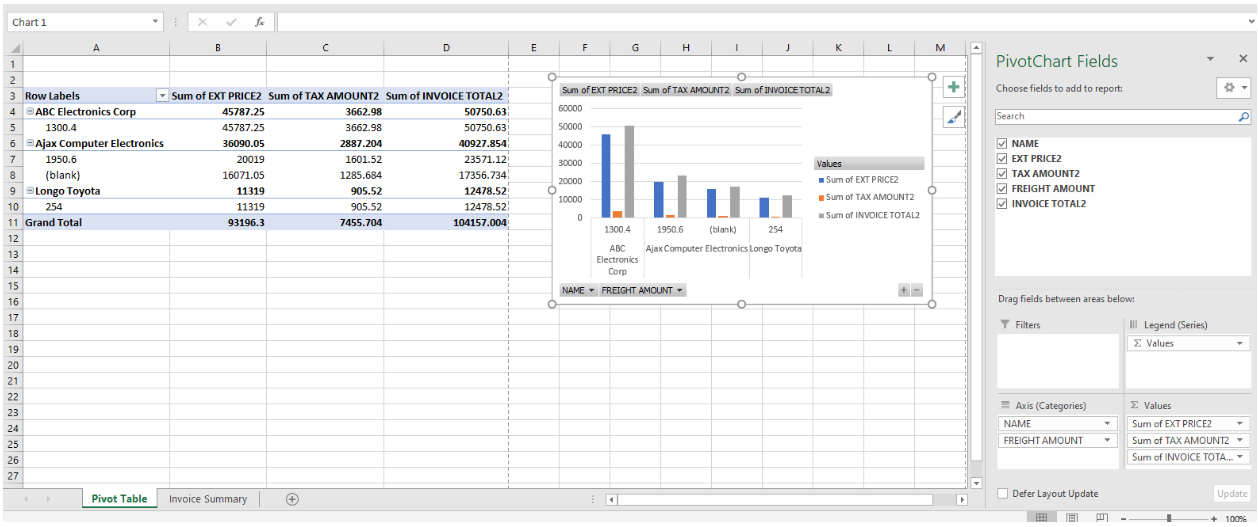
## Custom Macro Demo

Demo report "Invoice List Summary" demonstrates how you can use an external macro to add a pivot table to your report.






The demo macro creates a new sheet "Pivot Table" and builds the pivot table using the data from the "Invoice Summary" sheet.




Here's the macro

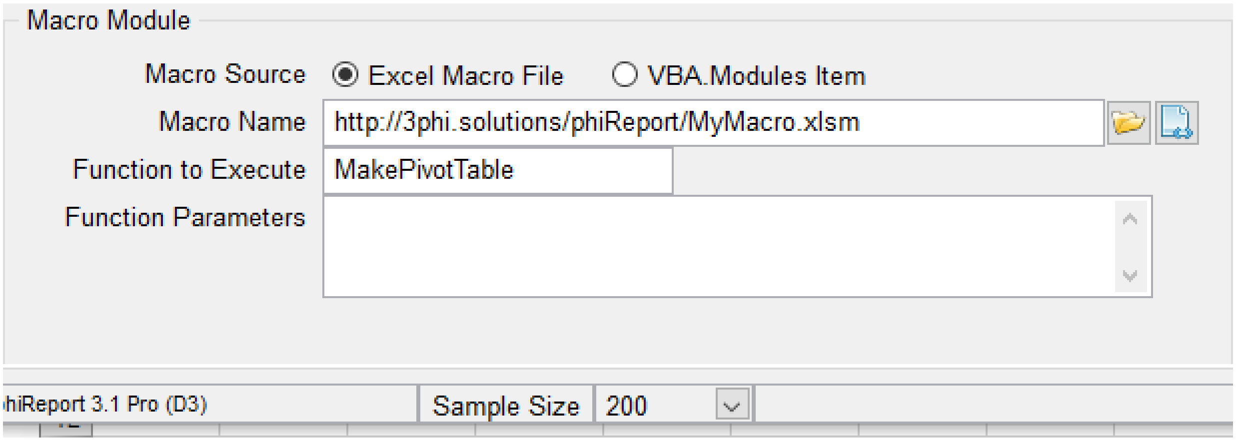
# Custom Macro Modules

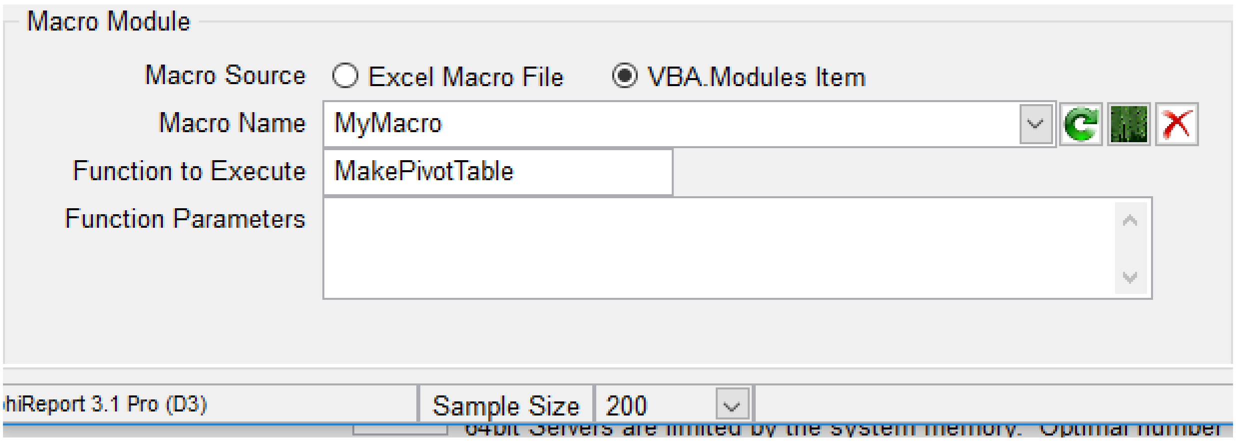
*Available with Edition: PRO and CLOUD*

phiReport supports external macros via Excel macro sheets (XLSM) and code injection.

- Excel Macro Sheet are Excel files with extension XSLM.  The macros are stored in Excel's VBA modules which are accessible from the View > Macros menu or ALT-F11 shortcut.
- Code Injection are clear text VBA source code stored in your MV database in VBA.Modules file.  This file is created by default in your work account after you enable that account for phiReport.

The external macro can be as complex as required and are run once phiReport completes building the main report.  This allows you to create your own advanced reporting system to generate pivot tables or charts.

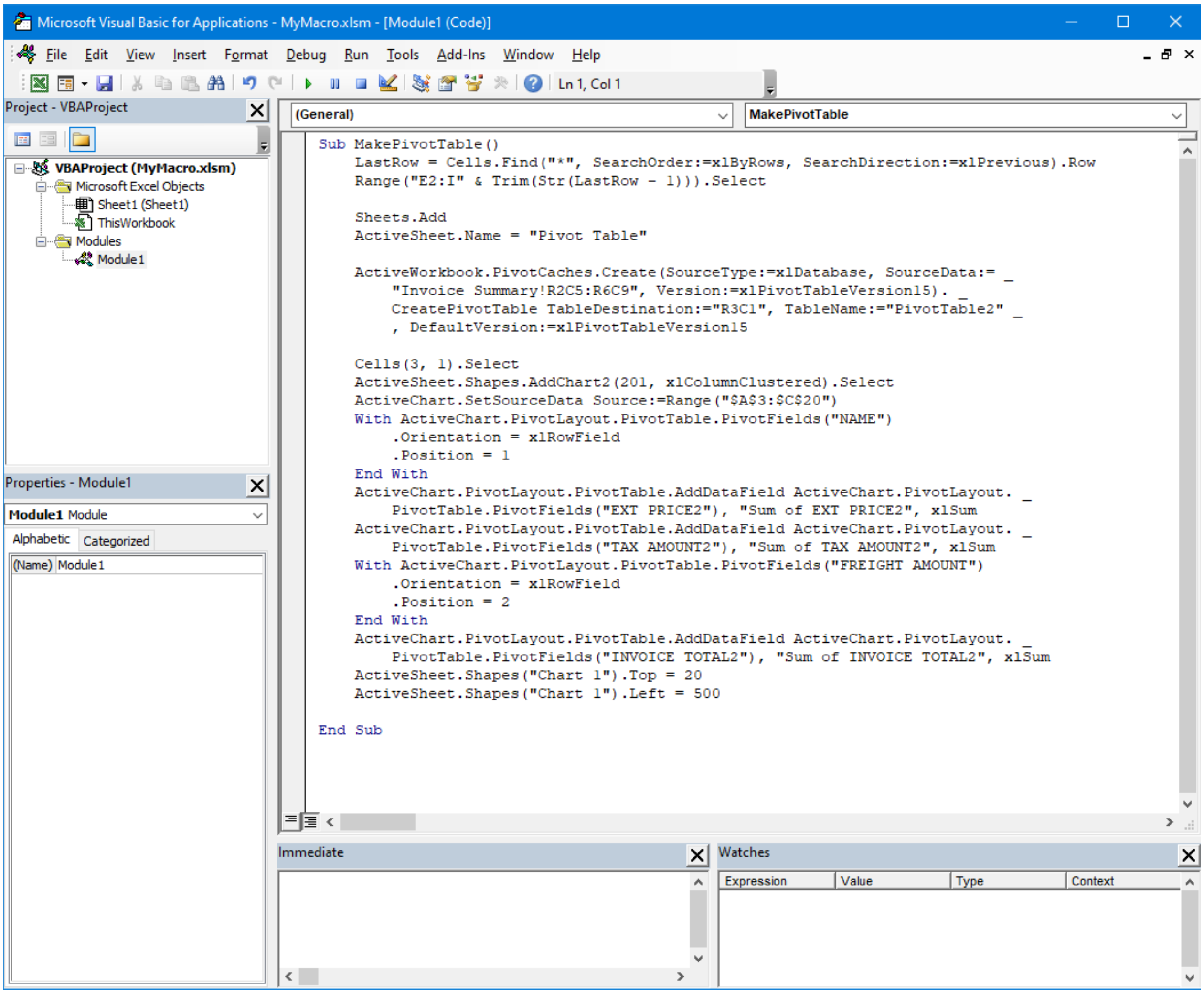


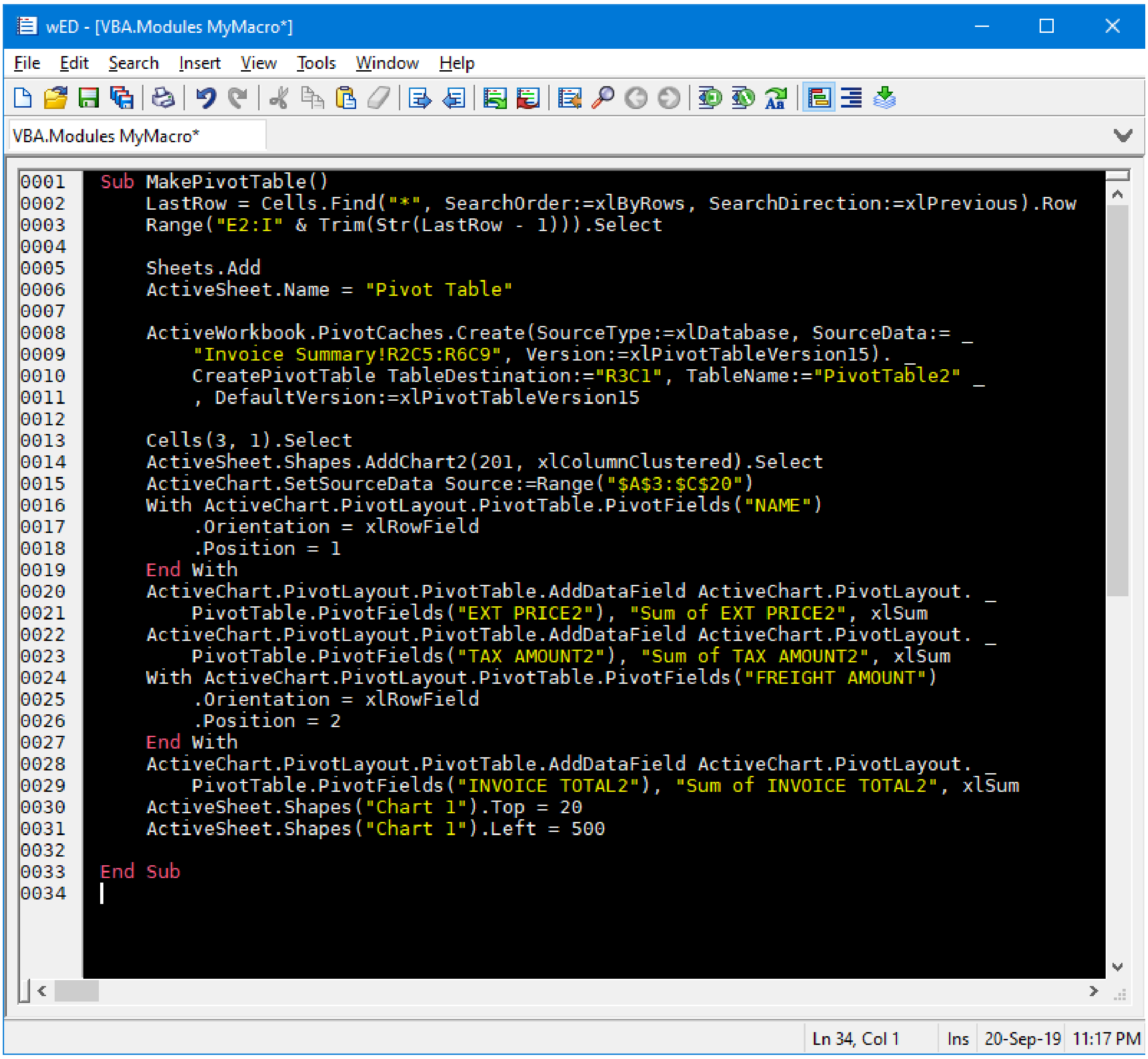

To call an external macro enter the source of the macro, the macro file name or item name and the function or sub to execute.  The Function Parameters field allows you to pass parameters to your excel function/sub.

Note: In VBA, FUNCTIONs return a result whereas SUBs don't.  phiReport does not differentiate between the two since any returned values from a Function will be ignored.

In Excel Macro File, enter the name of the XLSM file and click on  to open the Excel sheet.




In VBA.Modules Item, enter or select the name of the macro file and click on  to edit the macro in WED (AccuTerm Code Editor)




Enter the name of the Function or Sub to call and run your report.



# Demo Reports

Starting with phiReport 3.1.4, sample reports are provided and installed in your phiReport account.

To run the demo reports you must have the AccuTerm sample data files installed. Click here for instructions on how to install the sample data files and reports.

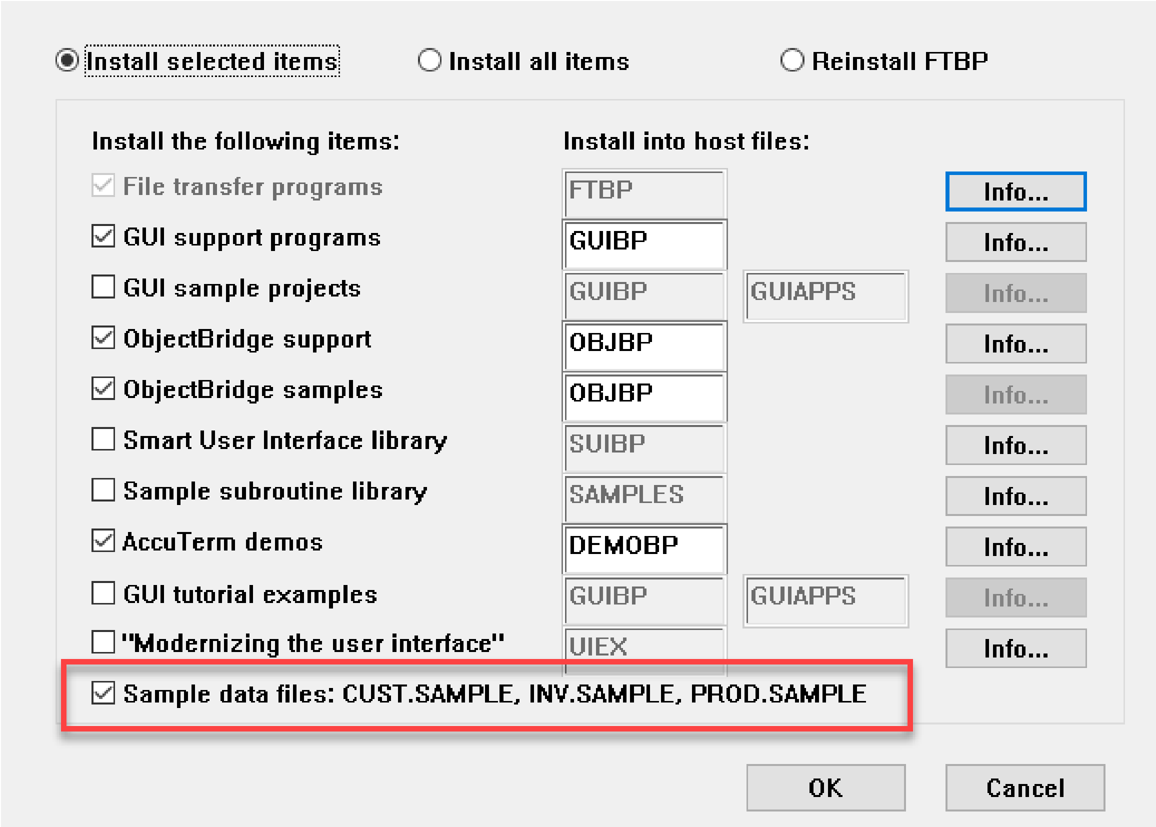


## Installation

Before you can run the demo reports, you must install the AccuTerm sample data files and the phiReport demo reports.

1. Install AccuTerm sample data files

To install the AccuTerm sample data files log to your ACCUTERM account and enter LOAD-ACCUTERM-PROGS from TCL.

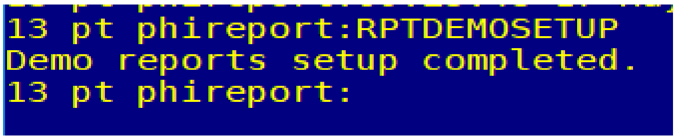



Check the "Sample data files" and click OK.

2. Install phiReport demo reports

The phiReport demo reports are normally installed during the installation/upgrade of phiReport if the AccuTerm sample data files were already installed.

To manually install or re-install the demo reports, enter RPTDEMOSETUP from your phiReport account.




In order to fully run the demo reports, you need to be running the PRO edition of phiReport. If you do not have a PRO license, temporarily activate your free 30 day TRIAL license. Run **PRCONFIG** and select the [Activation](#) tab. Select "**TRIAL**" License Type and click **Activate Online**

You can also run **PRVERSION** from TCL to verify your activation status.

```
13 pt phireport:PRVERSION

phiReport version              : 3.1.4 Pro
Database System                : D3 Windows
Account name                   : phireport
```

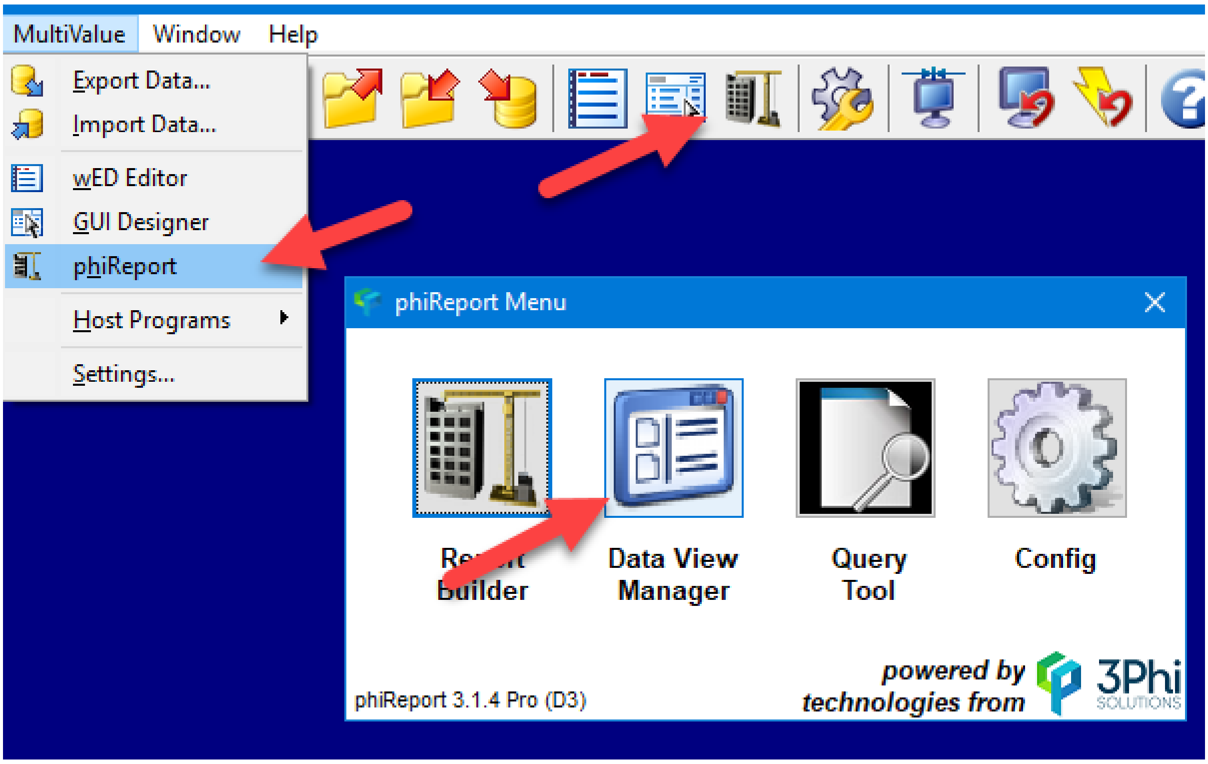


## Demo Reports

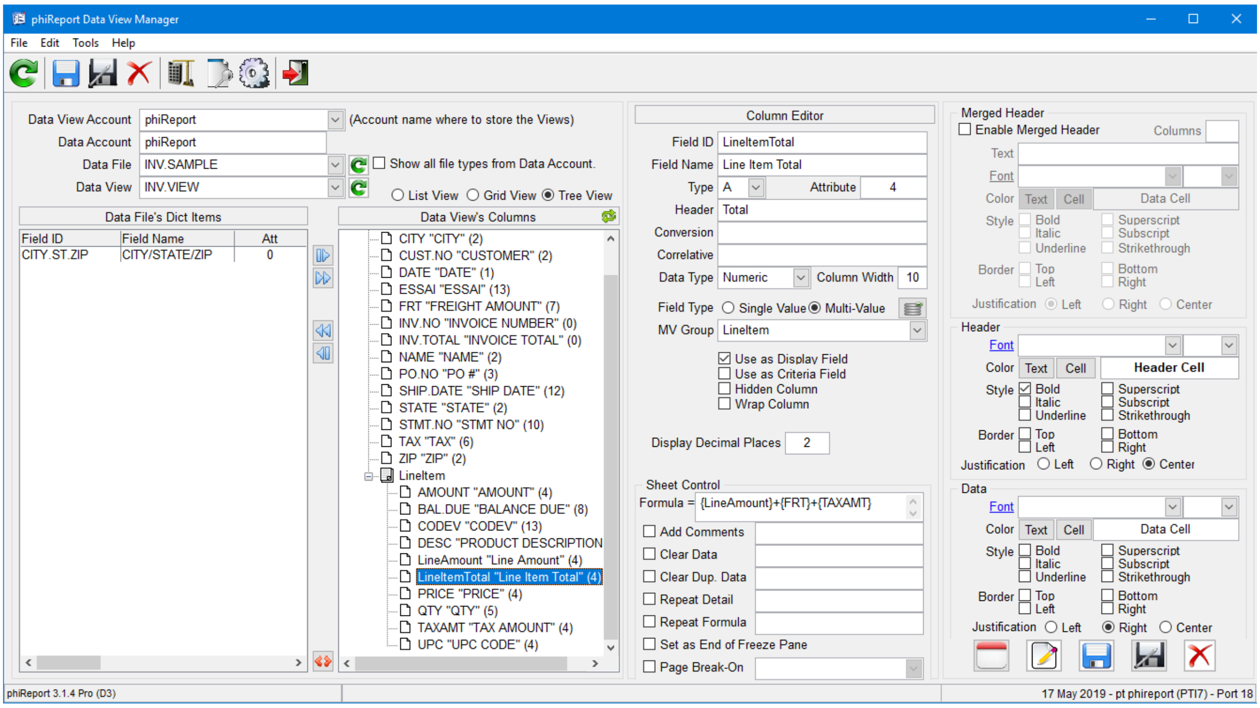
phiReport (3.1.4 or better) comes with sample reports you can run and modify as required.

The data used for the reports are those found in the AccuTerm sample data.
The demo reports should be run from the phiReport account .

Report Data Views
Each demo report runs off a demo Data View that uses AccuTerm's sample data file dictionaries. To view the Data Views run **PRSETUP** from TCL or select **Data View Manager** from the phiReport menu.




Select the Data View you want to look at by selecting it from the Data View dropdown list. Note that you can recover the original version of the Data Views and Report by running**RPTDEMOSETUP** from TCL. This would overwrite any changes you have made to the Data Views and Reports.



There are several ways to run the demo reports.

