



# WHAT'S NEW IN PXPLUS 2020 - 2024

DireXions 2024

# AGENDA

Language Enhancements

Graphical Enhancements

Webster+

File Maintenance Generator

Chromium Browser

Data Dictionary

Editors



# LANGUAGE ENHANCEMENTS





# DIRECTIVES

# DIRECTIVES - NEW

DIRECTIVE	Description
<b><u>DUMP DISABLE</u></b>	<p>New DUMP DISABLE directive is used if you do not want a variable to be displayed during a DUMP operation.</p> <pre>def class "user"   property name\$   local password\$   function checkPassword(checkPassword\$)checkPassword end def</pre> <p>on_create:   enter name\$,password\$  <b>dump disable password\$</b>   password\$=hsh(password\$,512)   return</p> <p>checkPassword:   enter checkPassword\$   if hsh(checkPassword\$,512)=password\$ \     then return 1   return 0<p>Above example uses <b>DUMP DISABLE</b> to hide the password property from the dump</p></p>

# DIRECTIVES - NEW

DIRECTIVE	Description
<a href="#">REDIM INSERT</a> <a href="#">REDIM DELETE</a>	<p>New REDIM INSERT directive is used to insert either a single element at the specified index or a range of elements. New REDIM DELETE directive is used to delete the specified index or range of indices.</p> <p>Note: Insert/Delete Directives do not work on associative arrays</p> <pre>dim X[5] X[2]=2,X[3]=3 print X[all] 0 0 2 3 0 0</pre> <p><b>redim insert X[3:1]</b> ! Insert one element at Index 3</p> <pre>X[3]=99 print X[all] 0 0 2 99 3 0 0</pre> <p><b>redim delete X[4:1]</b> ! Delete element at position 4</p> <pre>print X[all] 0 0 2 99 0 0</pre>

# DIRECTIVES - NEW

DIRECTIVE	Description
<a href="#"><u>DEF ENV</u></a>	<p>New directive allows you to add, change or delete environment variables from the current process and any subsequent spawned process.</p> <p><b>DEF ENV</b>(<i>name</i>\$) = <i>value</i>\$</p> <p><b>def env("PATH") = "/usr/bin:/usr/local/bin"</b> ! Adds or changes the PATH environment variable</p>

# DIRECTIVES - UPDATED

DIRECTIVE	Description
<a href="#">OPEN</a>	<p>New <a href="#">OPEN Dependency option</a> added to OPEN directive. It allows for linking of objects to other system components</p> <p>OPEN(..... FOR WINDOW) OPEN(..... FOR CONTROL <i>ctlid</i>) <i>ctlid</i> - control identifier that will be linked to object OPEN(..... FOR FILE <i>fileno</i>) <i>fileno</i> - file number that will be linked to object OPEN(..... FOR OBJECT [ <i>objid</i> ] ) <i>objid</i> - object identifier OPEN(..... FOR PROGRAM)</p>
<a href="#">KEYED</a>	<p>New <a href="#">OPT="N"</a> file option that enables the <a href="#">'NK'</a> system parameter on a file. OPT="n" disables it.</p> <p>keyed "testfile",[1:1:6],0,0,opt="N"</p>



# DIRECTIVES - UPDATED

DIRECTIVE	Description
<a href="#">CALL</a> <a href="#">PERFORM</a>	<p>New WITH clause option. Variable can be either a numeric or string which will be initialized with the value from the expression prior execution of the called or performed program.</p> <p>CALL subprog\$[;entry\$][,ERR=stmtref][,arglist...] [<b>WITH variable=expression, ...</b>]</p> <p>PERFORM subprog\$[;entry\$] [<b>WITH variable=expression, ...</b>] [,ERR=stmtref]</p> <p><a href="#">OOP Methods</a> - enhanced to provide named parameters When invoking an object method/function, the caller may include one or more values to be pre-initialized in the method using <b>WITH variable=expression</b></p> <pre>DEF CLASS "Sample" PROPERTY VALUE FUNCTION ADDVALUE(X) Y=_OBJ'VALUE+X RETURN Y END DEF OBJ1=NEW("Sample") ! Create an instance of the Sample class OBJ1'VALUE=10 ! Set the Value property RESULT=OBJ1'ADDVALUE(5 <b>WITH X=15</b>) ! Call the method using WITH to set X to 15  PRINT RESULT ! Print the result 25</pre>

# DIRECTIVES - UPDATED

DIRECTIVE	Description
<a href="#">DEF CLASS</a>	<p>New <a href="#">ACCEPT UNDEFINED</a> option similar to ACCEPT PROPERTIES functionality except that ACCEPT PROPERTIES will not allow you to read a property that has never been defined whereas using ACCEPT UNDEFINED instead will return a null string or zero.</p> <p><b>Example</b></p> <pre>def class "MyClass" <b>accept undefined</b>   property NAME\$, AGE, CITY\$ end def</pre> <p>obj = new("MyClass") ! Creating an instance of MyClass</p> <p>! Accessing properties before they are explicitly defined</p> <pre>print obj'NAME\$ ! Returns a null string "" instead of an error print obj'AGE ! Returns 0 instead of an error</pre>

# DIRECTIVES - UPDATED

DIRECTIVE	Description
<a href="#">ADD INDEX</a> <a href="#">DROP INDEX</a>	<p>Directives now support the use of an open file channel to a keyed or memory file.</p> <p>ADD INDEX keydescription\$ TO <b>filespec</b> [,ERR=stmtref] DROP INDEX {keynumber   keyname\$} FROM <b>filespec</b> [,ERR=stmtref]</p> <p><b>filespec</b> - Can be a numeric expression indicating the open channel number to use or a string expression containing the pathname of the file to which the key will be added. If using the file channel, and if it is a keyed file, the channel must be locked.</p>



# OBJECTS

# OBJECTS - NEW

OBJECT	Description
<a href="#">Google WorkSpace</a>	<p>New Objects to work with Google cloud-based applications – Drive, Docs, Sheets</p> <p><a href="#">Google Auth</a> - authorize Google Workspace Objects <a href="#">Google Drive</a> - object to work with Drive <a href="#">Google Docs</a> - object to work with Docs <a href="#">Google Sheets</a> - object to work with Sheets</p>
<a href="#">Example Objects</a>	<p>Created sample objects to help with developing REST-based cloud services</p> <p><a href="#">PayPal</a> <a href="#">Salesforce</a></p>

See 'Google Workspace Objects' PDF  
for more details

See 'Paypal and Salesforce Examples' PDF  
for more details



# OBJECTS - NEW

OBJECT	Description
<a href="#">*OBJ/IMAGE</a>	<p>New object to create an image on Windows or UNIX/Linux. Supports creation of png, jpg, jpeg images.</p> <pre>imgObj=new("*obj/image","newbug.png","",150,1500,1500) imgChn=imgObj'ImageChannel print (imgChn)'font("Arial",-12) print (imgChn)'text(@x(=1),@y(=300),@x(=500),@y(=350),"Squish") print (imgChn)'picture(@x(=1),@y(=500),@x(=500),@y(=1000),"bug.png",2) drop object imgObj</pre>

# OBJECTS - NEW

OBJECT	Description
<a href="#">*OBJ/ARRAYLIST</a>	<p>New object to create and work with an array list. An array list is a dynamically resized data structure that allows elements to be Get/Set via index. Examples of an array list are vector (c++) and arrayList (java) data structures.</p> <p>myList = <b>new</b>("*obj/ArrayList") ! Create new arraylist</p> <p>myList.Append("Apple") ! Append some values to the array list myList.Append("Orange") ! Append some values to the array list</p> <p>newfruit\$="Pear" myList.Insert(1,newfruit\$) ! Insert a new element to front of list</p>

# OBJECTS - UPDATED

OBJECT	Description
<a href="#">*OBJ/CHART</a>	<p>New Chart properties</p> <p><a href="#">ChartColor\$</a> - list of colors to apply when plotting different datasets of a chart.</p> <p><a href="#">NoChartDots</a> - suppress the small dots that mark the data points on Area and Line charts when set. Plus Charts only.</p> <pre>oChart = NEW("*obj/chart" FOR PROGRAM) oChart'Fmt\$ = "2DLine" oChart'Sep\$ = "," oChart'Load("A=120,150,180,200/B=100,130,160,190/") oChart'PointText\$ = "2018/2019/2020/2021/" oChart'NoChartDots = 1 ! Set chart with no dots oChart'Draw(0, 5, 5, 20, 10)</pre>
<a href="#">*OBJ/OAUTH2</a>	<p>New support for self-hosting the <a href="#">oAuth2 Agent</a></p> <p>Self-hosting may be desirable if you want to avoid relying on the PVX Plus servers being up or if you want to improve security.</p>

See 'oAuth2 Secure Web Services' PDF  
for more details

# OBJECTS - UPDATED

OBJECT	Description
<a href="#">*SECURE</a>	<p>New Methods and Properties added to support Two-Factor Authentication</p> <p>TFA_State\$ property</p> <p>Two-Factor Authentication (TFA) state:</p> <ul style="list-style-type: none"><li>Y - Enabled</li><li>N - Disabled</li><li>O - Optional by user</li></ul>
<a href="#">Folder Object</a>	<p>New Methods added for controlling the active tab for Sidebar folders</p> <p><a href="#">GetActiveTabWidth()</a> - returns tab width of active tab</p> <p><a href="#">SetActiveTabWidth(AW)</a> - sets width of active tab to the active width. Default is .9 wider than the active tab to make it stand out</p>

# OBJECTS - UPDATED

OBJECT	Description
<p><a href="#">*OBJ/EXCEL</a></p> <p><a href="#">*OBJ/WORD</a></p>	<p>New properties and methods</p> <p><a href="#">Keep_Visible</a> property keeps the application active and visible when the object is dropped</p> <pre>X=NEW("*obj/excel") X'keep_visible=1</pre> <p><a href="#">SetFont()</a> method added to support various new font settings</p> <p>font\$="Arial,12, Italic" - sets the font name and size and adds italics to the text in the range font\$="Arial,10, Bold, Underline-" - sets the font name and size, adds bolding and removes any underlining</p> <pre>SetFont(font\$)</pre> <p><a href="#">SetNumFormat()</a> method for Excel sets a numeric format for a specified range of the worksheet</p> <pre>SetNumFormat(<b>format\$</b>,cells\$,worksheet)</pre> <p><b>format\$</b> can be a number, currency, date, etc.</p>



# OBJECTS - UPDATED

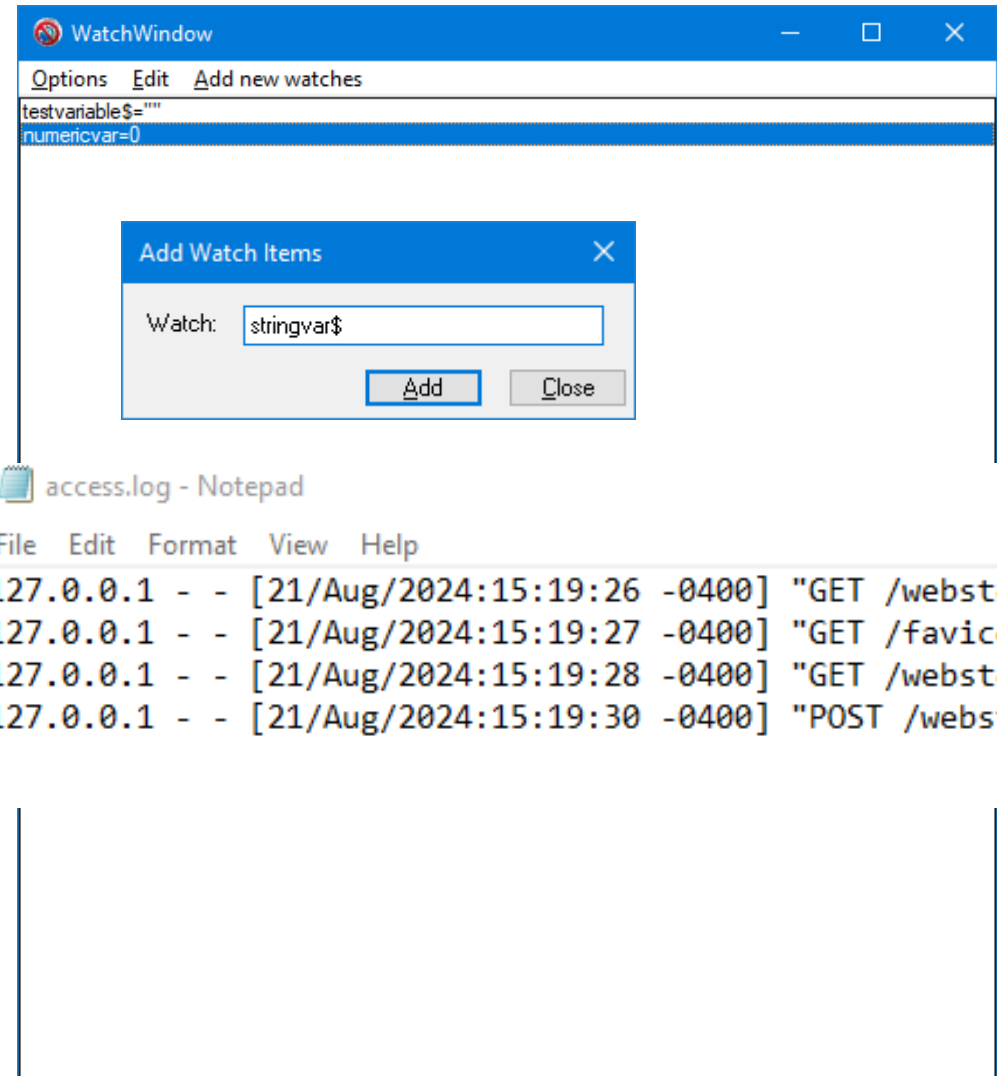
OBJECT	Description
<a href="#">*OBJ/EXCEL</a>	New worksheet show and hide methods for Excel  <a href="#">WorksheetHide()</a> hides the specified worksheet which can be made visible via menu <a href="#">WorksheetVeryHide()</a> hides the specified work sheet so that it's not visible via menu <a href="#">WorksheetVisible()</a> makes the specified worksheet visible
PVXDb	Added <a href="#">IsReadOnly</a> option to indicate a read-only or locked element

# DEBUGGING/TROUBLE SHOOTING

- PxPlus Debugging Environment Enhancements
  - New 'Add new watches' and 'Add new breaks' top level menus were added to Watch Window and Break Window
  - Ability to enter Multiple [Watch Variables](#) and [Break Points](#) to the current debug Window
- Specify the maximum [PxPlus Log File](#) size in MB
- New [Accesslog](#) directive added to EZWeb. Similar to the log used in Apache

```
accesslog "ezweb_logs/access.log"
```

  - Once created, EZWeb server will record starts or stops, as well as any errors
- [\\*BROWSER Debug](#) mode allows the browser developer console to be displayed in a popup window
  - Debug mode can be set using the [BrowserDebug](#) parameter in the INI file or setting the [BrowserDebug](#) OPTION mnemonic



The image shows two windows from a debugging environment. The top window is titled 'WatchWindow' and has a menu bar with 'Options', 'Edit', and 'Add new watches'. It contains a list of watch variables: 'testvariable\$=""' and 'numericvar=0'. An 'Add Watch Items' dialog box is open over it, with a 'Watch:' field containing 'stringvar\$' and 'Add' and 'Close' buttons. Below this is a 'Notepad' window titled 'access.log - Notepad' showing a log file with the following content:

```
File Edit Format View Help
127.0.0.1 - - [21/Aug/2024:15:19:26 -0400] "GET /webster.pxp
127.0.0.1 - - [21/Aug/2024:15:19:27 -0400] "GET /favicon.ico
127.0.0.1 - - [21/Aug/2024:15:19:28 -0400] "GET /webster.pxp
127.0.0.1 - - [21/Aug/2024:15:19:30 -0400] "POST /webster.px
```

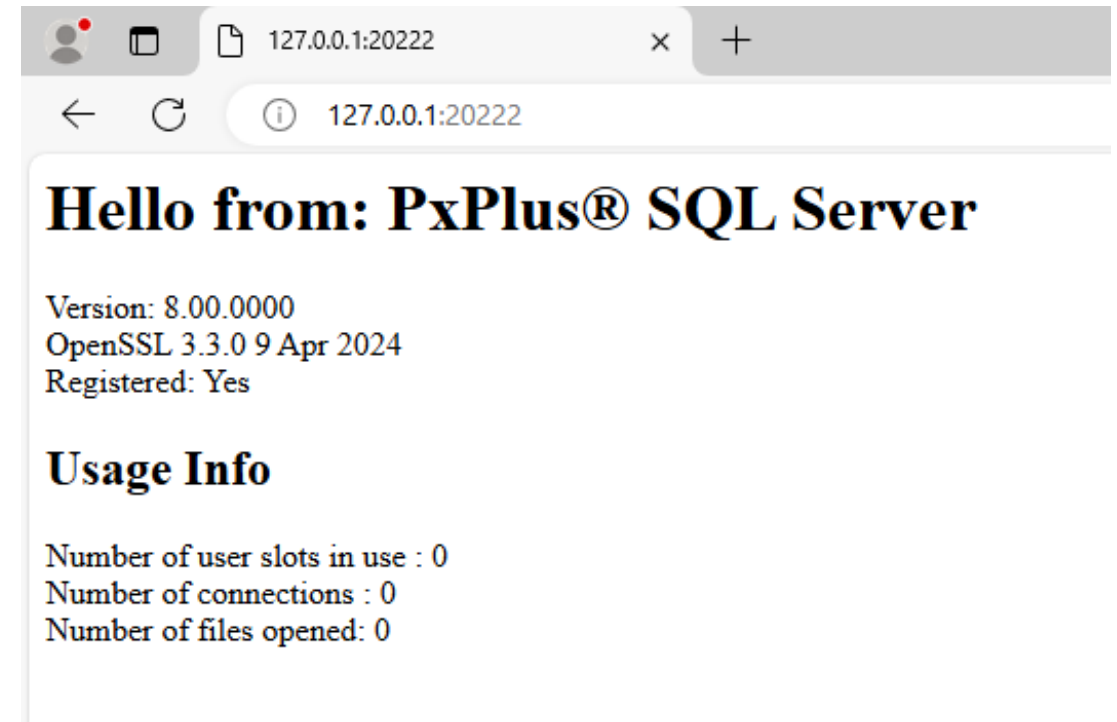
# DEBUGGING/TROUBLESHOOTING

- Troubleshooting Connection Problems with PxPlus SQL Server
  - Display an Info Page in a Web browser

- **Example**

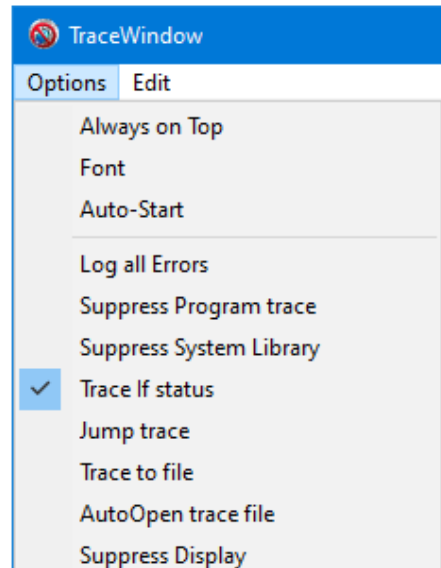
Browser bar > sql\_server\_ip:server\_port

