

ESBPCS Overview

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1 ESBPCS Overview

ESBPCS for VCL v3.0.4 ESB Professional Computation Suite

for Borland Delphi & C++ Builder

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For detailed info on Components, Routines, etc see ESBPCS.HLP

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Support Email: support@esbconsult.com

News Server: news.lanbytes.net

Newsgroup: esbpcs.support

2 Introduction

2.1 Introduction

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Making Data Entry and Manipulation Easier.

ESB Professional Computation Suite (ESBPCS) is a collection of over 6000 routines/methods and over 190 classes/components in over 130 units for Borland

Delphi 5, 6 & 7 and C++ Builder 5 & 6, which are **aimed at making data entry and manipulation easier for the Developer and their clients.**

Our components are designed to do more of the work for you and your users. Powerful Edit controls with Alignment, Read Only Coloring, Disabled Coloring, Optional Flat/"Hot" Look'n'feel, On Focus Coloring, and a plethora of data specific properties and methods make using MaskEdit a thing of the past. Plus we supply a flexibility that your users have always wished for from edit controls. We also supply special components for the editing & displaying of Fractions, Date/Time, Complex Numbers, Vectors & Matrices. Also includes Resource friendly Spin Edits, ComboBoxes, CalcEdits, Calculators, Calendars, Attachable Labels, IP Address Edits, Hex Edits, CheckBoxes, RadioGroups and CheckGroups.

Let us do the Calculations for you.

Areas covered include Extended Currency Types, Date & Time Manipulation, Trigonometry, Statistics, Linear Regression, Probability Distributions, Special Functions, Optimised Math, Vectors, Matrices, Equation Solving, Fractions, Business Math, Accounting, Complex Numbers, Geometry, Unit Conversions and much more. There are also components to aid in Statistics, Unit Conversion, Math Label for displaying formulae and a Repeatable Speed Button that doesn't use a Timer.

Empowered Data Entry and Manipulation for your users.

Data Aware Versions - many of the components have Data Aware versions and we are working on more. These components allow formatting from the control rather than playing with Field Settings or Masks. Plus the Aligned Edits stay aligned during data entry which is one of the most asked for things from our users and no doubt yours as well. Also includes Data Aware Labels, Data Aware Linear Regression & Data Aware Descriptive Statistics. Note: Data Aware Components and Routines are not included in the **"Lite" Version**.^[9]

Delphi Math Unit is not required thus making the routines accessible to people with Standard Versions (which in some Countries do not include the Math Unit). Unfortunately, people with Delphi 5 Standard, BCB 5 Standard, Delphi 6 Personal, Delphi 7 Personal and BCB 6 Personal cannot use the Data Aware Components but they can use everything else - so they should check out the **"Lite" Version**.^[9]

Why Use ESBPCS?

- **Date/Time Handling - ESBPCS** not only supplies an extensive collection of routines to do Date & Time Manipulation it also includes components that give you full control over the way Dates and Times are handled. Also included is a combined TDateTime Edit as well as ComboBoxes & Spin Edits for Months & Days Of Week that use the regional settings. Plus with the Time Zone Components you can display the Time anywhere in the World. The Calendar

Panel allows design of sophisticated Calendar Entry and this is demonstrated in the CalEdits - a Date Edit with an attached button that displays a pop up calendar with Holiday support.