1. From TCL using the RPTRUN command
2. From TCL running the XL.DEMO demo program
3. From PRRUN - phiReport Builder
4. From PRQUERY - phiReport Query

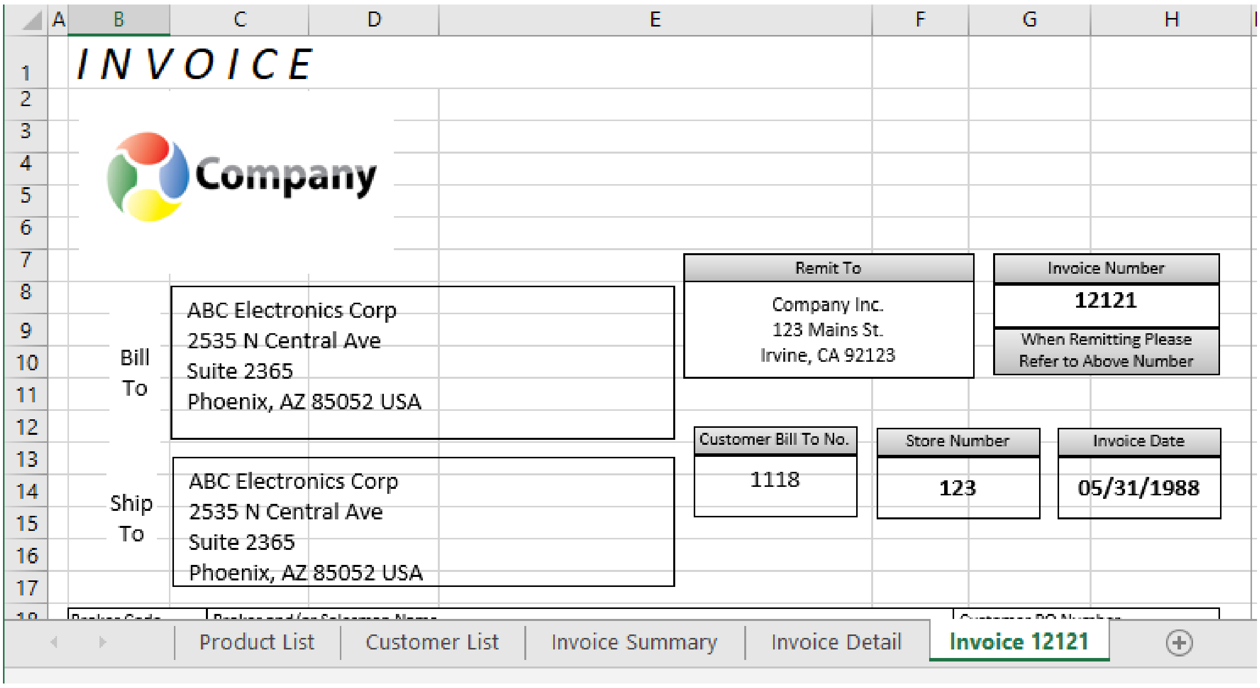
There are 5 demo reports in your phiReport account

- Product List
- Customer List
- Invoice List Detail
- Invoice List Summary
- Invoice Form

1. From TCL using the RPTRUN command

From TCL enter RPTRUN and press enter. The program will prompt you for the report name to run. You can enter any of the demo report names as listed above. After pressing enter in the report name RPTRUN will prompt you for another report. At this point if you press enter without providing a report name RPTRUN will generate the Excel report. If you enter multiple report names (one after each enter key) RPTRUN will generate a single Excel workbook with multi worksheets; one report per worksheet.

```
13 pt phireport:rptrun
phiReport 3.1.4 Copyright (c) 2018 3phi Solutions Inc.........................
* Create single or multi-sheet reports.

Enter the Name of the Report or a TCL command to Run :?Product List
Enter the Name of the Report or a TCL command to Run :?Customer List
Enter the Name of the Report or a TCL command to Run :?Invoice List Summary
Enter the Name of the Report or a TCL command to Run :?Invoice List Detail
Enter the Name of the Report or a TCL command to Run :?Invoice Form
Enter the Name of the Report or a TCL command to Run :?
Please enter a value for "Invoice Number" - (enter "_quit_" to quit)  ?12121
Creating Excel Report.  Please wait...
Preparing Data for sheet "Product List".  Please wait...
Preparing Data for sheet "Customer List".  Please wait...
Preparing Data for sheet "Invoice List Summary".  Please wait...
Preparing Data for sheet "Invoice List Detail".  Please wait...
Preparing Data for sheet "Invoice Form".  Please wait...
Creating Excel Worksheet(s).  Please wait...
----------------------------------------
>>>>> Report Completed at 10:56:34 <<<<<
>>>>> Report Completed in 00:00:32 <<<<<
>>>>> Excel Run Time      00:00:22
----------------------------------------
Excel Report Completed.

13 pt phireport:
```

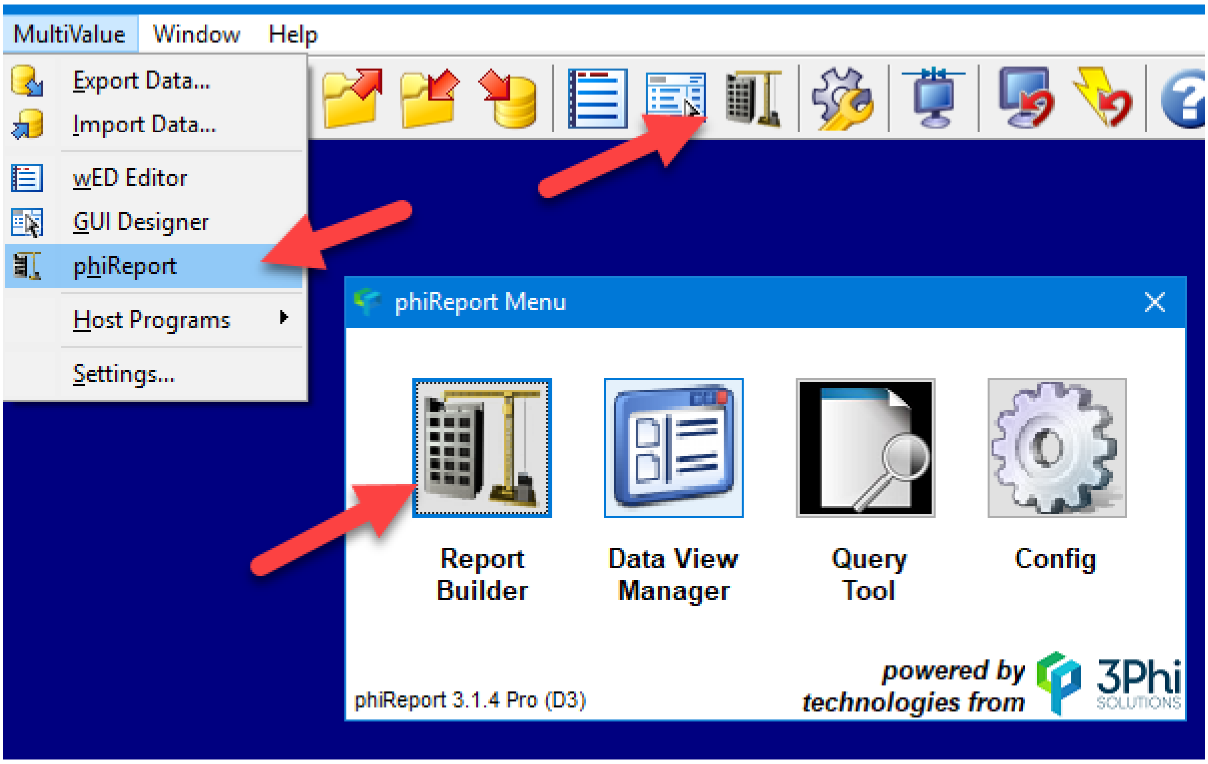



2. From TCL running the XL.DEMO demo program

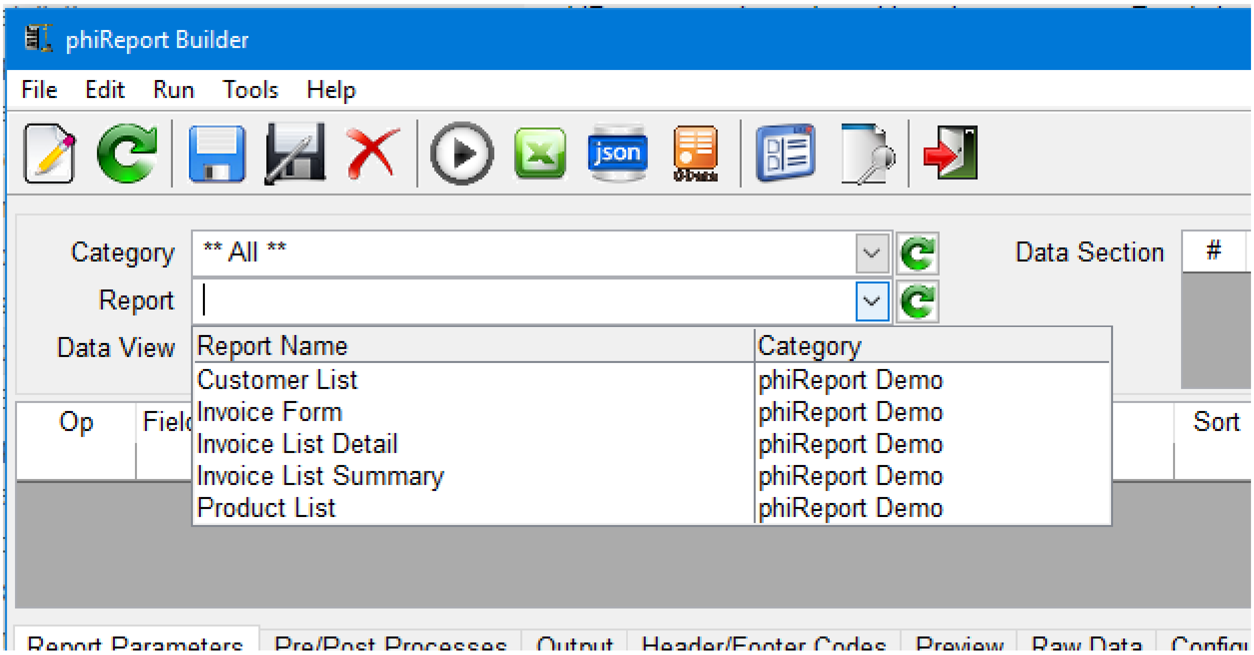
The XL.DEMO program source code can be found in PHIDEMOBP file. The demo program demonstrates how to run your reports using phiReport's unique API call XL.BuildReport. This demo program creates a multi-sheet workbook similar to the RPTRUN command shown above.

3. From PRRUN - phiReport Builder

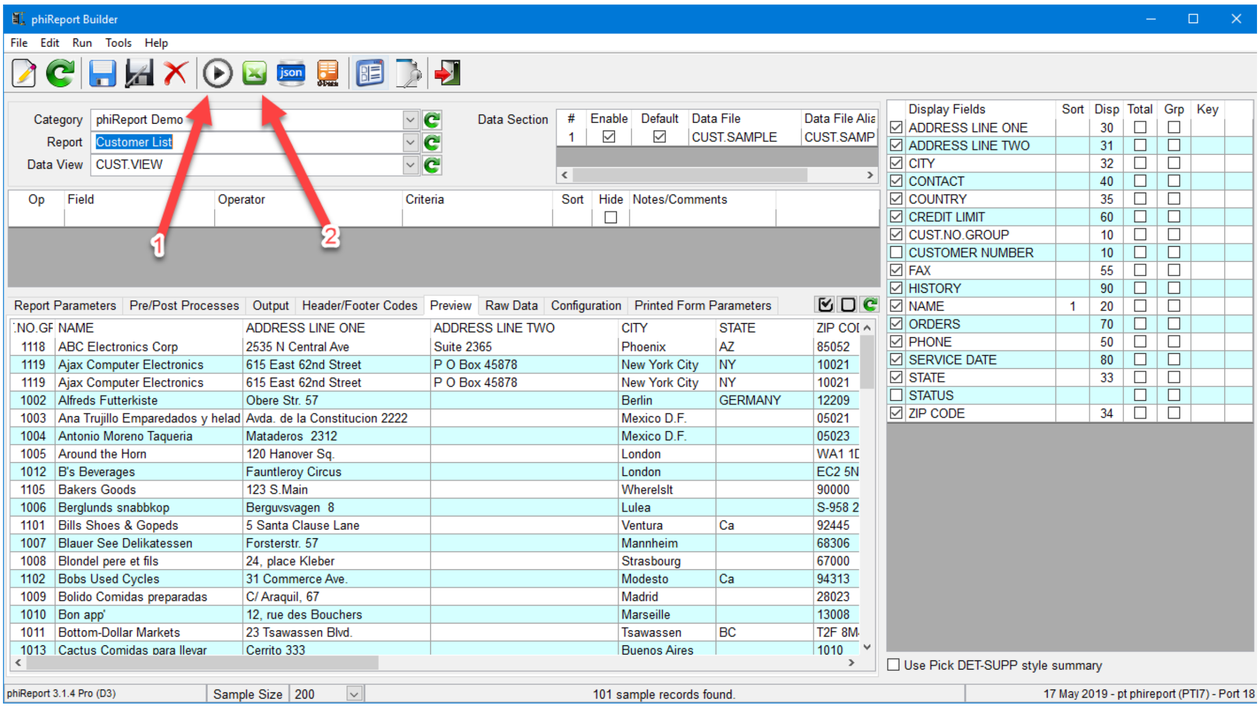
From TCL enter **PRRUN** or click on the phiReport button on the AccuTerm toolbar or select phiReport from the AccuTerm menu "MultiValue". Click on **Report Builder** to launch phiReport Builder




From phiReport Builder click on the Report dropdown list and select a report to run

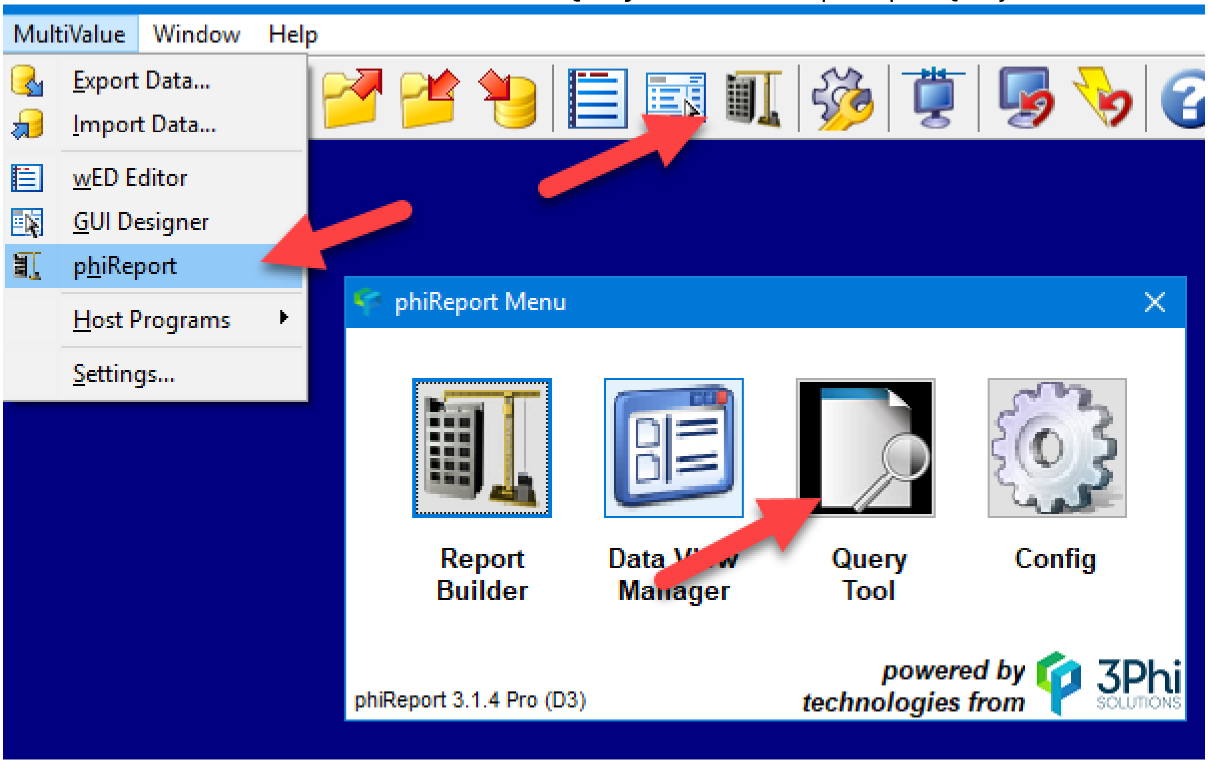



Click on the Run Query button (1) to preview a sample data.
Click on the Run Excel button (2) to create the Excel report

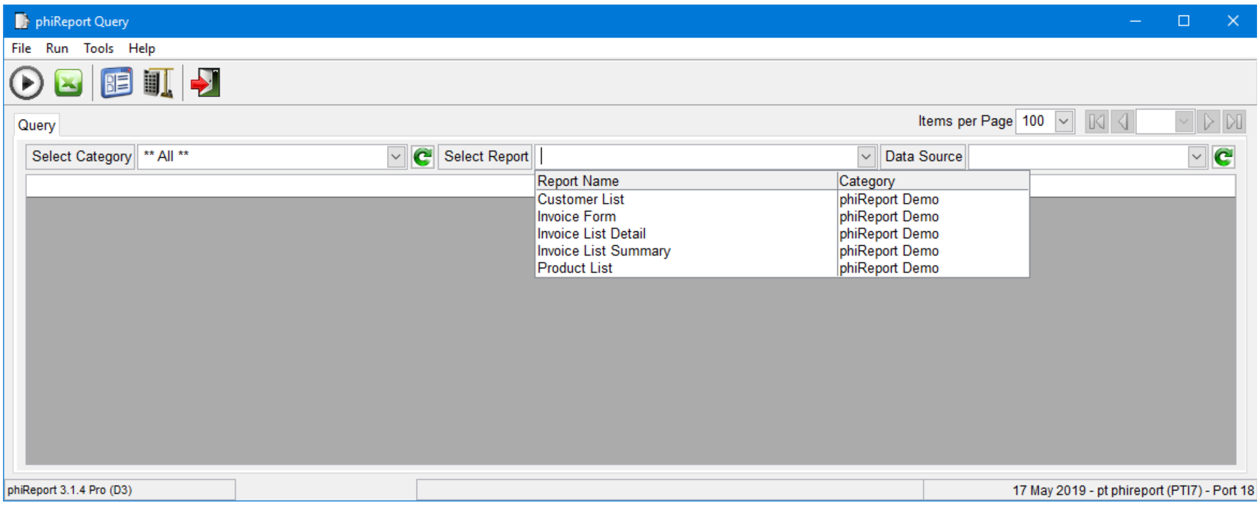



4. From PRQUERY - phiReport Query

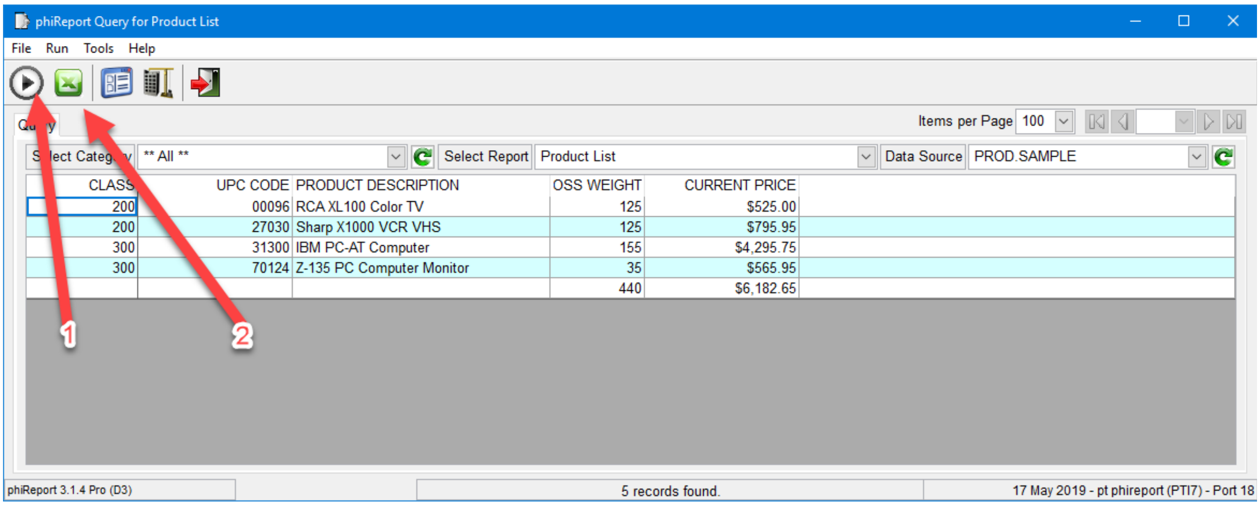
From TCL enter **PRQUERY** or click on the phiReport button on the AccuTerm toolbar or select phiReport from the AccuTerm menu "MultiValue". Click on **Query Tool** to launch phiReport Query



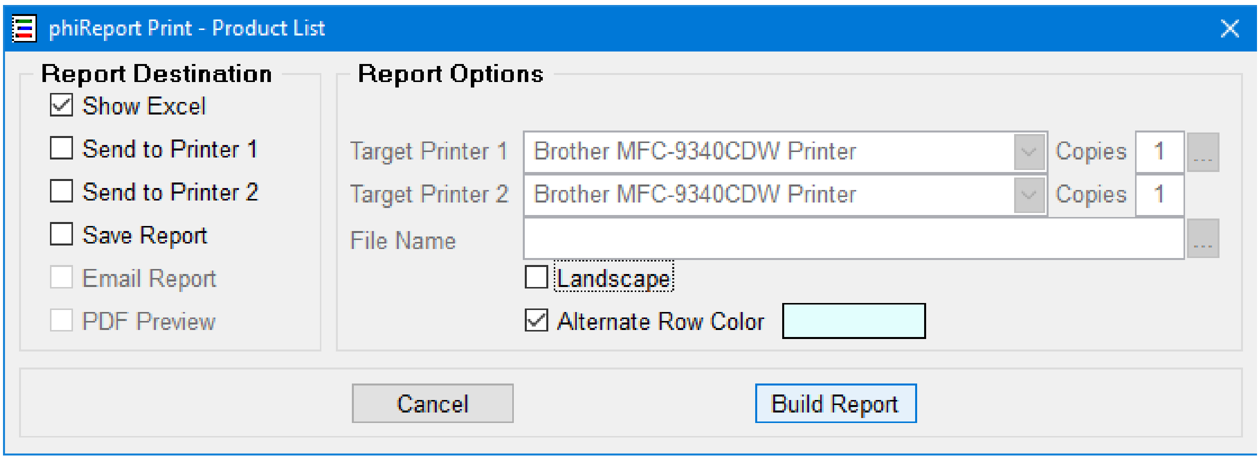

Select a report from the Select Report dropdown list




Click on the Run Query button (1) to preview a sample data.




Click on the Run Excel button (2) to open the Print dialog box




Select your report destination and click "Build Report" to create the report.



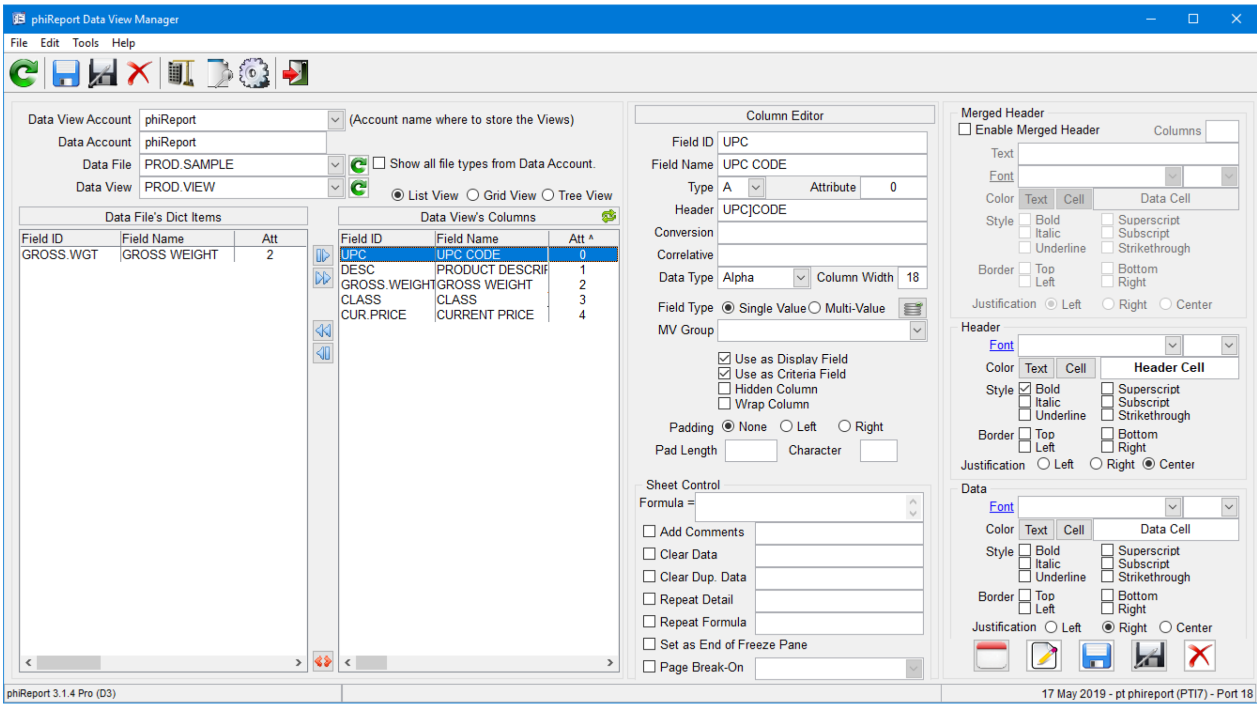
## Report Product List

This tutorial introduces the following features:

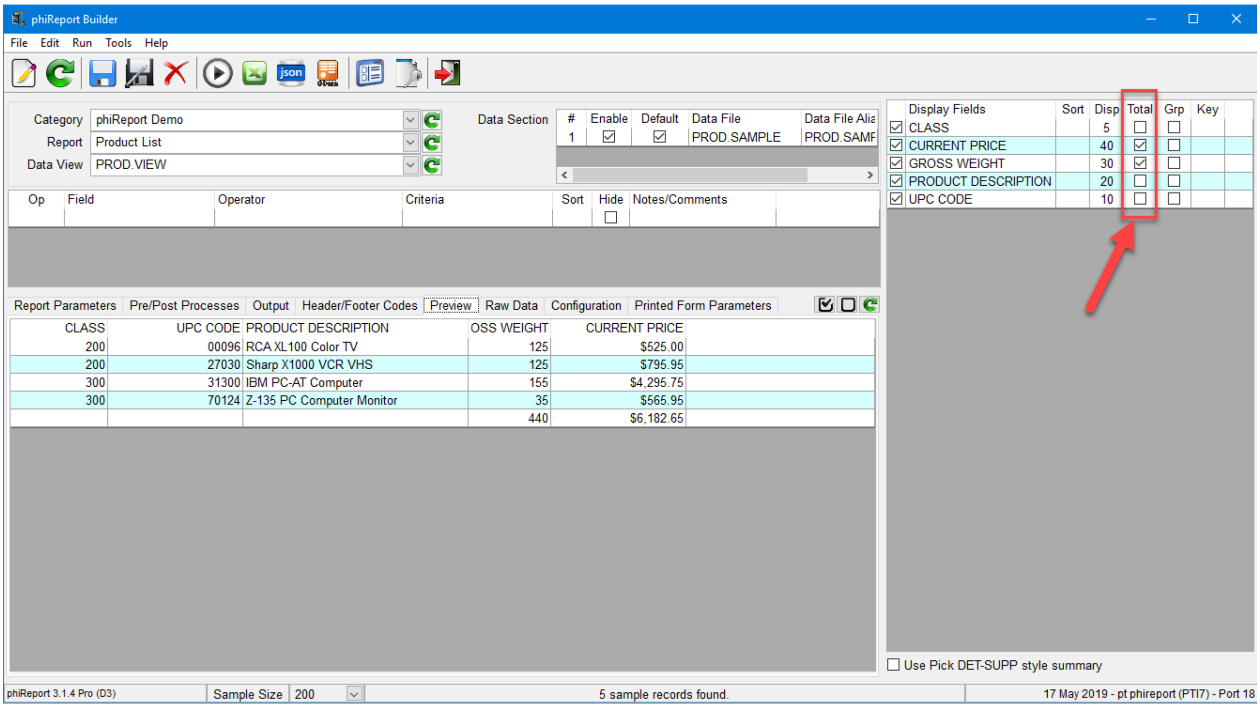
- Column Totals
- Column display order

The Product List demo report is the simplest report.

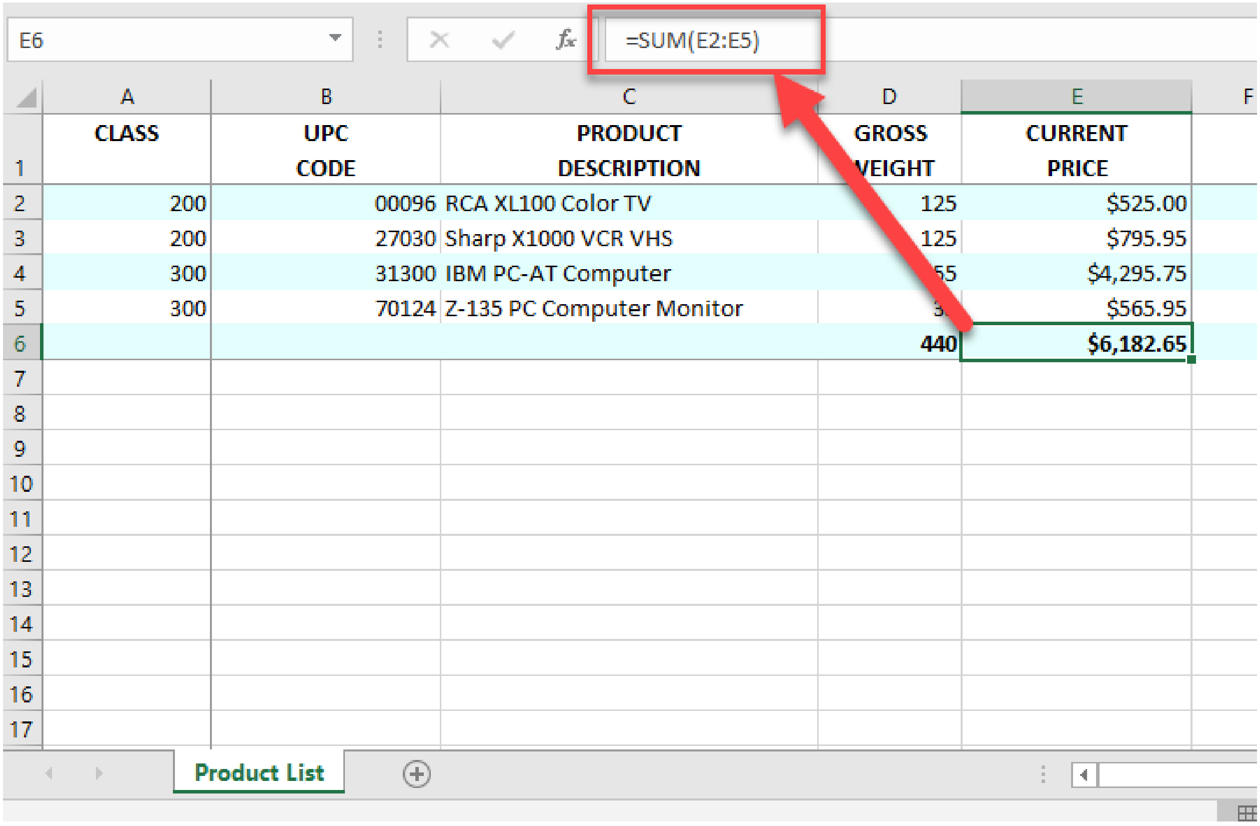
The Data View for the report is PROD.VIEW and does not have any special customizations.