For a server on 127.0.0.1, port 20222  
http[s]://127.0.0.1:20222



# DEBUGGING/TROUBLESHOOTING

- WINDX Tracing
  - Ability to forward the output of IF Tracing
  - Capability to display colored trace lines in the host trace output
    - SET\_PARAM 'IT'
    - Set Trace If status



```
TraceWindow
Options Edit
: 0123 FIND_FILE_ID:
: 0124 IF NUL(FILE_ID$) THEN LET FILE_ID$=ARG(-1); IF is_write THEN SERIAL FILE_ID$,ERR="RETURN; F
If: NUL(FILE_ID$) ! False
: 0130 !
: 0131 LET n$="PxPlus"; READ DATA FROM ENV(-1,ERR="NEXT"),SEP="." TO n$
: 0133 !
: 0134 LET d=POS("V":FILE_ID$,-1)
: 0135 IF d<>0 THEN LET d$=FILE_ID$(1,d-1); LET FILE_ID$=FILE_ID$(d+1) ELSE IF TCB(82)>=0 THEN LET c
If: d<>0 ! False
If: TCB(82)>=0 ! True
: 0144 !
: 0145 LET FILE_ID$=d$+DLM+FILE_ID$
: 0146 !
: 0147 IF NOT(is_write) OR PTH(FILE_ID$,ERR="NEXT")<>"" THEN RETURN
If: NOT(is_write) OR PTH(FILE_ID$,ERR="NEXT")<>"" ! True
: 0075 !
: 0076 IF NUL(SECT_ID$) OR NUL(ITEM_ID$) THEN EXIT 46
If: NUL(SECT_ID$) OR NUL(ITEM_ID$) ! False
: 0078 !
: 0079 IF TCB(82)<0 THEN GOSUB UNIX_PROCESS ELSE GOSUB WINDOWS_WRITE
If: TCB(82)<0 ! False
: 0085 WINDOWS_WRITE
```

# PERFORMANCE IMPROVEMENTS

- All executables and libraries now built with the latest C/C++ compiler and optimizations
- Faster JSON loading
- Improved the performance of the `*plus/web/request` when host returns "chunked" data



# PXPLUS WIKI

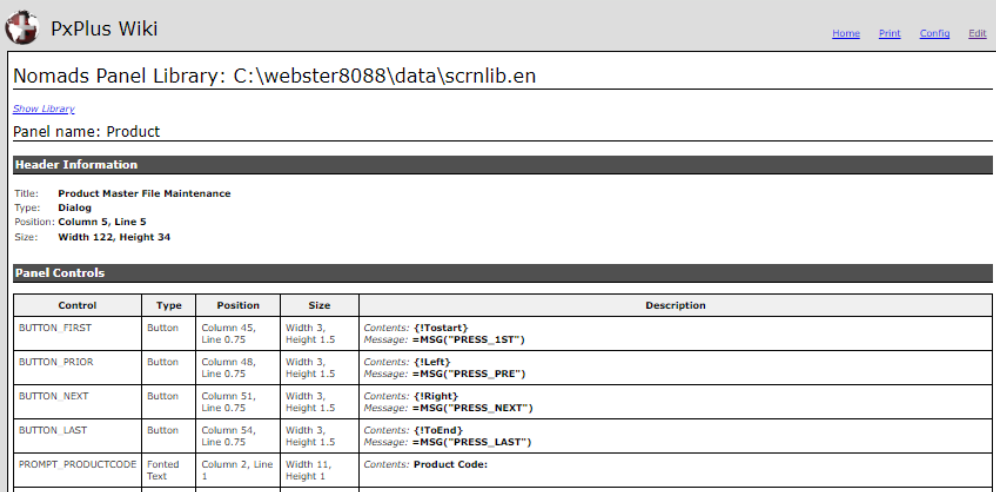
## [PxPlus Wiki](#)

- A PxPlus Wiki was added for maintaining application documentation
- The Wiki is a documentation system that provides an easy way to prepare and maintain product documentation
- Standards are based on Wikipedia and MediaWiki
- In NOMADS, Wiki Help can be used to display additional Help documentation
- In Webster+, the Wiki Interface can also be used to display information
- The Wiki Web service can be invoked using the following URL:  
**[http\(s\)://www.your\\_web\\_site.com/services/pxpwiki.pxp](http(s)://www.your_web_site.com/services/pxpwiki.pxp)**

See 'NOMADS Panel Designer Enhancements' PDF  
for more details

### PxPlus Wiki Services

- Wiki can be used to provide developer documentation
  - Displays data dictionary table information in Data Dictionary Maintenance and webster+ inspector
  - Displays panel header and panel controls information for a selected panel in all screen designers
  - EZWeb server is automatically started to display the pages
  - By default, the Wiki system is installed and maintained in the Wiki page control file (*pxpwiki.dat*)



The screenshot shows the PxPlus Wiki interface. At the top, it says 'PxPlus Wiki' with navigation links for Home, Print, Config, and Edit. Below that, it displays 'Nomads Panel Library: C:\webster8088\data\scrlib.en' and a 'Show Library' link. The main content area shows 'Panel name: Product' and a 'Header Information' section with the following details: Title: Product Master File Maintenance, Type: Dialog, Position: Column 5, Line 5, Size: Width 122, Height 34. Below this is a 'Panel Controls' table with columns for Control, Type, Position, Size, and Description.

Control	Type	Position	Size	Description
BUTTON_FIRST	Button	Column 45, Line 0.75	Width 3, Height 1.5	Contents: {!ToStart} Message: =MSG("PRESS_1ST")
BUTTON_PRIOR	Button	Column 48, Line 0.75	Width 3, Height 1.5	Contents: {!Left} Message: =MSG("PRESS_PRE")
BUTTON_NEXT	Button	Column 51, Line 0.75	Width 3, Height 1.5	Contents: {!Right} Message: =MSG("PRESS_NEXT")
BUTTON_LAST	Button	Column 54, Line 0.75	Width 3, Height 1.5	Contents: {!ToEnd} Message: =MSG("PRESS_LAST")
PROMPT_PRODUCTCODE	Fonted Text	Column 2, Line 1	Width 11, Height 1	Contents: Product Code:



# FUNCTIONS

# FUNCTIONS - NEW

FUNCTION	Description
<a href="#">DEG()</a>	<p>Converts angle in radians to degrees</p> <pre>aRad=1 PI=3.141592654 degRad=deg(aRad) degPI=deg(PI)  print degRad 57.3  print degPI 180</pre>
<a href="#">RAD()</a>	<p>Converts degrees to radians</p> <pre>aDeg=1 halfCircle=180 radDeg=rad(aDeg) PI=rad(halfCircle)  print radDeg 0.02  print PI 3.14</pre>

# FUNCTIONS - UPDATED

FUNCTION	Description
<a href="#">CVS()</a>	<p>New <a href="#">LINK</a> and URL? formats</p> <p><a href="#">LINK</a> - Same as URL but does not translate '/' (slash) to %2F.</p> <p><a href="#">URL?</a> - Same as URL but does not translate either '/' (slash) or ? (question mark) until a ? is found in the string. After the ? (question mark), / (slash) becomes %2F and ? (question mark) becomes %1F as in the URL conversion.</p>
<a href="#">FIB()</a> <a href="#">FIN()</a>	<p>Key information is now returned on external database tables.</p> <pre>x\$=fin(chan) kno_num=dec(x\$(85,1)) key_def\$=X\$(86,128)</pre>
<a href="#">LNO()</a>	<p>New 'Passing a String Expression' format can be used whenever a statement number or label is used after a GOTO, GOSUB, ERR=, etc. The <b>LNO</b> function will evaluate the string expression and use that to find and return the line reference to be used:</p> <pre>GOTO LNO("EVENT "+_EVENT\$,ERR=*NEXT) ! _event\$ is Image pressed</pre> <p>EVENT_IMAGE_PRESSED:</p>
<a href="#">NUM()</a>	<p>Added support for scientific notation. <a href="#">NUM</a> function converts scientific notation either with or without the + after the E (i.e. 0.2E10 = 0.2E+10)</p> <pre>a=num("0.2E+10")  print a 2000000000</pre>

# FUNCTIONS - UPDATED

FUNCTION	Description
<a href="#">TCB(WINDOW)</a>	<p>Added <a href="#">::name</a> option to provide ability to access information for window attributes</p> <pre>TCB(WINDOW index [<b>::name</b>] [,ERR=stmtref])</pre> <pre>X = TCB(WINDOW 1) TCB(WINDOW X::Columns)</pre> <p>Above example returns width of current window</p>
<a href="#">TCB()</a>	<p>Added <a href="#">"OpenSSL Version"</a> keyword to determine version of OpenSSL and new TCB(47) value</p> <pre>print tcb("openssl_version") OpenSSL 3.3.0 9 Apr 2024</pre> <pre>TCB(47)</pre> <p>Returns the maximum number of lines/columns that the system can support (254 or 620, depending on the release you are using and activation levels)</p>



# 'OPTION' MNEMONICS - NON-GRAPHICAL

OPTION	Description
<a href="#">BrowserDebug</a>	<p>New Option to set the browser developer console to display in a popup window for any subsequently created <a href="#">*BROWSER</a> controls. Set to "1", "Y" or "y" to display.</p> <pre>PRINT 'OPTION'("BrowserDebug","1")</pre>
<a href="#">Copy 1Line NoCR</a>	<p>New Option controls the system built-in text Copy functionality. When set to "1" or "YES" and the text being copied consists of only one line, no trailing line feed will be appended to the text.</p>
<a href="#">DateFmt</a>	<p>New Option allows you to change the Date format to be used on the specified channel open to a database connection. Cannot be used with a native file.</p> <pre>PRINT (channel), 'OPTION'("DATEFMT","YYYYMMDD")</pre>



# PARAMETERS

# PARAMETERS

Parameter	Description
<a href="#">'BD'</a>	New system parameter controls whether Windows GDI+ is used to provide smoother curved and angled lines when the following shapes are drawn: Arc, Ellipse, Pie, Line and Polygon. Default On - Windows GDI+ will be used
<a href="#">'CR'</a>	New system parameter controls whether trailing CR (\$0d\$) will be stripped from text files that were created in Windows and subsequently copied to UNIX/Linux. (UNIX/Linux Only) Default Off - Trailing CR (\$0D\$) will be stripped
<a href="#">'SB'</a>	As of PxPlus 2021, this parameter is now set to On. By default, UNIX/Linux locks records by file and process, not by channel number. This can cause unexpected results if you lock a record on one channel and access it on another. (UNIX/Linux Only)
<a href="#">'E'</a>	New system parameter will cause the ESCAPE directive to generate an internal MSGBOX showing the current program, line number, ERR, RET, FFO, and LFA before dropping to console mode. Default setting is Off; however, it is enabled by default when running Webster+
<a href="#">'TC'</a>	New Option -3 added to use TipColor setting for non-HTML tips. If 'TC' is set to -3 but the TipColor setting is not defined, the default Windows color will be used.
<a href="#">'TI'</a>	System parameter controls whether the system will use the transparent PNG versions of the internal images or the legacy bitmap internal images. Default On - PNG transparent internal images will be used
<a href="#">'SZ'</a>	Defines the maximum memory that the session is allowed to use. Increased the default memory limit from 32MB to 64MB for PxPlus 2024. Default 'SZ'=64000

# PARAMETERS

Parameter	Description
<u>'*E'</u>	<p>New system parameter forces PxPlus to mandate that, when converting a string that may contain a numeric value in scientific notation (e.g. 1.2E+10), there <b>must</b> be a <b>+</b> (<i>plus</i>) sign following the E.</p> <p>Default Off - PxPlus will accept numbers in scientific notation with or without a sign. If the sign is not present, PxPlus will assume a positive exponent.</p> <pre>x\$="1E10" y\$="1E+10" print num(x\$) 10000000000 print num(y\$) 10000000000</pre> <pre>set_param '*e' print num(x\$) Error #26: Variable type invalid print num(y\$) 10000000000</pre> <p><b>Note: If your application is processing JSON data, this parameter should be Off.</b></p>



# INI CONTENTS

# PXPLUS INI CONTENTS

INI Parameter	Description
<a href="#">NoTLSv1.3</a>	Disables TLSv1.3 support.
<a href="#">BrowserDebug</a>	Controls whether or not the browser developer console will display in a popup window or any subsequently created <a href="#">*BROWSER</a> controls.
<a href="#">TipColor</a>	Defines the color for non-HTML tips. Setting this option sets the <a href="#">'TC'</a> system parameter to -3.





# UTILITIES AND OTHER COMMANDS

# UTILITIES - NEW

**\*TOOLS/COPYDIR** - Copies a directory and its contents

**CALL** `"*tools/copydir"`, source\_dir\$, dest\_dir\$, recursive

## Example

CALL `"*tools/copydir","myData/","backup/",1`

**\*TOOLS/REGEXSUB** - Performs regular expression substitution similar to Apache RedirectMatch

**CALL** `"*tools/regExSub"`, input\$, mask\$, replacement\$, output\$

## Example

CALL `"*tools/regExSub","http://www.devdaily.com/handler.php?cat=java&article=1001",  
"/handler\.php\?cat=(.*)&article=(.*)", "http://www.devdaily.com/%1/%2",output$`

## Where:

output\$ will be `"http://www.devdaily.com/java/1001"`



# UTILITIES - NEW

**\*MAP** - Uses the Google Maps interface to display a popup window on the screen with the address specified

**CALL** `"*map", street$, city$, state$, country$`

**Note:** Google API key will be required

## Example

**CALL** `"*map", "25 Centurian Blvd.", "Markham", "Ontario", "Canada"`

**\*TOOLS/HOSTTEST** - Used to test your system to confirm that WindX can spawn a subordinate task (\*plus/spawn )

**CALL** `"*tools/hosttest"`

**\*TOOLS/CHARTIMAGE** - New format to retrieve Chart Definition

**CALL** `"*tools/chartimage;GetChartInfo", ERR=stmtref, query$, library$, chart$, object`

# UTILITIES – NEW

**\*TOOLS/SYSTEMANALYSIS** - Analyzes the PxPlus installation and setup. It runs tests and reports any issues found

**CALL** `"*tools/systemanalysis",results$,htmlOutput`

Available in both graphical and text mode.

See 'File Maintenance Generator' PDF  
for more details

**\*TOOLS/UTCOFFSET** - Gets the UTC offset for the local time zone for a given date

**CALL** `"*tools/utcoffset",date$,outpututcoffset`

## Example

```
call "*tools/utcoffset","2024-11-30",newOffset
```

```
print "UTC offset is "+str(newOffset/60/60)+" hours."
```

UTC offset is 5 hours.

# UTILITIES - NEW

**\*TOOLS/READFILE** - Reads the entire binary contents of a file and returns the data in the output string

**CALL** `"*tools/readfile",filename$,outputfiledata$`

## **Example**

`call "*tools/readfile","addresses.xml",addressxml$`

Reads the file addresses.xml and outputs contents to addressxml\$

# UTILITIES - NEW

**\*TOOLS/QRYEXPORT** - Creates an export file (.csv, .slk, .txt or .xml) based on a query definition

**CALL `"*tools/qryexport"`**, queryName\$, queryLib\$, exportfile\$ [, queryopts\$, show\_flg\$]

**\*TOOLS/QRYPRINT** - Prints a PDF report based on a query definition

**CALL `"*tools/qryprint"`**, queryName\$, queryLib\$, pdffile\$ [, queryopts\$, show\_flg\$, subheader\$]

See 'NOMADS Query Enhancements' PDF  
for more details

# UTILITIES - NEW

**\*TOOLS/CONVERTHTMLCOLOR** - Converts HTML color names into Hex colors

**CALL** `"*tools/converthtmlcolor",htmlcolorname$,outputhexcolor$`

**Example**

```
call "*tools/converthtmlcolor","DarkGoldenRod",hexcolor$
```

**Where:**

`hexcolor$` will be "#b8860b" (the Hex color of the HTML color "DarkGoldenRod ")

**\*TOOLS/PRINTHTML** - Converts HTML input into formatted text output on the given open channel

**CALL** `"*tools/printhtml",html$,outputchannel,[left],[top],[right],[bottom]`

**Example**

```
open (hfn)"*PDF*;file=output_pdf$"
pdfChan=lfo
call "*tools/printHTML",tinyMCE.ctl'value$,pdfChan,1,1
close (pdfChan)
```

Example is for printing TinyMCE formatted text as a PDF

# UTILITIES - UPDATED

**\*PLUS/WEB/REQUEST** - Added support for the use of HTTP version 1.1 protocol, overriding the user agent, and timeout

**CALL** **"\*plus/web/request"**, url\$, postdata\$, recvdata\$, recvhdr\$, mimetype\$, certificate\$, extrahdrs\$, method\$, timeout

## Example

```
extrahdr$="User-Agent: MyApp/1.00.0000"  
timeout=20. Defaults to 15 seconds, if not set.
```

**\*TOOLS/MAKEQRCODE** - Added option to set the quality of the QR code to be returned

**CALL** **"\*tools/makeqrcode"**, "text", "output\_file.png" [ , **qualitycode\$** ]

(Low) 7% of data bytes can be restored. (Default, if omitted)

(Medium) 15% of data bytes can be restored

(Quartile) 25% of data bytes can be restored

(High) 30% of data bytes can be restored

## Example

```
call "*tools/makeqrcode", "https://home.pvxplus.com", "pxplus_qr_code.png", "H"
```

# UTILITIES - UPDATED

**\*WEB/EMAIL** - Ability to Embed an Image using <img cid=> in the body of an email

**CALL** **"\*web/email"**[,ERR=stmtref], fromaddress\$, replyaddress\$, toaddress\$, ccaddress\$, bccaddress\$, subject\$, message\$, attachments\$, option\$, smtpserver\$, servertimeout, linewrapsat, body encoding\$, eraseit, errormsg\$, senddirectory\$, savedfilename\$

```
message$="<html><head></head><body><p>Check out the new  
logo</p><p>&nbsp;<img src='cid:newlogo.png' /></p><p>Regards.</p></body></html>"  
attachments$="newlogo.png"
```

# UTILITIES - UPDATED

**\*WEB/FTP** - Added TLS support and curl options for FTPS, FTPES or SFTP

**CALL** `"*web/ftp;XXXX"`, ftpserver\$, user\$, password\$, timeout, files\_to\_send\$, upload\_dir\$, case\$, result\$

## Example

`ftps://files.server.com`

Depending on the protocol, additional curl options may be specified:

## Curl Options

<code>-k</code>	Allow untrusted certificates or self-signed certificates
<code>--cacert file path</code>	Specify custom CA certificate store as apposed to PxPlus supplied CA certificate store
<code>--key kep path</code>	Private key for SSH authentication (SFTP)
<code>--pass passphrase</code>	Passphrase for private key

`ftpes://files.server.com -k`

This example uses the curl option `-k` to allow untrusted certificates or self-signed certificates.



# UTILITIES - UPDATED

**\*TOOLS/SMS** - Added new SMS services and name case insensitivity

**CALL `"*tools/sms;send"`**, sms\_service\_name\$, account\_info\$, to\$, message\$

Added support for "clickatell", "seven" and "vonage" (formerly "nexmo")

Added support for an Australian SMS service "smsbroadcast"

**\*TOOLS/CONVERTDATA** - Converts native PxPlus keyed (EFF, VLR, FLR) and indexed files to/from a formatted text file

**CALL `"*tools/ConvertData;Text_to_Binary"`**, txtPath\$, binPath\$, password\$, **flags\$**, **retMessage\$**

## **flags\$ (Optional)**

Force using non-exclusive file access if existing binary file is in use.

Verbose mode displays a message box to the user to determine behavior when exclusive access to an existing binary file is not available.

## **retMessage\$ (Optional)**

Identifiers for individual records that are not available (due to being extracted by another task) when non-exclusive file access is used.