- **Financials - ESBPCS** includes many useful financial routines covering everything from simple profit Calculations up to Annuities & Depreciation Analysis. Plus if you are not happy with the Delphi Currency type we supply 2 alternative types - **ESBCurrency**⁶⁸ and **ESBLongCurrency**⁶⁹.
- **Calculator - ESBPCS** allows you to easily add a Calculator to your application. Plus we supply CalcEdits, which are combined Edits with a Calculator Button so all the work is done for you.
- **Unit Conversions** - If your Apps need to be able to convert from Inches to Millimetres, from Pounds to Kilograms or even from Light Years to Furlongs! then **ESBPCS** can help you.
- **Internationalization** - our controls and routines use Regional Settings wherever possible so a package that works well for users in USA, should also work well for Europeans, South Americans, Asians and even for us Aussies.
- **Astronomy & Positional Calculations** - our routines allow you to work our Sunrise Time, distance between two places given Latitude and Longitude and much more.
- **More features in Data Aware Controls** - if you want more features in your Data Aware Controls then **ESBPCS** is worth checking out. When an Edit Control is Right Aligned, then it stays Right Aligned when doing the edit. Plus there are many useful methods and properties for each Data Aware Control.
- **Educational Applications** - if you want to put Applications together for Educational purposes, then **ESBPCS** supplies Fractions and Geometry routines that will make it real easy to teach these features.
- **Statistics** - Most applications these days could be improved by adding a few statistics - so impress your users with the ease in which you can add Stats to your Apps by using either the many routines supplied or the Descriptive Statistics Components and Data Aware Linear Regression Component.
- **Math** - if you would like more Math than Delphi supplies then this is the Suite for you. Many of the routines have been BASM optimised to make the best use of the FPU.
- **Complex Numbers** - For those of you who miss Complex Numbers that languages like FORTRAN supplies, then **ESBPCS** is for you. Not only do we supply a whole swag of routines for Complex Numbers but also supply a

Compound Edit component to allow easy display and entry of Complex Numbers.

- **Matrices & Vectors** - Not only do you get sophisticated support of Matrix & Vector Operations but you also get Components for the Display and Edit of them. Plus these components include many useful methods and properties.

2.2 Versions

ESBPCS contains the following items that **ESBPCS Lite** does not:

- Data Aware Components
- Data Aware Routines
- Data Aware Demos
- Source to the ESBPCS Installer

Both versions do include Source, Utilities, Help Files and Demos.

ESBPCS Lite is designed for those who really wish the Routines and/or components but don't have any need for the Data Aware side of things. This makes it ideal for people with Standard/Personal versions.

You can **upgrade** from **ESBPCS Lite** to the full **ESBPCS** at any time.

ESBPCS Lite sells for \$89 USD

ESBPCS Full version sells for \$159 USD

ESBPCS for .NET - This is under development and will be offered as a separate product. Due to the different nature of the .NET Framework, **ESBPCS for .Net** will have different features and components to that of **ESBPCS for VCL**, though there will be much similarity also. **ESBPCS for .Net** will also have different Version Numbering to that of **ESBPCS for VCL**.

Whilst this will be marketed as a separate product, Registered owners of **ESBPCS for VCL** will get a chance to get a free copy once the product reaches it's Beta Testing Stage and you are willing to help out with testing. We hope to have the first Beta available in the fourth quarter of 2003, but we are offering no guarantees of this. We are initially developing around Visual Studio C# Language and will see where we go from there.









There are also Freeware subsets of **ESBPCS** available for VCL and CLX Platforms.



2.3 What's New with v3

2.3.1 What's New with v3

ESBPCS v3 is a major redesign of **ESBPCS** to include such things as centralized control of the User Interface, Calculator Engines and much more.

New areas include:

- **ColorSets**  ¹⁰
- **UICtrls**  ¹¹
- **StorageCtrls**  ¹³
- **StateCtrls**  ¹³
- **Calculators**  ¹⁴
- **Unit Conversions and Convertors**  ¹⁴
- **MS Excel-like Financial Functions**  ¹⁵
- **Other Notes**  ¹⁶

Also Check out the update **FAQ**  ⁴⁷ as well as the detailed **Unit Listing**  ¹⁶

2.3.2 ColorSets

Backward Compatibility

ColorSets are designed to replace the various Color and Flat Properties. To allow backward compatibility, the old properties are still supported, though their values will no longer be stored in the DFM's. The **ESBPCS.INC** file includes the option to remove **ESBPCS 2** compatibility for those who don't want to see all the "old" properties in the Object Inspector.

On Focus Coloring

In **ESBPCS 2**, to obtain On Focus Coloring, one would set ColorFocus to a different color to ColorRW. This has now changed with ColorSets, since there is not only FocusColor but also FocusFontColor, FocusFontStyle, etc. Thus a new ColorSet property has been introduced called ShowFocus – when this is True then the various FocusXXX Properties will be used, otherwise RW properties will be used for normal editable components.

Hot Tracking

Whilst CheckBoxes, RadioButtons and GroupCtrls had a HotTracking property, other Edit Components relied on the ColorFocus setting to decide whether Hot Tracking was to occur. Thus Hot Tracking Colors were the same as On Focus

Colors. This has changed with **ESBPCS 3**. ColorSets now have a HotTracking property for all components, and separate HotXXX and FocusXXX Properties. Plus HotTracking can be enabled with On Focus Coloring disabled and vice versa.