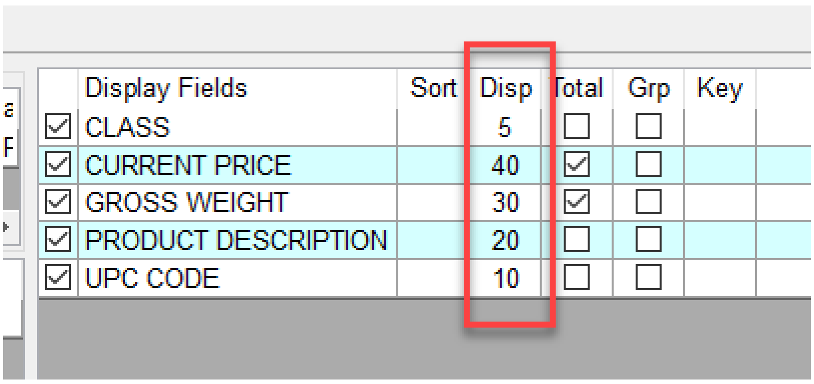
The only point of interest in this report are the 2 check boxes in the Total column of the Display Fields.

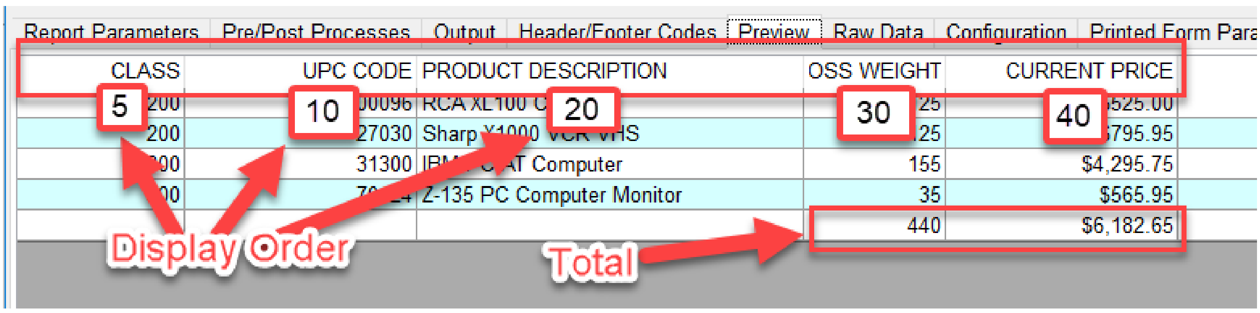


This indicates to phiReport to total the values in the Excel sheet. The Total instruction creates a SUM formula on the Excel sheet as shown below,




The numbers entered in the **Disp** column indicate the display order on the Excel sheet from small to big numbers going left to right. The column display order is also mirrored on the data Preview tab



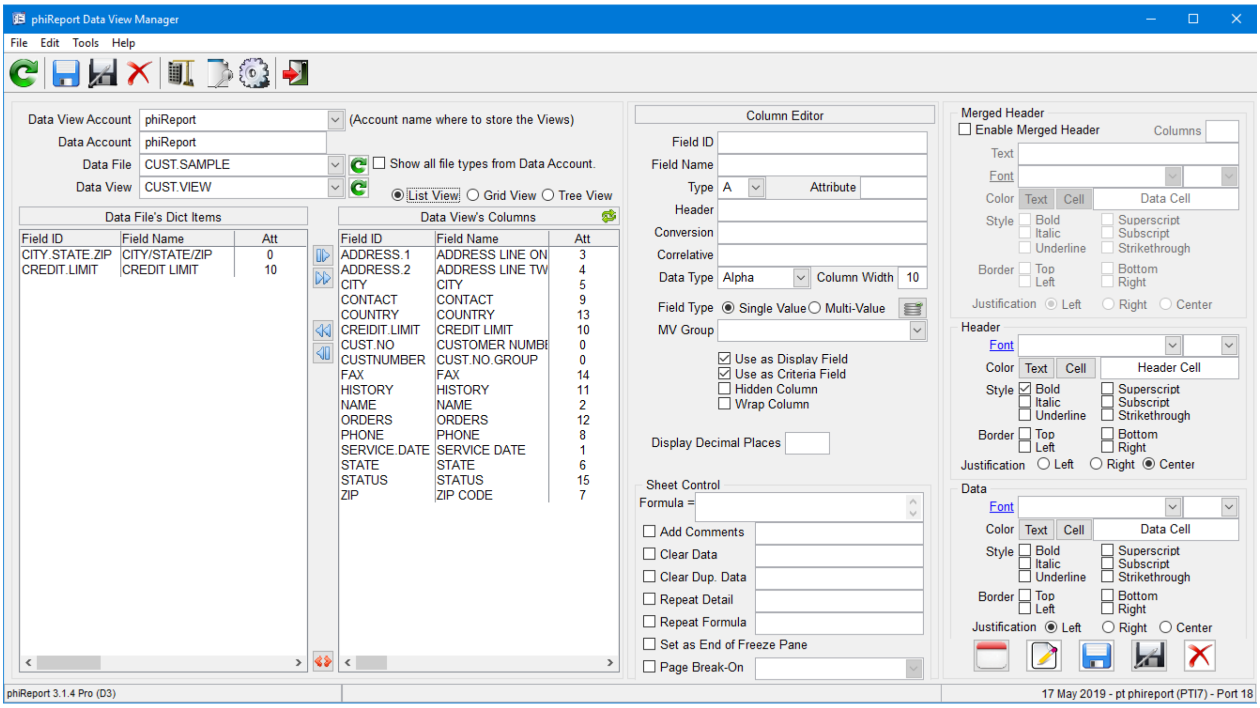



# Report Customer List

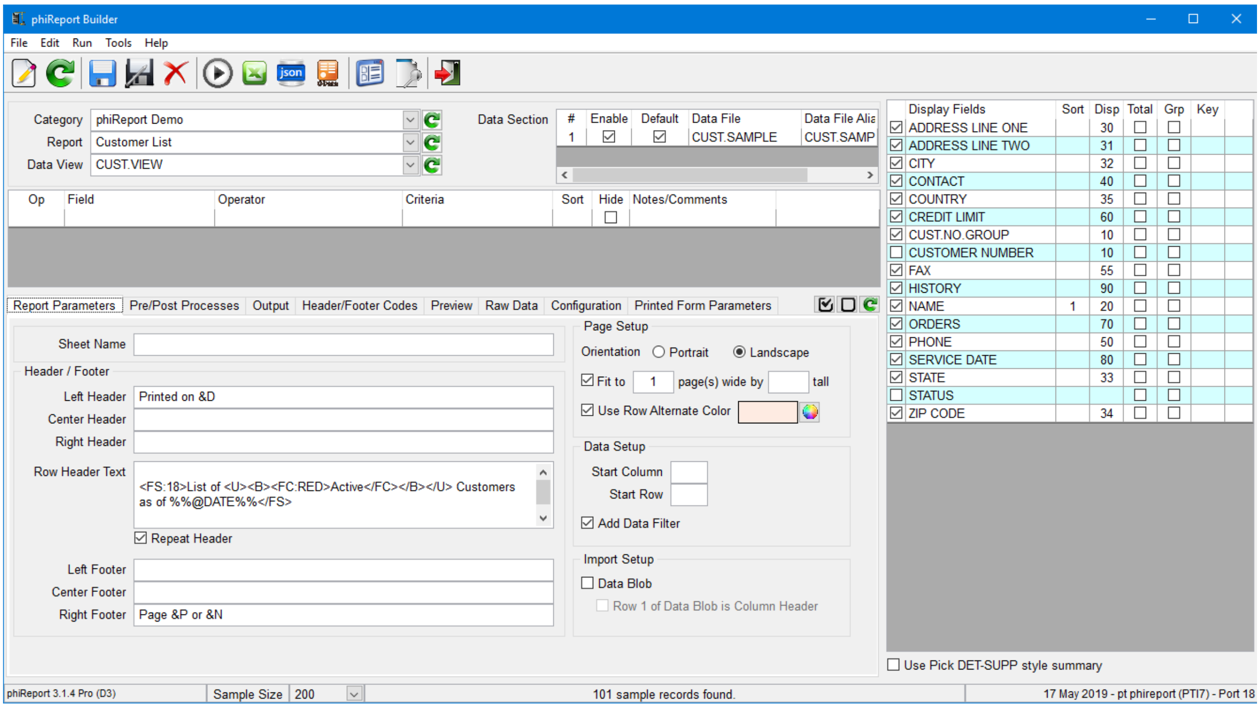
This tutorial introduces the following features:

- Row Header Text Formating
- Merged Column Header
- Cell Comments
- Logo Template
- Data Filter

The Customer List report uses Data View **CUST.VIEW**




This report uses special markup tokens to build a custom report header.




In the Report Parameter tab the **Row Header Text** reads:
**<FS:18>List of <U><B><FC:RED>Active</FC></B></U> Customers as of %%@DATE%%</FS>**

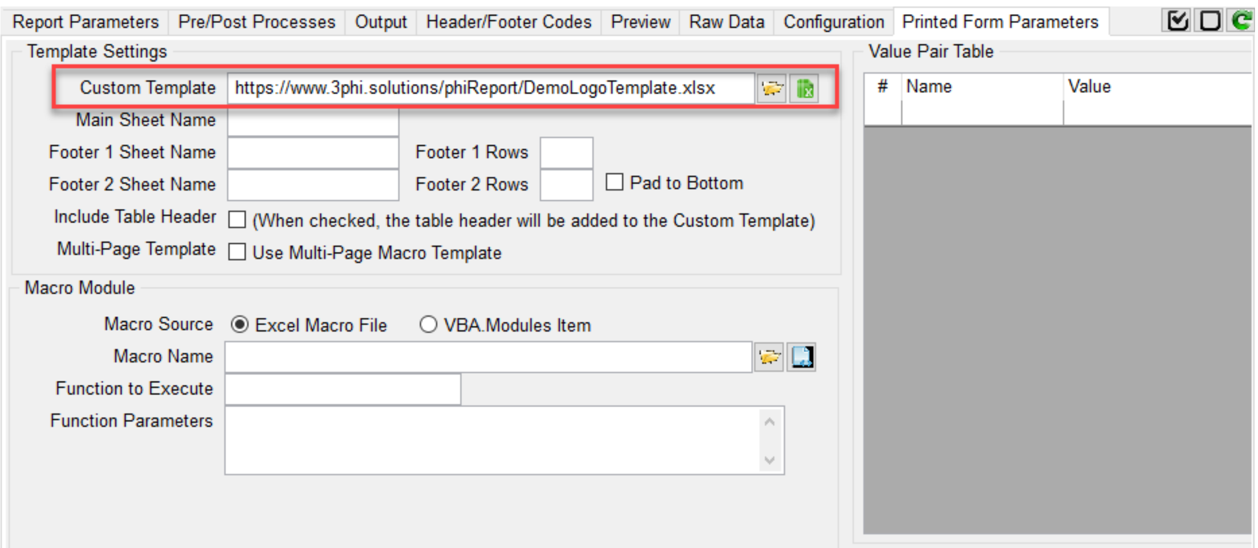
The above text is rendered as shown below:

List of **Active** Customers
as of 05/17/2019

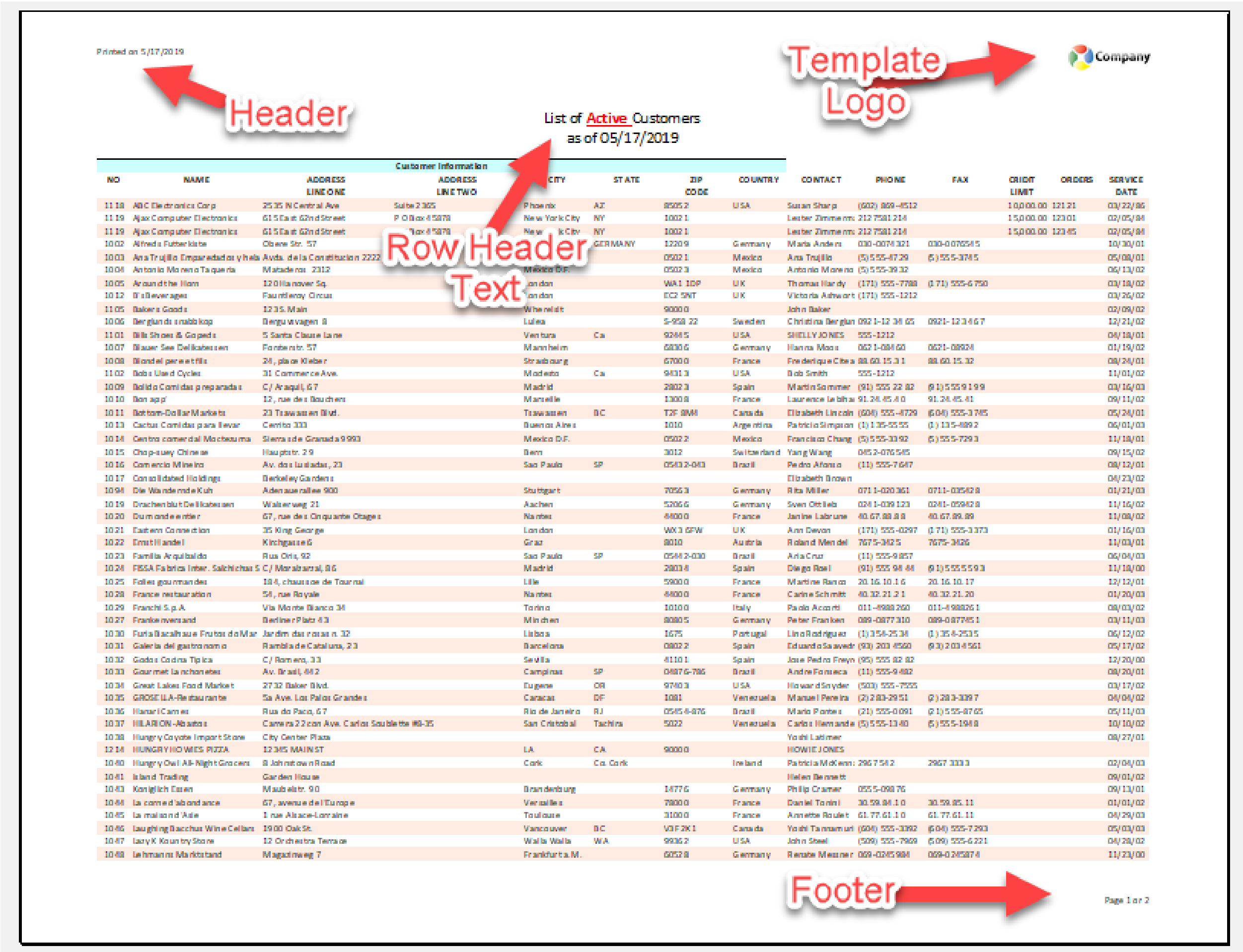
| | |
|---|---|
| **<FS:18>** | Set Font Size 18 |
| **<U>** | Underline |
| **<B>** | Bold |
| **<FC:RED>** | Font Color Red |

**Row Header Text** markup tokens are defined here.

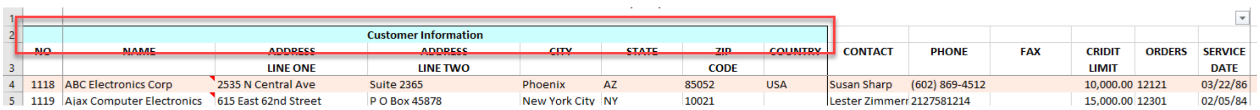
This report also uses the demo logo template to insert the company logo to the Excel report



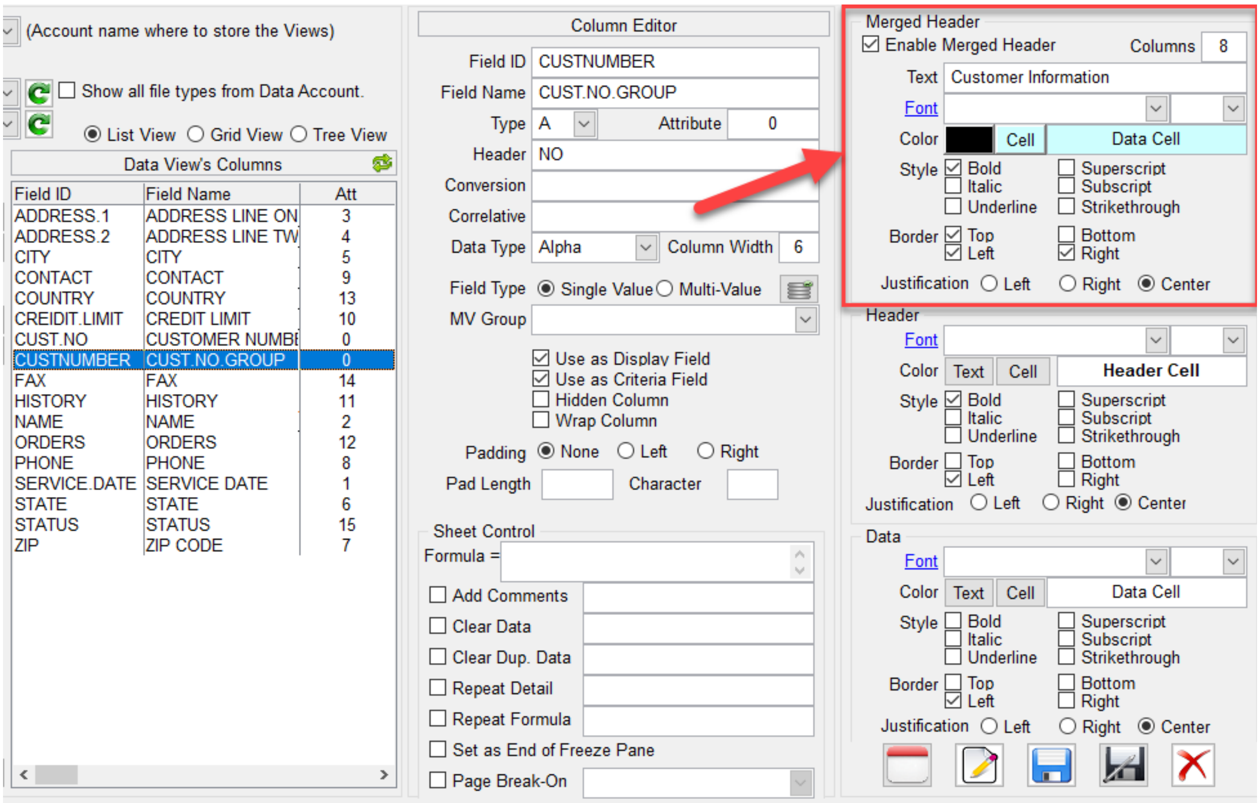
The **DemoLogoTemplate.xlsx** file is a standard Excel workbook with a single worksheet used as the base template for the report, it can be downloaded from [here](here). All it has is the company logo on the top-right header section but it can be customized to include disclaimer footer, company address, phone, etc...



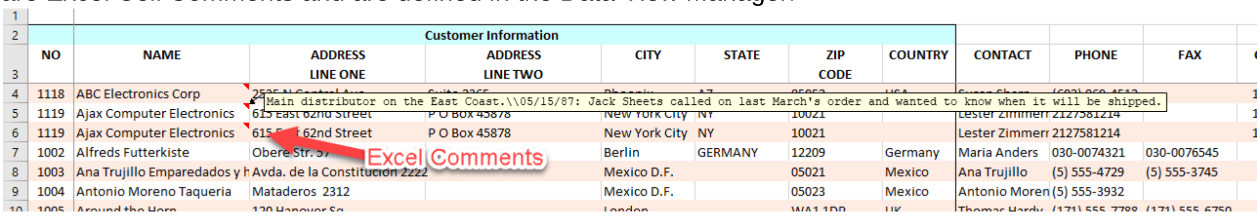

The column header includes a merged column going from **NO** to **COUNTRY** columns.



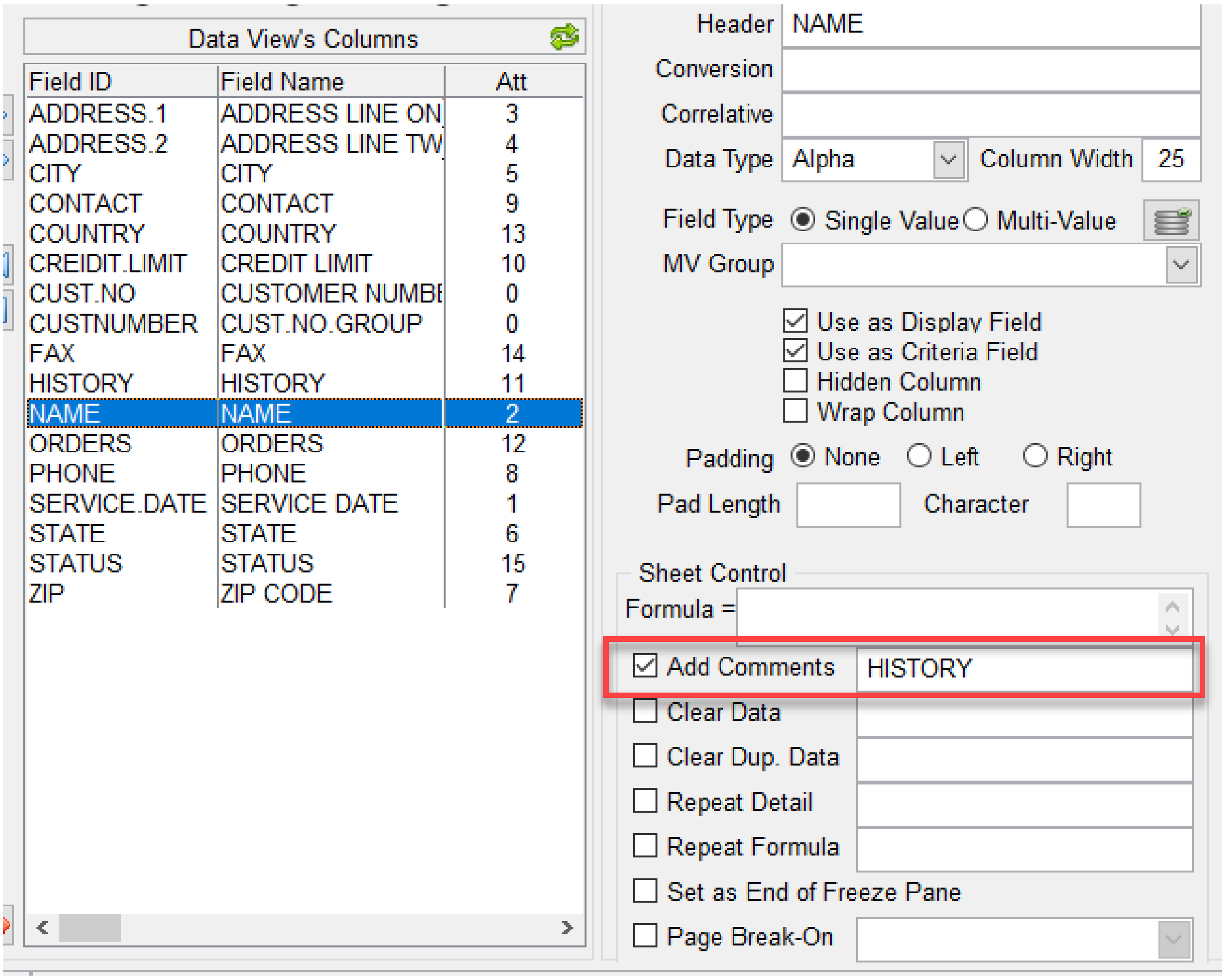

The extra merged column header is defined in the Data View Manager. As shown in the image below the "**Enable Merged Header**" feature is turned on. The **Text** is the text used in the merged cell and the colors, fond, borders and justification are setup in the same area. The **Columns** field shows the number **8** which tells phiReport to merge **8** columns to the right of the current column (including the current column). The current column being **CUSTNUMBER**.



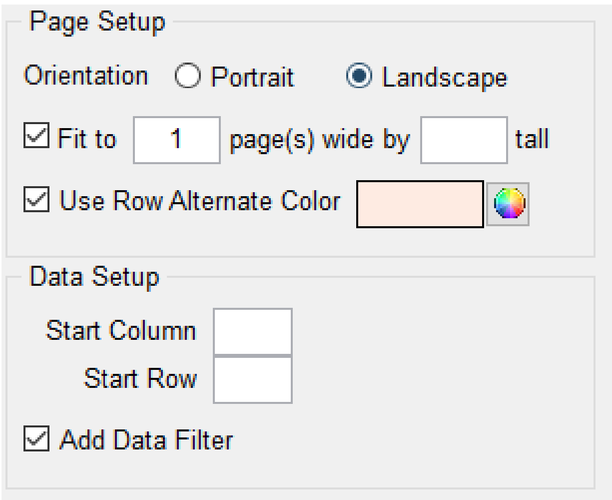

Notice also the three small red triangles on the top right corner of column **NAME** on rows 4, 5 and 6. These are Excel Cell Comments and are defined in the Data View Manager.



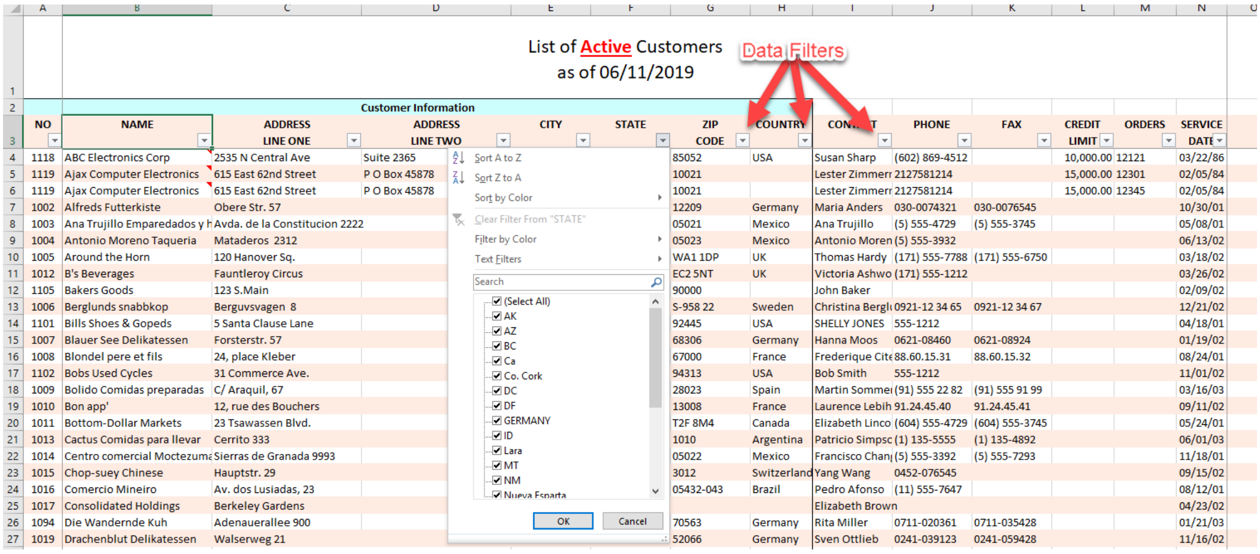

The definition of field NAME in the Data View Manage has the "**Add Comments**" option checked. The value **HISTORY** indicates that we want the data in field **HISTORY** to be used as Excel Cell Comments instead of as a regular Excel column.




Other basic options are:




The Data Filter option adds a drop-down button to every column header. Clicking on the button displays the standard Excel data filter option dialog.