# EXTENDED COMMANDS

- Commands that are entered in Command mode

COMMAND	Description
<a href="#">OLHELP</a>	Launches the online PxPlus Help manual in a browser. Also available on IDE Menu Bar.
<a href="#">SET_NK</a>	New command can be used to set or reset the <a href="#">'NK'</a> system parameter for a file. Once changed, the file key table will be reloaded.
<a href="#">WDW</a>	<p>New ZOOM option that will attempt to adjust the font size to fill the primary window as opposed to changing the number of lines and columns.</p> <p>If enabled and a WDX AUTO command is issued, the automatic sizing logic will also change the font size, instead of changing lines and columns. To disable ZOOM mode, a WDW ZOOM OFF can be issued.</p> <p>WDW 100x30 ZOOM</p>

# SPECIAL COMMAND TAGS

TAG	Description
<a href="#">[TCP]</a>	<p>New options added to TCP</p> <p>TLS1.3 forces a secure connection to use TLS1.3</p> <p>NOTLSV1.3 disables support of TLSv1.3 connections</p>

# SPECIAL FILE HANDLING

COMMAND	Description
<a href="#">*PDF*</a>	<p>New options added to *PDF* Print Interface</p> <p><a href="#">PIXELPOS</a> - set for pixel positioning instead of PDF positioning when using @X/Y(=num).</p> <p><a href="#">DPI</a> - defines the dots per inch used only when PIXELPOS is On. Defaults to 150.</p>



# ENVIRONMENT VARIABLES

# ENVIRONMENT VARIABLES - NEW

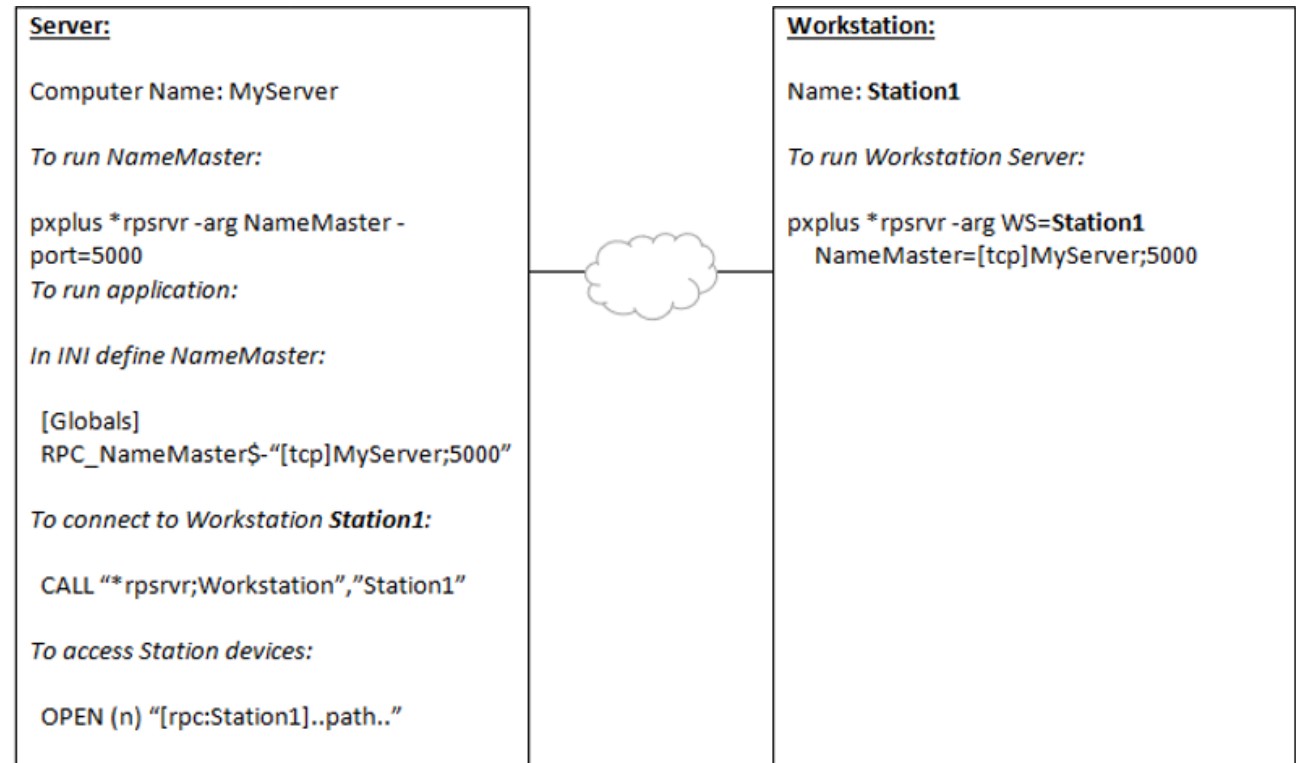
Parameter	Description
<a href="#">PXP_CRYPTO_LIB</a>	<p>PXP_CRYPTO_LIB</p> <p>Defines the path and file name of an OpenSSL crypto dynamic library (libcrypto-1.1.dll/libcrypto.so). Setting this overrides the default operating system library search rules and explicitly sets which library to load.</p>
<a href="#">PXP_SSL_LIB</a>	<p>PXP_SSL_LIB</p> <p>Defines the path and file name of an OpenSSL SSL dynamic library (libssl-1.1.dll/libssl.so). Setting this overrides the default operating system library search rules and explicitly sets which library to load.</p> <p>SET PXP_SSL_LIB=C:\path\to\your\libssl-1.1.dll</p>
<a href="#">PVX_UTF8</a>	<p>PVX_UTF8</p> <p>Can be set to establish whether PxPlus will run in UTF-8 compatibility mode. The 'U8' system parameter will be enabled during system initialization.</p>
<a href="#">PXP_WEB_BSZ</a>	<p>PXP_WEB_BSZ</p> <p>For setting a larger TCP block size (BSZ) value that will allow PxPlus Web Server to handle larger responses. Default is 80KB. It is recommended to use EZWeb Server, Apache or IIS to handle responses larger than 700 kilobytes.</p>

# REMOTE PROCESS SERVER

## Remote Process Server

### \*RPSRVR as Workstation Server

- New feature provides a remote server for workstations
- Used to provide background access to workstation devices and resources where local access is required such as Web-based applications
- Typical server/workstation example





# GRAPHICAL ENHANCEMENTS



# LARGER PANELS AND MORE CONTROLS

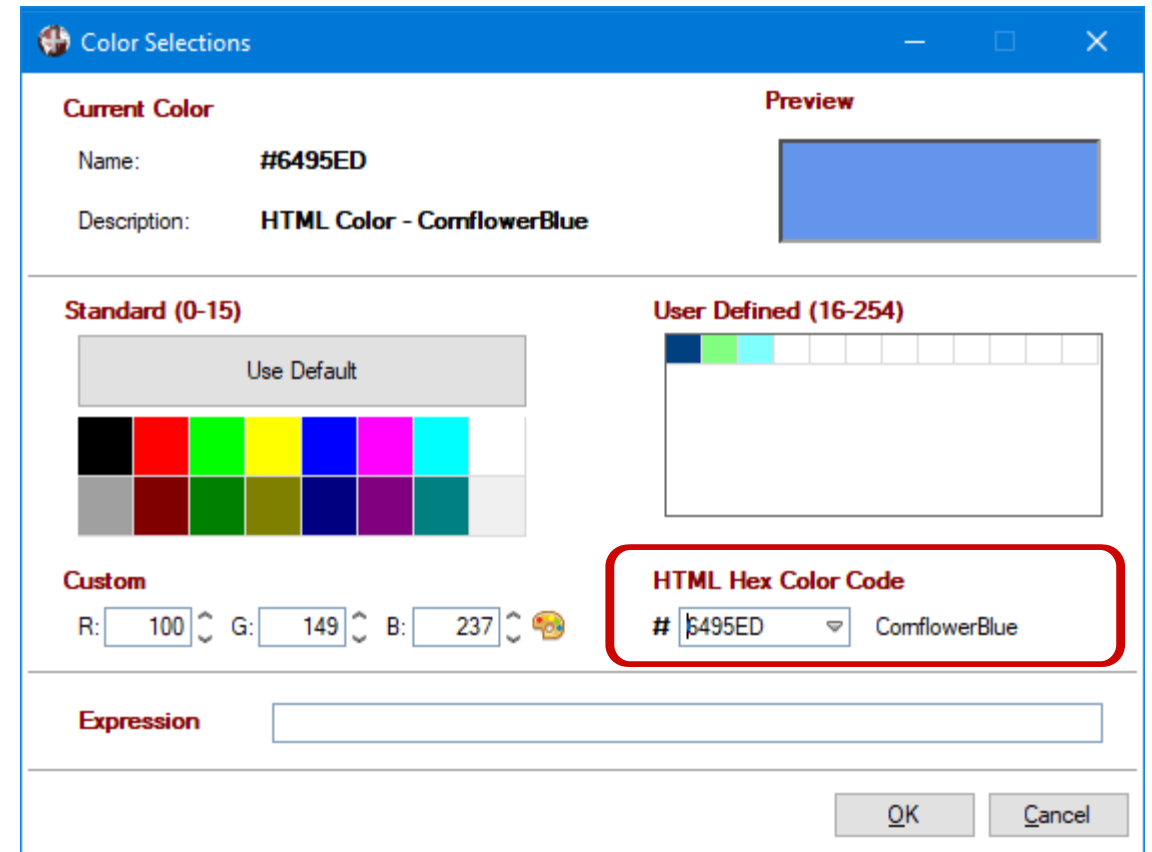
## Support for larger screens and more controls

- Dialogs now 620 columns by 255 rows
- Up to 999 controls on a panel
- Concurrent panels up to 199 controls

See 'NOMADS Panel Designer Enhancements'  
PDF for more details

# HTML COLORS

- Ability to select [HTML Named Colors](#)
- 140 standard HTML colors
- To use HTML color name, prefix with # symbol i.e. #CornFlowerBlue
- New HTML Color drop box in Color Selections dialog in NOMADS panel designers
- Also available in iNomads

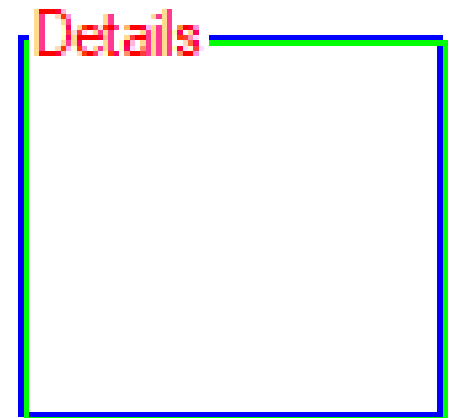


# FRAME MNEMONIC

- New Options added to **FRAME** mnemonic
  - Text Color, Frame Highlight Color, Frame Shadow Color
- 'FRAME'(x,y,x,y,style[,title\$ [,textColor\$,frameHighlightColor\$,frameShadowColor\$]]])
  - **textColor\$** - Color of the header text. Optional. (Default: Black)
  - **frameHighlightColor\$** - Color of highlight line. Optional. (Default: Light Gray)
  - **frameShadowColor\$** - Color of shadow line. Optional. (Default: Dark Gray)

## Example

```
print 'frame'(100,100,300,300,0,"Details","red","green","blue")
```



# THEMES AND VISUAL CLASSES

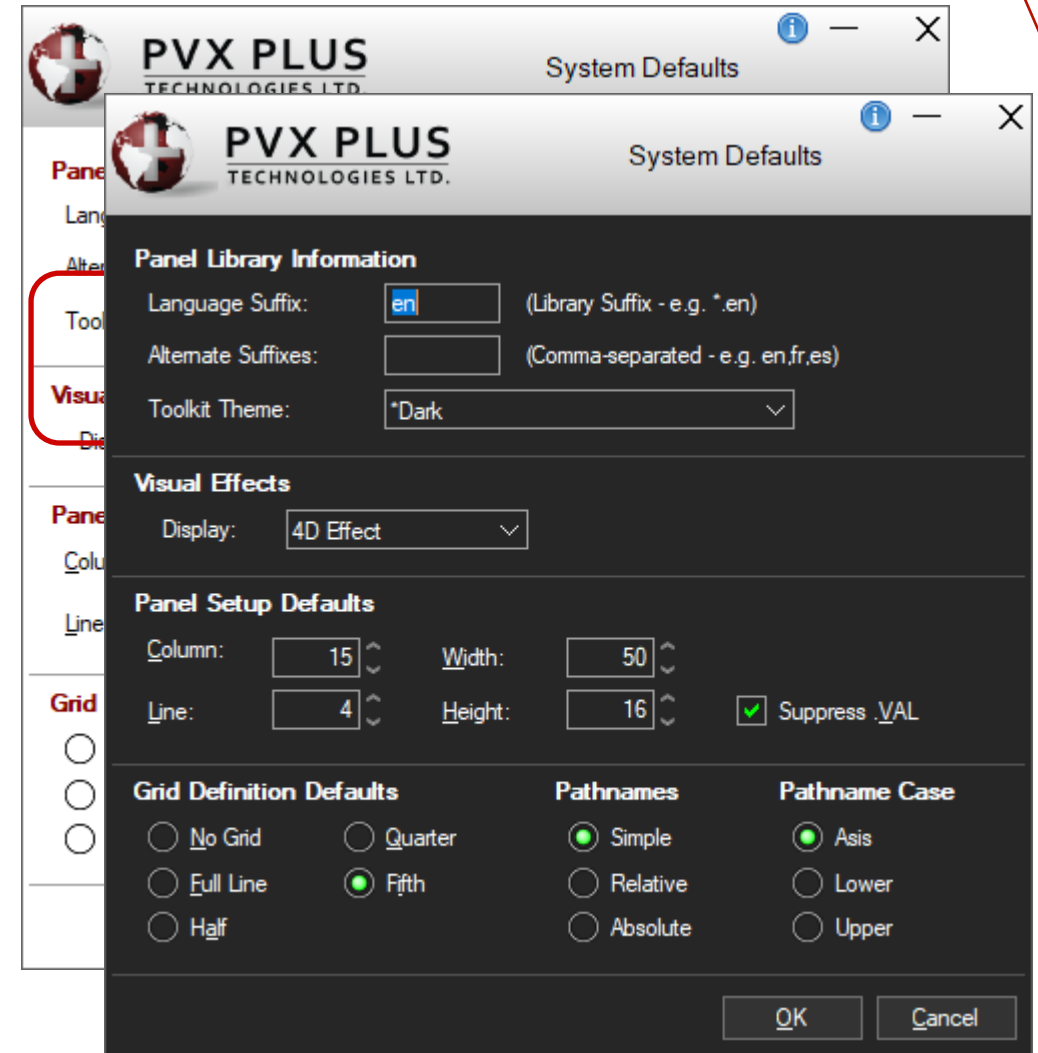
- Themes are now part of 2024 install – installation now comes with defined themes
- Improved overall usability and interaction with themes
- Created Dark and Light themes
  - Updated visual classes to support above themes
- Added new Themes and Visual Classes properties to existing controls
- Themes and Visual Classes properties now available for Shapes, Menu Bar and Popup Menu controls
- New Copy Theme
  - Utility used to copy a theme and associated visual classes

See 'Using Themes and Visual Classes' PDF  
for more details

# TOOLKIT THEME

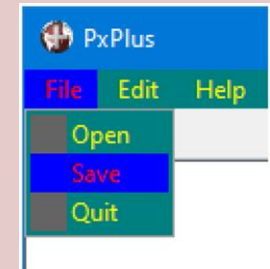
- Introduced in PxPlus 2024
- Toolkit Theme can be set to Dark mode, Light mode, or Default (None)
- Selected theme will be applied to the entire PxPlus toolkit with some exceptions
- Toolkit Theme is selected using Systems Defaults
- Available on the IDE and NOMADS Session Manager

See 'Application Look and Feel' PDF  
for more details



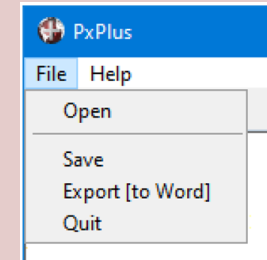
# DIRECTIVES - UPDATED

DIRECTIVE	Description
<a href="#">MENU BAR</a>	<p>New <a href="#">Parameters</a> added for specifying hover background color, hover text color, and menu text color. In addition, option to apply colors to <a href="#">Top Level Menu</a>.</p> <p>HFILL - Hover background color for mouse over menu items HTEXT - Hover text color for mouse over menu items TEXT - Text color for menu text</p> <pre>menu_bar 10,"!LEFT(RGB:100,100,100),FILL(DarkCyan), <b>HFILL(Blue),HTEXT(Red),TEXT(Yellow)</b> [&amp;File,&amp;Edit,&amp;Help],F:[&amp;Open,&amp;Save,&amp;Quit],E:[&amp;Add,&amp;Delete]</pre> <p>If the first character of the menu definition is an ! (exclamation point), or a first or second character of - (dash) is also specified, then the specified colors will also be applied to the top level menu.</p>
<a href="#">BUTTON</a>	<p>New <a href="#">"I" Option</a> added for creating a spinner button</p> <pre>button spin_btn,@(2,14,4,2)="",opt="lf" spin_btn'backColor\$="dark gray" spin_btn'textColor\$="gray" spin_btn'hoverTextColor\$="blue"</pre> <p>Prior to PxPlus 2024, spinner buttons on multi-lines used vertical scroll bars Under Windows 11, scroll bars only display when hovering over, thus making spinners on multi-lines basically invisible All multi-lines with spinners now use the new spinner in PxPlus 2024.</p>



# DIRECTIVES - UPDATED

DIRECTIVE	Description
MENU_BAR Find	<p>New Find format returns a string consisting of all the menu bar character codes, followed by a colon and their settings.</p> <pre>MENU_BAR 1 20,"[&amp;File],F:[&amp;Open,,&amp;Save,&amp;Quit=4]" MENU_BAR FIND X\$</pre> <p>Print X\$ F:E,H:E,FO:E,FS:E,FQ:E,HI:E,HP:E,HS:E,HL:E,HM:E,HU:E</p>
MENU_BAR Load	<p>New Load format sets the enabled/disabled and optionally the On/Off status of menu bar entries based on their codes. "E" for <b>E</b>nabled or "D" for <b>D</b>isabled, and optionally "C" for <b>C</b>hecked (On).</p> <pre>MENU_BAR LOAD "M:D,B:E,BP:EC"</pre>
<a href="#">MENU_BAR</a> <a href="#">POPUP_MENU</a>	<p>Added support for Inclusion of Special Characters to define the menu.</p> <pre>MENU_BAR 1 20,"\[&amp;File],F:[&amp;Open,,&amp;Save,&amp;Export \[to Word\],&amp;Quit=4]" POPUP_MENU @(col,row),"\[&amp;File],F:[&amp;Open=1,,&amp;Save,&amp;Export \[to Word\]=2,&amp;Quit=4]",X</pre> <p>Above Menu_Bar example adds an entry in the menu bar to read "Export [to Word]"</p>





# 'OPTION' MNEMONICS



# 'OPTION' MNEMONICS

- Used for setting specific environment properties at run time within a session

- **Example**

```
Print 'OPTION'("DrpBtnTickClr","Red")
```

```
SETDEV (0) SET "DrpBtnTickClr" TO "Red"
```

# 'OPTION' MNEMONICS - GRAPHICAL

OPTION	Description
<a href="#">StdLvueLineClr</a>	Defines the text color when the mouse is over a row in a List View. (Report View Only)
<a href="#">StdGridLineClr</a>	Sets the standard/default line color for all subsequent grids. (Default is RGB: 220,220,220)
<a href="#">StdGridHideButtons</a>	Sets the default <a href="#">HideButtons</a> property for all subsequent grids.
<a href="#">StdGridQueryImg</a>	<p>This option defines the image to use in the query/lookup buttons of a grid.</p> <p>The value of the setting is an image pathname or internal image (!xxxxxx). An invalid value will result in the original ellipsis (...) being used.</p>
<a href="#">TipColor</a>	<p>Defines the color for non-HTML tips.</p> <p>Valid formats for defining a color include predefined system color names (e.g. LightRed), RGB values, HSL values, Hex color codes, color blending, and dynamic color lightening.</p>

# 'OPTION' MNEMONICS - GRAPHICAL

OPTION	Description
<a href="#">ClrPlusZ SB Back</a>	Sets background for any 'SB' data. (Default: Light Gray button face color)
<a href="#">ClrPlusZ SF Back</a>	Sets background for any 'SF' data. (Default: White)
<a href="#">ClrPlusZ Text</a>	Sets text. (Default: Black)
<a href="#">LockOverDisable</a>	When set ("1" or "Y"), Multi_Line input fields that are <b>both</b> locked <b>and</b> disabled will display as locked (as opposed to disabled).