Font Styles

Font Styles should no longer be set in the Font Property of the Controls that have ColorSets, since you can now set different Font Styles for different states – such as Read/Write, ReadOnly, Focused, etc

ComboBoxes and XP Themes

Since our ComboBoxes are descended from the Delphi ones, the appearance was a little less than desirable when Windows XP Themes were enabled on a flat **ESBPCS** ComboBox. Thus we have introduced XPThemesCombos – when this is true and at runtime Windows XP Themes are found to be in effect, then the Flat property will be ignored and the Theme-type effects will be allowed. If Windows XP Themes are not found, then the ComboBox will honor the Flat Property setting.

Headings


GroupCtrls, RadioGroups and CheckGroups have a CaptionFont – which is used to pick the Font and Size – however the ColorSet controls the FontStyle.

2.3.3 UICtrls

Placement of UICtrls

UICtrls can be placed on Forms, Main Forms or Data Modules. Normally just one UICtrls is sufficient – though they don't have to be used at all. If you used them on a Data Module, please ensure that the Data Module is created BEFORE the Forms with components that reference it.

ColorSets in UICtrls

ColorSets  in UICtrls are supersets of those included in components, and when enabled, override the components ColorSet. The main advantage is that setting something like ROColor would set the Background Read Only Color not only for attached Edit Controls, but also for attached CheckBoxes and RadioGroups – thus allowing for easy uniform look'n'feel.

UICtrls only effect the ESBPCS Controls that are attached to them.

UIUsage

ESBPCS Controls that have a UICtrl also have a UIUsage Property – so for example if you want to use the UICtrl ColorSet but don't want to use the UICtrl for Null String Display, Blank When Zero, Blank When Null, etc – then you would toggle eutColorSet to True and eutBlank_Null, etc to false – or at runtime you would do:

```
ESBPCSEdit1.UIUsage := [eutColorSet];
```

Or

```
ESBPCSEdit1.UIUsage := ESBPCSEdit1.UIUsage -  
[eutBlank_Null];
```

Multiple UICtrls

You can have multiple UICtrls with minor differences – say for example UICtrl1 contains all the user configurable options for color and that it is being load/saved from whatever store you have set up. UICtrl1 allows has the various Item FontStyles set to Bold, since you want CheckBoxes to be bold. However, you don't want RadioGroup and CheckGroups items to be Bold. Simply add another UICtrl – say UICtrl2 – then after you have done changes to UICtrl1 simply do the following:

```
UICtrl2.ColorSet.Assign (UICtrl1.ColorSet);  
UICtrl2.ColorSet.ItemRWFontStyle := [];  
UICtrl2.ColorSet.ItemROFontStyle := [];  
UICtrl2.ColorSet.ItemFocusFontStyle := [];  
UICtrl2.ColorSet.ItemHotFontStyle := [];
```

You could also do something akin to the above in the OnColorSetChange Event of UICtrl1.

RichUICtrl

Since UICtrls "access" all the various controls they support, to save on overhead, support for **ESBRichEdits** were not included in the standard **ESBUICtrl**. Instead a descendant **ESBRichUICtrl** was added for that. So if you are using **ESBRichEdits** then use **ESBRichUICtrl** – otherwise use **ESBUICtrl**.

Removing UICtrl Overheads

Since many users use **ESBPCS** for "lean" applications, the **ESBPCS.INC** file includes an option to remove UICtrl support from **ESBPCS** Controls. Thus reducing the overheads. So far in our testing the overheads haven't been huge but we do like to give our users options.

2.3.4 StorageCtrls

Purpose of StorageCtrls

StorageCtrls can be assigned to UICtrls to control where they store their settings. Storage is currently allowed in either the Registry or an IniFile – with also an option for no storage.

Supported Abbreviations

IniPath Property can start with the following:

%AppDir% = Application Directory.

%AppDataDir% = Application Data Directory or Application Directory if undefined.

%DocDir% = My Documents Directory or Application Directory if undefined.

%PictureDir% = My Picture Directory or Application Directory if undefined.