List of Active Customers
as of 06/11/2019

Customer Information

| NO | NAME | ADDRESS LINE ONE | ADDRESS LINE TWO | CITY | STATE | ZIP CODE | COUNTRY | CON T | PHONE | FAX | CREDIT LIMIT | ORDERS | SERVICE DATE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1118 | ABC Electronics Corp | 2535 N Central Ave | Suite 2365 | | | 85052 | USA | Susan Sharp | (602) 869-4512 | | 10,000.00 | 12121 | 03/22/86 |
| 1119 | Ajax Computer Electronics | 615 East 62nd Street | P O Box 45878 | | | 10021 | | Lester Zimmerr | 2127581214 | | 15,000.00 | 12301 | 02/05/84 |
| 1119 | Ajax Computer Electronics | 615 East 62nd Street | P O Box 45878 | | | 10021 | | Lester Zimmerr | 2127581214 | | 15,000.00 | 12345 | 02/05/84 |
| 1002 | Alfreds Futterkiste | Obere Str. 57 | | | | 12209 | Germany | Maria Anders | 030-0074321 | 030-0076545 | | | 10/30/01 |
| 1003 | Ana Trujillo Emparedados y h | Avda. de la Constitucion 2222 | | | | 05021 | Mexico | Ana Trujillo | (5) 555-4729 | (5) 555-3745 | | | 05/08/01 |
| 1004 | Antonio Moreno Taqueria | Mataderos 2312 | | | | 05023 | Mexico | Antonio Moren | (5) 555-3932 | | | | 06/13/02 |
| 1005 | Around the Horn | 120 Hanover Sq. | | | | WA1 1DP | UK | Thomas Hardy | (171) 555-7788 | (171) 555-6750 | | | 03/18/02 |
| 1012 | B's Beverages | Fauntleroy Circus | | | | EC2 5NT | UK | Victoria Ashwo | (171) 555-1212 | | | | 03/26/02 |
| 1105 | Bakers Goods | 123 S.Main | | | | 90000 | | John Baker | | | | | 02/09/02 |
| 1006 | Berglunds snabbkop | Berguvsvagen 8 | | | | S-958 22 | Sweden | Christina Bergl | 0921-12 34 65 | 0921-12 34 67 | | | 12/21/02 |
| 1101 | Bills Shoes & Gopeds | 5 Santa Clause Lane | | | | 92445 | USA | SHELLY JONES | 555-1212 | | | | 04/18/01 |
| 1007 | Blauer See Delikatessen | Forsterstr. 57 | | | | 68306 | Germany | Hanna Moos | 0621-08460 | 0621-08924 | | | 01/19/02 |
| 1008 | Blondel pere et fils | 24, place Kleber | | | | 67000 | France | Frederique Cite | 88.60.15.31 | 88.60.15.32 | | | 08/24/01 |
| 1102 | Bobs Used Cycles | 31 Commerce Ave. | | | | 94313 | USA | Bob Smith | 555-1212 | | | | 11/01/02 |
| 1009 | Bolido Comidas preparadas | C/ Araquil, 67 | | | | 28023 | Spain | Martin Sommei | (91) 555 22 82 | (91) 555 91 99 | | | 03/16/03 |
| 1010 | Bon app' | 12, rue des Bouchers | | | | 13008 | France | Laurence Lebih | 91.24.45.40 | 91.24.45.41 | | | 09/11/02 |
| 1011 | Bottom-Dollar Markets | 23 Tsawassen Blvd. | | | | T2F 8M4 | Canada | Elizabeth Linco | (604) 555-4729 | (604) 555-3745 | | | 05/24/01 |
| 1013 | Cactus Comidas para llevar | Cerrito 333 | | | | 1010 | Argentina | Patricio Simpsc | (1) 135-5555 | (1) 135-4892 | | | 06/01/03 |
| 1014 | Centro comercial Moctezuma | Sierras de Granada 9993 | | | | 05022 | Mexico | Francisco Chan | (5) 555-3392 | (5) 555-7293 | | | 11/18/01 |
| 1015 | Chop-suey Chinese | Hauptstr. 29 | | | | 3012 | Switzerland | Yang Wang | 0452-076545 | | | | 09/15/02 |
| 1016 | Comercio Mineiro | Av. dos Lusiadas, 23 | | | | 05432-043 | Brazil | Pedro Afonso | (11) 555-7647 | | | | 08/12/01 |
| 1017 | Consolidated Holdings | Berkeley Gardens | | | | | | Elizabeth Brown | | | | | 04/23/02 |
| 1094 | Die Wandernde Kuh | Adenauerallee 900 | | | | 70563 | Germany | Rita Miller | 0711-020361 | 0711-035428 | | | 01/21/03 |
| 1019 | Drachenblut Delikatessen | Walserweg 21 | | | | 52066 | Germany | Sven Ottlieb | 0241-039123 | 0241-059428 | | | 11/16/02 |

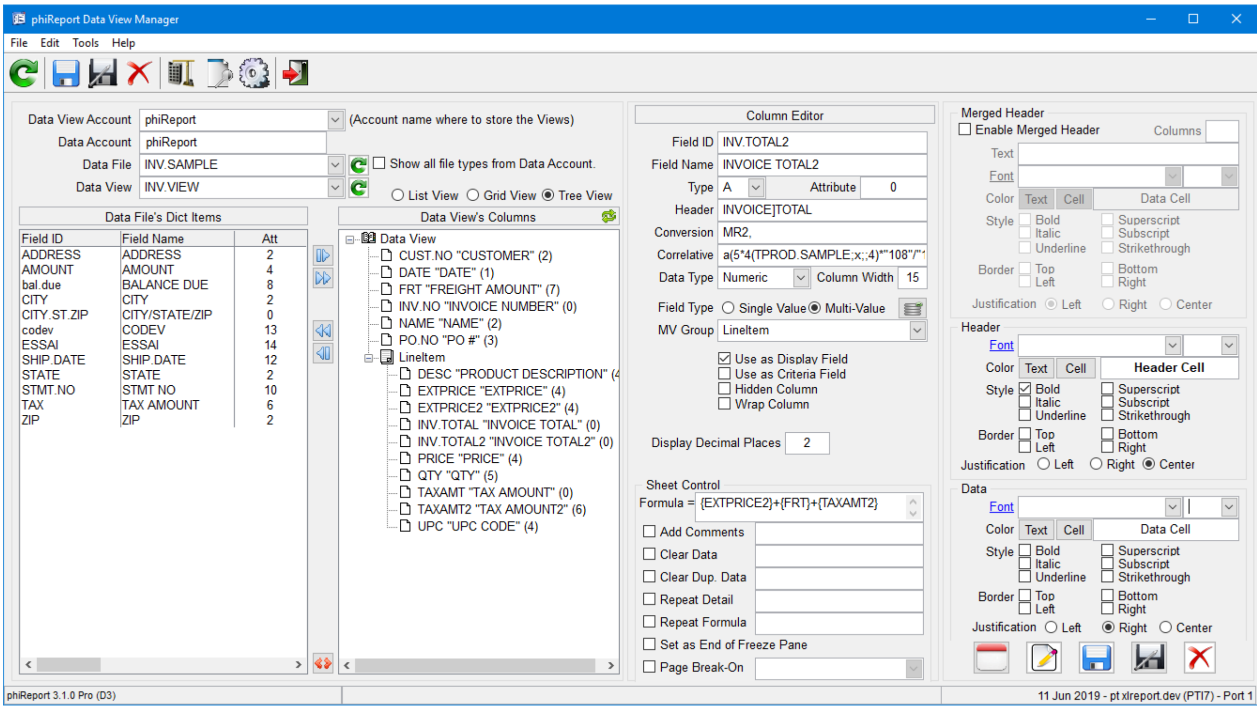


## Report Invoice List Detail

This tutorial introduces the following features:

- Multi-Value Association
- Excel Formula Fields
- BY-EXP/GROUP-BY
- Clear Duplicated Data (CDD)
- Repeat Detail (RD)

The Invoice List Detail report uses Data View **INV.VIEW** which contains a Multi-Value group/association defined under "**LineItem**".




When importing existing dictionary items from your live files to a Data View, phiReport looks at the association definition to dynamically create the MV Groups.

On D and I/V type dictionaries phiReport looks at the MV flag on attribute 6 and uses the data in attribute 7 as the MV Group name.
On A and S type dictionaries, phiReport looks at attribute 4 for the "C" and "D" flag. A Controlling/Dependent structure would have a dictionary with C and a semi-colon list of attributes and each dependent attributes would have a D with a list of controlling attributes.

ex:

CODE<1> = "A"
CODE<2> = 5
CODE<4> = "C;6;7"

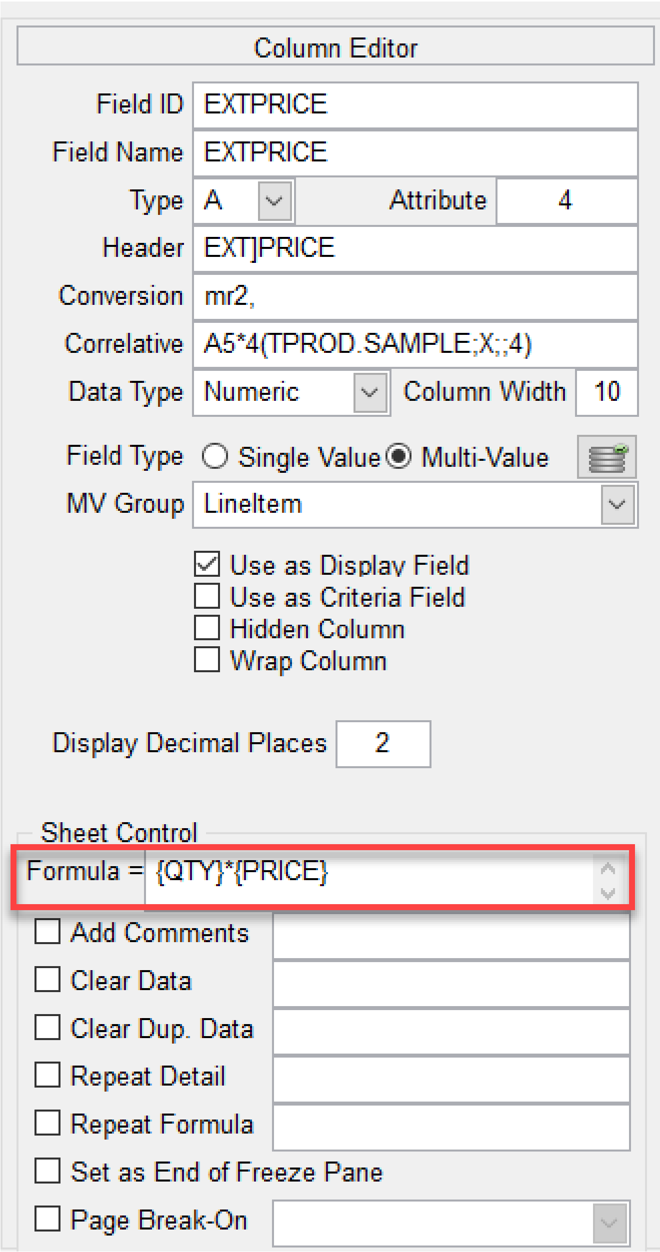
DESC<1> = "A"
DESC<2> = 6
DESC<4> = "D;5"

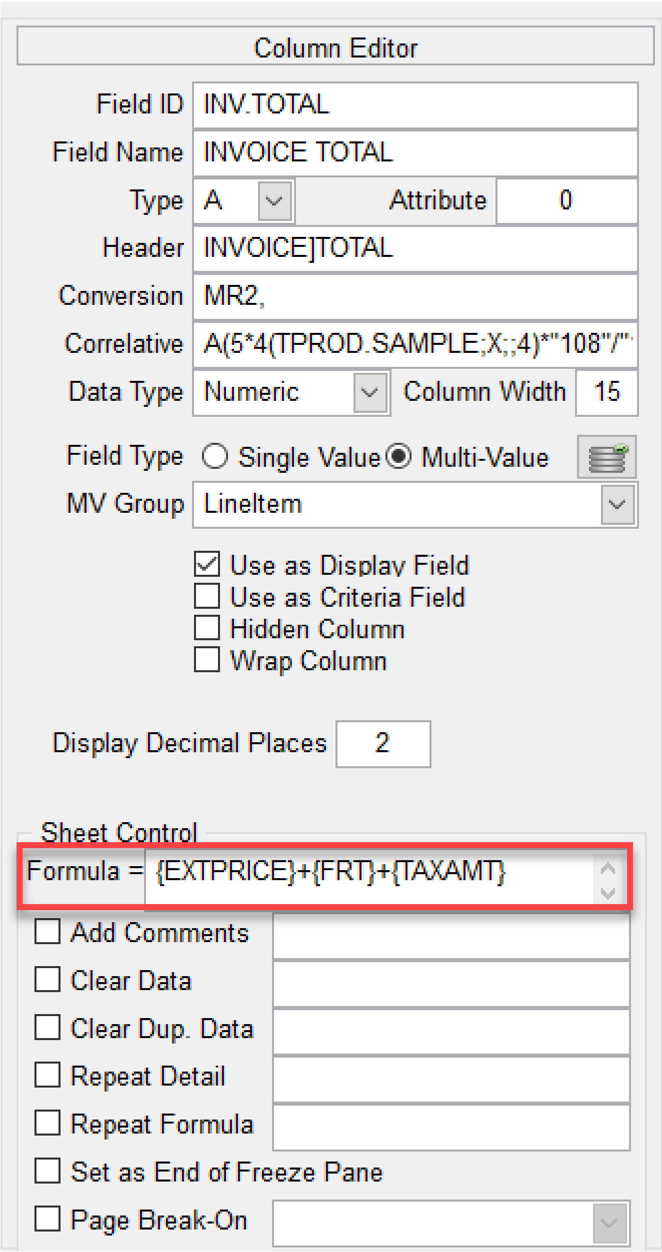
PRICE<1> = "A"
PRICE<2> = 7
PRICE<4> = "D;5;10"

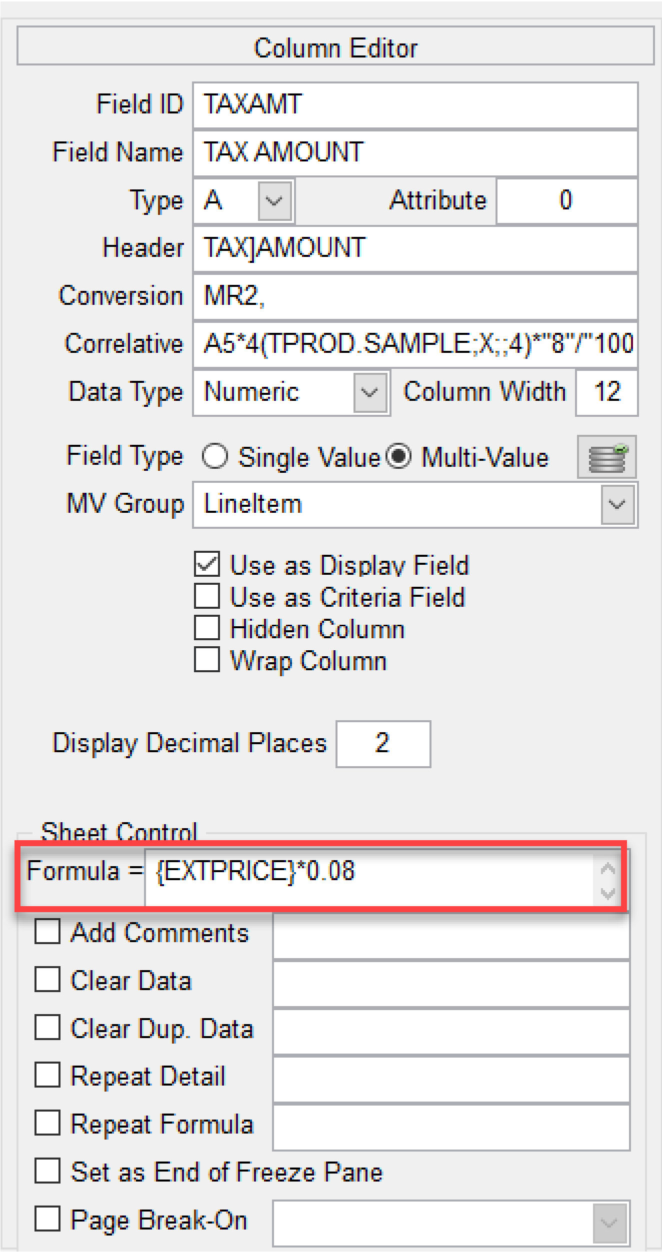
When importing the above structure, phiReport creates an MV Group called CODE_GRP and assigns fields CODE, DESC and PRICE to that group. phiReport only looks at the first controlling attribute. In the above example, field PRICE will only belong to the CODE_GRP group because it is the first one defined in <4> "**D;5**;10"

A "C" by itself creates an MV Group with a single fields.

The particularities in this report are fields **EXTPRICE**, **INV.TOTAL** and **TAXAMT**. Those fields are "virtual" fields, similar to a translate or A/F type correlatives. These fields each define an Excel formula as shown here:

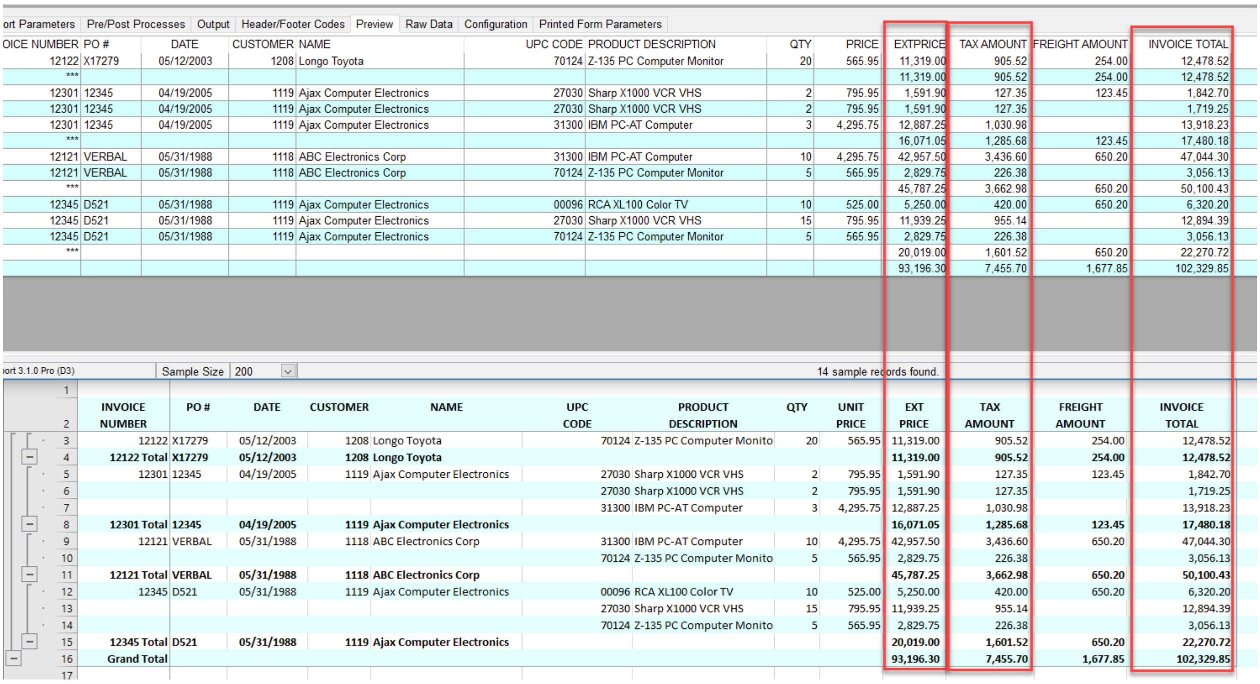

Column Editor
Field ID
EXTPRICE
Field Name
EXTPRICE
Type
A
Attribute
4
Header
EXT]PRICE
Conversion
mr2,
Correlative
A5*4(TPROD.SAMPLE;X;;4)
Data Type
Numeric
Column Width
10
Field Type
Single Value
Multi-Value
MV Group
LineItem
Use as Display Field
Use as Criteria Field
Hidden Column
Wrap Column
Display Decimal Places
2
Sheet Control
Formula =
{QTY}*{PRICE}
Add Comments
Clear Data
Clear Dup. Data
Repeat Detail
Repeat Formula
Set as End of Freeze Pane
Page Break-On


Column Editor
Field ID INV.TOTAL
Field Name INVOICE TOTAL
Type A
Attribute 0
Header INVOICE]TOTAL
Conversion MR2,
Correlative A(5*4(TPROD.SAMPLE;X;;4)*"108"/"
Data Type Numeric
Column Width 15
Field Type Single Value Multi-Value
MV Group LineItem
Use as Display Field
Use as Criteria Field
Hidden Column
Wrap Column
Display Decimal Places 2
Sheet Control
Formula = {EXTPRICE}+{FRT}+{TAXAMT}
Add Comments
Clear Data
Clear Dup. Data
Repeat Detail
Repeat Formula
Set as End of Freeze Pane
Page Break-On



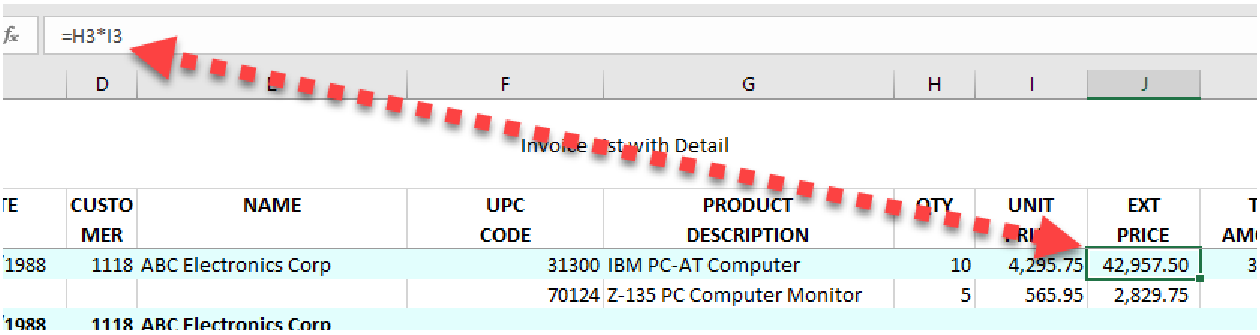

Formula = {QTY}*{PRICE} translates to multiply the value in field **QTY** by the value in field **PRICE**
Formula = {EXTPRICE}+{FRT}+{TAXAMT} translates to Add values in field **EXTPRICE** to value in field **FRT** to value in field **TAXAMT**
Formula = {EXTPRICE}*0.08 translates to multiply values in field **EXTPRICE** by 0.08

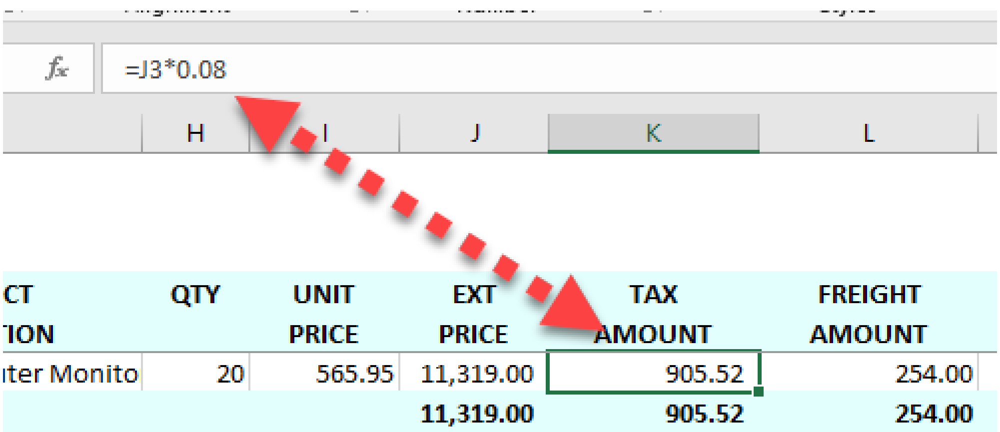
Because these fields are Excel formula virtual fields, they are rendered by Excel. The preview tab will not calculate the formula, instead it will apply any correlatives and/or conversions defined in the dictionary items.

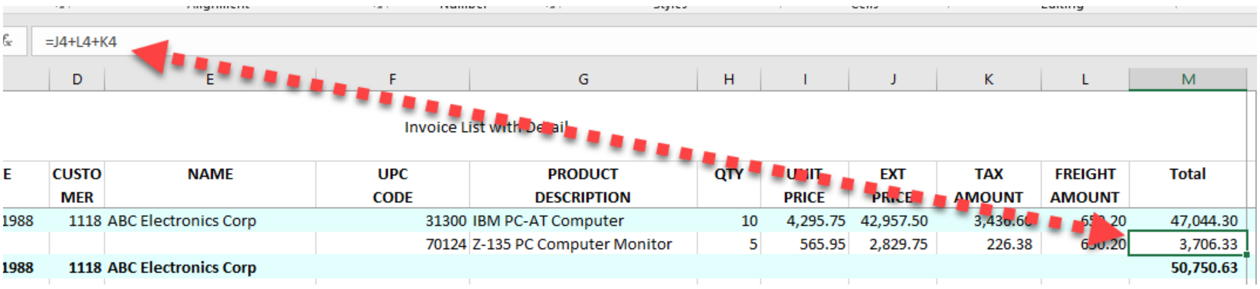


| INVOICE NUMBER | PO # | DATE | CUSTOMER | NAME | UPC CODE | PRODUCT DESCRIPTION | QTY | UNIT PRICE | EXT PRICE | TAX AMOUNT | FREIGHT AMOUNT | INVOICE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12122 | X17279 | 05/12/2003 | 1208 | Longo Toyota | 70124 | Z-135 PC Computer Monito | 20 | 565.95 | 11,319.00 | 905.52 | 254.00 | 12,478.52 |
| **12122 Total** | **X17279** | **05/12/2003** | **1208** | **Longo Toyota** | | | | | **11,319.00** | **905.52** | **254.00** | **12,478.52** |
| 12301 | 12345 | 04/19/2005 | 1119 | Ajax Computer Electronics | 27030 | Sharp X1000 VCR VHS | 2 | 795.95 | 1,591.90 | 127.35 | 123.45 | 1,842.70 |
| | | | | | 27030 | Sharp X1000 VCR VHS | 2 | 795.95 | 1,591.90 | 127.35 | | 1,719.25 |
| | | | | | 31300 | IBM PC-AT Computer | 3 | 4,295.75 | 12,887.25 | 1,030.98 | | 13,918.23 |
| **12301 Total** | **12345** | **04/19/2005** | **1119** | **Ajax Computer Electronics** | | | | | **16,071.05** | **1,285.68** | **123.45** | **17,480.18** |
| 12121 | VERBAL | 05/31/1988 | 1118 | ABC Electronics Corp | 31300 | IBM PC-AT Computer | 10 | 4,295.75 | 42,957.50 | 3,436.60 | 650.20 | 47,044.30 |
| | | | | | 70124 | Z-135 PC Computer Monito | 5 | 565.95 | 2,829.75 | 226.38 | | 3,056.13 |
| **12121 Total** | **VERBAL** | **05/31/1988** | **1118** | **ABC Electronics Corp** | | | | | **45,787.25** | **3,662.98** | **650.20** | **50,100.43** |
| 12345 | D521 | 05/31/1988 | 1119 | Ajax Computer Electronics | 00096 | RCA XL100 Color TV | 10 | 525.00 | 5,250.00 | 420.00 | 650.20 | 6,320.20 |
| | | | | | 27030 | Sharp X1000 VCR VHS | 15 | 795.95 | 11,939.25 | 955.14 | | 12,894.39 |
| | | | | | 70124 | Z-135 PC Computer Monito | 5 | 565.95 | 2,829.75 | 226.38 | | 3,056.13 |
| **12345 Total** | **D521** | **05/31/1988** | **1119** | **Ajax Computer Electronics** | | | | | **20,019.00** | **1,601.52** | **650.20** | **22,270.72** |
| **Grand Total** | | | | | | | | | **93,196.30** | **7,455.70** | **1,677.85** | **102,329.85** |

| Field Name | A Type Dictionay | I Type Dictionary | Excel Formula |
|---|---|---|---|
| EXTPRICE | A5*4(TPROD.SAMPLE;X;;4) | (QTY)*(PRICE) | {QTY}*{PRICE} |
| TAXAMT | A5*4(TPROD.SAMPLE;X;;4)*"8"/"100" | (EXTPRICE)*REUSE(0.08) | {EXTPRICE}*0.08 |
| INV.TOTAL | A(5*4(TPROD.SAMPLE;X;;4)*"108"/"100")+7*(NV="1") | (EXTPRICE)+(TAXAMT)+(FRT) | {EXTPRICE}+{FRT}+{TAXAMT} |

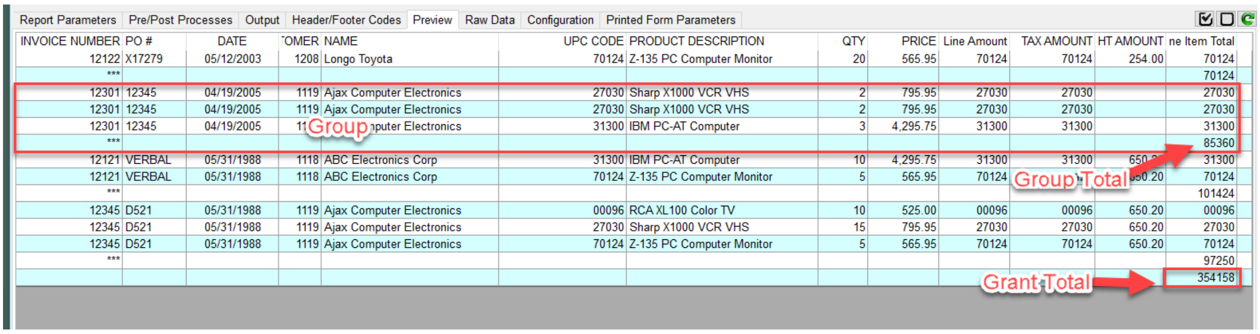


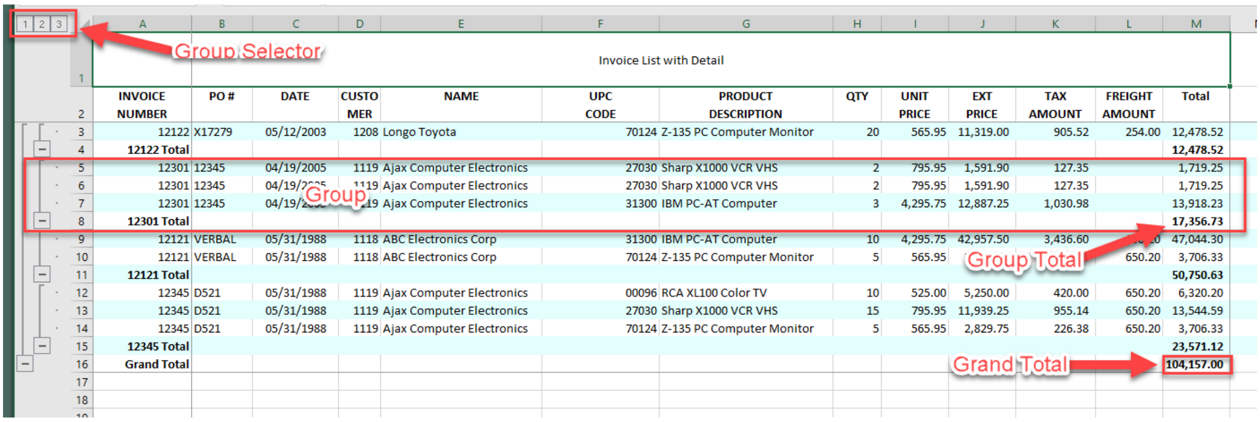



| E | CUSTOMER | NAME | UPC CODE | PRODUCT DESCRIPTION | QTY | UNIT PRICE | EXT PRICE | TAX AMOUNT | FREIGHT AMOUNT | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| 1988 | 1118 | ABC Electronics Corp | 31300 | IBM PC-AT Computer | 10 | 4,295.75 | 42,957.50 | 3,436.60 | 650.20 | 47,044.30 |
| | | | 70124 | Z-135 PC Computer Monitor | 5 | 565.95 | 2,829.75 | 226.38 | 650.20 | 3,706.33 |
| **1988** | **1118** | **ABC Electronics Corp** | | | | | | | | **50,750.63** |

The next points of interest in the report are the Totals and the Grp (Group) check-boxes. The Total flags turn on the column total feature as seen in the Product List report. The Grp flag turns on the Group feature equivalent to a BREAK-ON or GROUP-BY instruction.