# 'OPTION' MNEMONICS - GRAPHICAL

- These options control the color of the drop box button and tick color



OPTION	Description
<a href="#">DrpBtnBackClr</a>	Background color of the Drop Box button.
<a href="#">DrpBtnDisableBackClr</a>	Background color of the Drop Box button when the Drop Box is disabled.
<a href="#">DrpBtnHoverBackClr</a>	Hover background color of the Drop Box button. Defaults to the Windows hover color if no drop button colors are set; otherwise, defaults to the drop button background color but is 25% lighter.
<a href="#">DrpBtnHoverTickClr</a>	Hover color of the down arrow/tick on the Drop Box button. Defaults to the Windows tick color if no drop button colors are set; otherwise, defaults to the drop button tick color but is 25% lighter.
<a href="#">DrpBtnTickClr</a>	Color of the down arrow/tick on the Drop Box button.



# PROPERTIES

# PROPERTIES

- Properties for control objects can be changed dynamically using a control's assigned CTL value (Check Boxes, Grids, etc.)

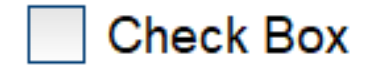
- **Example**




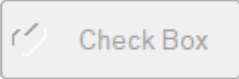
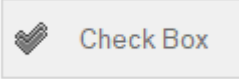
InvoiceGridctl'LockBackColor\$="Gray"

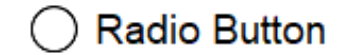
PaymentDBctl'FrameColor\$="#DC143C"

# CHECK BOX IMPROVEMENTS

## New Check Box Properties



Property	Description	Example
<a href="#">'CbFrameColor\$</a>	Color of the Check Box frame for standard Check Box	 Check Box
<a href="#">'CbHoverColor\$</a>	Color of the hover rectangle for standard Check Box	 Check Box
<a href="#">'CbMarkColor\$</a>	Color of the check mark for standard Check Box	 Check Box
<a href="#">'GrayDisabledBmp</a>	Disabled color when a bitmap exists - shadow, gray scale	 Check Box  Check Box




# RADIO BUTTON IMPROVEMENTS







Property	Description	Example
<a href="#">'RbFrameColor\$</a>	Color of the standard Radio Button frame	Radio Button
<a href="#">'RbHoverColor\$</a>	Color of the hover circle for standard Radio Button	Radio Button
<a href="#">'RbMarkColor\$</a>	Color of the circle for standard Radio Button	Radio Button
<a href="#">'GrayDisabledBmp</a>	Disabled color when a bitmap exists - shadow, gray scale	Radio Button



# BUTTON IMPROVEMENTS

Property	Description	Example
<a href="#">'GrayDisabledBmp</a>	Disabled color when a bitmap exists - shadow, gray scale	

# DROP BOX IMPROVEMENTS

Property	Description	Example
<a href="#">'ButtonBackColor\$</a>	Background color of the Drop Box button	
<a href="#">'ButtonTickColor\$</a>	Color of the down arrow/tick	
<a href="#">'FrameColor\$</a>	Color of the frame/border	
<a href="#">'ButtonHoverBackColor\$</a>	Background hover color of a Drop Box button	
<a href="#">'ButtonHoverTickColor\$</a>	Hover color of the down arrow/tick	
<a href="#">'ButtonDisableBackColor\$</a>	Background disabled color of a Drop Box	

# GRID IMPROVEMENTS

## New Grid Properties

	ID	Name	City	Sales
1	435	John Doe	Toronto	791.22
2	196	Nancy Jones	New York	869.23
3	688	Steve Smith	Paris	47.90
4				

Property	Description	Example																									
<a href="#">'HdrHeight</a>	Header Height in pixels 0 - No header -1 - Restores to default	<table border="1"> <thead> <tr> <th></th> <th>ID</th> <th>Name</th> <th>City</th> <th>Sales</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>435</td> <td>John Doe</td> <td>Toronto</td> <td>791.22</td> </tr> <tr> <td>2</td> <td>196</td> <td>Nancy Jones</td> <td>New York</td> <td>869.23</td> </tr> <tr> <td>3</td> <td>688</td> <td>Steve Smith</td> <td>Paris</td> <td>47.90</td> </tr> <tr> <td>4</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		ID	Name	City	Sales	1	435	John Doe	Toronto	791.22	2	196	Nancy Jones	New York	869.23	3	688	Steve Smith	Paris	47.90	4				
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<a href="#">'LineColor\$</a>	Grid Line colors	<table border="1"> <thead> <tr> <th></th> <th>ID</th> <th>Name</th> <th>City</th> <th>Sales</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>435</td> <td>John Doe</td> <td>Toronto</td> <td>791.22</td> </tr> <tr> <td>2</td> <td>196</td> <td>Nancy Jones</td> <td>New York</td> <td>869.23</td> </tr> <tr> <td>3</td> <td>688</td> <td>Steve Smith</td> <td>Paris</td> <td>47.90</td> </tr> <tr> <td>4</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		ID	Name	City	Sales	1	435	John Doe	Toronto	791.22	2	196	Nancy Jones	New York	869.23	3	688	Steve Smith	Paris	47.90	4				
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<a href="#">'SuppressHdr</a>	Suppression of headers 0 - Headers not suppressed 1 - Row Header suppressed (left side) 2 - Column Header suppressed (top) 3 - Both Headers suppressed	<table border="1"> <thead> <tr> <th>ID</th> <th>Name</th> <th>City</th> <th>Sales</th> </tr> </thead> <tbody> <tr> <td>435</td> <td>John Doe</td> <td>Toronto</td> <td>791.22</td> </tr> <tr> <td>196</td> <td>Nancy Jones</td> <td>New York</td> <td>869.23</td> </tr> <tr> <td>688</td> <td>Steve Smith</td> <td>Paris</td> <td>47.90</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	ID	Name	City	Sales	435	John Doe	Toronto	791.22	196	Nancy Jones	New York	869.23	688	Steve Smith	Paris	47.90									
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<a href="#">'CurrentCellColor\$</a>	Text color of current cell	<table border="1"><thead><tr><th></th><th>ID</th><th>Name</th><th>City</th><th>Sales</th></tr></thead><tbody><tr><td>1</td><td>435</td><td>John Doe</td><td>Toronto</td><td>791.22</td></tr><tr><td>2</td><td>196</td><td>Nancy Jones</td><td>New York</td><td>869.23</td></tr><tr><td>3</td><td>688</td><td>Steve Smith</td><td>Paris</td><td>47.90</td></tr><tr><td>4</td><td></td><td></td><td></td><td></td></tr></tbody></table>		ID	Name	City	Sales	1	435	John Doe	Toronto	791.22	2	196	Nancy Jones	New York	869.23	3	688	Steve Smith	Paris	47.90	4				
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<a href="#">'LockBackColor\$</a>	Background color when the Grid cell is locked	<table border="1"><thead><tr><th></th><th>ID</th><th>Name</th><th>City</th><th>Sales</th></tr></thead><tbody><tr><td>1</td><td>435</td><td>John Doe</td><td>Toronto</td><td>791.22</td></tr><tr><td>2</td><td>196</td><td>Nancy Jones</td><td>New York</td><td>869.23</td></tr><tr><td>3</td><td>688</td><td>Steve Smith</td><td>Paris</td><td>47.90</td></tr><tr><td>4</td><td></td><td></td><td></td><td></td></tr></tbody></table>		ID	Name	City	Sales	1	435	John Doe	Toronto	791.22	2	196	Nancy Jones	New York	869.23	3	688	Steve Smith	Paris	47.90	4				
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<a href="#">'LockTextColor\$</a>	Foreground text color when the Grid cell is locked	<table border="1"><thead><tr><th></th><th>ID</th><th>Name</th><th>City</th><th>Sales</th></tr></thead><tbody><tr><td>1</td><td>435</td><td>John Doe</td><td>Toronto</td><td>791.22</td></tr><tr><td>2</td><td>196</td><td>Nancy Jones</td><td>New York</td><td>869.23</td></tr><tr><td>3</td><td>688</td><td>Steve Smith</td><td>Paris</td><td>47.90</td></tr><tr><td>4</td><td></td><td></td><td></td><td></td></tr></tbody></table>		ID	Name	City	Sales	1	435	John Doe	Toronto	791.22	2	196	Nancy Jones	New York	869.23	3	688	Steve Smith	Paris	47.90	4				
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4				

Property	Description	Example																									
<a href="#">'RowHeaderBackColor\$</a>	Background color for row column (left)	<table border="1"><thead><tr><th></th><th>ID</th><th>Name</th><th>City</th><th>Sales</th></tr></thead><tbody><tr><td>1</td><td>435</td><td>John Doe</td><td>Toronto</td><td>791.22</td></tr><tr><td>2</td><td>196</td><td>Nancy Jones</td><td>New York</td><td>869.23</td></tr><tr><td>3</td><td>688</td><td>Steve Smith</td><td>Paris</td><td>47.90</td></tr><tr><td>4</td><td></td><td></td><td></td><td></td></tr></tbody></table>		ID	Name	City	Sales	1	435	John Doe	Toronto	791.22	2	196	Nancy Jones	New York	869.23	3	688	Steve Smith	Paris	47.90	4				
	ID	Name	City	Sales																							
1	435	John Doe	Toronto	791.22																							
2	196	Nancy Jones	New York	869.23																							
3	688	Steve Smith	Paris	47.90																							
4																											
<a href="#">'RowHeaderTextColor\$</a>	Text color for row column (left)	<table border="1"><thead><tr><th></th><th>ID</th><th>Name</th><th>City</th><th>Sales</th></tr></thead><tbody><tr><td>1</td><td>435</td><td>John Doe</td><td>Toronto</td><td>791.22</td></tr><tr><td>2</td><td>196</td><td>Nancy Jones</td><td>New York</td><td>869.23</td></tr><tr><td>3</td><td>688</td><td>Steve Smith</td><td>Paris</td><td>47.90</td></tr><tr><td>4</td><td></td><td></td><td></td><td></td></tr></tbody></table>		ID	Name	City	Sales	1	435	John Doe	Toronto	791.22	2	196	Nancy Jones	New York	869.23	3	688	Steve Smith	Paris	47.90	4				
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3	688	Steve Smith	Paris	47.90																							
4																											
<a href="#">'ForegroundButtonColor\$</a>	Foreground text color for system-generated buttons																										

# GRID IMPROVEMENTS

Property	Description
<a href="#">'CellsNumeric</a>	Forces cell to only accept numeric data
<a href="#">'CellBlankWhenZero</a>	Display null when value is zero
<a href="#">'MaxListItems</a>	Number of lines in a drop list in Grid controls
<a href="#">'ButtonColor\$</a>	Background color for system-generated buttons, Drop Box and Query buttons
<a href="#">'SkipLockedCells</a>	<p>Skip over locked cells horizontally or vertically using arrow buttons</p> <p>0 - Do not skip over locked cells</p> <p>1 - Skip over locked cells when advancing <i>horizontally</i> (Left/Right arrow) <b>(Default)</b></p> <p>2 - Skip over locked cells when advancing <i>vertically</i> (Up/Down arrow)</p> <p>3 - Skip over locked cells <b>both</b> <i>vertically</i> and <i>horizontally</i></p>
<a href="#">'HideButtons</a>	Hide query buttons or drop box icons if there is a bitmap
<a href="#">'PasteFilter</a>	Strip leading/trailing non-printing characters from data copied/pasted; i.e. line feeds, tabs

# MULTI-LINE IMPROVEMENTS

Property	Description	Example
<a href="#">'OnDoubleClick</a>	Generates CTL event when double clicked	
<a href="#">'PasteFilter</a>	Strip leading/trailing non-printing characters from data copied/pasted. i.e. line feeds, tabs	
<a href="#">'Password</a>	Password masked data	
<a href="#">'LockBackColor\$</a>	Background color when locked	Multi line
<a href="#">'LockTextColor\$</a>	Foreground text color when locked	Multi line
<a href="#">'FrameColor\$</a>	Color of the frame/border	Multi line
Support for <a href="#">'DisableBackColor\$</a> , <a href="#">'DisableTextColor\$</a> and <a href="#">'TextColor\$</a> properties added to Rich Text controls		

# LIST BOX IMPROVEMENTS

Property	Description
<a href="#">'HdrHeight</a>	Header Height in pixels 0 - No header -1 - Restores the height to its default size
<a href="#">'LineColor\$</a>	Grid line colors
<a href="#">'FrameColor\$</a>	Color of the frame/border
Added "I" option to the <a href="#">'FindOptions\$</a> property to include a bitmap name when searching in a Report View List Box	





WEBSTER+

# WEBSTER+

See 'Webster+' PDF  
for more details

## Webster+

- Introduced in PxPlus 2021
- New toolset that makes both the generation of Web pages and setup of Web sites easier
- Uses a standard REST-style interface where every exchange between the workstation/browser and the host is standalone
- Dynamic HTML 5 compatible pages through the use of [Short Codes](#) are created
- Comes complete with setup/configuration tools, menu system, and security system, etc.
- Compatible with Apache, EZWeb, IIS Web servers
- Alternative to iNomads to provide a Web interface, although iNomads panels can be used
- Integrates with File Maintenance Generator, NOMADS Query, and Report Writer, etc.
- File Maintenance Generator can be used to create Webster+ HTML pages
- Previous use of NOMADS is not required
- Does not have to be a complete UI re-write. Can be a phased approach

# WEBSTER+

## Webster+

- Webster+ Configuration and Setup

See 'Webster+' PDF  
for more details

The screenshot shows a web browser window with the address bar displaying '127.0.0.1:8089/webster.pxp?tx\$=\*setup&\_target\$=\_self'. The page title is 'Webster Plus' and the logo for 'PVX PLUS TECHNOLOGIES LTD.' is visible in the top left. A navigation menu includes 'Config', 'Users', 'Groups', 'Security', 'Links', 'Menus', 'Messages', and 'Exit'. The main content area is titled 'System Configuration' and features a sub-menu with 'Site Info', 'Customizations', 'Template', 'Security', 'Access Control', 'Email', 'SMS', and 'Misc.'. The 'Site Info' section contains the following fields:

- Site Name: Webster Plus
- Site Image: [https://lib.webster-plus.com/images/pvxplus\\_logo\\_160x50.png](https://lib.webster-plus.com/images/pvxplus_logo_160x50.png)
- Site Homepage: [Empty field]
- Contact Email: [Empty field]
- Privacy Page: <https://lib.webster-plus.com/privacy.html>
- Accept Cookies:  (Confirm with user)
- Temporary File Directory: tmp
- Force JS/CSS Reload:

A dashed box highlights the text 'Click to upload site image file or drag-drop file here' below the Site Image field. On the left side, there is a sidebar with 'Inspector Setup Logoff' and a footer with 'Admin', 'Privacy Policy', and 'Statistics'.

# WEBSTER+

## Webster+ Inspector

- A subset tool for Webster+
- Provides options for viewing, creating, editing and deleting files and directories in the Webster+ installation
- Can control who has access
- Full browser accessibility for a variety of different file types

See 'Webster+' PDF  
for more details

# WEBSTER+

## Webster+ Inspector

- A subset tool for Webster+

See 'Webster+' PDF  
for more details

The screenshot shows the Webster Inspector web application running in a browser. The browser address bar shows the URL `127.0.0.1:8089/webster.pxp?tx$=*explorer&_target$=_blank`. The application header includes the PVX PLUS TECHNOLOGIES LTD. logo and the title « Webster Plus». The main content area is titled "Webster Inspector" and shows a directory listing for `C:\webster\data`. The directory listing table includes columns for Icon, Filename, Suffix, Mime Type, Size, Creation, and Last Modified. The file `scmlib.en` is highlighted in red.

Icon	Filename	Suffix	Mime Type	Size	Creation	Last Modified
📄	quotes_dtl		keyed	20,992	2024-08-23 17:28:14	2021-07-30 10:34:49
📄	quotes_hdr		keyed	16,896	2024-08-23 17:28:14	2021-07-30 10:34:49
📄	regions		keyed	20,992	2024-08-23 17:28:14	2023-05-04 08:45:12
📁	reports		-Directory-		2024-08-23 17:25:14	2024-08-23 17:25:14
📄	salesreps		keyed	9,728	2024-08-23 17:28:14	2023-08-11 09:59:53
📄	schema_ddl.pxkey	pxkey	keyed	33,280	2024-08-23 17:28:14	2023-08-17 15:28:40
📄	schema_ddla.pxkey	pxkey	keyed	25,088	2024-08-23 17:28:14	2021-03-08 09:20:23
📄	scmlib.en	en	screen library	598,528	2024-08-23 17:28:14	2023-09-07 09:46:46
📄	security_file		keyed	8,704	2024-08-23 17:28:14	2021-07-30 10:34:49
📄	settings		unknown	754	2024-08-23 17:28:14	2023-08-17 15:33:47
📄	shipping		keyed	20,992	2024-08-23 17:28:14	2021-07-30 10:34:49
📄	shipping_rates		keyed	16,896	2024-08-23 17:28:14	2023-08-17 15:33:47
📄	sites		keyed	20,992	2024-08-23 17:28:14	2023-08-17 15:33:47
📄	source_codes		keyed	4,608	2024-08-23 17:28:14	2021-07-30 10:34:49

# FILE MAINTENANCE GENERATOR

## File Maintenance Generator

- Generates NOMADS panels and/or Webster+ HTML pages
- Uses a wizard-based interface to create File Maintenance, Inquiry, and Non-File Maintenance panels and pages
- Uses Data Dictionary, Data Classes, Queries
- Additional objects can also be added, including:
  - Smart List Boxes and Charts, Images
  - Additional Buttons, Text and Input fields
  - Components related to the creation of HTML pages, such as events
- And much more

See 'File Maintenance Generator' PDF  
for more details



# iNOMADS

## iNomads

- Eliminated use of Cookies
- New [Crypto Seed\\$](#) option used to encrypt any control messages sent between the application server and the Internet facing front-end server (Web server). Only used if Launch\_Root is a URL
  - Value should be set to some random string to help assure security accessing iNomads directory
- Added capability to log all failed logon attempts to a file specified in the System Configuration
  - [Failed Logon Tries](#) - number of failed logon attempts before locking out browser
  - [Failed Logon Delay](#) - number of minutes to lockout browser after failed logon
  - [Failed Logon Log](#) - path name of a Log file to record invalid logon attempts
- Support for [ADA \(USA\) or WCAG \(Canada\) Compliance](#)
  - iNomads provides a number of features and tips to assist in developing these Web sites
- Added the ability to use [HTML Named Colors](#)
- Two-Factor Authentication that can be used with either SMS or email





CHROMIUM BROWSER OBJECT - \*BROWSER

# CHROMIUM BROWSER OBJECT - \*BROWSER

- Introduced in PxPlus 2017
  - Eliminate dependence on Shell.Explorer and Internet Explorer
  - Avoid Windows updates causing inconsistent results
- Embedded the Visual Chromium Web browser into PxPlus
  - Using Chromium Embedded Framework (CEF)
  - No need to have Chrome/Chromium installed
  - Best in-class for Web standards compliance
- **New Chromium update every major release**

## New Features

- [\\*BROWSER Debug](#) mode allows the browser developer console to be displayed in a popup window
  - Debug mode can be set in the [BrowserDebug INI](#) setting or [BrowserDebug](#) 'OPTION' mnemonic
- New warning page will be displayed if the loaded Web page has a certificate error
  - Warning may be avoided if the server is added to the exceptions list using the [CertErrExceptions\\$](#) property