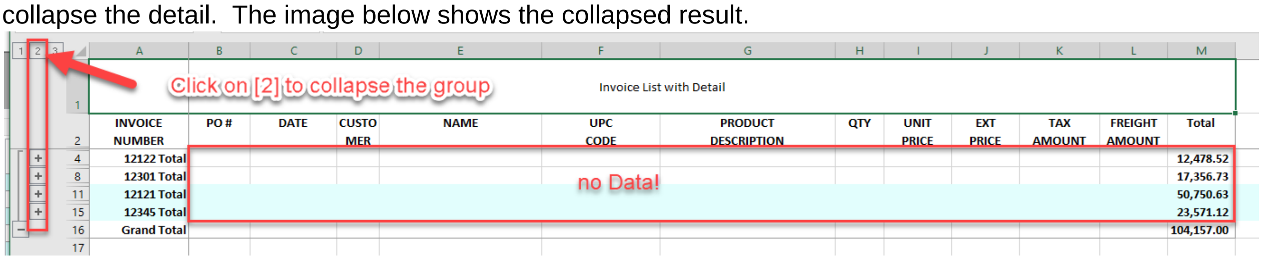



| INVOICE NUMBER | PO # | DATE | TOMER | NAME | UPC CODE | PRODUCT DESCRIPTION | QTY | PRICE | Line Amount | TAX AMOUNT | HT AMOUNT | ne Item Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12122 | X17279 | 05/12/2003 | 1208 | Longo Toyota | 70124 | Z-135 PC Computer Monitor | 20 | 565.95 | 70124 | 70124 | 254.00 | 70124 |
| *** | | | | | | | | | | | | 70124 |
| 12301 | 12345 | 04/19/2005 | 1119 | Ajax Computer Electronics | 27030 | Sharp X1000 VCR VHS | 2 | 795.95 | 27030 | 27030 | | 27030 |
| 12301 | 12345 | 04/19/2005 | 1119 | Ajax Computer Electronics | 27030 | Sharp X1000 VCR VHS | 2 | 795.95 | 27030 | 27030 | | 27030 |
| 12301 | 12345 | 04/19/2005 | 11[illegible] | [illegible]puter Electronics | 31300 | IBM PC-AT Computer | 3 | 4,295.75 | 31300 | 31300 | | 31300 |
| *** | | | | | | | | | | | | 85360 |
| 12121 | VERBAL | 05/31/1988 | 1118 | ABC Electronics Corp | 31300 | IBM PC-AT Computer | 10 | 4,295.75 | 31300 | 31300 | 650.[illegible] | 31300 |
| 12121 | VERBAL | 05/31/1988 | 1118 | ABC Electronics Corp | 70124 | Z-135 PC Computer Monitor | 5 | 565.95 | 70124 | [illegible] | [illegible]50.20 | 70124 |
| *** | | | | | | | | | | | | 101424 |
| 12345 | D521 | 05/31/1988 | 1119 | Ajax Computer Electronics | 00096 | RCA XL100 Color TV | 10 | 525.00 | 00096 | 00096 | 650.20 | 00096 |
| 12345 | D521 | 05/31/1988 | 1119 | Ajax Computer Electronics | 27030 | Sharp X1000 VCR VHS | 15 | 795.95 | 27030 | 27030 | 650.20 | 27030 |
| 12345 | D521 | 05/31/1988 | 1119 | Ajax Computer Electronics | 70124 | Z-135 PC Computer Monitor | 5 | 565.95 | 70124 | 70124 | 650.20 | 70124 |
| *** | | | | | | | | | | | | 97250 |
| | | | | | | | | | | | | 354158 |




| | INVOICE NUMBER | PO # | DATE | CUSTOMER | NAME | UPC CODE | PRODUCT DESCRIPTION | QTY | UNIT PRICE | EXT PRICE | TAX AMOUNT | FREIGHT AMOUNT | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 12122 | X17279 | 05/12/2003 | 1208 | Longo Toyota | 70124 | Z-135 PC Computer Monitor | 20 | 565.95 | 11,319.00 | 905.52 | 254.00 | 12,478.52 |
| 4 | **12122 Total** | | | | | | | | | | | | **12,478.52** |
| 5 | 12301 | 12345 | 04/19/2005 | 1119 | Ajax Computer Electronics | 27030 | Sharp X1000 VCR VHS | 2 | 795.95 | 1,591.90 | 127.35 | | 1,719.25 |
| 6 | 12301 | 12345 | 04/19/[illegible] | [illegible]119 | Ajax Computer Electronics | 27030 | Sharp X1000 VCR VHS | 2 | 795.95 | 1,591.90 | 127.35 | | 1,719.25 |
| 7 | 12301 | 12345 | 04/19/[illegible] | [illegible]19 | Ajax Computer Electronics | 31300 | IBM PC-AT Computer | 3 | 4,295.75 | 12,887.25 | 1,030.98 | | 13,918.23 |
| 8 | **12301 Total** | | | | | | | | | | | | **17,356.73** |
| 9 | 12121 | VERBAL | 05/31/1988 | 1118 | ABC Electronics Corp | 31300 | IBM PC-AT Computer | 10 | 4,295.75 | 42,957.50 | 3,436.60 | [illegible] | 47,044.30 |
| 10 | 12121 | VERBAL | 05/31/1988 | 1118 | ABC Electronics Corp | 70124 | Z-135 PC Computer Monitor | 5 | 565.95 | [illegible] | [illegible] | 650.20 | 3,706.33 |
| 11 | **12121 Total** | | | | | | | | | | | | **50,750.63** |
| 12 | 12345 | D521 | 05/31/1988 | 1119 | Ajax Computer Electronics | 00096 | RCA XL100 Color TV | 10 | 525.00 | 5,250.00 | 420.00 | 650.20 | 6,320.20 |
| 13 | 12345 | D521 | 05/31/1988 | 1119 | Ajax Computer Electronics | 27030 | Sharp X1000 VCR VHS | 15 | 795.95 | 11,939.25 | 955.14 | 650.20 | 13,544.59 |
| 14 | 12345 | D521 | 05/31/1988 | 1119 | Ajax Computer Electronics | 70124 | Z-135 PC Computer Monitor | 5 | 565.95 | 2,829.75 | 226.38 | 650.20 | 3,706.33 |
| 15 | **12345 Total** | | | | | | | | | | | | **23,571.12** |
| 16 | **Grand Total** | | | | | | | | | | | | **104,157.00** |

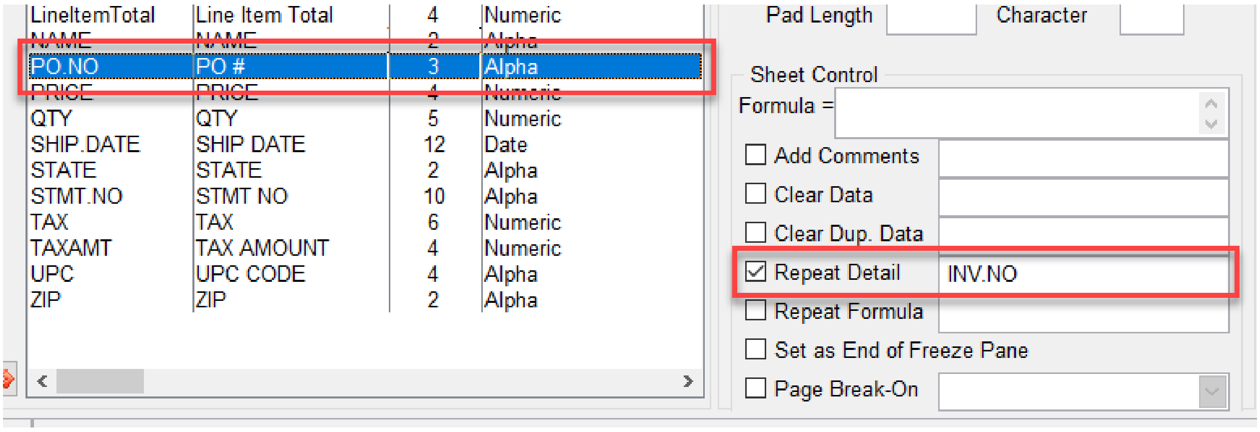
The Excel group selector allows you to expand and collapse the report details. In Excel click the [2] to collapse the detail. The image below shows the collapsed result.

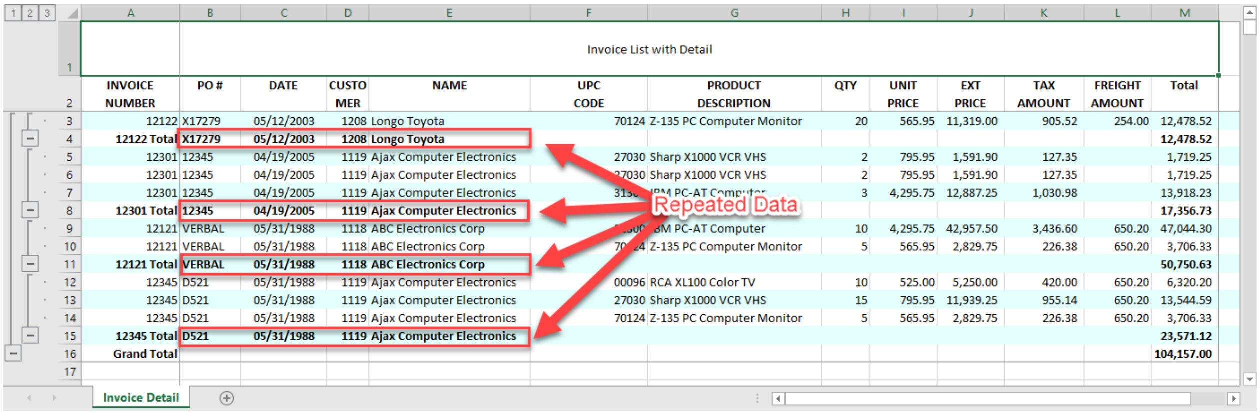


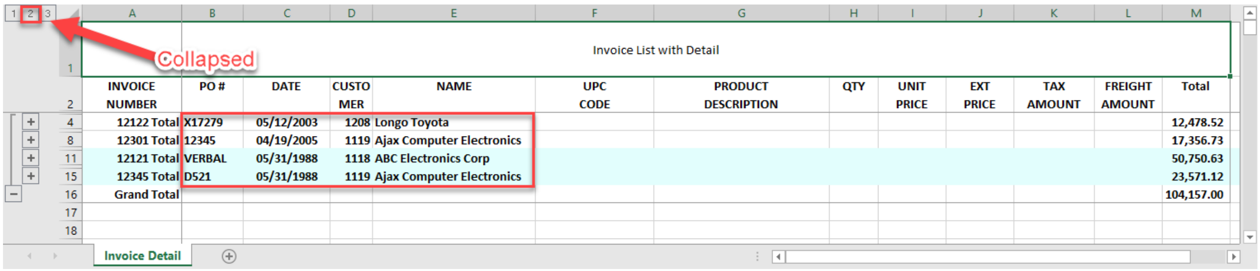

| | INVOICE NUMBER | PO # | DATE | CUSTOMER | NAME | UPC CODE | PRODUCT DESCRIPTION | QTY | UNIT PRICE | EXT PRICE | TAX AMOUNT | FREIGHT AMOUNT | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | **12122 Total** | | | | | | | | | | | | **12,478.52** |
| 8 | **12301 Total** | | | | | | | | | | | | **17,356.73** |
| 11 | **12121 Total** | | | | | | | | | | | | **50,750.63** |
| 15 | **12345 Total** | | | | | | | | | | | | **23,571.12** |
| 16 | **Grand Total** | | | | | | | | | | | | **104,157.00** |

As you can see, collapsing the detail in Excel also hides all the important information i.e. PO#, DATE, CUSTOMER and NAME. In order to repeat that data on the total line, we need to modify the Data View to force data repeat on total lines.

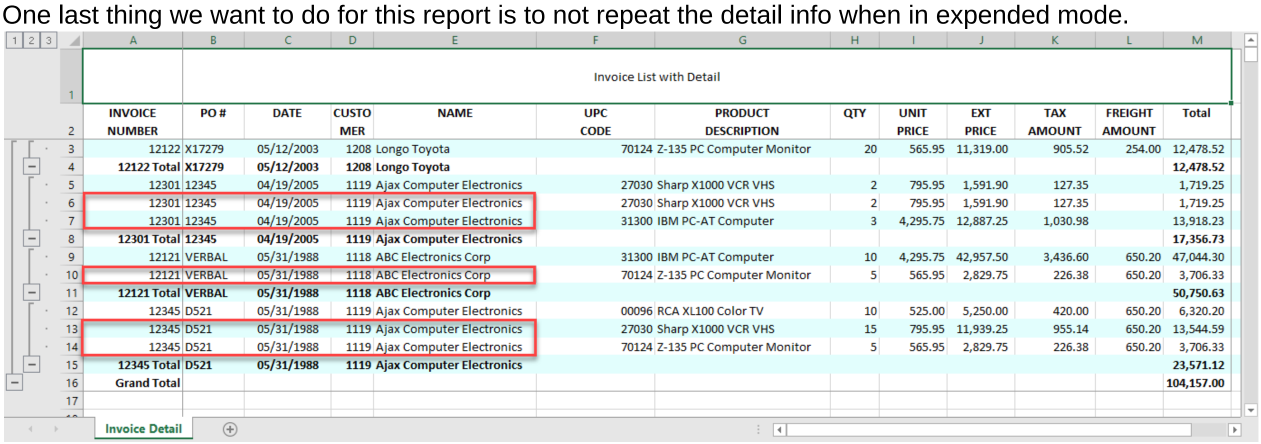
Back in the Data View Manage, select the four fields to repeat (PO#, DATE, CUSTOMER and NAME) and check "Repeat Detail" and enter INV.NO in the provided textbox. This instructs phiReport to repeat the data when Grp (BREAK-ON/GROUP-BY) is turned on for the INV.NO field.



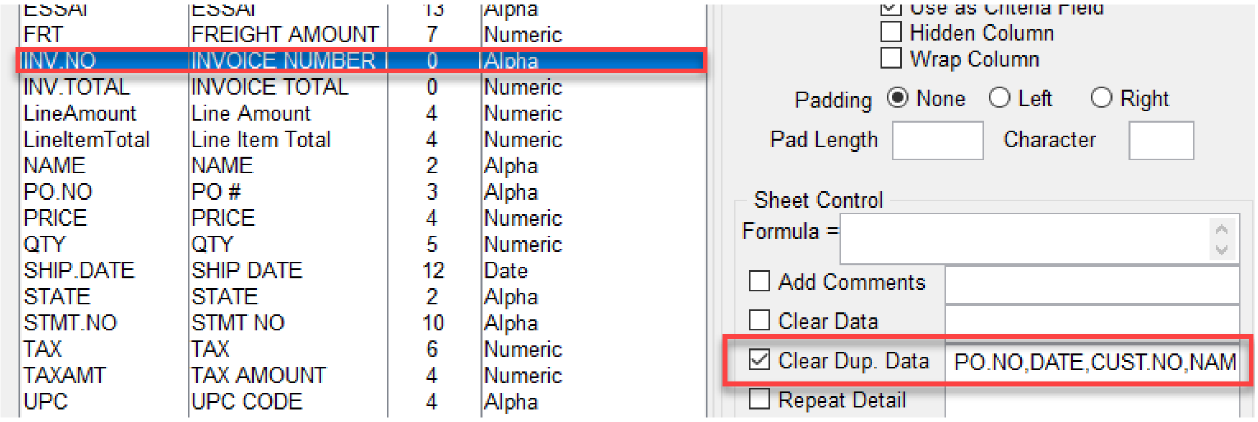



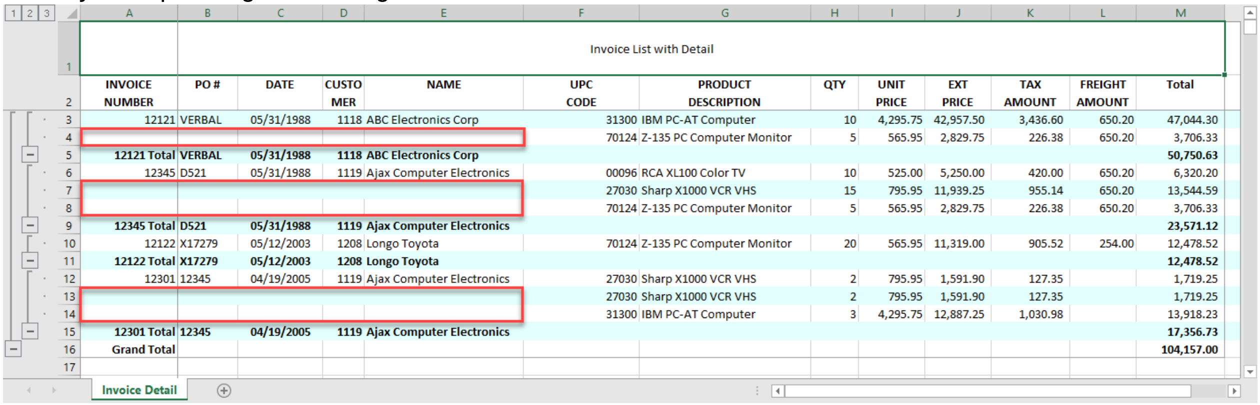

One last thing we want to do for this report is to not repeat the detail info when in expended mode.




This is done from the Data View Manager. Select the main field (INV.NO) and check "Clear Dup Data". In the provided textbox, enter the names of the fields to clear when data is repeated in INV.NO. List all fields separated by a comma.




Rerun your report to get the designed result.



Invoice List with Detail

| INVOICE NUMBER | PO # | DATE | CUSTOMER | NAME | UPC CODE | PRODUCT DESCRIPTION | QTY | UNIT PRICE | EXT PRICE | TAX AMOUNT | FREIGHT AMOUNT | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12121 | VERBAL | 05/31/1988 | 1118 | ABC Electronics Corp | 31300 | IBM PC-AT Computer | 10 | 4,295.75 | 42,957.50 | 3,436.60 | 650.20 | 47,044.30 |
| | | | | | 70124 | Z-135 PC Computer Monitor | 5 | 565.95 | 2,829.75 | 226.38 | 650.20 | 3,706.33 |
| **12121 Total** | **VERBAL** | **05/31/1988** | **1118** | **ABC Electronics Corp** | | | | | | | | **50,750.63** |
| 12345 | D521 | 05/31/1988 | 1119 | Ajax Computer Electronics | 00096 | RCA XL100 Color TV | 10 | 525.00 | 5,250.00 | 420.00 | 650.20 | 6,320.20 |
| | | | | | 27030 | Sharp X1000 VCR VHS | 15 | 795.95 | 11,939.25 | 955.14 | 650.20 | 13,544.59 |
| | | | | | 70124 | Z-135 PC Computer Monitor | 5 | 565.95 | 2,829.75 | 226.38 | 650.20 | 3,706.33 |
| **12345 Total** | **D521** | **05/31/1988** | **1119** | **Ajax Computer Electronics** | | | | | | | | **23,571.12** |
| 12122 | X17279 | 05/12/2003 | 1208 | Longo Toyota | 70124 | Z-135 PC Computer Monitor | 20 | 565.95 | 11,319.00 | 905.52 | 254.00 | 12,478.52 |
| **12122 Total** | **X17279** | **05/12/2003** | **1208** | **Longo Toyota** | | | | | | | | **12,478.52** |
| 12301 | 12345 | 04/19/2005 | 1119 | Ajax Computer Electronics | 27030 | Sharp X1000 VCR VHS | 2 | 795.95 | 1,591.90 | 127.35 | | 1,719.25 |
| | | | | | 27030 | Sharp X1000 VCR VHS | 2 | 795.95 | 1,591.90 | 127.35 | | 1,719.25 |
| | | | | | 31300 | IBM PC-AT Computer | 3 | 4,295.75 | 12,887.25 | 1,030.98 | | 13,918.23 |
| **12301 Total** | **12345** | **04/19/2005** | **1119** | **Ajax Computer Electronics** | | | | | | | | **17,356.73** |
| **Grand Total** | | | | | | | | | | | | **104,157.00** |

Invoice Detail

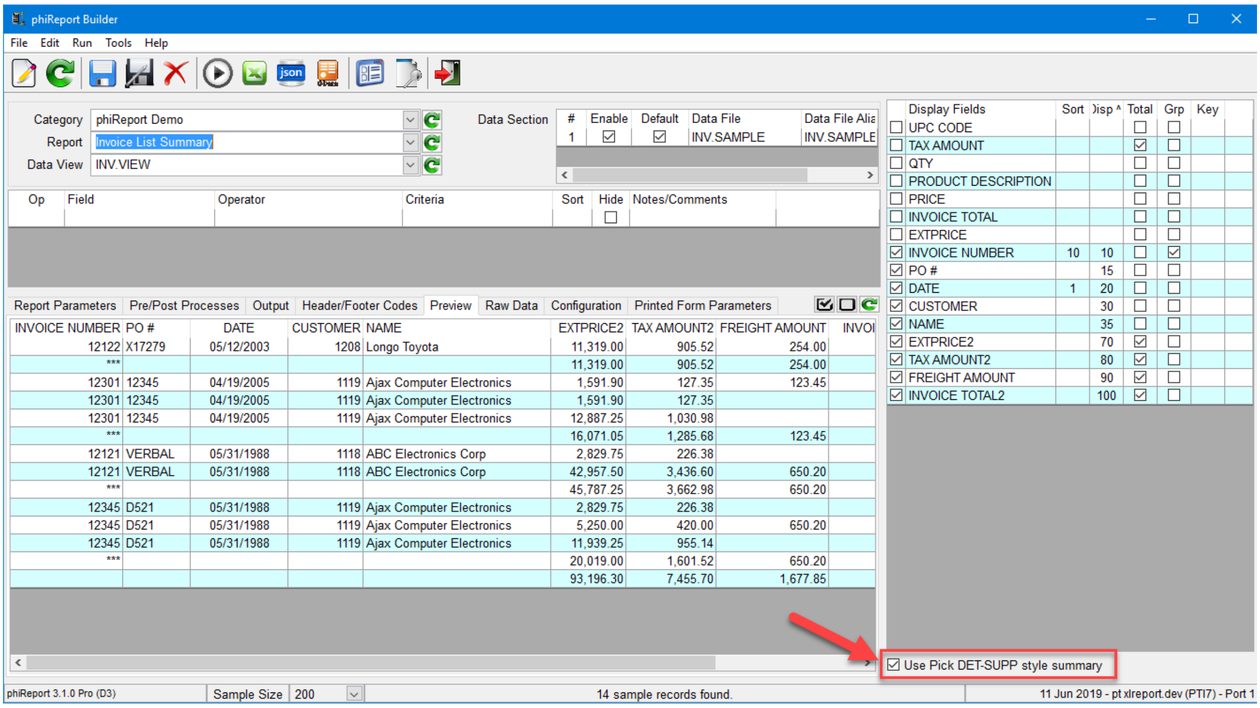


## Report Invoice List Summary

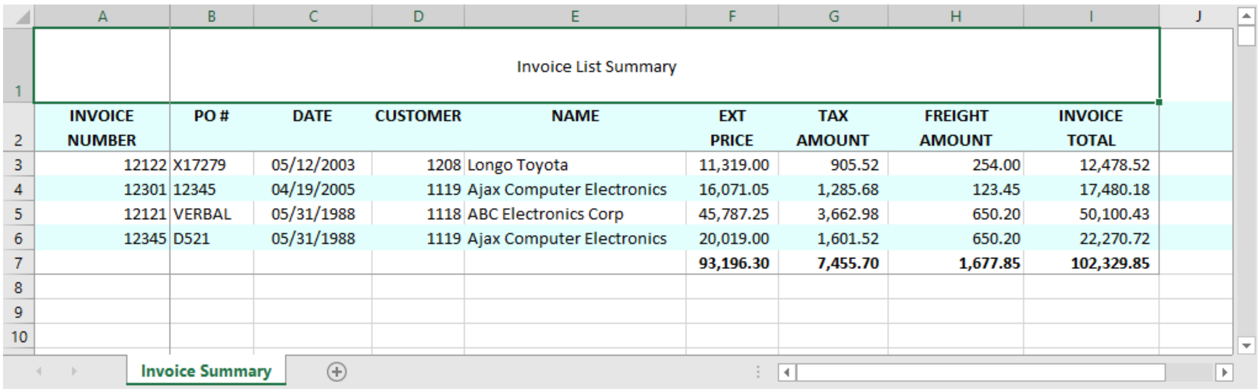
This tutorial introduces the following features:

- Pick Style DET-SUPP summary data

The Invoice List Summary report is a summary version of the Invoice List Detail report. The difference here is we will ask the database server to produce the summary instead of asking Excel to do it.




This is done by checking the "**Use Pick DET-SUPP style summary**" checkbox. When checked, phiReport will execute the DET-SUPP instruction to the statement and only returns the summary data. This checkbox does not change the output on the Preview tab. Click on Run Excel to generate the Excel sheet.



| INVOICE NUMBER | PO # | DATE | CUSTOMER | NAME | EXT PRICE | TAX AMOUNT | FREIGHT AMOUNT | INVOICE TOTAL |
|---|---|---|---|---|---|---|---|---|
| 12122 | X17279 | 05/12/2003 | 1208 | Longo Toyota | 11,319.00 | 905.52 | 254.00 | 12,478.52 |
| 12301 | 12345 | 04/19/2005 | 1119 | Ajax Computer Electronics | 16,071.05 | 1,285.68 | 123.45 | 17,480.18 |
| 12121 | VERBAL | 05/31/1988 | 1118 | ABC Electronics Corp | 45,787.25 | 3,662.98 | 650.20 | 50,100.43 |
| 12345 | D521 | 05/31/1988 | 1119 | Ajax Computer Electronics | 20,019.00 | 1,601.52 | 650.20 | 22,270.72 |
| | | | | | **93,196.30** | **7,455.70** | **1,677.85** | **102,329.85** |



Note that there are no groups, only the summary data and the grand total.

In this report, columns UPC CODE, PRODUCT DESCRIPTION, QTY and UNIT PRICE are not relevant to the output because we only want to see the summary data.

Additionally, this report uses an [External Macro](#) to create a pivot table sheet.



## Report Invoice form

This tutorial introduces the following features:

- Create and apply a custom template
- Call a custom subroutine to generate a data blob
- Use a data blob as report data source
- Use non-standard cell position as data import starting point
- Use Smart-Paging to print Pre-Printed Forms
- User Prompt

The Invoice Form report demonstrates how phiReport can be used to create Pre-Printed Form reports. Pre-Printed Form reports are non-tabular reports. They usually include a header and a footer that repeats on every page. The complexity of the header and footer depends on the report's requirement.

Here's our end goal:

Page 1 of 1

***INVOICE***

Company

Bill To
Ajax Computer Electronics
615 East 62nd Street
P O Box 45878
New York City, NY 10021

Ship To
Ajax Computer Electronics
615 East 62nd Street
P O Box 45878
New York City, NY 10021

| Remit To | Invoice Number |
|---|---|
| Company Inc.<br>123 Mains St.<br>Irvine, CA 92123 | 12345<br>When Remitting Please |

| Customer Bill To No. | Store Number | Invoice Date |
|---|---|---|
| 1119 | 123 | 05/31/1988 |

| Broker Code | Broker and/or Salesman Name | Customer PO Number |
|---|---|---|
| 1 | Local Sales Rep | D521 |

| Terms From Date of Invoice | Ship From | Ship VIA |
|---|---|---|
| 30 Day | Plant 01 | UPS |

| Stock # | Class | Product Code | PRODUCT DESCRIPTION | Qty | Unit Price | Ext.Price |
|---|---|---|---|---|---|---|
| 1 | 200 | 00096 | RCA XL100 Color TV | 10 | 525.00 | 5,250.00 |
| 2 | 200 | 27030 | Sharp X1000 VCR VHS | 15 | | 0.00 |
| 3 | 300 | 70124 | Z-135 PC Computer Monitor | 5 | | 0.00 |
| | | | *** NOTICE *** | | | |
| | | | This product is currently out of stock. | | | |
| | | | You will be notified by email as soon as it becomes available. | | | |
| | | | Please contact our customer service at (800) 123-4567 for more information. | | | |
| | | | Thank you for your understanding. | | | |

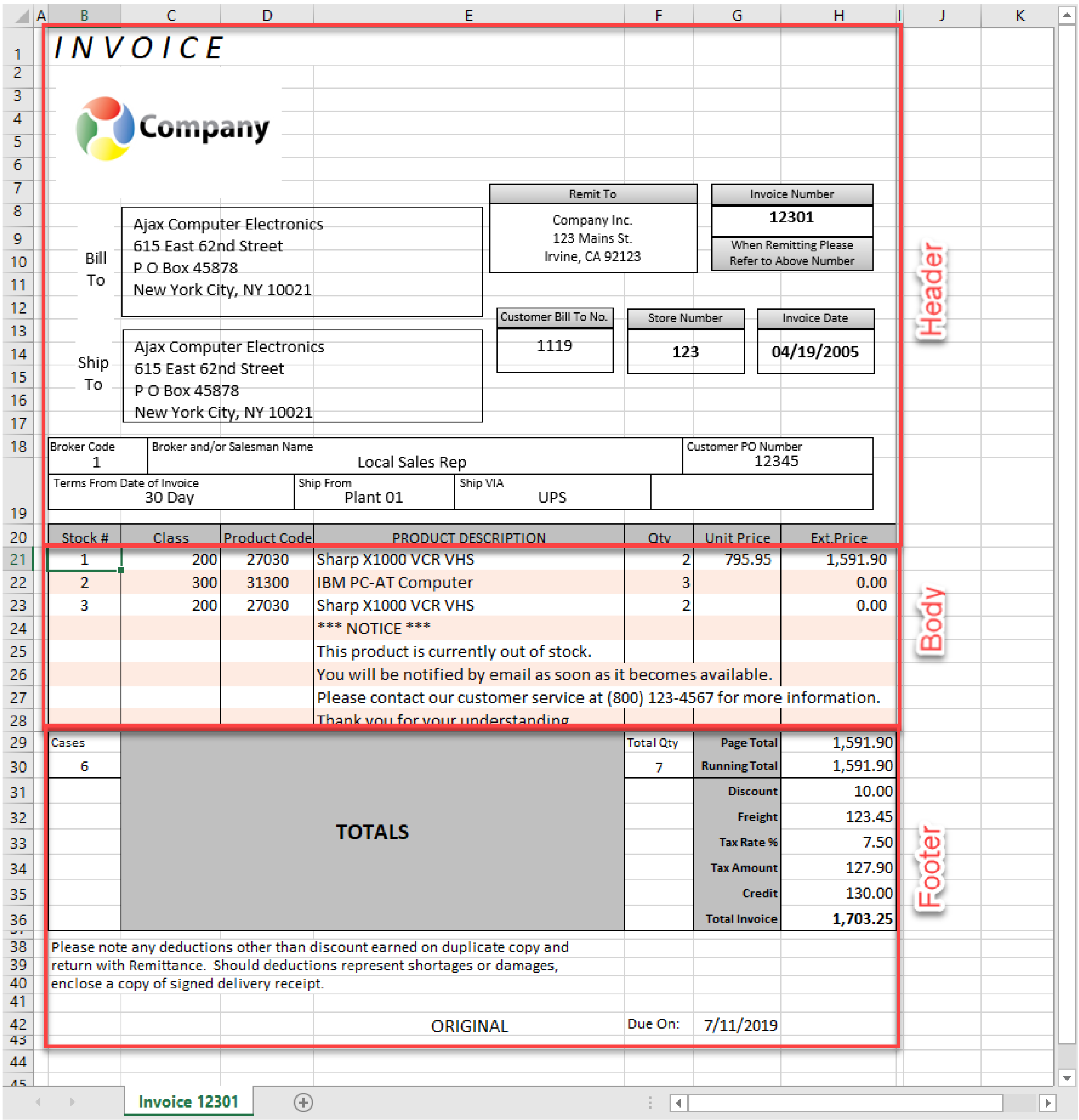
| Cases | | Total Qty | | |
|---|---|---|---|---|
| 6 | TOTALS | 30 | Page Total | 5,250.00 |
| | | | Running Total | 5,250.00 |
| | | | Discount | 10.00 |
| | | | Freight | 650.20 |
| | | | Tax Rate % | 7.50 |
| | | | Tax Amount | 441.77 |
| | | | Credit | 130.00 |
| | | | Total Invoice | 6,201.97 |

Please note any deductions other than discount earned on duplicate copy and return with Remittance. Should deductions represent shortages or damages, enclose a copy of signed delivery receipt.

ORIGINAL        Due On: 6/16/2019

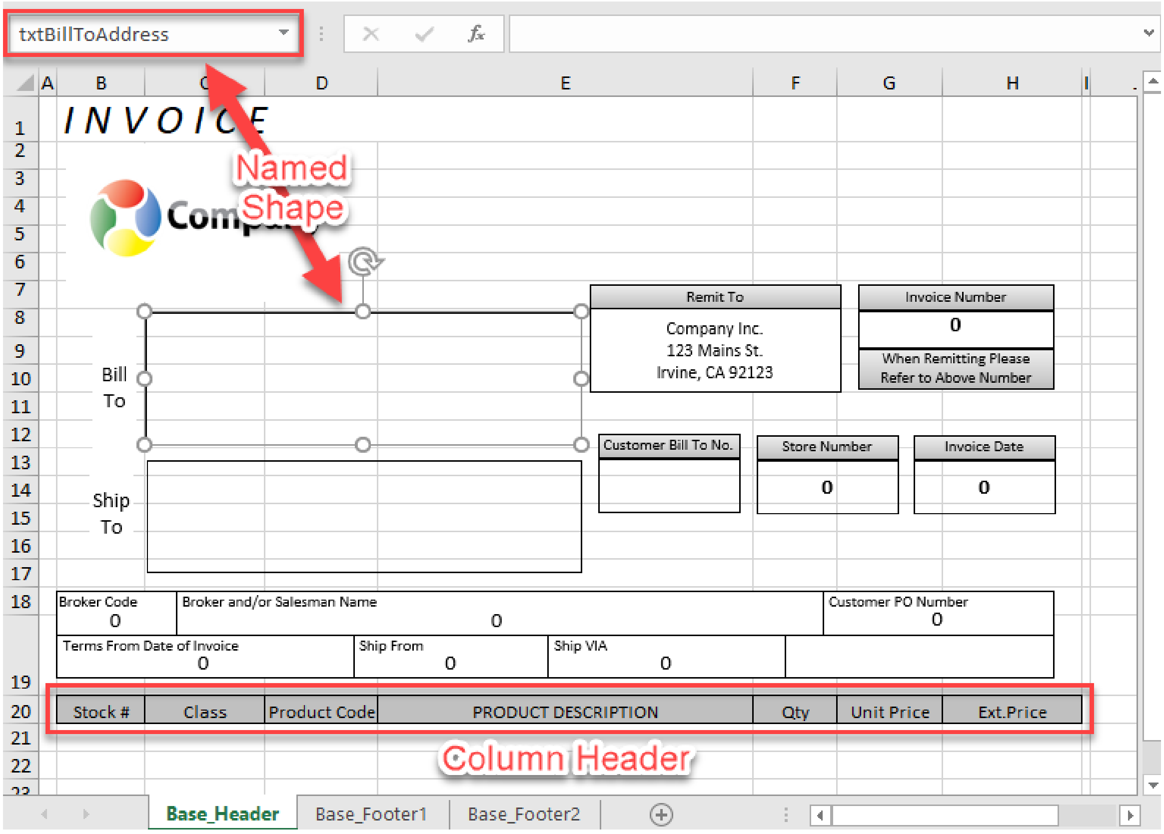
## Form Template

A Form is composed of three parts:

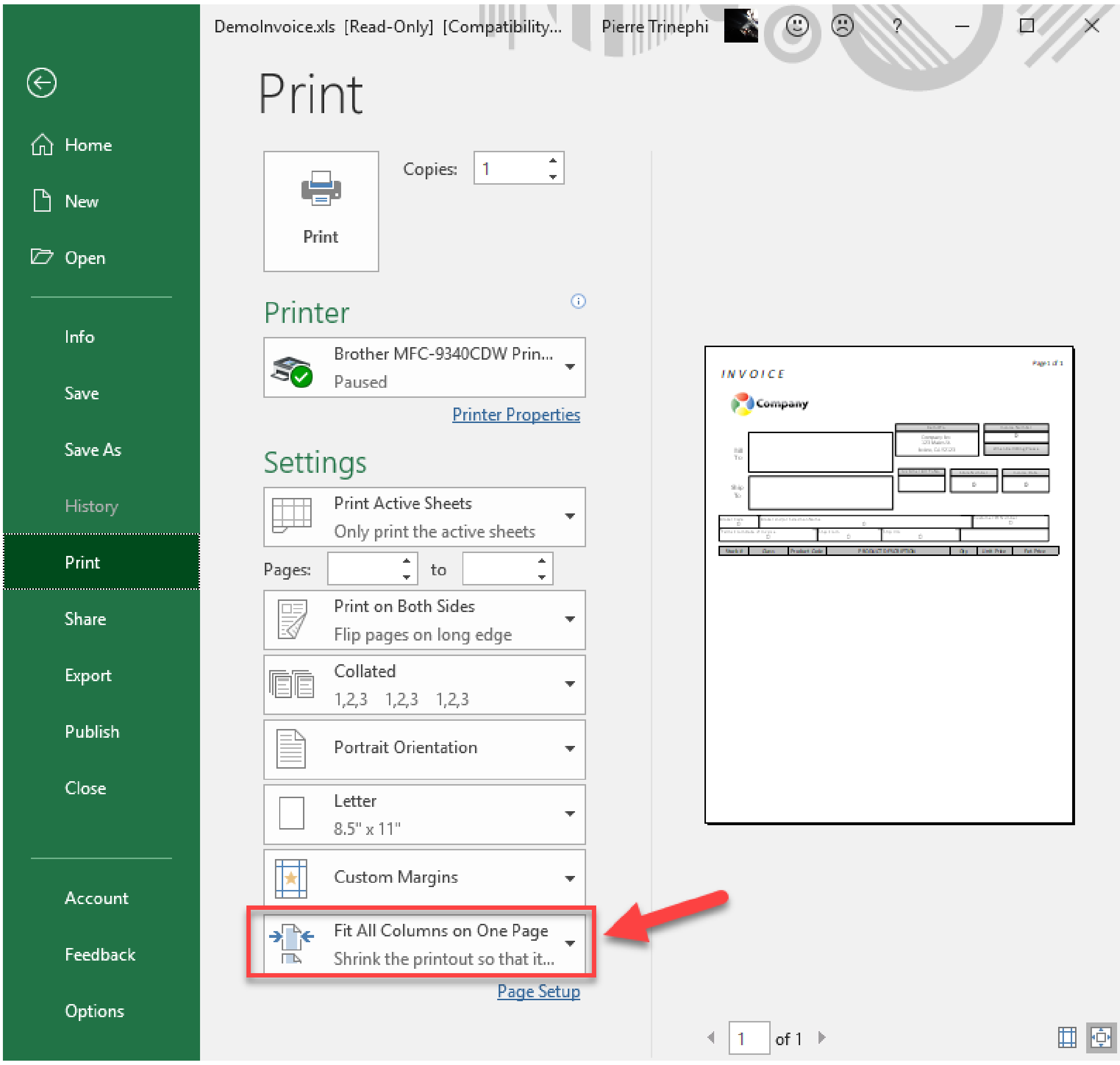



1. Header

The header is the top part of a form and is repeated on every page. Data is passed to the header through a dynamic array to Excel named shapes and/or cells.




Start by creating your header based on the data to be placed in the body. Create the body header by sizing the columns as required and make sure the total width of the body fits the width of the your page. To avoid unnecessary page breaks, set the page scaling to "Fit All Columns on One Page" as shown below:




Once the columns defined, add the shapes to the footer. Shapes are convenient because they don't have to be "snapped" to a cell, they can be placed anywhere on the sheet. You can control their font style and color independently from the sheet. Make sure you every shape you will send data to is named and make sure names are unique. Excel does not check for uniqueness!

2. Body

The content of the body can be the result of a query or a data blob generated by a BASIC program.

1. Result of a Query

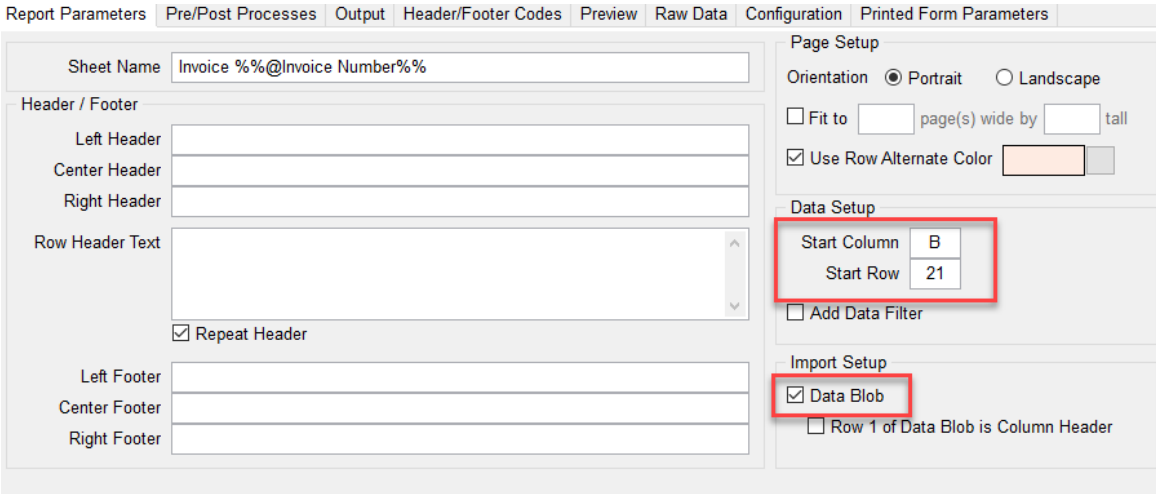
Create a standard report using the standard method. Make sure that the number of display fields selected matches the column definition in the header. All custom formating are maintained (font, color, justification, format...) with the exception of the column width. The column width defined in the header is not affected by the display field defined in the Data View.

2. Data Blob

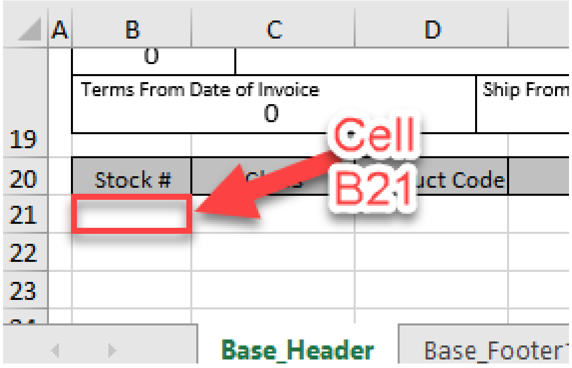
Data Blob is 1 or more item that contains a block of data. In a data blob item, each attribute corresponds to a row and each value corresponds to a column. In our example, the data blob would have 7 values (7 columns) per attribute. This is the recommended structure but since it is not enforced by phiReport you can provide any data format you like.

The Data blob can be generated by a BASIC program called by the Pre-Query Process. This program reads input parameters from the command line and writes blob item in a work file.

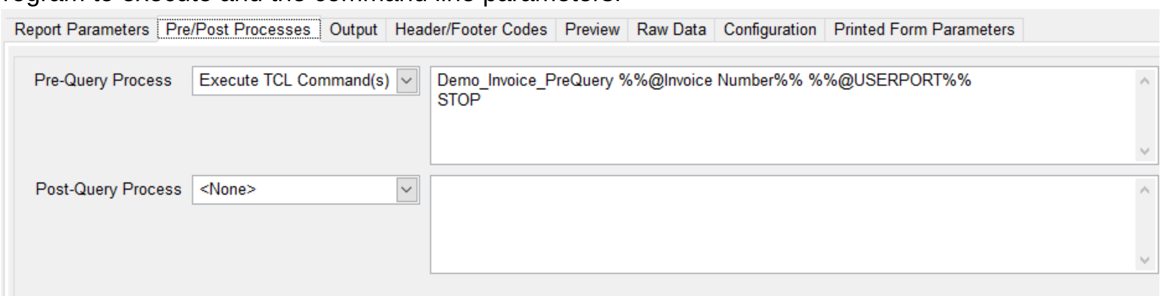
To turn on Data Blob mode, check the box "Data Blob" on the "Report Parameter" tab.




In the "Start Column/Row" fields, enter the Excel coordinate where to start the body.




On the "Pre/Post Processes" tab, select "Execute TCL Command(s) and enter the name of the BASIC program to execute and the command line parameters.




In our example we execute "Demo_Invoice_PreQuery" and pass it two parameters:

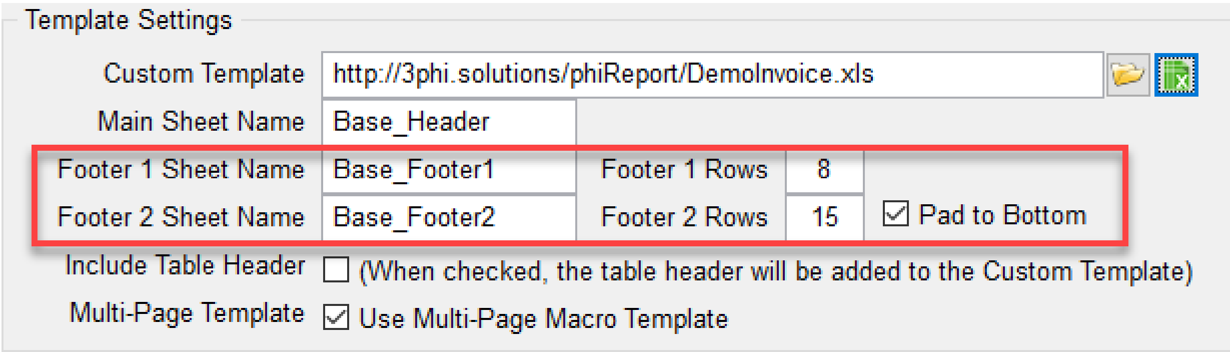
1. %%@Invoice Number%% : The Invoice number to prompt the user
2. %%@USERPORT%% : The User Port (@PIB in D3, @USERNO)

The "STOP" command indicates a "no active list" return. By default, phiReport expects Pre-Query processes to return an active list to be used as the starting point for the main query. If no active list is returned, phiReport considers that there's no data and stops the reporting process. The command "STOP" tells phiReport to ignore the active list and continue processing.

3. Footer

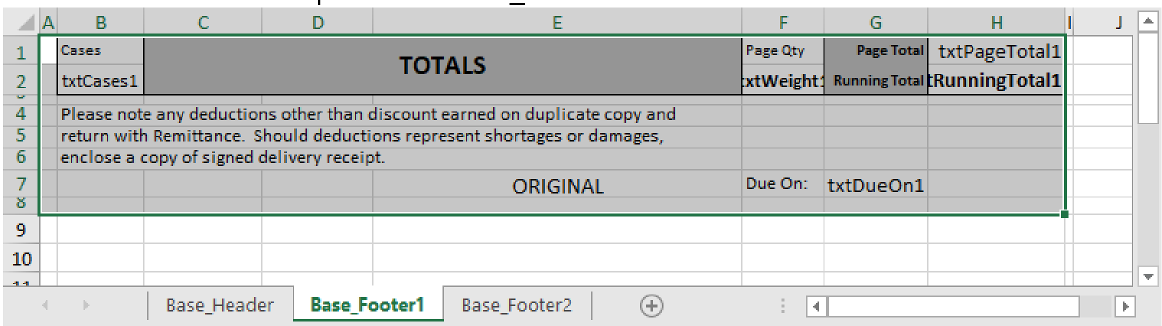
The footer is the bottom part of the form. There can be up-to two footers. One for pages 1 to page n-1 and one for page n; the last page. Data is passed to the footer through a dynamic array to Excel named cells. Excel formulas can also be used to plot data to the footer.

In our example the Base_footer1 sheet is used on pages 1 to n-1 and Base_footer2 is used on the last page only.  If the form only returns a single page, Base_footer2 is used.



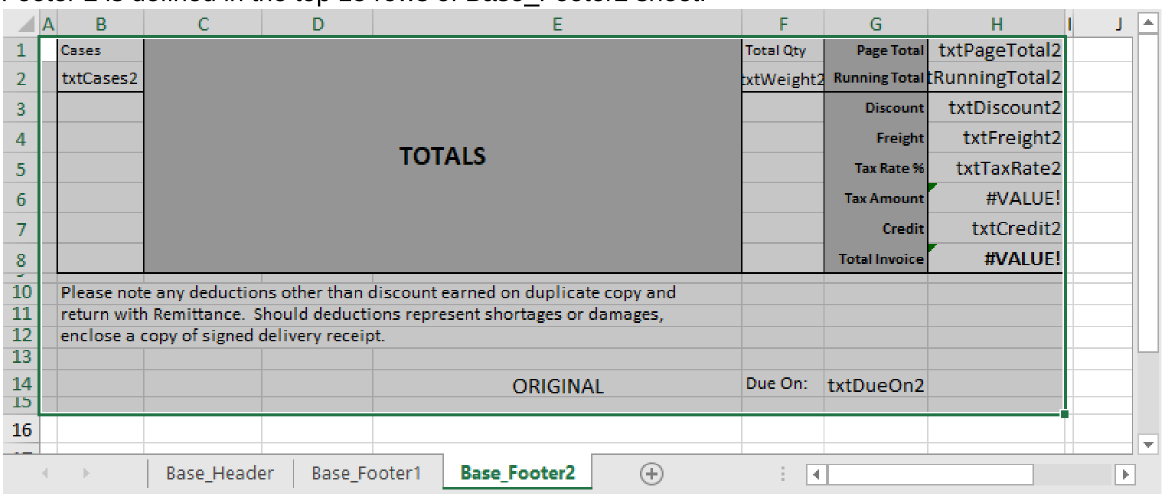

**Base_footer1**

Footer 1 is defined in the top 8 rows of Base_Footer1 sheet




**Base_footer2**

Footer 2 is defined in the top 15 rows of Base_Footer2 sheet.



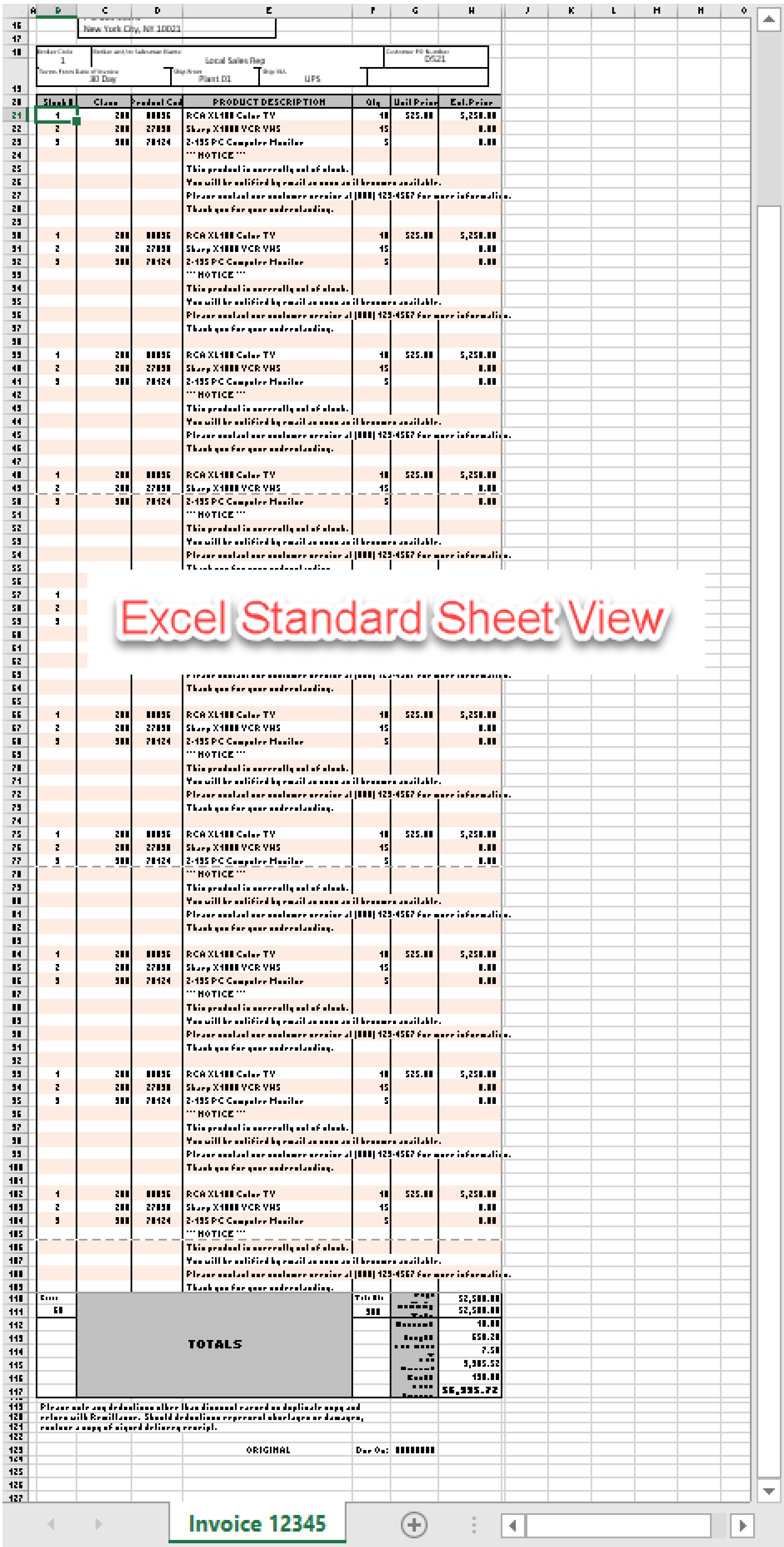

Notice the named cells in the footers.  These are used to "inject" data from the report program to the sheet. Cells that show "#VALUE!" are Excel formulas, these do not need to be named.