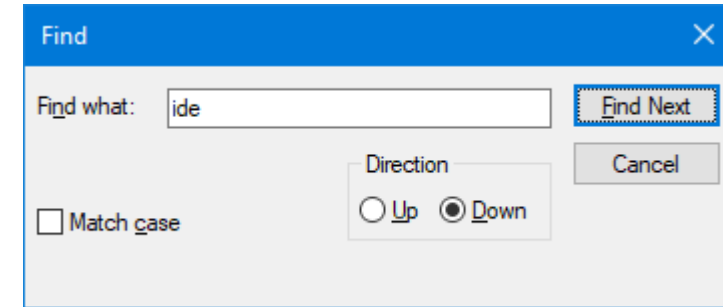
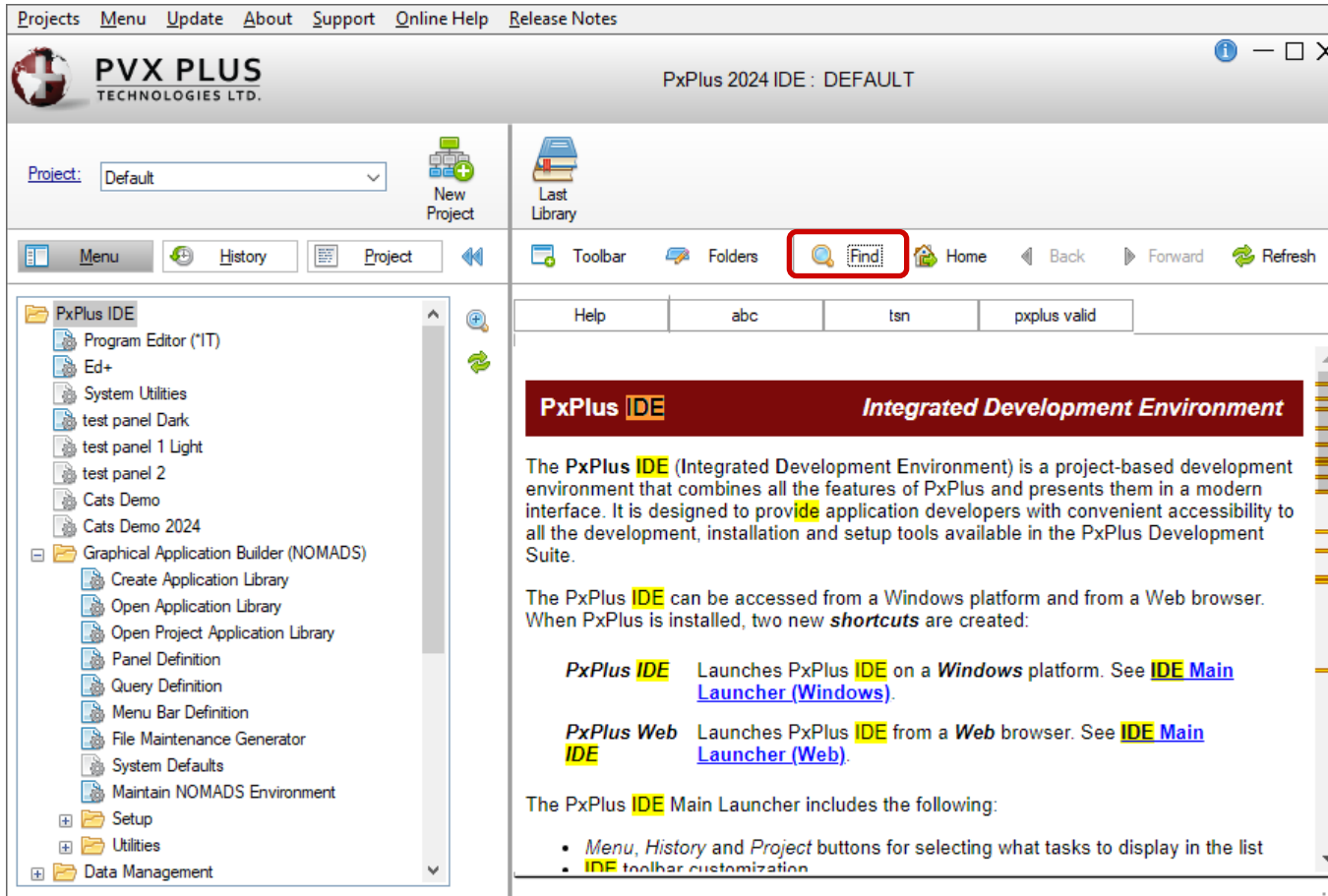
# CHROMIUM BROWSER OBJECT - \*BROWSER

## New Properties and Methods

Property/Method	Description
<a href="#">CertErrExceptions\$</a>	<p>Gets/Sets a comma-separated list of servers where certificate errors are ignored. Server portion of the URL must be specified.</p> <p>For the URL <a href="https://home.pvxplus.com/pgsrvr.pvp?pg=products">https://home.pvxplus.com/pgsrvr.pvp?pg=products</a>, the server portion is only <b>home.pvxplus.com</b>:</p> <p>"localhost,127.0.0.1,192.168.1.100,home.pvxplus.com"</p>
<a href="#">DragDrop</a>	<p>Gets/Sets whether the browser allows drag and drop into the browser control or popup windows.</p>
<a href="#">PrintToPDF(PdfPath\$)</a>	<p>Saves the current contents of the browser as a PDF file.</p> <p><b>Where:</b> <i>PdfPath\$</i> is the path that the PDF will be saved as</p>
<a href="#">FindHotKey</a>	<p>Sets the hot key for opening the <b>Find</b> dialog. Setting property to 1 enables standard Ctrl+F Find hot key. A custom hot key can also be defined.</p>
<a href="#">Find()</a>	<p>Opens the <b>Find</b> dialog, which allows users to search for specified text within the contents of a *BROWSER displayed Web page.</p>

# CHROMIUM BROWSER OBJECT - \*BROWSER

## 'Find' example in Enhanced IDE



<i>Find What</i>	Enter the search text. If text is selected in the Web page when the <b>Find</b> dialog is invoked, the selected text will be used as the default search text.
<i>Match case</i>	Select this option if the search is to be case sensitive. By default, this option is unchecked.
<i>Direction</i>	Searches up or down within the displayed Web page. By default, <i>Down</i> is selected.
<i>Find Next</i>	Finds the next occurrence of the specified search text.
<i>Cancel</i>	Cancels the search and closes the <b>Find</b> dialog.



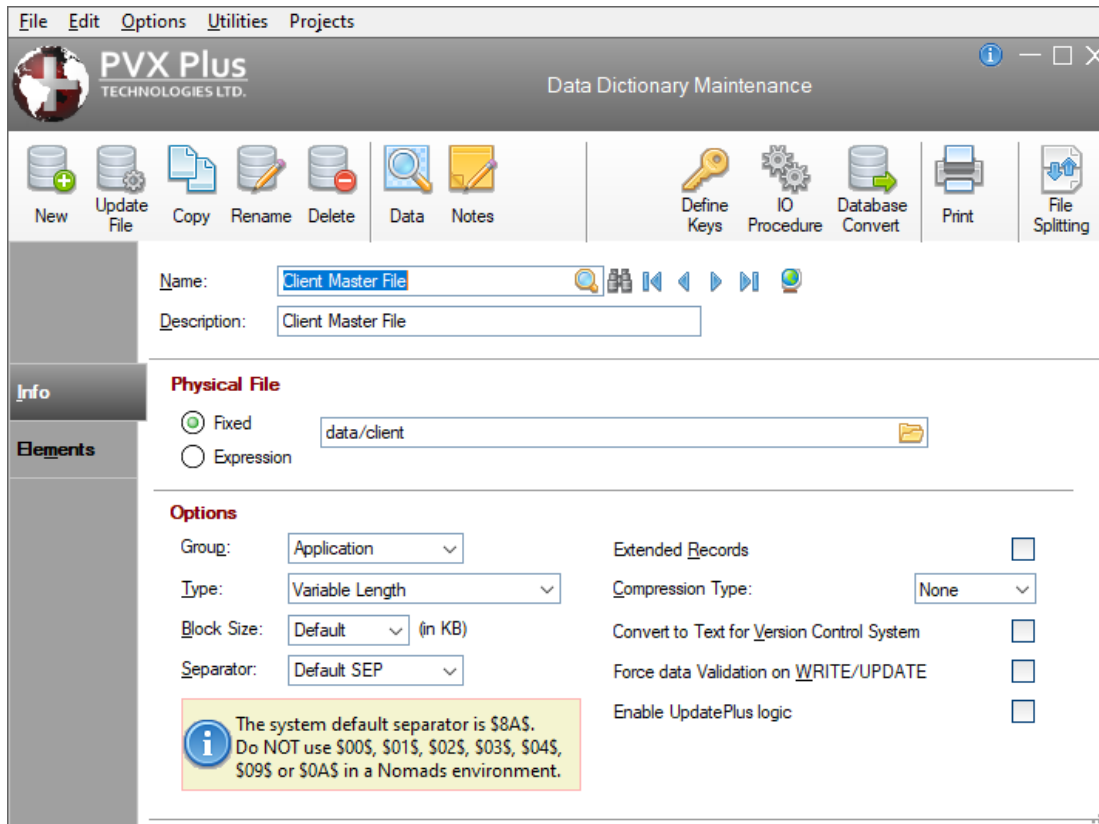
# DATA DICTIONARY ENHANCEMENTS



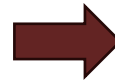
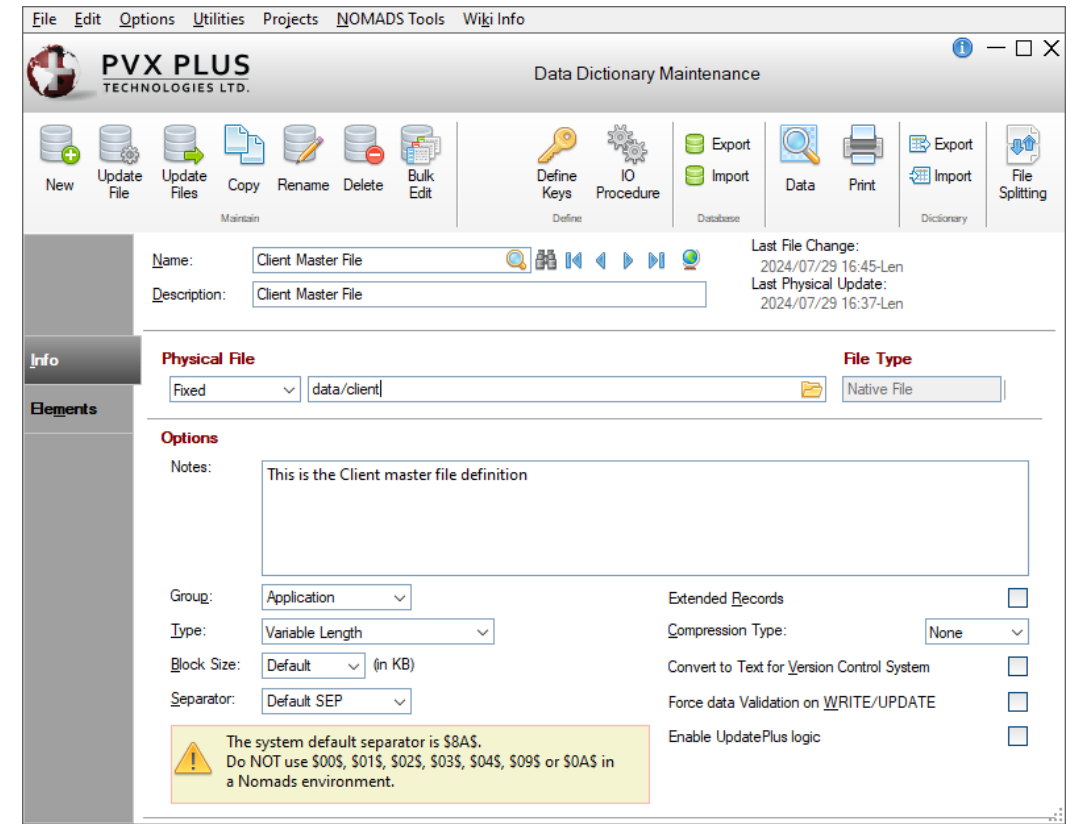
# DATA DICTIONARY

## Significant Changes to Tool Bar, Menu Bar and Panels

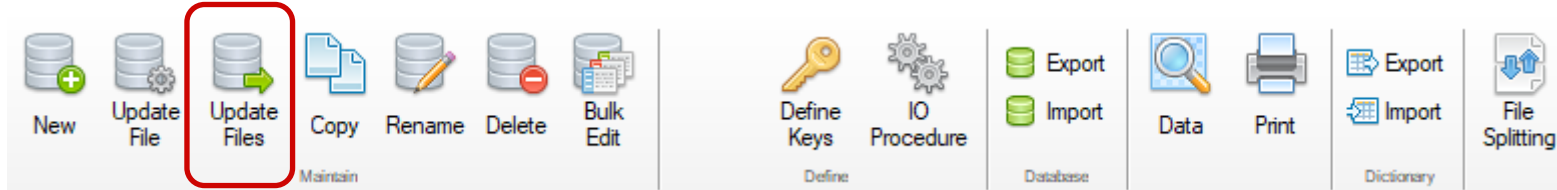
2019



2024

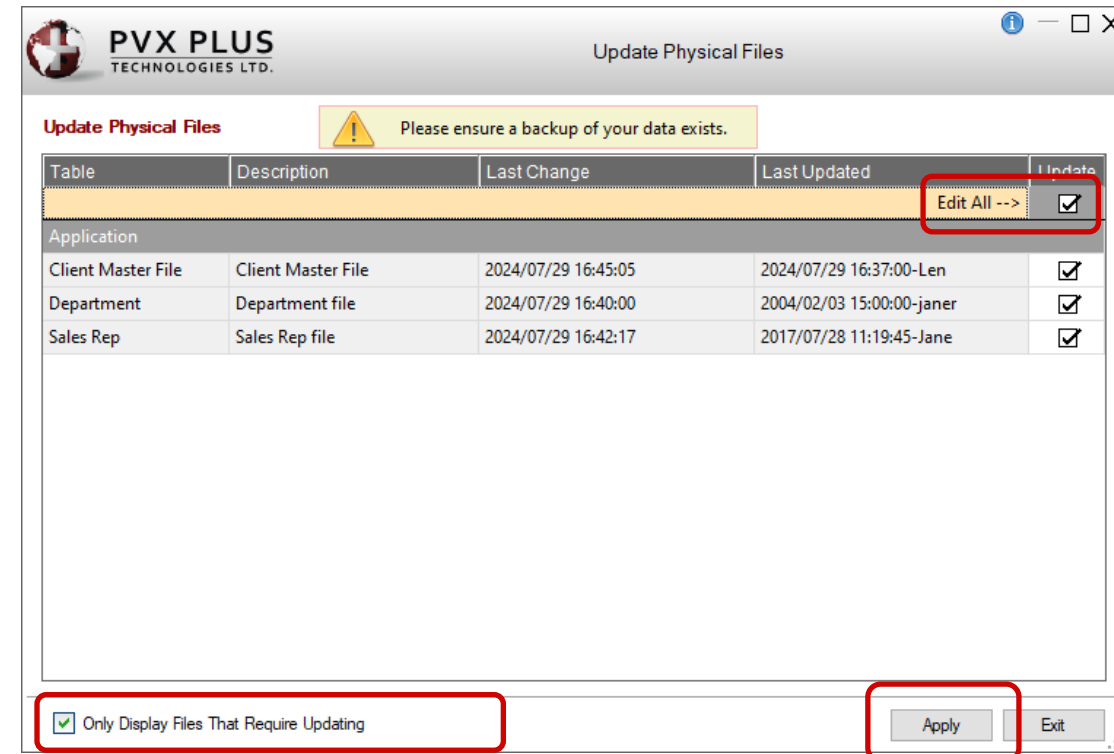


# DATA DICTIONARY – TOOL BAR

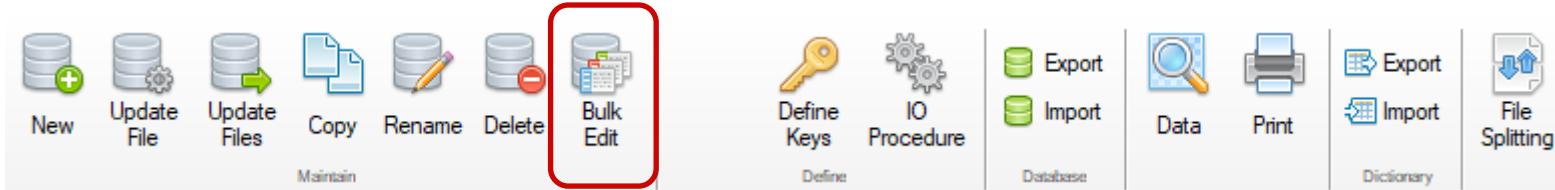


## Update Physical Files

- Update multiple selected native files
  - Files are loaded in the grid
  - 'Edit All' to select/unselect files to update
  - Ability to see all files or only those requiring updating
  - Utility compares the Last Change date with the Last Updated date to determine if an update is necessary



# DATA DICTIONARY – TOOL BAR



## Bulk Edit Data Elements

- Allows bulk changes to data elements in the data dictionary that can be updated simultaneously to multiple selected tables
- Ability to select tables to update
- Elements from the selected tables are loaded in the grid
- If element exists in multiple tables, “\*All\*” displays in Update Tables column
- Columns are sortable
- Changes are made right in the grid and are highlighted
- ‘Apply’ can be used to update the data element changes
- ‘Update Physical Files’ can be used to update the file(s)
- Selecting DTL button displays Extended Description dialog where more fields can be changed
- ‘Update Tables’ displays tables that will be updated
- ‘View Log’ prints a log of changes

The screenshot shows the PVX PLUS Bulk Edit Data Elements window. The 'Element Definitions' table is as follows:

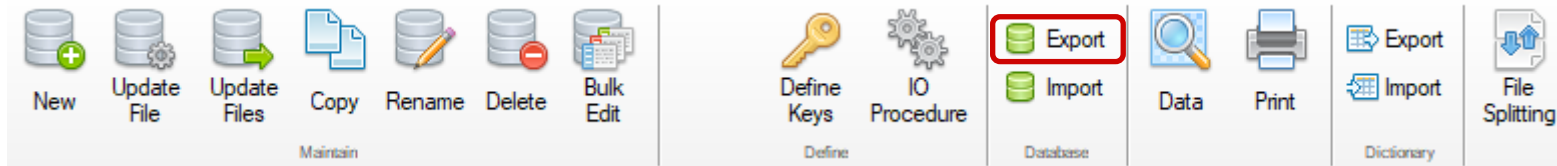
Element	Type	Size	Class	Description	Format	U/C	Update Tables	DTL
Address1	S	40		Address Line 1			<input type="checkbox"/> ClientContacts	
Address1	S	40		Address Line 1			<input type="checkbox"/> ClientMaster	
Address2	S	40		Address Line 2			<input type="checkbox"/> *All*	
BackOrderOf	S	8	InvoiceNo	Backorder for	=%sys.Invoic		<input type="checkbox"/> InvoiceHeader	

The 'Element Description' dialog for 'Address2' shows:

- Name: Address2
- Class: [Empty]
- Update Tables: \*All\*
- Tables Containing Element: ClientContacts, ClientMaster
- Properties: Type: String
- Short Description: Fixed Address Line II
- Default / Input Value: Fixed
- Validation / Rules: Fixed
- Print / Input Format: Fixed
- User Defined Tag Field: Fixed



# DATA DICTIONARY - TOOL BAR



## Database Export Utility

- Utility to add a single table to an external database
  - Previously on the toolbar as Database Convert
  - Updated functionality

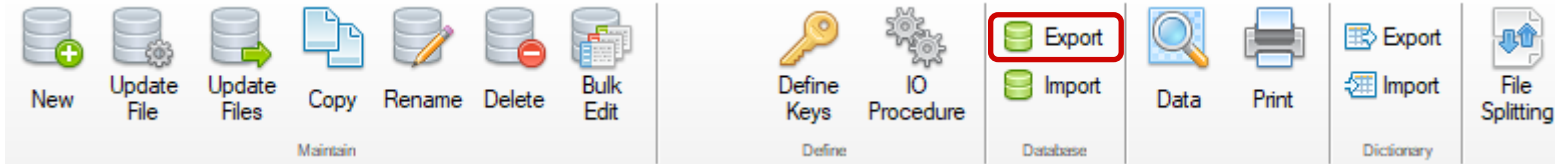
See 'External DataBase Export' PDF  
for more details

See 'How to Convert to External Databases' PDF  
for more details

The screenshot shows the 'Database Export Utility' window from PVX PLUS TECHNOLOGIES LTD. The window contains the following fields and controls:

- File to Convert:** accounts (General Ledger Accounts) [Bulk Export]
- Database Type:** ODB [Data Source: lendb Database Name: ]
- Table Name:** Accounts [Alternate File Name: ]
- User Name:** Admin [Password: Admin] [Test Connection]
- Additional Options:** NONULLS=Y;NULLPADKEY=Y
- Database Setup Information:**  Override Database Setup Information
- Pathname:** [ODB]lendb;Accounts
- Options:** USER= Admin;PSWD= Admin;NONULLS=Y;NULLPADKEY=Y;KEY= GLAcct;KEY= Type, GLAcct;KEY= SummaryAcct, GLAcct;REC= GLAcct:12, Description:40, Type:1, CreditDebit:1, SummaryAcct:12, Retain:1.0, NonPosting:1.0
- Create:** CREATE TABLE Accounts ( GLAcct varchar(12) NOT NULL, Description varchar(40) NOT NULL, Type varchar(1) NOT NULL, CreditDebit varchar(1) NOT NULL, SummaryAcct varchar(12) NOT NULL, )
- Errors:** [Empty text area]
- Buttons:** Create Table, Load Table, Update Prefix, Update Link File, Verify Data,  Enable SQL trace, Exit

# DATA DICTIONARY - TOOL BAR



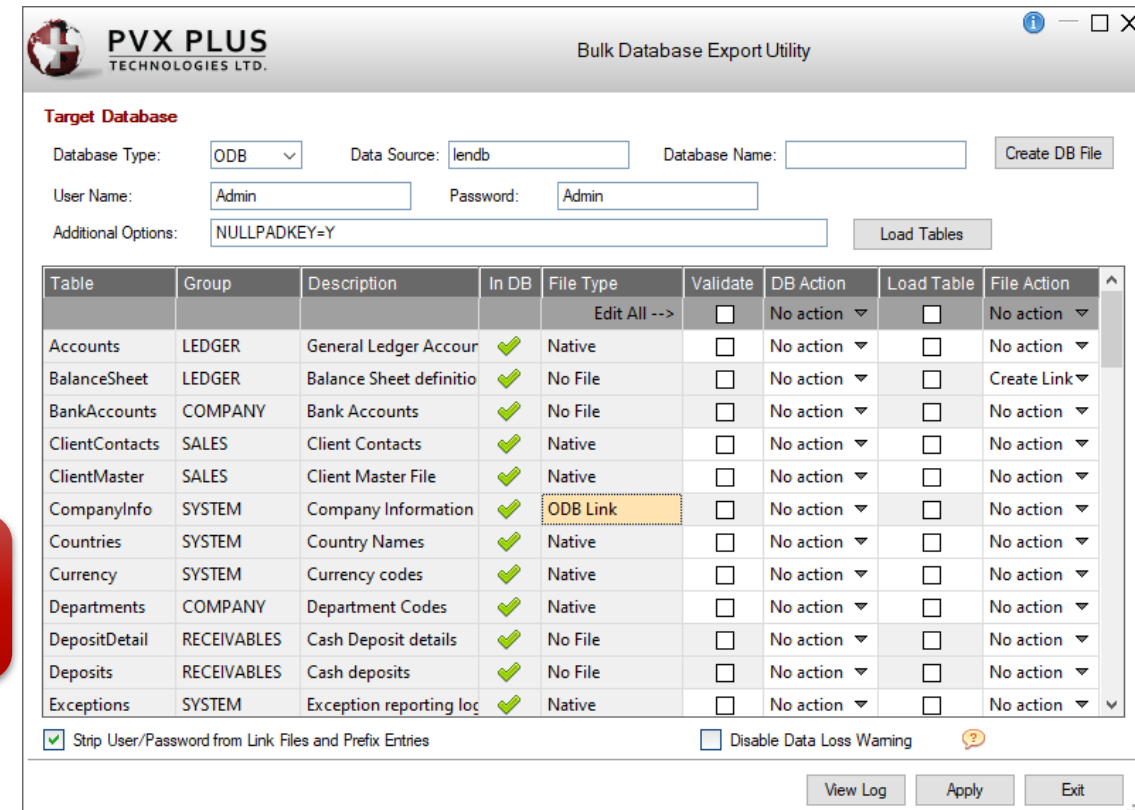
## Bulk Database Export Utility

- Accessible from the Database Export utility via the Bulk Export button
- Utility connects to an external database to selectively export table definitions from the data dictionary and PxPlus native files data to the specified database

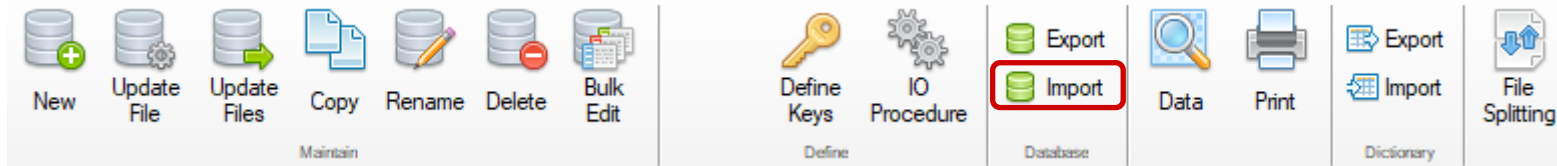
See 'External DataBase Export' PDF  
for more details

See 'How to Convert to External Databases' PDF  
for more details

See 'PxPlus External Database Support' PDF  
for more details



# DATA DICTIONARY - TOOL BAR



## Bulk Database Import Utility

- Utility connects to an existing external database to selectively import table definitions from the database to the PxPlus data dictionary and data to PxPlus native files

See 'External DataBase Import' PDF  
for more details

See 'How to Convert to External Databases' PDF  
for more details

See 'PxPlus External Database Support' PDF  
for more details

**PVX PLUS TECHNOLOGIES LTD.** Database Import Utility

**Source Database**

Database Type:  Data Source:  Database Name:

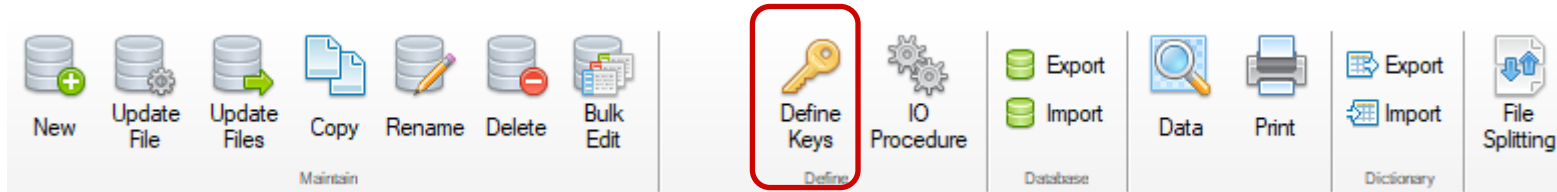
User Name:  Password:

Additional Options:

Table	In DD	File Type	Description	File Name	Group	DD Action	File Action
					Edit All -->	No Action ▾	No Action ▾
Accounts	✓	Native	General Ledger Accou	accounts	Ledger	Replace Re ▾	No Action ▾
BalanceSheet	✓	No File	Balance Sheet definiti	balance_sheet	Ledger	No Action ▾	Create Link File ▾
BankAccounts	✓	No File	Bank Accounts	bank_accounts	Company	No Action ▾	No Action ▾
ClientContacts	✓	Native	Client Contacts	client_contacts	Sales	No Action ▾	No Action ▾
ClientMaster	✓	Native	Client Master File	clients	Sales	No Action ▾	No Action ▾
CompanyInfo	✓	ODB Link	Company Information	companyinfo	System	No Action ▾	No Action ▾
Countries	✓	Native	Country Names	countries	System	No Action ▾	No Action ▾
Currency	✓	ODB Link	Currency codes	currencies	System	No Action ▾	No Action ▾
Departments	✓	Native	Department Codes	departments	Company	No Action ▾	No Action ▾
DepositDetail	✓	No File	Cash Deposit details	deposit_dtls	Receivables	No Action ▾	No Action ▾
Deposits	✓	No File	Cash deposits	deposit_hdr	Receivables	No Action ▾	No Action ▾
Exceptions	✓	Native	Exception reporting Ic	exception_log	System	No Action ▾	No Action ▾

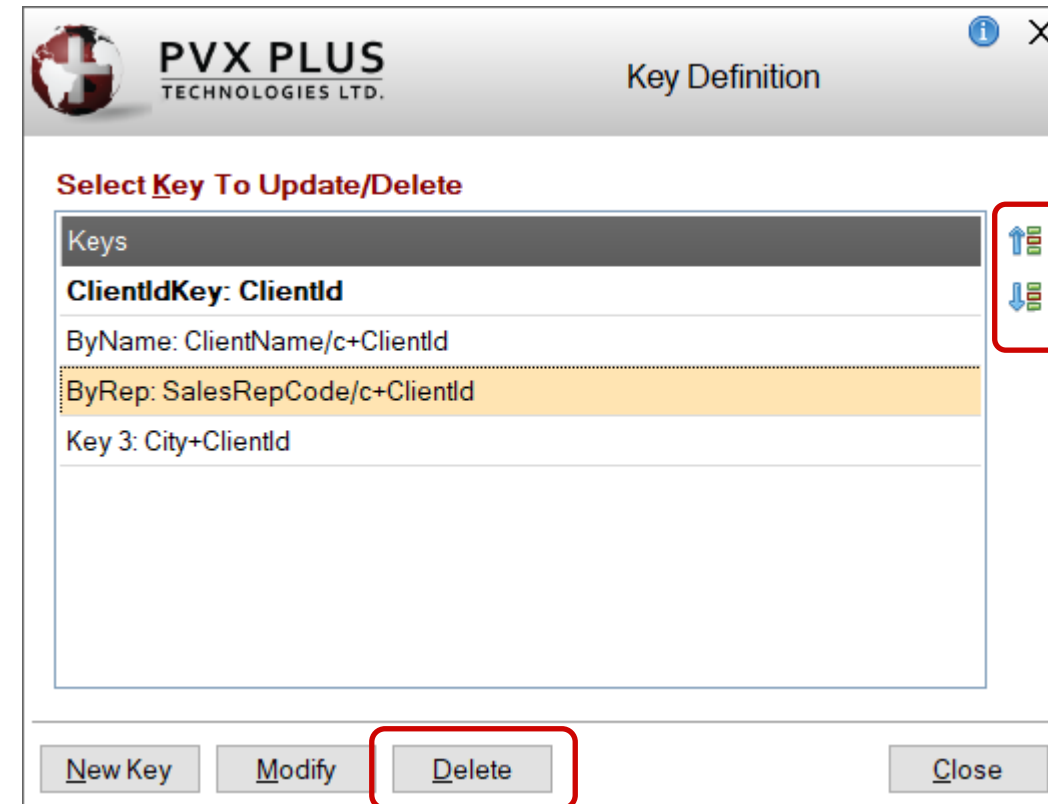
Strip User/Password from Link Files and Prefix Entries  Disable Data Loss Warning

# DATA DICTIONARY - TOOL BAR

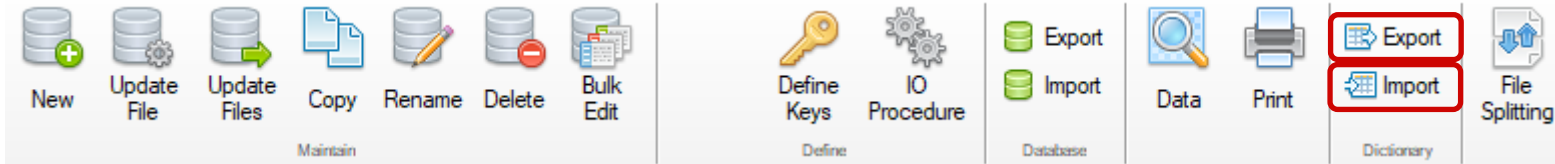


## Define Keys

- Used to Define Keys for the file
  - New Delete button deletes selected key
  - Ability to change order of alternate keys



# DATA DICTIONARY – TOOL BAR

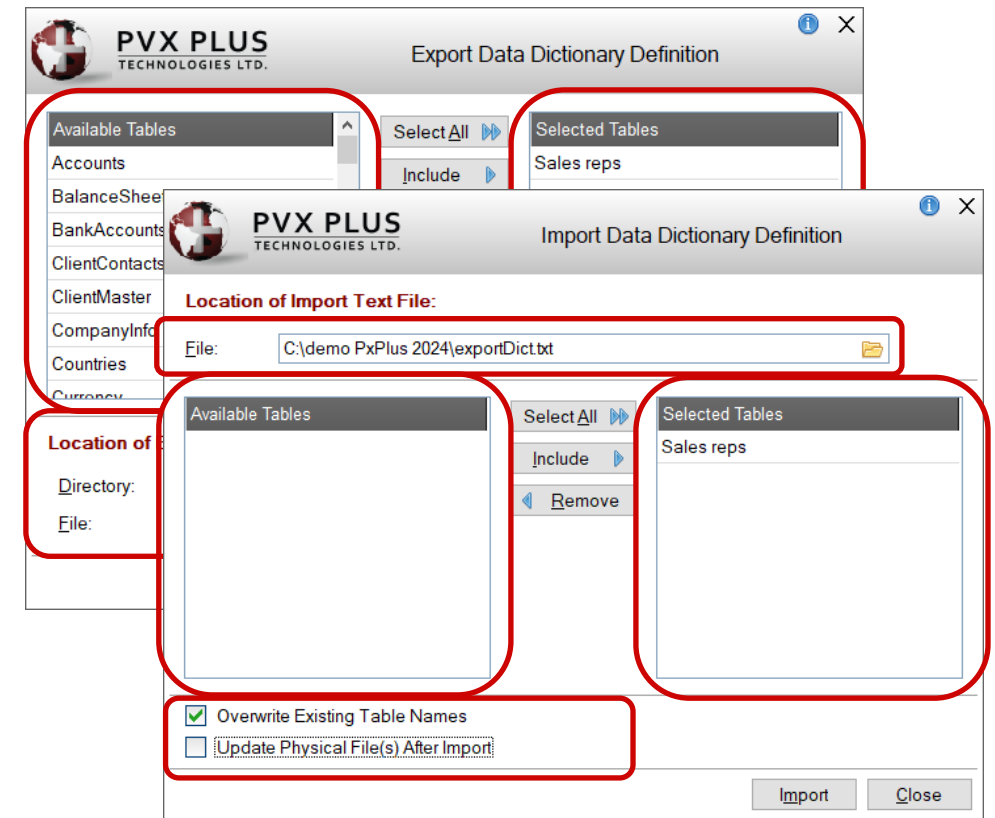


## Export Data Dictionary Definition

- Exports selected data definitions to a text file that can be imported into another data dictionary definition
- Export file can then be imported to another location, such as a customer site

## Import Data Dictionary Definition

- Imports selected data dictionary definitions from the export text file into the selected data dictionary
- Select to overwrite existing tables
- Optionally update the physical file(s) after import

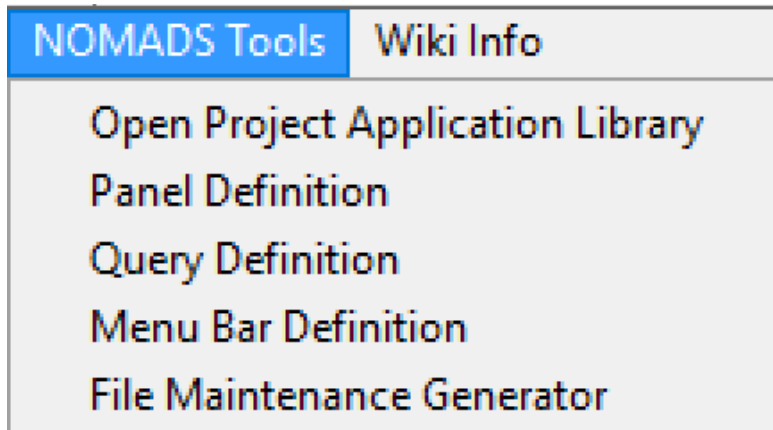


# DATA DICTIONARY – MENU BAR



## Menu Bar

- Data Class Definitions and File Link Maintenance accessibility from the [Utilities](#) menu
- A [Wiki Info](#) menu option was added. It will display Data dictionary file information using the [PxPlus Wiki](#)
- [NOMADS Tools](#) menu added. It will display options for creating and editing library objects



PxPlus Wiki

---

Keyed file:C:\demo PxPlus 2024\data\clients

---

Record count: 200  
 Record size: 768  
 File size: 95744  
 Maximum # Records: Unlimited  
 Field Separator: Hex \$8A\$  
 Last Change date: 2024-05-16 09:38:32  
 Internal IOLIST: IOLIST ClientId\$, ClientName\$, Address1\$, Address2\$, City\$, Region\$, Country\$, ZipCode\$, PhoneEmail\$, ContactName\$, SiteId\$, ShipVia\$, SalesRepCode\$, Balance, CreditLimit, ytdSales, ytdOrdStdTerms\$, ClientTaxGrp\$, Status\$, DateLastOrder\$, InvoiceVia\$

**File Create Command**

KEYED "C:\demo PxPlus 2024\data\clients", ["ClientIdKey":1:1:8], ["ByName":2:1:40:"C"]+[1:1:8], ["ByRep":18:1:3:'

**Data Dictionary table name**

ClientMaster

**Notes**

This is the Client master file definition

**Internal Dictionary - Field Definitions**

Field Name	Format	Description
ClientId\$	CHR(8)	Client ID Data Class: <a href="#">PxPlus 2024\data\Clientid</a> Print format:=%sys.ClientFmt\$ Query panel:Client.Q in scrnlib.*
ClientName\$	CHR(40)	Name Options:Required
Address1\$	CHR(40)	Address Line 1

# DATA DICTIONARY – MAIN/INFO PANEL

## Main/Info Panel

- [Last File Change](#) and [Last Physical Update](#) display-only fields
- [Notes](#) input control added to the Info panel (Previously Notes button on the tool bar)
- Physical File selection now a drop box (Previously two radio buttons)


The screenshot displays the PVX PLUS Data Dictionary Maintenance application window. The interface includes a menu bar (File, Edit, Options, Utilities, Projects, NOMADS Tools, Wiki Info) and a toolbar with various icons for file management and database operations. The main panel is divided into sections: 'Name' and 'Description' (both 'Client Master File'), 'Physical File' (set to 'Fixed' with a path of 'data/client'), and 'File Type' (set to 'Native File'). A 'Notes' text area contains the text 'This is the Client master file definition'. Below the notes are 'Options' for 'Group' (Application), 'Type' (Variable Length), 'Block Size' (Default), and 'Separator' (Default SEP). There are also checkboxes for 'Extended Records', 'Compression Type' (None), 'Convert to Text for Version Control System', 'Force data Validation on WRITE/UPDATE', and 'Enable UpdatePlus logic'. A warning message at the bottom states: 'The system default separator is \$8AS. Do NOT use \$00\$, \$01\$, \$02\$, \$03\$, \$04\$, \$09\$ or \$0AS in a Nomads environment.'