**Note: Footers do not support Excel Shapes, only Named Cells can be used.**

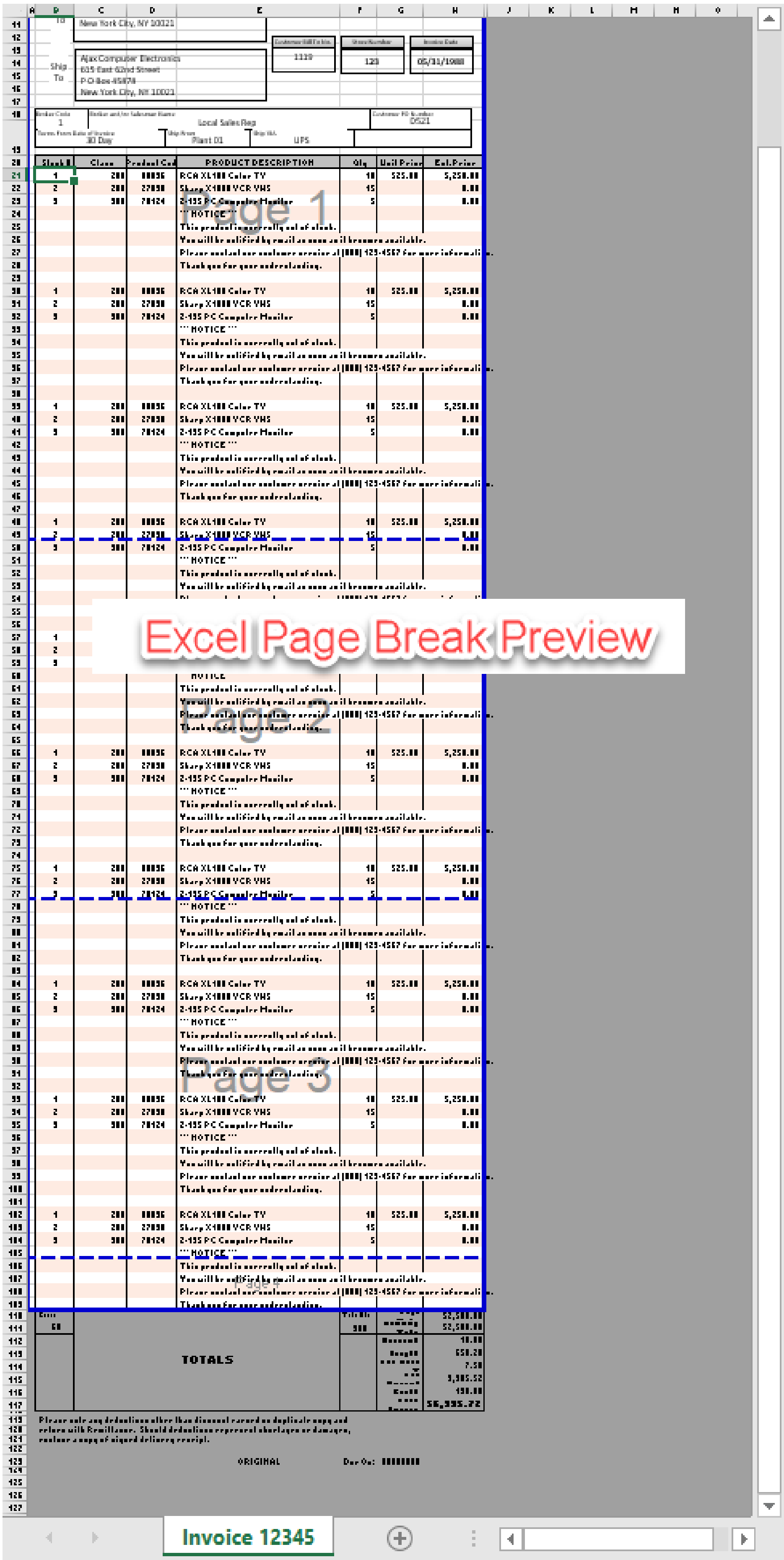
"Pad to Bottom" pushes the footer to the bottom of the page by inserting empty rows after the last row of data.

"Multi-Page Template" enables "Smart paging" which automatically inserts footer 1 at the end of each page and footer 2 on the last page.  This feature is only runs when saving the form as PDF and when sending the report to a printer.  Excel does not support footer preview in its "Preview" mode.

When creating a multi-page form, Excel will create a sheet similar to the one below:

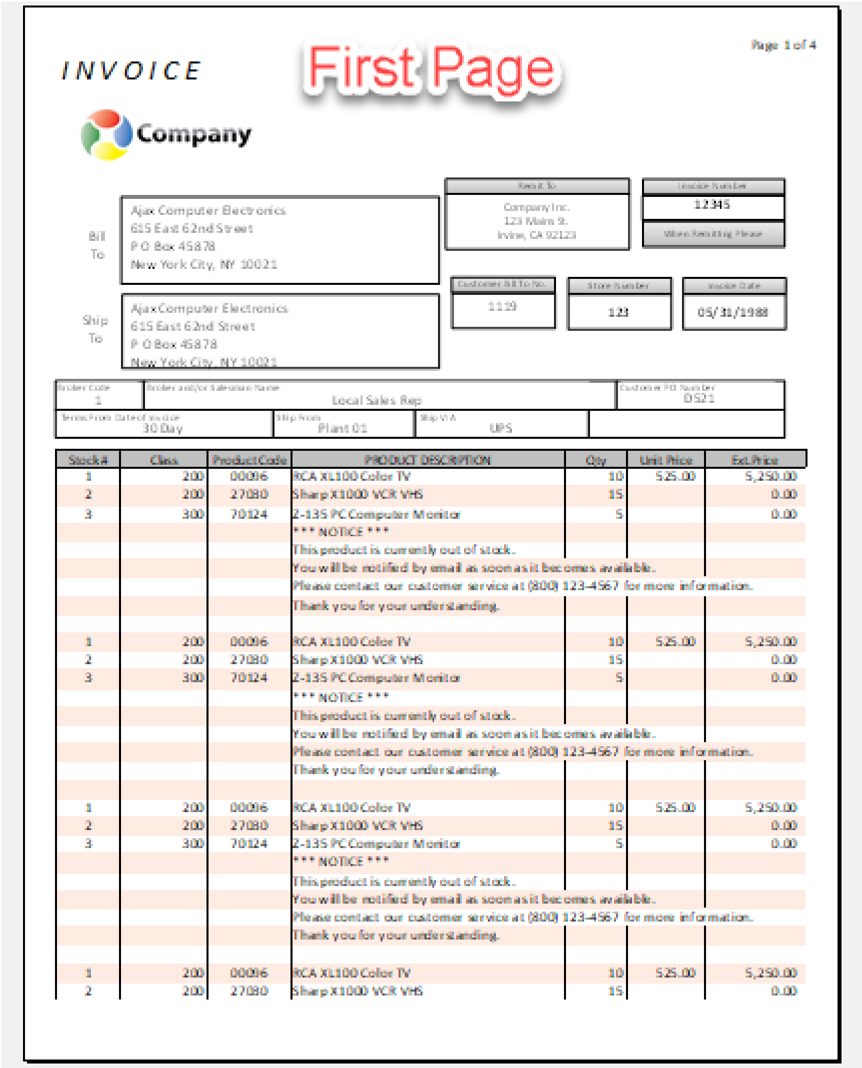


New York City, NY 10021
Local Sales Rep
Plant 01
UPS
30 Day
PRODUCT DESCRIPTION
RCA XL100 Color TV
Sharp X1000 VCR VHS
*** NOTICE ***
TOTALS
ORIGINAL
Excel Standard Sheet View
Invoice 12345




Only the last page footer is shown and the default Excel page break ignores the header and the "in between" page footer.

Print Preview also skips all the footers



Page 1 of 4

INVOICE

First Page

Company

Bill To: Ajax Computer Electronics, 615 East 62nd Street, P O Box 45878, New York City, NY 10021

Ship To: Ajax Computer Electronics, 615 East 62nd Street, P O Box 45878, New York City, NY 10021

Remit To: Company Inc., 123 Mains St., Irvine, CA 92123

Invoice Number: 12345

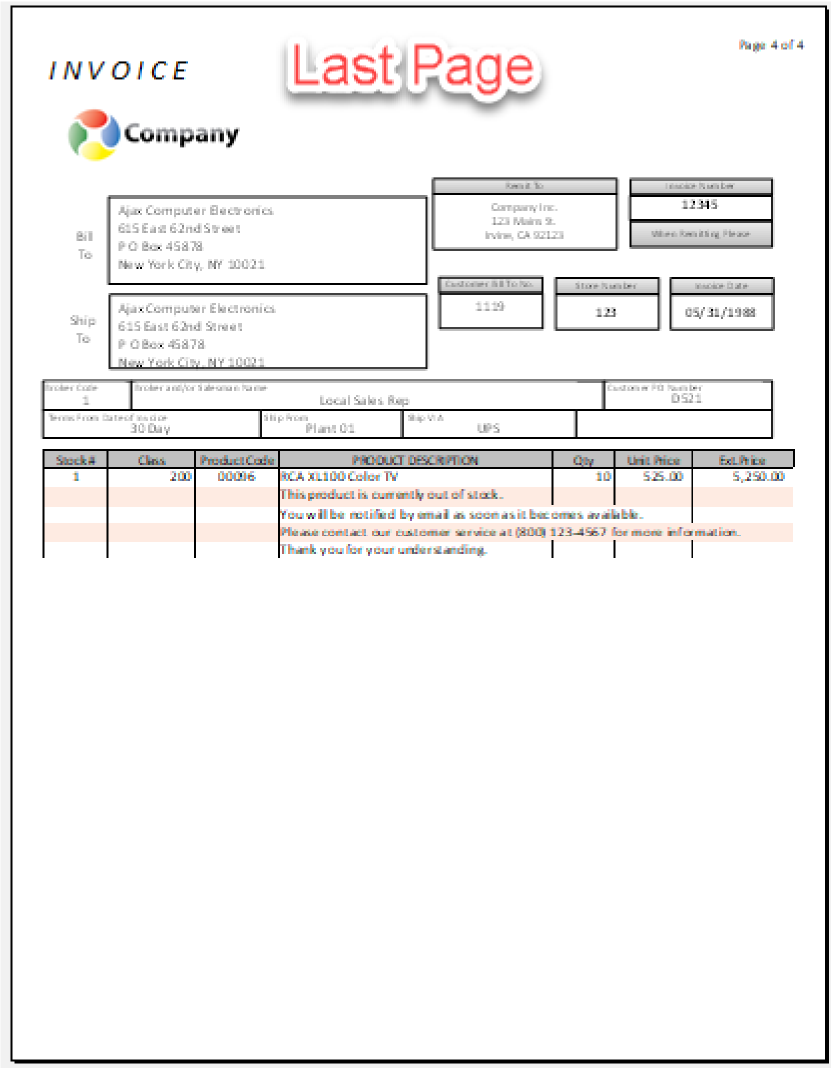
When Remitting Please

| Customer Bill To No. | Store Number | Invoice Date |
|---|---|---|
| 1119 | 123 | 05/31/1988 |

| Broker Code | Broker and/or Salesman Name | Customer PO Number |
|---|---|---|
| 1 | Local Sales Rep | 0521 |

| Terms From Date of Invoice | Ship From | Ship VIA |
|---|---|---|
| 30 Day | Plant 01 | UPS |

| Stock# | Class | Product Code | PRODUCT DESCRIPTION | Qty | Unit Price | Ext.Price |
|---|---|---|---|---|---|---|
| 1 | 200 | 00096 | RCA XL100 Color TV | 10 | 525.00 | 5,250.00 |
| 2 | 200 | 27080 | Sharp X1000 VCR VHS | 15 | | 0.00 |
| 3 | 300 | 70124 | Z-135 PC Computer Monitor | 5 | | 0.00 |
| | | | *** NOTICE *** | | | |
| | | | This product is currently out of stock. | | | |
| | | | You will be notified by email as soon as it becomes available. | | | |
| | | | Please contact our customer service at (800) 123-4567 for more information. | | | |
| | | | Thank you for your understanding. | | | |
| 1 | 200 | 00096 | RCA XL100 Color TV | 10 | 525.00 | 5,250.00 |
| 2 | 200 | 27080 | Sharp X1000 VCR VHS | 15 | | 0.00 |
| 3 | 300 | 70124 | Z-135 PC Computer Monitor | 5 | | 0.00 |
| | | | *** NOTICE *** | | | |
| | | | This product is currently out of stock. | | | |
| | | | You will be notified by email as soon as it becomes available. | | | |
| | | | Please contact our customer service at (800) 123-4567 for more information. | | | |
| | | | Thank you for your understanding. | | | |
| 1 | 200 | 00096 | RCA XL100 Color TV | 10 | 525.00 | 5,250.00 |
| 2 | 200 | 27080 | Sharp X1000 VCR VHS | 15 | | 0.00 |
| 3 | 300 | 70124 | Z-135 PC Computer Monitor | 5 | | 0.00 |
| | | | *** NOTICE *** | | | |
| | | | This product is currently out of stock. | | | |
| | | | You will be notified by email as soon as it becomes available. | | | |
| | | | Please contact our customer service at (800) 123-4567 for more information. | | | |
| | | | Thank you for your understanding. | | | |
| 1 | 200 | 00096 | RCA XL100 Color TV | 10 | 525.00 | 5,250.00 |
| 2 | 200 | 27080 | Sharp X1000 VCR VHS | 15 | | 0.00 |



INVOICE

Last Page

Page 4 of 4

Company

Bill To

Ajax Computer Electronics
615 East 62nd Street
P O Box 45878
New York City, NY 10021

Remit To

Company Inc.
123 Mains St.
Irvine, CA 92123

Invoice Number: 12345

When Remitting Please

Ship To

Ajax Computer Electronics
615 East 62nd Street
P O Box 45878
New York City, NY 10021

| Customer Bill To No. | Store Number | Invoice Date |
| --- | --- | --- |
| 1119 | 123 | 05/31/1988 |

| Broker Code | Broker and/or Salesman Name | Customer PO Number |
| --- | --- | --- |
| 1 | Local Sales Rep | D521 |

| Terms From Date of Invoice | Ship From | Ship VIA |
| --- | --- | --- |
| 30 Day | Plant 01 | UPS |

| Stock # | Class | Product Code | PRODUCT DESCRIPTION | Qty | Unit Price | Ext. Price |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | 200 | 00096 | RCA XL100 Color TV | 10 | 525.00 | 5,250.00 |
| | | | This product is currently out of stock. | | | |
| | | | You will be notified by email as soon as it becomes available. | | | |
| | | | Please contact our customer service at (800) 123-4567 for more information. | | | |
| | | | Thank you for your understanding. | | | |

Below is the printed output (first page and last page):

# *INVOICE*

Company

| Remit To | Invoice Number |
|---|---|
| Company Inc.<br>123 Mains St.<br>Irvine, CA 92123 | 12345<br>When Remitting Please |

Bill To

Ajax Computer Electronics
615 East 62nd Street
P O Box 45878
New York City, NY 10021

Ship To

Ajax Computer Electronics
615 East 62nd Street
P O Box 45878
New York City, NY 10021

| Customer Bill To No. | Store Number | Invoice Date |
|---|---|---|
| 1119 | **123** | **05/31/1988** |

| Broker Code | Broker and/or Salesman Name | Customer PO Number |
|---|---|---|
| 1 | Local Sales Rep | D521 |

| Terms From Date of Invoice | Ship From | Ship VIA |
|---|---|---|
| 30 Day | Plant 01 | UPS |

| Stock # | Class | Product Code | PRODUCT DESCRIPTION | Qty | Unit Price | Ext.Price |
|---|---|---|---|---|---|---|
| 1 | 200 | 00096 | RCA XL100 Color TV | 10 | 525.00 | 5,250.00 |
| 2 | 200 | 27030 | Sharp X1000 VCR VHS | 15 | | 0.00 |
| 3 | 300 | 70124 | Z-135 PC Computer Monitor | 5 | | 0.00 |
| | | | *** NOTICE *** | | | |
| | | | This product is currently out of stock. | | | |
| | | | You will be notified by email as soon as it becomes available. | | | |
| | | | Please contact our customer service at (800) 123-4567 for more information. | | | |
| | | | Thank you for your understanding. | | | |
| | | | | | | |
| 1 | 200 | 00096 | RCA XL100 Color TV | 10 | 525.00 | 5,250.00 |
| 2 | 200 | 27030 | Sharp X1000 VCR VHS | 15 | | 0.00 |
| 3 | 300 | 70124 | Z-135 PC Computer Monitor | 5 | | 0.00 |
| | | | *** NOTICE *** | | | |
| | | | This product is currently out of stock. | | | |
| | | | You will be notified by email as soon as it becomes available. | | | |
| | | | Please contact our customer service at (800) 123-4567 for more information. | | | |
| | | | Thank you for your understanding. | | | |
| | | | | | | |
| 1 | 200 | 00096 | RCA XL100 Color TV | 10 | 525.00 | 5,250.00 |
| 2 | 200 | 27030 | Sharp X1000 VCR VHS | 15 | | 0.00 |
| 3 | 300 | 70124 | Z-135 PC Computer Monitor | 5 | | 0.00 |
| | | | *** NOTICE *** | | | |
| Cases 18 | **TOTALS** | | | Page Qty GETOTAL(( | **Page Total**<br>**Running Total** | 15,750.00<br>**15,750.00** |

Please note any deductions other than discount earned on duplicate copy and return with Remittance. Should deductions represent shortages or damages, enclose a copy of signed delivery receipt.

ORIGINAL

Due On: 7/20/2019

Page 5 of 5

*INVOICE*

Company

| Remit To | Invoice Number |
|---|---|
| Company Inc.<br>123 Mains St.<br>Irvine, CA 92123 | **12345**<br>When Remitting Please |

Bill To

Ajax Computer Electronics
615 East 62nd Street
P O Box 45878
New York City, NY 10021

Ship To

Ajax Computer Electronics
615 East 62nd Street
P O Box 45878
New York City, NY 10021

| Customer Bill To No. | Store Number | Invoice Date |
|---|---|---|
| 1119 | **123** | **05/31/1988** |

| Broker Code | Broker and/or Salesman Name | Customer PO Number |
|---|---|---|
| 1 | Local Sales Rep | D521 |

| Terms From Date of Invoice | Ship From | Ship VIA |
|---|---|---|
| 30 Day | Plant 01 | UPS |

| Stock # | Class | Product Code | PRODUCT DESCRIPTION | Qty | Unit Price | Ext.Price |
|---|---|---|---|---|---|---|
| 1 | 200 | 00096 | RCA XL100 Color TV | 10 | 525.00 | 5,250.00 |
| | | | This product is currently out of stock. | | | |
| | | | You will be notified by email as soon as it becomes available. | | | |
| | | | Please contact our customer service at (800) 123-4567 for more information. | | | |
| | | | Thank you for your understanding. | | | |

| Cases | TOTALS | Total Qty | | |
|---|---|---|---|---|
| 60 | | 300 | Page Total | 0.00 |
| | | | Running Total | 52,500.00 |
| | | | Discount | 10.00 |
| | | | Freight | 650.20 |
| | | | Tax Rate % | 7.50 |
| | | | Tax Amount | 3,985.52 |
| | | | Credit | 130.00 |
| | | | Total Invoice | **56,995.72** |

Please note any deductions other than discount earned on duplicate copy and return with Remittance. Should deductions represent shortages or damages, enclose a copy of signed delivery receipt.

ORIGINAL Due On: 7/20/2019

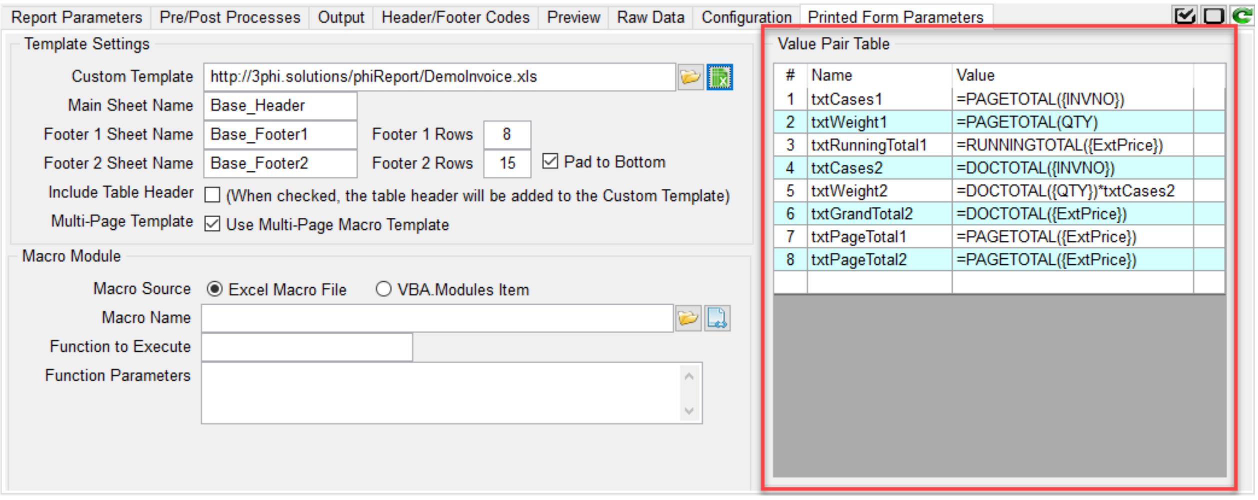


## Passing Data to the Form

Data is passed from phiReport to the Excel Template via named shapes and named cells.

There are two methods to pass data to the template.

1. From the phiReport interface




The Value Pair table allows you to enter a matching Name and Value pair of data. The Name is matched with the the Shape/Cell Name on the template. The value can be a string, a formula (starts is '=' equal sign) or a replacement token (starts with '%%@' and ends with '%%').

Formulas are evaluated by Excel while replacement Tokens are evaluated by phiReport. phiReport introduces New Formula to provide page specific calculations.

2. From your BASIC program (see PHIDEMOBP Demo_Invoice_PreQuery

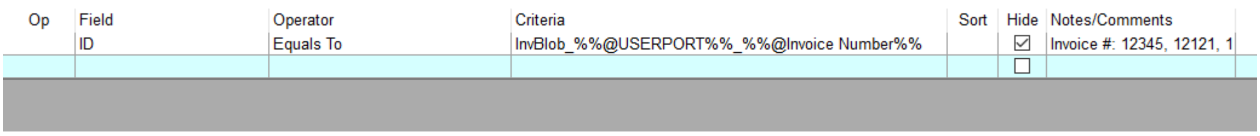
To pass data from your BASIC program to the Form template, add a COMMON definition to your program then build the shared variables.

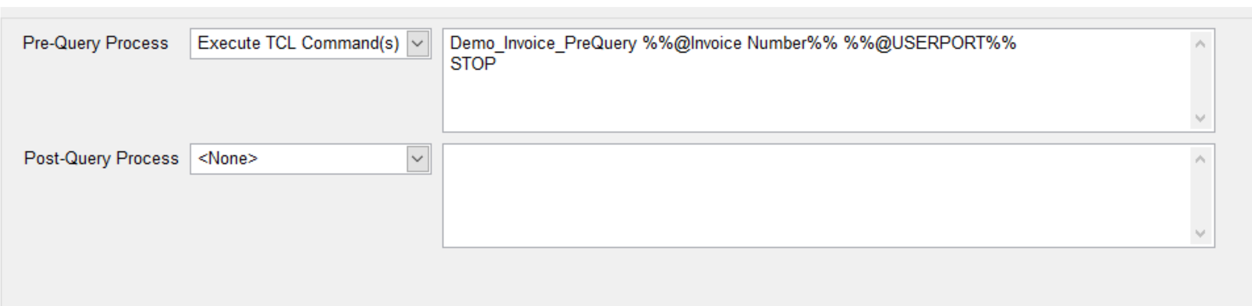
COMMON /USERVAR/ USERDATA, P_STATUS, RptPrompts

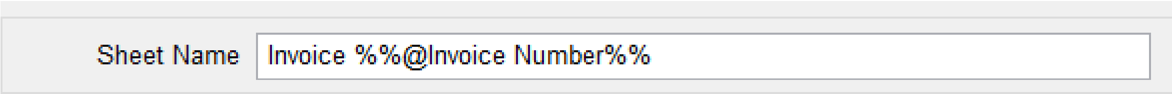
USERDATA: Single attribute array representing the Value Pair table. Each value represents 1 entry with 2 sub-values.
USERDATA<1,1,1> = "NAME1"
USERDATA<1,1,2> = "VALUE1"

P_STATUS: Program Status. Returns program status to phiReport. For error handling, return "ERR" in P_STATUS<1> and an error message in P_STATUS<2>. phiReport will display the error message to the end user.

RptPrompt: Table of value pair user prompts. User prompts are Replacement Tokens defined on the report.






In our example, 2 Replacement Tokens are defined in the criteria section, %%@USERPORT%% and %%@Invoice Number%%.

%%@USERPORT%% is a phiReport internal token and is automatically replaced by the system's user port (@PIB, @USERNO depending on your Database platform)

%%@Invoice Number%% is a custom defined replacement token. phiReport will prompt the user for the "Invoice Number" value and it will be added to the RptPrompts COMMON variable.

If a custom replacement token is used multiple times in the report, the user will only be prompted once.

RptPrompts is a single attribute array representing the Value Pair table. Each value represents 1 entry with 2 sub-values.

RptPrompts<1,1,1> = "Token1"
RptPrompts<1,1,2> = "Value2"

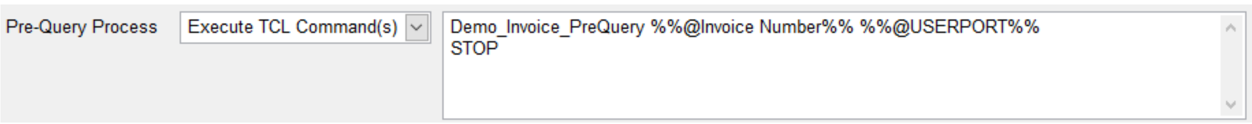


## PHIDEMOBP Demo_Invoice_PreQuery

Program PHIDEMOBP Demo_Invoice_PreQuery is called by demo report "Invoice Form". The program reads command line parameters and builds the data blob stored in file "TMP". Non blob data is returned to the report via the USERDATA common variable.

The named COMMON defined at the beginning of the program is required to pass data between the program and phiReport.

Line 8 reads the command line parameter generated by the Pre-Query Process call.



```
PROGRAM Demo_Invoice_PreQuery


COMMON /USERVAR/ USERDATA, P_STATUS, RptPrompts

CRT "== Demo_Invoice_PreQuery  =="

TCL = SENTENCE()       ;* UniData TCL = @SENTENCE

TCL = TRIM(TCL)

InvNo = FIELD(TCL," ",2);   IF InvNo = "" THEN InvNo = "1"
UID   = FIELD(TCL," ",3)    ;* UserNo/Pib
SEP   = "<lf>"

OPEN "INV.SAMPLE" TO f.INV ELSE
   CRT "Unable to open INV.SAMPLE file"
   P_STATUS     = "ERR"
   P_STATUS<2> = "Unable to open INV.SAMPLE file"
   STOP
END
OPEN "CUST.SAMPLE" TO f.CUST ELSE
   CRT "Unable to open CUST.SAMPLE file"
   P_STATUS     = "ERR"
   P_STATUS<2> = "Unable to open CUST.SAMPLE file"
   STOP
END
OPEN "PROD.SAMPLE" TO f.PROD ELSE
   CRT "Unable to open PROD.SAMPLE file"
   P_STATUS     = "ERR"
   P_STATUS<2> = "Unable to open PROD.SAMPLE file"
   STOP
END
OPEN "TMP" TO f.TMP ELSE
   CRT "Unable to open TMP file"
   P_STATUS     = "ERR"
   P_STATUS<2> = "Unable to open TMP file"
   STOP
END

DELETE f.TMP,"InvBlob_":UID:"_":InvNo

READ Inv FROM f.INV, InvNo ELSE
   CRT "Inv #":InvNo:" does not exist."
   P_STATUS     = "ERR"
   P_STATUS<2> = "Inv #":InvNo:" does not exist."
   STOP
END
```

Error messages are returned via the P_STATUS common variable.  If P_STATUS<1> = "ERR" phiReport will display the error message in P-STATUS<2> and stops processing the report.