# DATA DICTIONARY – MAIN/INFO PANEL

## File Type


### Physical File

Fixed  clients 

**File Type**  
Native File 


- Displays current file type for the file
  - Native PxPlus files

### File Type

Native File 

- Database Type files

### File Type

ODB Link File 

- Displays Database type and type of file
- Selecting button displays link or prefix file contents

Link File for regions





```
[Pxdev].                extdb
ODB
lendb
Regions
USER=Admin
PSWD=Admin
NULLPADKEY=Y
KEY=Region
KEY=RegionCode,Region
REC=Region:24,CountryShort:3,RegionCode:10,TaxGroup:12
DDFNAME=Regions
```

C:\webster8088\data\regions Close



# DATA DICTIONARY – MAIN/INFO PANEL





## Lookup Table Names

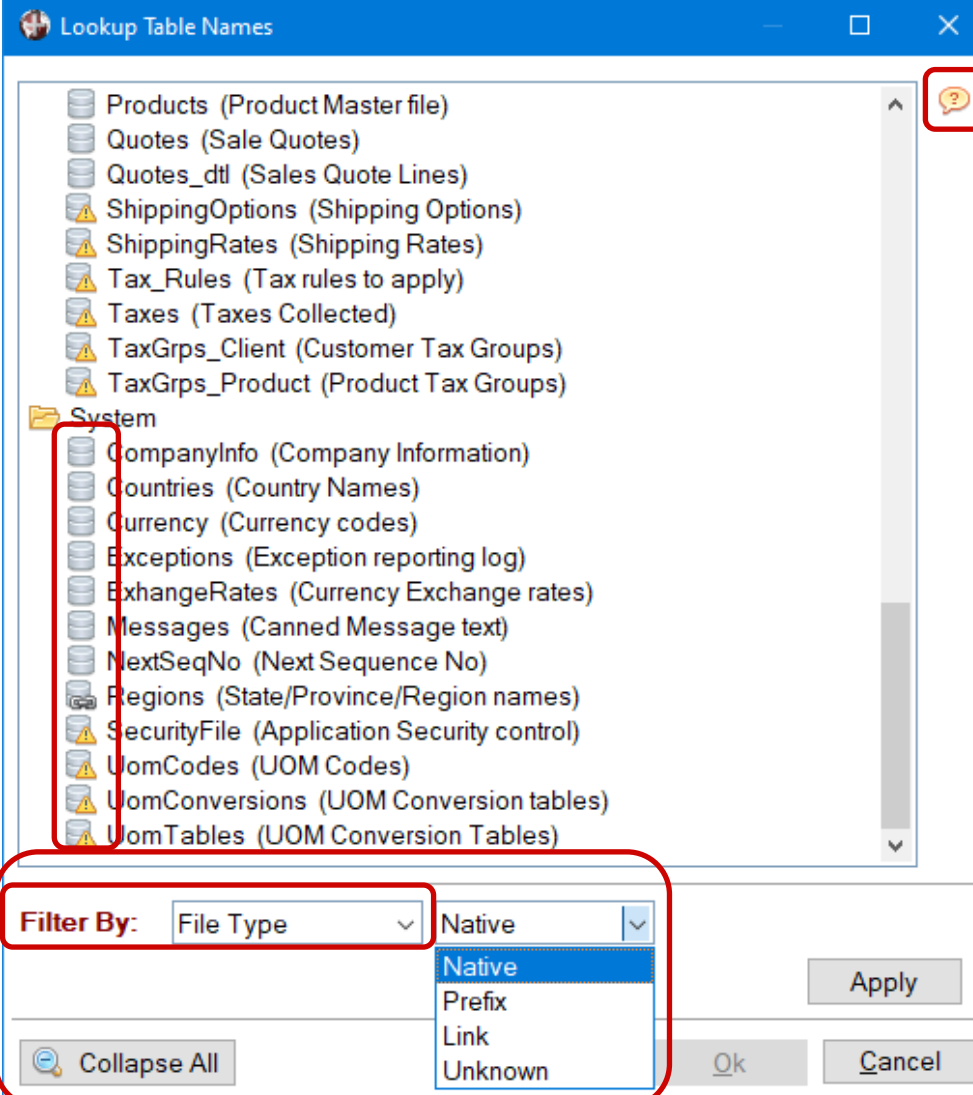
Name:     

Description:

- Selecting the lookup button displays a tree view list of table names in the data dictionary by group
- Table descriptions were added to the list
- New Collapse All/Expand All button
- New filtering capability by File Type and Database type
- Added file types
- Hovering over question mark icon displays a list of File Type icons

**File Type Icons**

-  Native
-  Prefix
-  Link
-  UnKnown



The screenshot shows the 'Lookup Table Names' window with a tree view of table names. The 'System' folder is expanded, showing a list of tables such as 'CompanyInfo', 'Countries', 'Currency', etc. A red box highlights the 'Filter By' dropdown menu, which is currently set to 'File Type'. The dropdown menu is open, showing the options: 'Native', 'Prefix', 'Link', and 'Unknown'. A red box also highlights the question mark icon in the top right corner of the window.

# DATA DICTIONARY - ELEMENTS PANEL

New grid user interface for Data Dictionary [Elements](#) tab

2019

File Edit Options Utilities Projects

PVX Plus TECHNOLOGIES LTD. Data Dictionary Maintenance

New Update File Copy Rename Delete Data Notes Define Keys IO Procedure Database Convert Print File Splitting

Name: Client Master File  
Description: Client Master File

Non-Normalized  
Record Format: Define

**Data Elements**

Name	Description	Type	Len	Fmt
ClientId	Client ID	S	6	D
ClientName	Name	S	40	D
Address1	Address	S	40	D
Address2	Address	S	40	D
City	City	S	40	D
State	State / Province	S	2	D
Country	Country	S	10	D
ZipCode	Zip code/Postal Co...	S	10	D
PhoneNumber	Phone Number	S	16	D
PhoneExtension	Phone Extension	S	4	D
Website	Website URL	S	50	D
WebPwd	Website Password	S	10	D

**Global Dictionary**

- Name
- Address
- ClientId
- InvoiceNumber
- Name
- PhoneNumber
- Price
- ProductCode



2024

File Edit Options Utilities Projects NOMADS Tools Wiki Info

PVX PLUS TECHNOLOGIES LTD. Data Dictionary Maintenance

New Update File Update Files Copy Rename Delete Bulk Edit Define Keys IO Procedure Export Import Data Print Export Import File Splitting

Name: Client Master File  
Description: Client Master File

Non-Normalized  
Record Format: Define

Search Grid for: (F3)

**Data Elements**

Field	Dtl	Field Name	Data Class	Description	Type	Len	Format	Display	Ext	Req	U/C	R/O
1		ClientId		Client ID	Str	6	Delimited	000000	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2		ClientName		Name	Str	40	Delimited		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3		Address1		Address	Str	40	Delimited		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4		Address2		Address 2	Str	40	Delimited		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5		City		City	Str	40	Delimited		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6		State	STATE	State / Provinc	Str	2	Delimited	AA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7		Country	COUNTRY	Country	Str	10	Delimited		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8		ZipCode		Zip code/Post	Str	10	Delimited		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9		PhoneNumber		Phone Numbe	Str	16	Delimited	000-000-0000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10		PhoneExtension		Phone Extensi	Str	4	Delimited	###0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11		Website		Website URL	Str	50	Delimited		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12		WebPwd	PASSWORD	Website Passw	Str	10	Delimited		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>










**Global Dictionary**

- Name
- Address
- ClientId
- InvoiceNumber
- Name
- PhoneNumber
- Price
- ProductCode



BRIDGING THE PAST AND THE FUTURE

# DATA DICTIONARY – ELEMENT ENHANCEMENTS














## Grid Side Tool Bar Buttons

Button	Description
	Move Up
	Move Down
	Insert Above
	Insert Below
	Undo Last Change
	Add Notes
	Edit Notes
	Update Global Dictionary in other files
	Add Element to Global Dictionary

## Additional Grid Buttons

Button	File Type
	Display a list of Global Dictionary elements and their descriptions
	Display Element Description dialog for Element

**Data Elements**

Field	Dtl	Field Name	Data Class	Description	Tvnel	en	Format	Display	Ext	Req	U/C	R/O
1		ClientId										
2		ClientName										
3		Global Element										
4		ImagePath										
5		ZipCode										
6		Field_3										
7		Address 1										
8		Address22										
9		City										
10		Region										
11		Country										
12		ClientName										
13		Website										

**PVX PLUS TECHNOLOGIES LTD. Element Description**

Name: ClientId  
 Class: ClientId  
 Alt. Name:   
 External Only  
 Required  
 Upper Case  
 DB Null if Empty  
 Read Only

**Display**  
 Type: String  
 Format Mask: Delimited  
 Length: 8  
 Occurs:

**User Aids**

**Query**  
 Fixed Client ID

**ODBC**

**Default / Input Value**  
 Fixed

**Validation / Rules**  
 Fixed

**Print / Input Format**  
 Expression %sys.ClientFmt\$

**User Defined Tag Field**  
 Fixed

Security Clear Delete Ok Cancel Apply

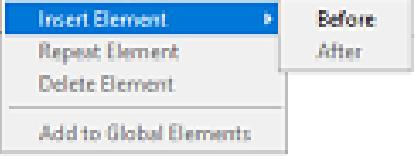
# DATA DICTIONARY – ELEMENTS PANEL

## Right Click on Field Name

- Right click capability when focus is on Field Name cell

**Data Elements**

Field	Dtl	Field Name	Data Class	Description	T
1		VendorCode		Vender Code	S
2					



Function	Description
Insert Element	Inserts a new element Before or After
Repeat Element	Repeats the settings for the selected element
Delete Element	Deletes the currently selected element
Add to Global Elements	Adds selected element to Global Dictionary

# DATA DICTIONARY – ELEMENTS PANEL

## Search Grid Option

- Searches grid as each character is entered
- F3 puts focus on search field

**Info**

**Elements**

Non-Normalized

Record Format:  Define

Search Grid for: (F3)

sa

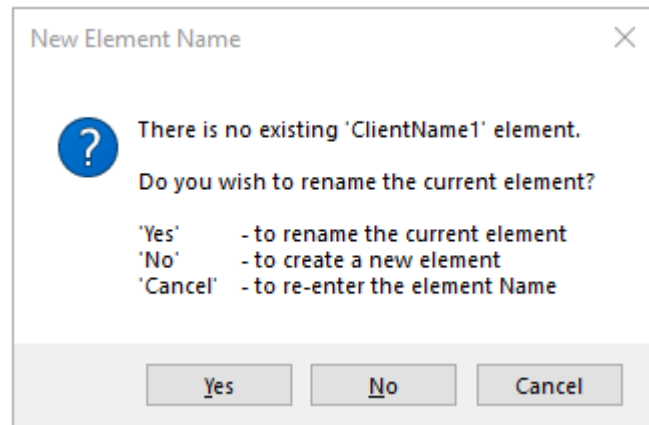
**Data Elements**

Field	Dtl	Field Name	Data Class	Description	Type	Len	Format	Display	Ext	Req	U/C	R/O	
18		SalesRepCode	Salesrep	Sales Rep Cod	Str	3	Delimited		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
19		Balance		Balance	Num	10.2	Delimited	-##,###,##0.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

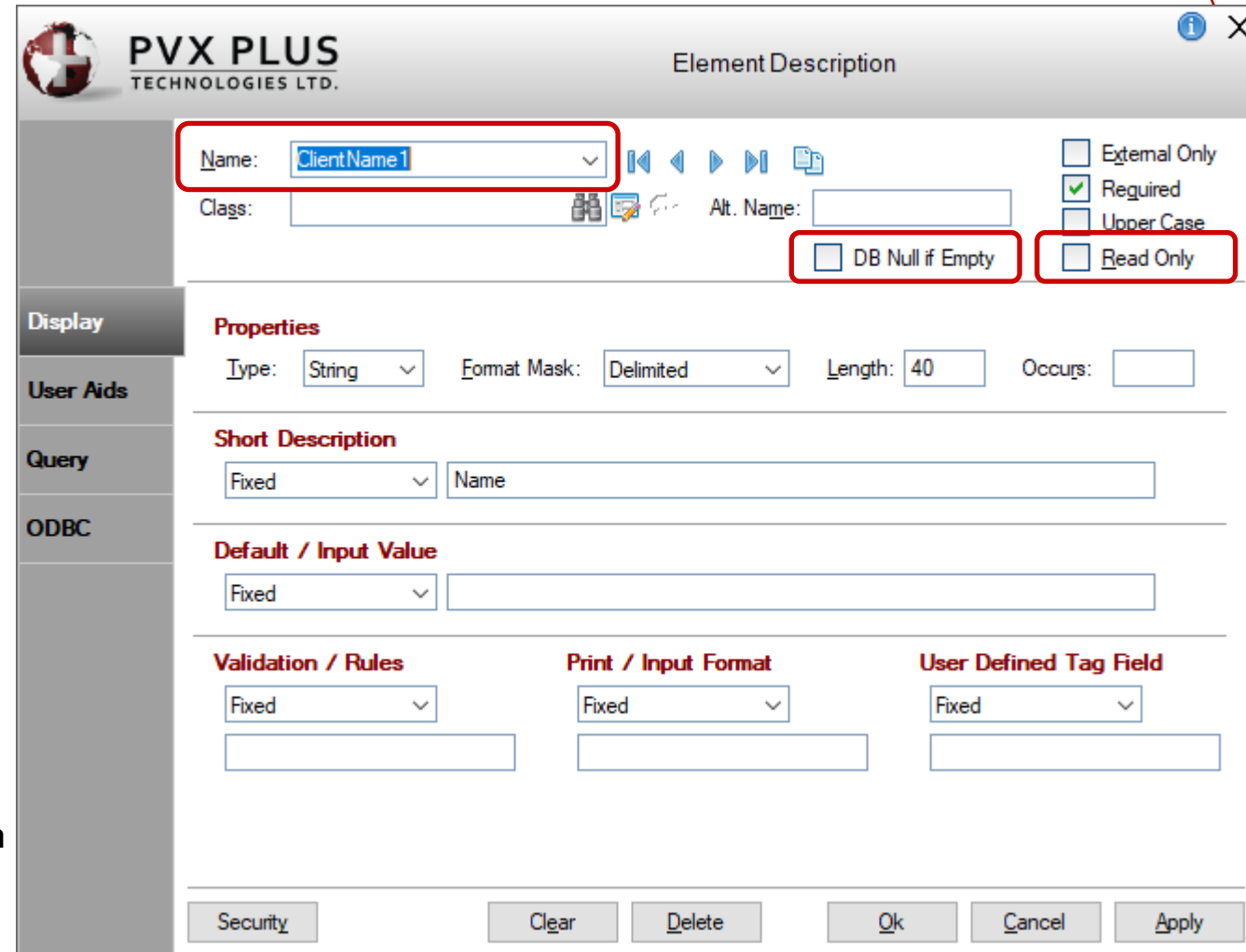
# DATA DICTIONARY – ELEMENTS DESCRIPTION

## Elements Description Dialog

- Ability to [Rename](#) an element
- Element Name field is now a variable drop box



- [Read Only](#) attribute added for Data Dictionary elements
- [DB Null if Empty](#) option added to Element definition to allow a null value to be returned when interacting with a database link or prefix file



# DATA DICTIONARY – ELEMENTS DESCRIPTION

## Elements Description Dialog

- [Floating Tips](#) added to User Aids panel
- [Define](#) button added to Query panel

**PVX PLUS TECHNOLOGIES LTD.**

Element Description

Name: ClientId

Class: ClientId

Alt. Name:

External Only

Required

Upper Case

Read Only

DB Null if Empty

Query Type: Panel

**Panel/Program Attributes**

Fixed

Expression

Library: scmlib.\*

Panel: Client.Q

**Define**

**Non-Query Logic**

Ignore

**Spinner Attributes**

Increment: 1 Start: 1 End: 9999

Security Clear Delete Ok Cancel Apply





# DATA CLASSES



# DATA CLASS DEFINITIONS

## Data Class Definition

- Enter Notes for a Data Class definition
  - Notes will get copied to Data Dictionary element
- Last Class Change date and time stamp
- Width and Height properties for [Multi-Line Data Classes](#)
- Define button added to Query tab for [Drop Box](#), [List Box](#) and [Multi-Line](#) data classes

The screenshot shows the 'Data Class Definitions' window in PVX PLUS TECHNOLOGIES LTD. The window title is 'Data Class Definitions'. The class name is 'PaymentType'. The control type is 'Drop Box'. The description is 'Fixed' and 'Payment type'. The internal data type is 'String' and the internal size is '1'. The 'Dynamic' checkbox is checked. The 'Query Type' is 'Panel'. The 'Panel Information' shows 'Fixed' as the panel type, 'scmlib.\*' as the library, and 'PAYMENTTYP.Q' as the panel. A 'Define' button is highlighted with a red box. The 'Query Button Options' section includes a 'Suppress Query Button' checkbox, a 'Bitmap Image' dropdown set to 'Fixed', a 'Width' field set to '0.00', and a 'Floating Tip' dropdown set to 'Fixed'. The 'Attributes' section includes checkboxes for 'Bitmap Button', 'Flat Button', 'Embedded', 'Transparent', and 'Flat - No Border'. The bottom of the window has buttons for 'Popup Menu', 'Write', 'Delete', 'Clear', and 'Exit'.

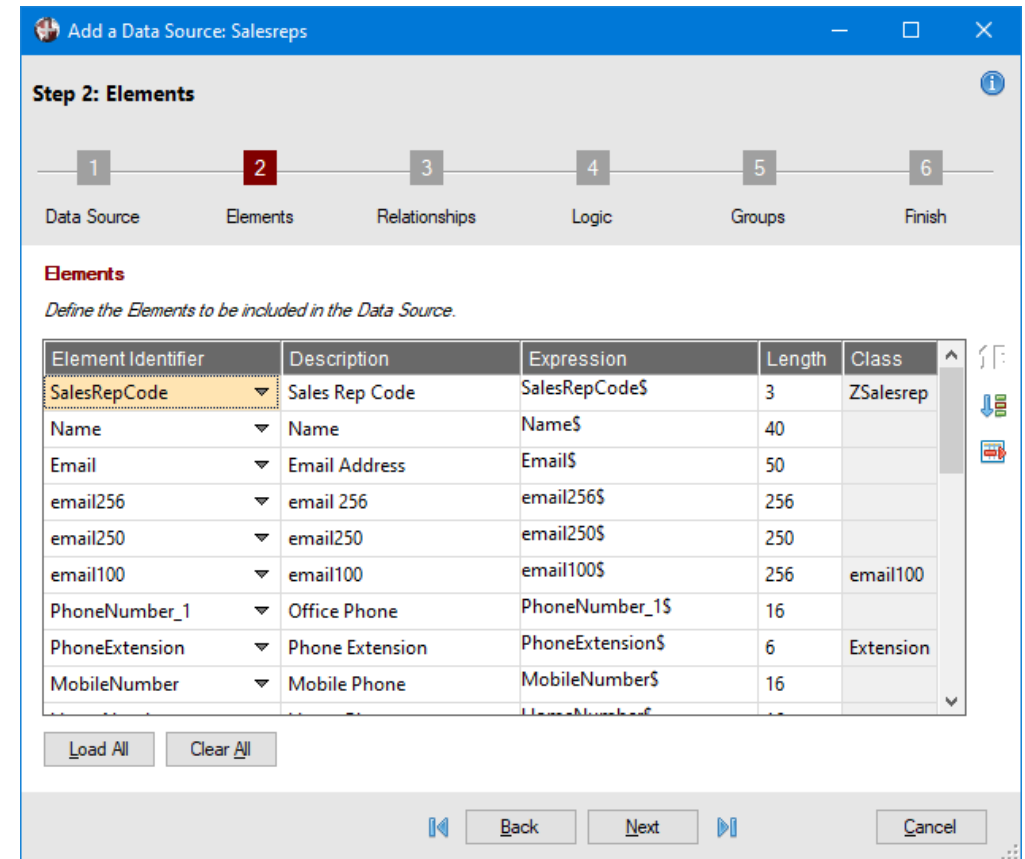
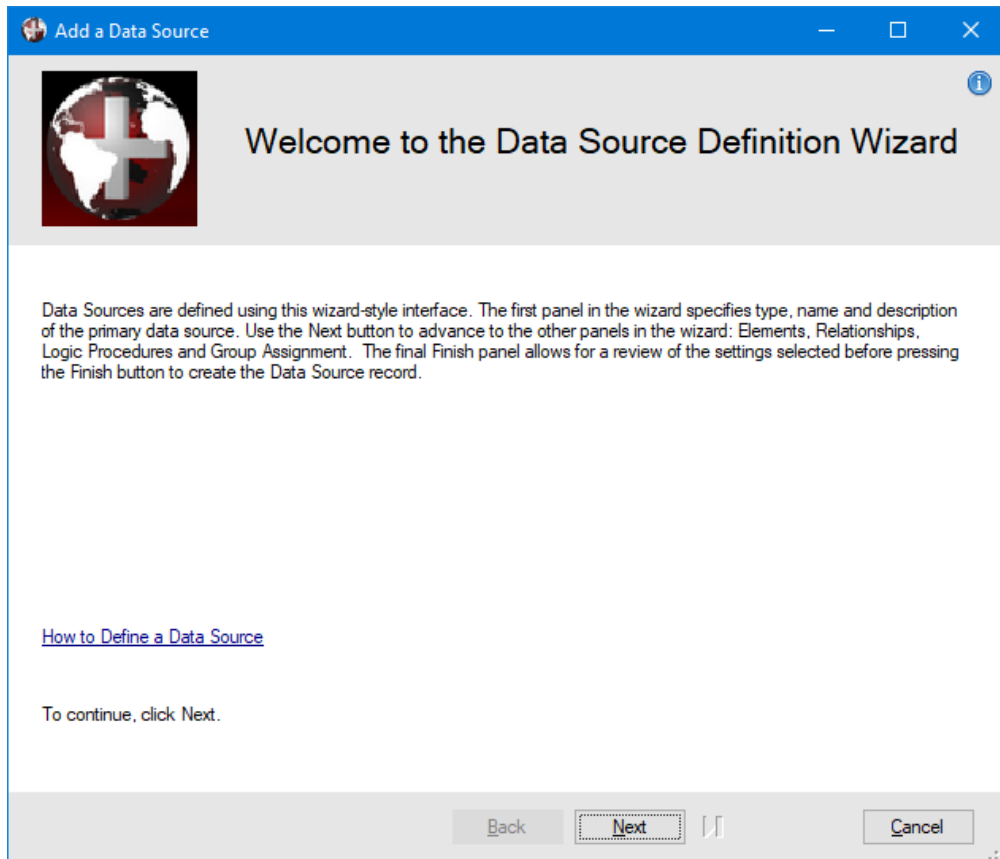