After reading the Invoice item, the program extracts the header information and builds the table of value pairs in variable USERDATA.  The first sub-value of each value must match a named shape or named cell on the Excel template.  If the same name is used more than once, only the last occurrence will be used.  If a name does not match any named shape/cell it will be ignored.

```
0049
0050        CustID = Inv<2>
0051        READ Cust FROM f.CUST,CustID ELSE Cust = ""
0052
0053        ToName    = Cust<2>
0054        ToAddr    = Cust<3>:"<lf>":Cust<4>
0055        ToCity    = Cust<5>
0056        ToZip     = Cust<7>
0057        ToState   = Cust<6>
0058        ToCountry = Cust<13>
0059
0060
0061        BillTo  = ToName:SEP:ToAddr:SEP:ToCity:", ":ToState:" ":ToZip:" ":ToCountry
0062        ShipTo  = BillTo
0063
0064        * Pass Value Pair Data to phiReport
0065        USERDATA = ""
0066
0067        * Base Header Data
0068        USERDATA<1,1,1>  = "txtBillToAddress"     ;   USERDATA<1,1,2>  = BillTo
0069        USERDATA<1,2,1>  = "txtShipToAddress"     ;   USERDATA<1,2,2>  = ShipTo
0070        USERDATA<1,3,1>  = "txtInvoiceNumber"     ;   USERDATA<1,3,2>  = InvNo
0071        USERDATA<1,4,1>  = "txtBillToNo"          ;   USERDATA<1,4,2>  = CustID
0072        USERDATA<1,5,1>  = "txtStoreNumber"       ;   USERDATA<1,5,2>  = "123"
0073        USERDATA<1,6,1>  = "txtInvoiceDate"       ;   USERDATA<1,6,2>  = OCONV(Inv<1>,"D4/")
0074        USERDATA<1,7,1>  = "txtBrokerCode"        ;   USERDATA<1,7,2>  = "1"
0075        USERDATA<1,8,1>  = "txtBrokerName"        ;   USERDATA<1,8,2>  = "Local Sales Rep"
0076        USERDATA<1,9,1>  = "txtOrderNumber"       ;   USERDATA<1,9,2>  = Inv<3>
0077        USERDATA<1,10,1> = "txtTerms"             ;   USERDATA<1,10,2> = "30 Day"
0078        USERDATA<1,11,1> = "txtShipFrom"          ;   USERDATA<1,11,2> = "Plant 01"
0079        USERDATA<1,12,1> = "txtShipVia"           ;   USERDATA<1,12,2> = "UPS"
0080
0081        * Base_Footes Data
0082        USERDATA<1,13,1> = "txtDueOn1"            ;   USERDATA<1,13,2> = OCONV(DATE()+30,"D4/")
0083        USERDATA<1,14,1> = "txtDueOn2"            ;   USERDATA<1,14,2> = OCONV(DATE()+30,"D4/")
0084        USERDATA<1,15,1> = "txtFreight2"          ;   USERDATA<1,15,2> = OCONV(Inv<7>,"MR2")
0085        USERDATA<1,16,1> = "txtDiscount2"         ;   USERDATA<1,16,2> = 10
0086        USERDATA<1,17,1> = "txtTaxRate2"          ;   USERDATA<1,17,2> = 7.5
0087        USERDATA<1,18,1> = "txtCredit2"           ;   USERDATA<1,18,2> = 130.00
0088
```

Line items in the report body are build as part of the data blob. The structure of the blob should match the number of columns defined in the Excel template where each column corresponds to a value.

```
0088
0089        * Line items
0090        Body   = ""
0091        nLines = DCOUNT(Inv<4>,@VM)
0092        nRows  = 0
0093
0094        FOR x=1 TO nLines
0095           ProdID = Inv<4,x>
0096
0097           READ PROD FROM f.PROD, ProdID ELSE PROD = ""
0098
0099           Qty    = Inv<5,x>
0100           UPrice = PROD<4,x>
0101           EPrice = Qty * UPrice
0102
0103           nRows = nRows + 1
0104           Body<nRows,1> = x
0105           Body<nRows,2> = PROD<3>
0106           Body<nRows,3> = ProdID      ;* Product Code
0107           Body<nRows,4> = PROD<1>     ;* Product Descriptions
0108           Body<nRows,5> = Qty
0109           Body<nRows,6> = OCONV(UPrice,"MR2,")
0110           Body<nRows,7> = OCONV(EPrice,"MR2,")
0111
0112           IF x=3 THEN
0113              * For demo purposes, Add some text in the middle of the line item list.
0114              nRows = nRows + 1
0115              Body<nRows,4> = "*** NOTICE ***"
0116              nRows = nRows + 1
0117              Body<nRows,4> = "This product is currently out of stock."
0118              nRows = nRows + 1
0119              Body<nRows,4> = "You will be notified by email as soon as it becomes available."
0120              nRows = nRows + 1
0121              Body<nRows,4> = "Please contact our customer service at (800) 123-4567 for more information."
0122              nRows = nRows + 1
0123              Body<nRows,4> = "Thank you for your understanding."
0124              nRows = nRows + 1
0125           END
0126
0127        NEXT x
0128
0129        WRITE Body ON f.TMP,"InvBlob_":UID:"_":InvNo
0130
0131        END
```

A non-data blob output is generated by a query statement and is restricted to columnar type outputs. The data blob gives us more control over what to output and where and even though our template defines 7 columns, our data blob does not have to provide 7 columns of data. With the data blob we can also dynamically output a variable number of columns from one row to the next.

In our example program, lines 112-125 skips columns 1, 2 and 3 and puts data in column 4. Columns 5, 6 and 7 are left empty to allow the data in column 4 to "bleed" out of its cell.

| 20 | Stock # | Class | Product Code | PRODUCT DESCRIPTION | Qty | Unit Price | Ext.Price |
|---|---|---|---|---|---|---|---|
| 21 | 1 | 200 | 00096 | RCA XL100 Color TV | 10 | 525.00 | 5,250.00 |
| 22 | 2 | 200 | 27030 | Sharp X1000 VCR VHS | 15 | | 0.00 |
| 23 | 3 | 300 | 70124 | Z-135 PC Computer Monitor | 5 | | 0.00 |
| 24 | | | | *** NOTICE *** | | | |
| 25 | | | | This product is currently out of stock. | | | |
| 26 | | | | You will be notified by email as soon as it becomes available. | | | |
| 27 | | | | Please contact our customer service at (800) 123-4567 for more information. | | | |
| 28 | | | | Thank you for your understanding. | | | |

Once the body data is created it is saved in file TMP. The Item Id used is important because it will be used by the query engine to "SELECT" against. In report definition, we need to create query a statement to retrieve all the blobs required for the report.

| Op | Field | Operator | Criteria | Sort | Hide |
|---|---|---|---|---|---|
| | ID | Equals To | InvBlob_%%@USERPORT%%_%%@Invoice Number%% | | ☑ |
| | | | | | ☐ |

It is possible to create a multi-page blob by creating multiple blob items. In this case, we need to make sure that the select statement used to retrieve the blobs can return them in the correct order.

Note: If a report requires a lot of data, it is recommended to create multiple smaller data blobs vs one large data blob. Data blobs are downloaded in one chunk of data which can create performance issues. By default, phiReport downloads non-blob data in packets of about 100k. Blob data greater than 100k should be split into smaller blobs. phiReport does not split data blobs.



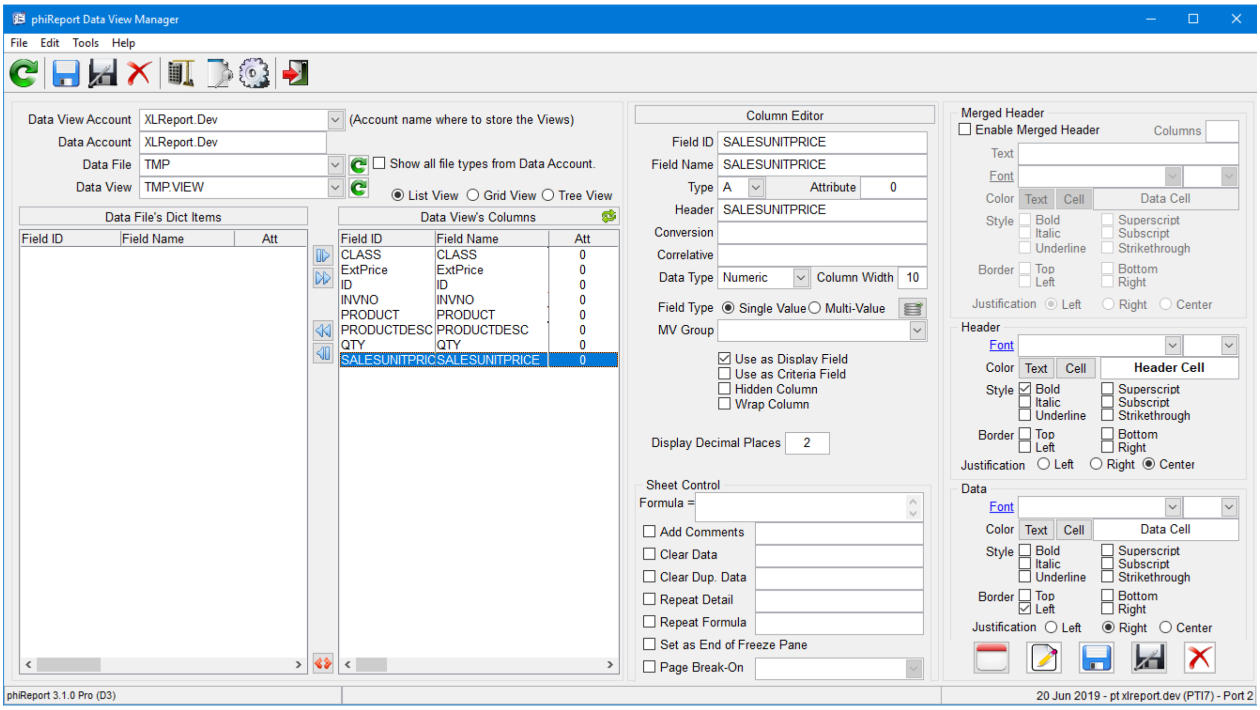
## Report Form Query

Data blobs are used to return data to a report in a "blob" of raw data. Data blobs do not define data types or output formats. In order to properly output the blob data in the desired format on the Excel sheet, we need to define the column properties in the Data View Manager.

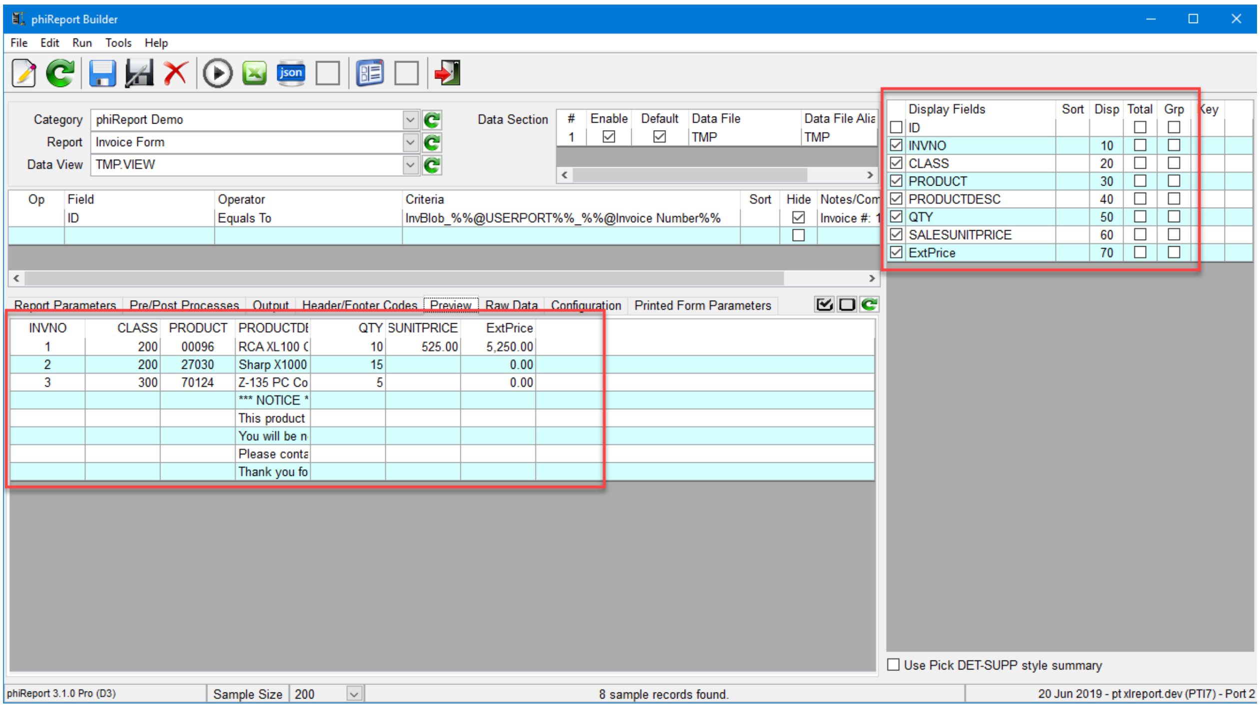
Our template defines 7 columns of data:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 19 | | | | | | | |
| 20 | Stock # | Class | Product Code | PRODUCT DESCRIPTION | Qty | Unit Price | Ext.Price |
| 21 | | | | | | | |
| 22 | | | | | | | |
| 23 | | | | | | | |

The data contains a mix of string and numbers with different formats and justification. Since the data blob does not define column properties, we need to define them in the Data View Manager for the blob file TMP. Data View TMP.VIEW defines the 7 columns data types and format. The column width is ignored because it's defined nby the template.




In the Report Builder we select the 7 columns and order them as defined by the template




When the data in the blob is applied to the template, it will be formated using the definitions in the Data View.



## Run the Report Form

Form Reports are run like any other reports.  You can run them from the Builder (PRRUN), the Query (PRQUERY), TCL (RPTRUNREPORT) or from the API call XL.BuildReport.

When using the API, you can create multiple Forms (1 per sheet) in a single workbook.  See PHIDEMOBP

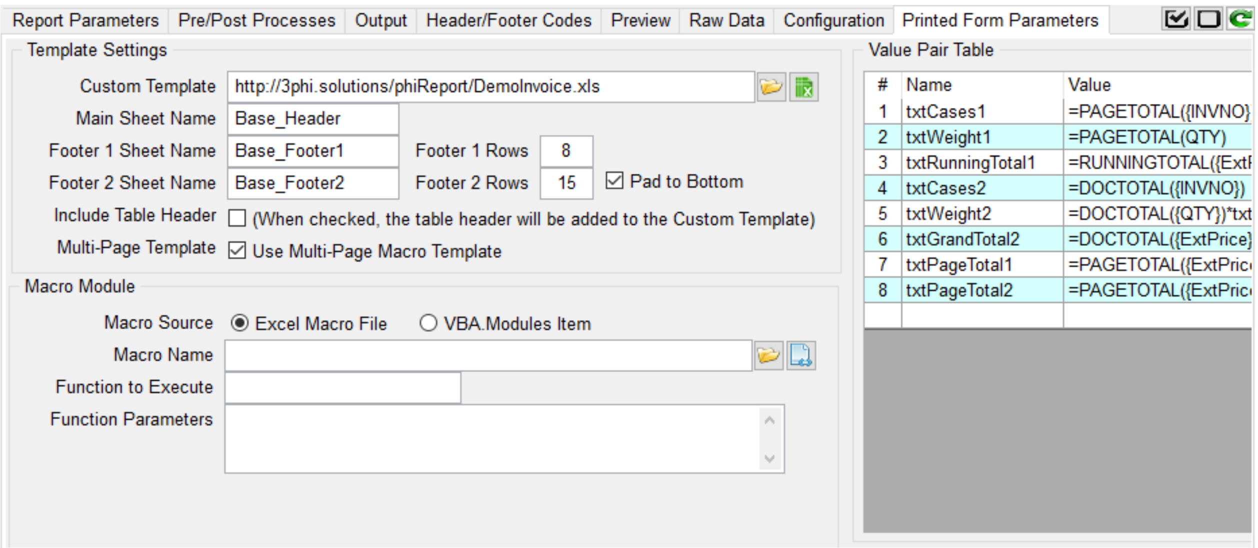
XL.DEMO program.

```
Report2:
       RptCount = RptCount + 1
       ReportName<RptCount>      = "Invoice Form"       ;* Report Name
       RptPrompts<RptCount,1>    = "Invoice Number"     ;* User Prompt defined as %%@Invoice Number%% in Report
       RptPrompts<RptCount,2>    = "12345"              ;* Answer to above user prompt
       RETURN
Report3:
       RptCount = RptCount + 1
       ReportName<RptCount>      = "Invoice Form"       ;* Report Name
       RptPrompts<RptCount,1>    = "Invoice Number"     ;* User Prompt defined as %%@Invoice Number%% in Report
       RptPrompts<RptCount,2>    = "12121"              ;* Answer to above user prompt
       RETURN
```



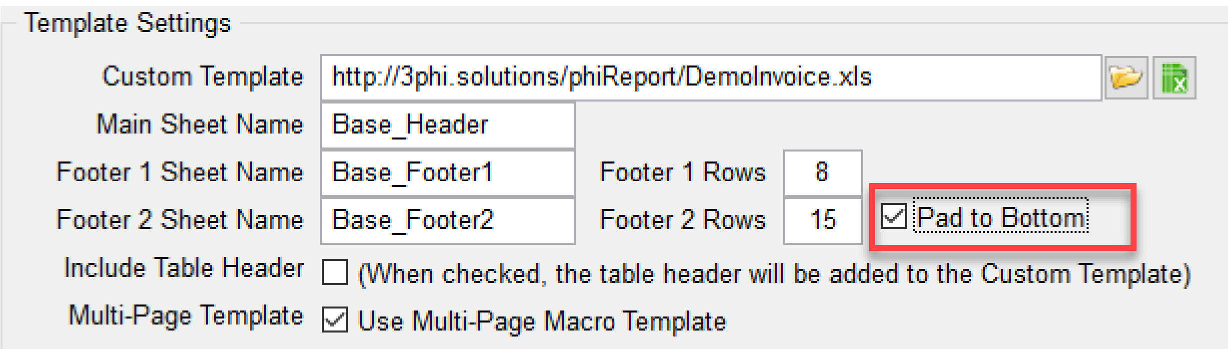
## Report Form Options

Report Form Options Summary




### Template Settings

Custom Template: The full path and name of the report template.
Main Sheet Name, Footer 1/2 Sheet Name: The name of the sheets containing the header, footer 1 and footer 2 templates
Pad To Bottom: The "Pad to Bottom" option adds empty spaces between the last row of data and the last page's footer to allow the template to occupy the entire page, When unchecked, the last page's footer is placed immediately after the last row of data.



# INVOICE

Company

Bill To

Ajax Computer Electronics
615 East 62nd Street
P O Box 45878
New York City, NY 10021

Ship To

Ajax Computer Electronics
615 East 62nd Street
P O Box 45878
New York City, NY 10021

| Remit To | Invoice Number |
|---|---|
| Company Inc.<br>123 Mains St.<br>Irvine, CA 92123 | **12345**<br>When Remitting Please |

| Customer Bill To No. | Store Number | Invoice Date |
|---|---|---|
| 1119 | **123** | **05/31/1988** |

| Broker Code | Broker and/or Salesman Name | Customer PO Number |
|---|---|---|
| 1 | Local Sales Rep | D521 |

| Terms From Date of Invoice | Ship From | Ship VIA |
|---|---|---|
| 30 Day | Plant 01 | UPS |

| Stock # | Class | Product Code | PRODUCT DESCRIPTION | Qty | Unit Price | Ext.Price |
|---|---|---|---|---|---|---|
| 1 | 200 | 00096 | RCA XL100 Color TV | 10 | 525.00 | 5,250.00 |
| | | | This product is currently out of stock. | | | |
| | | | You will be notified by email as soon as it becomes available. | | | |
| | | | Please contact our customer service at (800) 123-4567 for more information. | | | |
| | | | Thank you for your understanding. | | | |

| Cases | TOTALS | Total Qty | | |
|---|---|---|---|---|
| 60 | | 300 | Page Total | 0.00 |
| | | | Running Total | 52,500.00 |
| | | | Discount | 10.00 |
| | | | Freight | 650.20 |
| | | | Tax Rate % | 7.50 |
| | | | Tax Amount | 3,985.52 |
| | | | Credit | 130.00 |
| | | | Total Invoice | **56,995.72** |

Please note any deductions other than discount earned on duplicate copy and return with Remittance. Should deductions represent shortages or damages, enclose a copy of signed delivery receipt.

ORIGINAL Due On: 7/20/2019

Page 5 of 5

INVOICE

Company

| Remit To | Invoice Number |
|---|---|
| Company Inc.<br>123 Mains St.<br>Irvine, CA 92123 | 12345<br>When Remitting Please |

Bill To
Ajax Computer Electronics
615 East 62nd Street
P O Box 45878
New York City, NY 10021

Ship To
Ajax Computer Electronics
615 East 62nd Street
P O Box 45878
New York City, NY 10021

| Customer Bill To No. | Store Number | Invoice Date |
|---|---|---|
| 1119 | 123 | 05/31/1988 |

| Broker Code | Broker and/or Salesman Name | Customer PO Number |
|---|---|---|
| 1 | Local Sales Rep | D521 |

| Terms From Date of Invoice | Ship From | Ship VIA |
|---|---|---|
| 30 Day | Plant 01 | UPS |

| Stock # | Class | Product Code | PRODUCT DESCRIPTION | Qty | Unit Price | Ext.Price |
|---|---|---|---|---|---|---|
| 1 | 200 | 00096 | RCA XL100 Color TV | 10 | 525.00 | 5,250.00 |
| | | | This product is currently out of stock. | | | |
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| Cases | | Total Qty | | |
|---|---|---|---|---|
| 60 | TOTALS | 300 | Page Total | 0.00 |
| | | | Running Total | 52,500.00 |
| | | | Discount | 10.00 |
| | | | Freight | 650.20 |
| | | | Tax Rate % | 7.50 |
| | | | Tax Amount | 3,985.52 |
| | | | Credit | 130.00 |
| | | | Total Invoice | **56,995.72** |

Please note any deductions other than discount earned on duplicate copy and return with Remittance. Should deductions represent shortages or damages, enclose a copy of signed delivery receipt.

ORIGINAL Due On: 7/20/2019

Include Template Header: When checked, the column headers defined in the Data View will be rendered on the template. If the template includes the column headers this should be unchecked.
Multi-Page Template: When checked, the multi-page template with the Smart Paging functions will be included in the final report allowing the Excel Print command to generate correct multi-page forms

**Macro Module**

Complex reports can include custom VBA macro modules to further customize the report output.

# Appendix



## Custom Criteria

Custom criteria are used to dynamically provide criteria values to pre-defined queries.

For example, if you need to run daily or monthly reports you may want the report to "know" what today is or what this month is.  In those cases, you can create your own criteria answers to the prompt.

| Op | Field | Operator | Criteria | Sort | Hide | Notes/Comments |
|---|---|---|---|---|---|---|
| | Date Placed | Equals To | {Today} | | ☐ | |
| | | | | | ☐ | |

Custom criteria are defined by enclosing the Criteria response with curly braces '{ }'. The string between the braces is the name of the custom criteria which are defined in **CustomCrit** file.

The CustomCrit file is created in your work account during the account activation procedure.  This file can be customized as required and takes 3 attributes:

001 Criteria Name.  This is the string displayed between the braces {..}.
002 CritFunction
003 Option

CritFunction values:

| Attribute 1 | Attribute 2 | Attribute 3 | Description |
|---|---|---|---|
| User Port | @PIB | | returns the user's logged |
| Application user | @WHO | | returns the name of the s |
| System  user | @USER | | returns the name of the a |
| Logged on account | @ACCOUNT | | returns teh name of the a |
| Today's date | DATE() | Valid date conversion (D4/, D2-...) | returns today's date. |
| Current time | TIME() | Vate time conversion (MTS, MTH...) | returns current time. |
| Call Subroutine | SUB | Name_of_sub | Call a custom subroutine |
| | | | |
| | | | |

Custom criteria subroutines require a single parameter used to returned the criteria value.

```
SUBROUTINE Crit.LastWeek(Crit)
   *
   * Create your custom criteria
   *
   Crit = OCONV(DATE()-7,"D4/")


RETURN
```

## phiReport Editions

There are 3 phiReport editions:

Lite: Does not require an activation.  Allows you to create reports for preview only.
Pro: Full featured on premise installs.
Cloud: Full featured with MyPickCloud subscription.

φ option is available
✗ option is not available

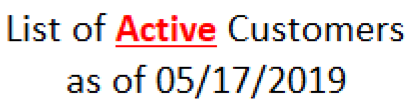
| Edition | Lite | | Pro | Cloud |
|---|---|---|---|---|
| Configuration Program | φ | | φ | φ |
| Email Reports | ✗ | | φ | φ |
| SMTP | ✗ | | φ | φ |
| Local Outlook | ✗ | | φ | φ |
| User Access Control | ✗ | | φ | φ |
| Secure PRCONFIG | ✗ | | φ | φ |
| Secure PRSETUP | ✗ | | φ | φ |
| Secure PRRUN | ✗ | | φ | φ |
| Secure PRQUERY | ✗ | | φ | φ |
| Secure Data Views | ✗ | | φ | φ |
| Secure Reports | ✗ | | φ | φ |
| Secure Category | ✗ | | φ | φ |
| REST Data Services | ✗ | | φ | φ |
| JSON Services | ✗ | | Add-On | Add-On |
| Odata Services | ✗ | | Add-On | Add-On |
| Data View Manager | ✗ | | φ | φ |
| Support Q-File[1] | ✗ | | φ | φ |
| DICTionnary Editor | ✗ | | φ | φ |
| Sheet Control | ✗ | | φ | φ |
| Merged Header | ✗ | | φ | φ |
| phiReport Builder | φ | | φ | φ |
| Report from Data Views | ✗ | | φ | φ |
| Report from Data Files | φ | | ✗ | ✗ |
| Multi-Data Files | φ | | φ | φ |
| Report Category | φ | | φ | φ |
| Report Definition | φ | | φ | φ |
| Report Preview | φ | | φ | φ |
| Report Pre-Process | ✗ | | φ | φ |
| Report Post-Process | ✗ | | φ | φ |
| Create Excel Workbook | ✗ | | φ | φ |
| Send to Windows Printer | ✗ | | φ | φ |
| Save As PDF, HTML | ✗ | | φ | φ |
| Email Reports | ✗ | | φ | φ |
| RAW TCL Commands | φ | | φ | φ |
| Data Blob Data Source | φ | | φ | φ |
| Pre-Printed Forms | ✗ | | φ | φ |
| JSON Service Preview | ✗ | | Add-On | Add-On |
| OData Service Preview | ✗ | | Add-On | Add-On |
| phiReport Query | ✗ | | φ | φ |
| Report Preview | ✗ | | φ | φ |
| Multi-Data Files | ✗ | | φ | φ |
| Create Excel Workbook | ✗ | | φ | φ |

1. Q-File is not supported on UniData



## Row Header Text Markup

The Row Header Text is a multi-line header that spawns across the entire width of the report. It can optionally be repeated on every page of the report. The text can be customized to enhance the presentation of your report.




Tags are used the the same way as HTML tags, i.e.: an open <TAG> must be closed with an end </TAG>.

The following markup tags are available to customize your header text:

<B></B> Bold
<I></I> Italic
<U></U> Underline
<DU></DU> Double-underline
<UA></UA> Underline-accounting
<DUA></DUA> Double-underline-accounting
<ST></ST> Strike-through
<SB></SB> Subscript
<SP></SP> Superscript

**Fonts**

<FS:</FS> Font Size => <FS:18>xxx</FS> Enter any valid font size
<FT:></FT> Font Type => <FT:Arial>xxx</FT> Enter the name of any valid fonts.
<FC:></FC> Font Color => <FC:ColorCode>xxxx</FC> Enter a color code. Three types of color codes are supported.

Color Codes:

1. Basic color names. Valid names are: BLACK, RED, GREEN, YELLOW, BLUE, MAGENTA, CYAN, WHITE
   <FC:RED>...</FC>

2. HTML Hex Color codes. These start is '#' followed by 8 hex digits. Ex: #2C1510. Visit https://htmlcolorcodes.com/ for a full color palette
   <FC:#2C1510>...</FC>

3. RGB (Red, Green, Blue) values. Each value can be with the 0..255 range. Visit https://rgbcolorcode.com/ for samples
   <FC:(44,16,21)>...</FC>

# System Replacement Tokens

System Replacement Tokens are pre-defined tokens that can be used in your reports.

| Token | Description | Database Equivalent |
|---|---|---|
| USERPORT | User's current port | @PIB, @USERNO, @USERSTATS<1> |
| USERWHO | User's name | @USER, @AUTHORIZATION, @USERSTATS<6> |
| USERACCOUNT | Currently logged on Account name | @ACCOUNT, @WHO , @USERSTATS<5> |
| DATE | Date MM/DD/YYYY | D4/ |
| TIME | Time hh:mm:ss | MTH |
| IDATE | Internal date | |
| ITIME | Internal time | |
| ACCOUNT | Currently logged on Account name | D3, QM, UV: @ACCOUNT |
| USERNO | User's current port | QM, UB, jBASE: @USERNO |
| WHO | User's name | @WHO |
| SYSTEM(xx) | SYSTEM() function where xx = the function number | |
| @WHIO | | @WHIO |
| @ACCOUNT | | @ACCOUNT |
| @LOGNAME | | @LOGNAME |
| @TIME | | @TIME |
| @DATE | | @DATE |
| @DAY | | @DAY |
| @MONTH | | @MONTH |
| @YEAR | | @YEAR |
| {custom crit} | | Custom Criteria defined in CustomCrit |
| | | |