# VIEWS

# VIEWS

## Data Source Definition Wizard

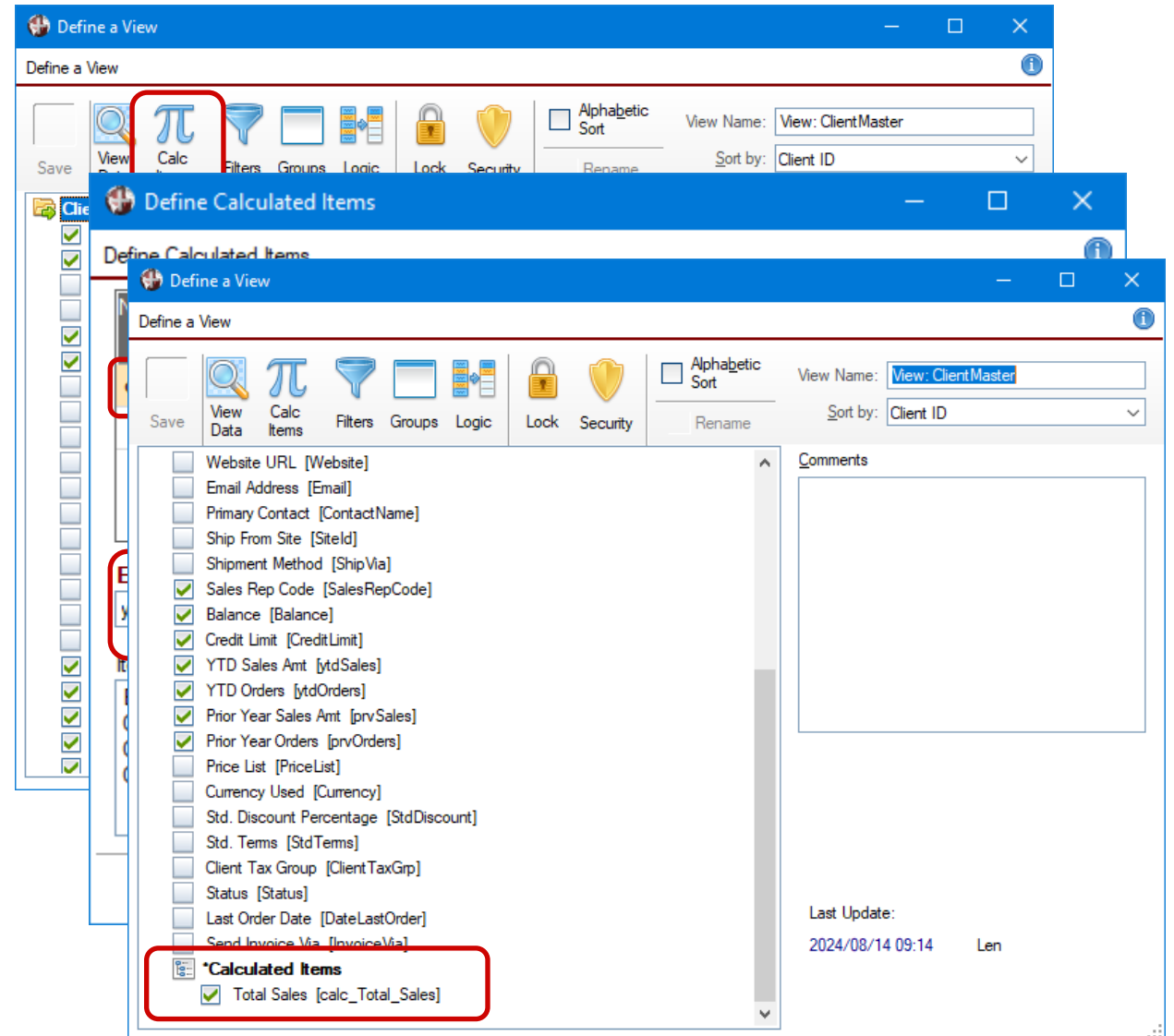
- New Wizard interface with added features



# VIEWS

## Views Maintenance

- Added [Calculated Fields](#) to Views
- Selecting the Calc Items tool bar button displays the Define Calculated Items dialog
- Define the calculated field by naming it and entering the calculation expression
- Expression can be entered or the Build Expression dialog can be used
- Once created, it displays in the View fields





# EDITORS

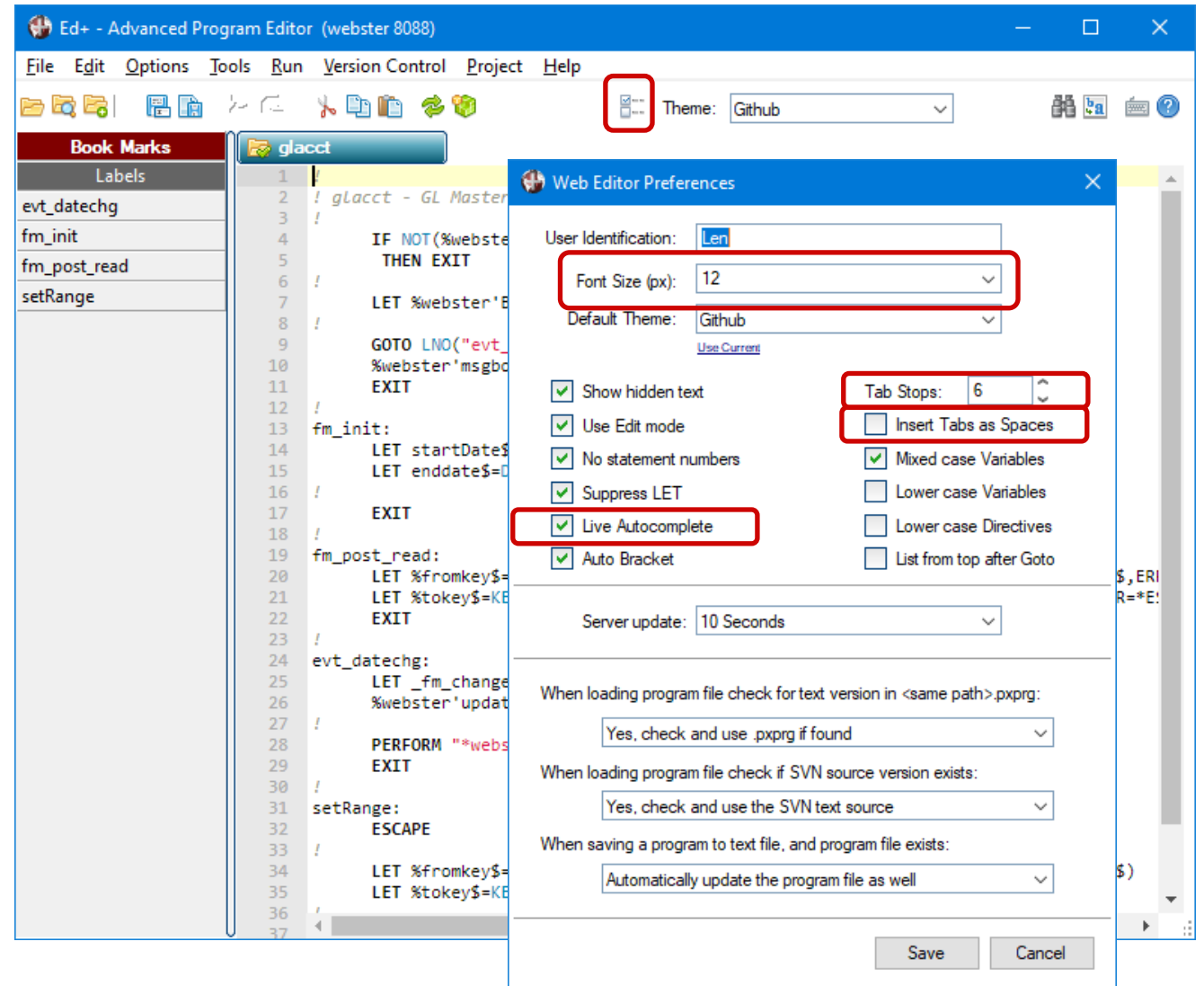
- **Usability Enhancements**
  - [Default to INSERT Mode](#) setting added to Options menu
  - Options for launching HTML Editor and Report Designer added to Run menu
  - Ability to [Open Non-Program Files](#) such as a PxPlus data file, a report definition file (\*.pvr) or an HTML file



- Introduced in PxPlus 2016, based on open source ACE Editor
- Supports both Windows and Web-based environments
- Updated to Version 1.5.0 of Ace Editor in PxPlus 2023
- **Usability Improvements**
  - Improved syntax highlighting for PxPlus programs
  - [Autocomplete](#) option added to the Edit menu for on-demand usage
  - New Menu options added to File, Edit, Tools, Help similar to \*IT
  - New [Run](#), [Version Control](#) and [Project](#) menus to match \*IT
  - Keyboard shortcuts to commonly used functions on the [Edit](#) and [Tools](#) menus
  - Panel persistence

## Web Editor Preferences dialog

- Accessed via User Preferences tool bar button
- [Font Size](#) option for setting a font size
- [Live Autocomplete](#) option for setting Autocomplete as a default
- Default [Tab Stops](#) setting changed from 5 to 6 to match \*IT
- [Insert Tabs as Spaces](#) option for inserting tabs as spaces instead of tabs





- **Webster+ Inspector - Program file**

- Selecting a program file in Inspector
- Edit button launches ED+

« Webster Plus

Contents of C:\webster8088\prog\glacct

File size: 936 bytes | Last saved by Admin | Last saved on 2024-08-23 16:27:58

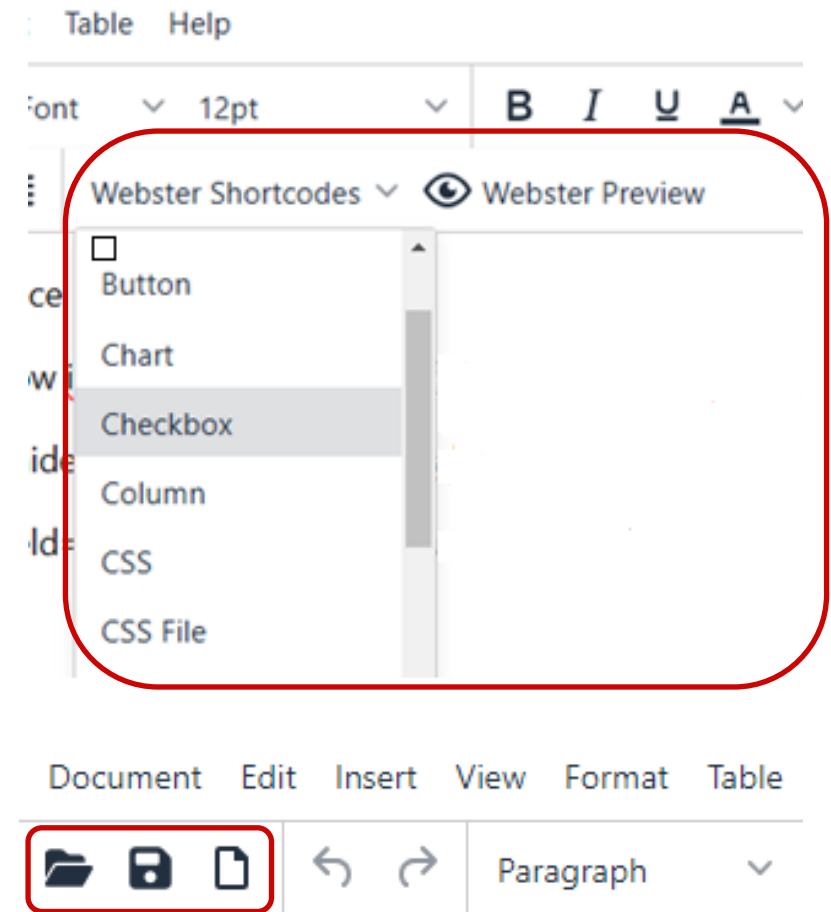
ED+: C:\webster8088\prog\glacct

```

1  !
2  ! glacct - GL Master file interface -- handles List of transactions
3  !
4      IF NOT(%webster'SecurityRequired("")) \
5          THEN EXIT
6  !
7      LET %webster'BindFile$="glacct.html"
8  !
9      GOTO LNO("evt_"+_event$,ERR=*NEXT)
10     %webster'msgbox("Invalid event: "+_event$,"Internal Error - "+PGM(-3),"!")
11     EXIT
12  !
13  fm_init:
14     LET startDate$=DTE(JUL(0,0,0)-180:"YYYYMM")+ "01"
15     LET endDate$=DTE(0:"YYYYMMDD")
16  !
17     EXIT
18  !
19  fm_post_read:
20     LET %fromkey$=KEY("ledger_post_dtls",KNO="ByAcctDate",KEY=glacct$:startDate$,ERR=*ESCAPE)
21     LET %tokey$=KEY("ledger_post_dtls",KNO="ByAcctDate",KEY=glacct$:endDate$,ERR=*ESCAPE)
22     EXIT
23  !
24  evt_datechg:
25     LET _fm_changes=MAX(0,_fm_changes-1)
26     %webster'update("_fm_changes",STR(_fm_changes))
27  !
28  DEFCODM "*webster/fm webmaint:Reload lists"
  
```

# HTML EDITOR

- Updated TinyMCE® to Version 5.5.1 in PxPlus 2021
- **Usability Enhancements**
  - List of recently opened files available from [File](#) menu
  - [allowScripts](#) property added to the TinyMCE® object to allow editing of HTML with JavaScript
  - Added dirty file capability
  - Project support - Add HTML files to [Projects](#)
  - HTML page updates added to IDE History
  - Panel persistence
  - Ability to insert [Webster+ Short Codes](#) and [Preview](#) Webster+ page
  - Open, Save and New Page buttons added to the [Tool Bar](#)



# HTML EDITOR

- **Webster+ Inspector - HTML file**
  - Selecting an HTML file in Inspector
  - Edit button launches HTML Editor

« Webster Plus

Contents of C:\webster8088\pages\product.html

127.0.0.1:8088/webster.pxp?tx\$=\*htmledit&htmlfile\$=C%3A%5Cwebster8088%5Cpages%5Cproduct.html

HTML Editor: C:\webster8088\pages\product.html

Save Full Page

Save Save As New Close

Document Edit Insert View Format Table Help

Paragraph System Font 12pt B I U A [color picker] <> ?

Webster Shortcodes Webster Preview

```
[tt]Product Master File Maintenance[/tt]
[form program=*fm_webmaint] [show infobox_msg$ class="infobox show_till_change"]
[rem ScreenLibrary=scrnlib.en] [hide %fm_usefile$ value="Products" secure]
[section half] [row "\[show usefile field=ProductCode$]\:"] [input ProductCode$ usefile event=Change_Key focus] [include
*fm_browse.html][[/row]
[/section]
[section half] [row "\[show usefile field=Description$]\:"] [input Description$ usefile][[/row]
[/section]
[folder Folder$ class="web" ][table]General[/table]
```

Print

# VISUAL STUDIO CODE EXTENSION

- Added in PxPlus 2024
- Create/edit PxPlus and PxPlus text-based programs
- PxPlus syntax highlighting and error diagnostics
- Document-based Auto Complete
- Settings:
  - Specify file extension for text-based PxPlus programs
  - Manage display preferences for Lowercase Directives, Lowercase Variables, Mixed Case Variables and Suppress LET Directives

Learn more at the  
'Working with External Tools' session

## Settings

Setting	Description	Default
Pxplus Path	Specify the path to the directory where the PxPlus executable is located (i.e. C:\PVX Plus Technologies\PxPlus 2024).	
Text Program File Extensions	Specify which file extensions Visual Studio Code should consider a text-based PxPlus program. - You can add new extensions via the <i>Add Item</i> button - Edit existing extensions via the pencil icon beside the item. - Delete extensions via the X icon beside the item.	.pxprg
Max Number Of Problems	Controls the maximum number of problems reported for PxPlus programs.	100
Lowercase Directives	Displays the code with lowercase directives.	off
Lowercase Variables	Displays the code with lowercase variables.	off
Mixed Case Variables	Displays the code with mixed case variables.	on
Suppress LET	Displays the code without LET directives.	off



# APPENDIX



# NOMADS PROPERTIES

# NOMADS PROPERTIES

Property	Description
<a href="#"><u>%NOMADS&gt;List Popup</u></a>	Applies system popup menus to all List Boxes and Grids
<a href="#"><u>%NOIMADS&gt;List Popup\$</u></a>	Replaces the default text associated with the system popup menu
<a href="#"><u>%NOMADS&gt;List Popup Suppress Option</u></a>	Used to suppress any combination of system popup menu options
<a href="#"><u>%NOMADS'DeveloperCharts</u></a>	Used to save new public developer AutoChart definitions separate from end-user definitions
<a href="#"><u>%NOMADS'TipTimerCycles</u></a>	Set the length of time in seconds that a tip will be displayed
<a href="#"><u>%NOMADS'Query View</u></a>	New Option '5' added for Drop Tree

# NOMADS PROPERTIES

Property	Description
<a href="#"><u>%NOMADS'Disable Folder Colors\$</u></a>	Sets the default color(s) of a disabled folder tab
<a href="#"><u>%NOMADS'Disable Folder TextClr\$</u></a>	Sets the color of the text displayed in the tab of a disabled folder
<a href="#"><u>%NOMADS'Hover Folder Colors\$</u></a>	Sets the default hover color(s) of a folder tab
<a href="#"><u>%NOMADS'Hover Folder TextClr\$</u></a>	Sets the hover color of the text displayed in a folder tab
<a href="#"><u>%NOMADS'Tab Folder Colors\$</u></a>	Sets the default color(s) of a normal folder tab
<a href="#"><u>%NOMADS'Tab Folder TextClr\$</u></a>	Sets the color of the text displayed in a normal folder tab



# NOMADS PROPERTIES

Property	Description
<a href="#"><u>%NOMADS'AutoLogon</u></a>	Controls if the security system will automatically log on a Windows user based on their Windows User ID
<a href="#"><u>%NOMADS'WikiUrl\$</u></a>	Sets the URL to be used with the Nomads Wiki
<a href="#"><u>%NOMADS'Program Editor</u></a>	Sets the default program editor that Nomads will launch when opening and editing PxPlus programs
<a href="#"><u>%NOMADS'Menu Text Clr\$</u></a>	Sets the default text color for menu items
<a href="#"><u>%NOMADS'Menu Top Option\$</u></a>	Controls whether the text and background menu colors will be applied to the top level of the menu bar as the default