%MusicDir% = My Music Directory or Application Directory if undefined.

%Temp% = Windows Temporary Directory or Application Directory if undefined.

%Win% = Windows Directory or Application Directory if undefined.

%Sys% = Windows System Directory or Application Directory if undefined.

And IniPath, IniSection, RegPath & RegSection may contain %User% which will be expanded to use current user name, or 'esb' if undefined.

For IniPath, the specified path needs to exist.

2.3.5 StateCtrls

What are StateCtrls

These are Non-Visual controls that allow you to control the state of all the attached controls – and not just ESBPCS Controls. You can control Visible, ReadOnly and Enable states. Whilst these controls do work well on Data Modules, they are probably of most use on the individual Forms – whereas most of the other non-visual controls only need one or two instances.

What is DisableOnReadOnly

For Buttons and other controls that don't have a ReadOnly property, and they are attached to a StateCtrl and this property is set, then when the ReadOnly Property of the StateCtrl is True, these controls are disabled (enabled := false).

2.3.6 Calculators

Calculator Engine

The Calculator Engine is now implemented as an Interface. This can be seen in **ESBCalcEngine.pas**. Special thanks needs to be given to **Tate Needham** for all the work he has done on the Calculator Subsystem of ESBPCS.

The Calculator Engine means that the Calculators supplied in ESBPCS are really just "Front Ends" – and thus you can easily develop Calculators that look and behave the way you want them to.

More Glyphs, Less Symbols

Several Eastern European and Asian Developers reported that the symbol fonts we were using for multiplication and division were not showing up. Thus the Calculator no longer uses Symbol Fonts, rather we have added Glyphs for multiplication, division, subtraction, addition, change sign, backspace and Pi – in addition to the Glyphs already being used.

In the **Images Subdirectory** you can see that alternate glyphs are also provided.

Calculator with Paper Trail

The Calculator Engine supports a History that enables the development of a Paper Trail. In the Utilities Subdirectory you can find a Calculator with Paper Trail – very similar to our popular FreeWare ESBCalc – and you also have the full source (for registered owners). This is an excellent starting point to develop your own stand-alone calculators.

SmallCalc

There is also another Calculator Utility with full Source (for registered owners) - pretty trivial source really - showing how to make a standalone "small calculator".

2.3.7 Unit Conversions and Convertors

Please note we have called our Conversion components convertors rather than converters. In hindsight it probably wasn't the best thing to do, but we don't plan on changing things now.

Illumination (Brightness)

Conversions and a Convertor for Illumination has been added.

Luminous Intensity

Conversions and a Convertor for Luminous Intensity has been added.

Luminance

Conversions and a Convertor for Luminance has been added.

Luminous Flux

Conversions and a Convertor for Luminous Flux has been added.

Angular Velocity

Conversions and a Convertor for Angular Velocity has been added.

Density

Conversions and a Convertor for Density has been added.

Other conversions

- Added MegaPascals to Pressure Conversions.
- Added Scruples to Mass Conversions.
- Added MegaGallons (millions of gallons) added to Volume Conversions.
- Added Acre-Feet and Acre-Inches added to Volume Conversions.
- Added MegaGallons per Year to Flow Conversions.
- Added Acre-Feet per Year to Flow Conversions.
- Added Unicae to Distance Conversions

2.3.8 MS Excel-like Financial Functions

We have received several requests to add Financial Functions that behave similar to those in Microsoft Excel. Whilst **ESBPCS** already contains functions that do most of what Excel does, we agreed that having routines that followed Excel's layout and logic would be advantageous.

So far we have added: **PV, FV, PMT, NPER, RATE, IPMT, PPMT**

Note: We've made **NPER** return integer and **NPER_Float** return a float value.

We see this task as an ongoing one for v3 of **ESBPCS**.

2.3.9 Other Notes

Delphi 4 and C++ Builder 4

Support for Delphi 4 and C++ Builder 4 is not included with **ESBPCS 3**. **ESBPCS 2** will be maintained for users of these products.

Text Forms

Given the above we can now supply all DFM's as Text Based.

Coming in later ESBPCS 3 releases:

Formatting added to UICtrls
















UICtrls will have Formatting for Numbers, Currency, Dates, Times, etc – to allow this to also be controlled from a central control.







Programmers Calculator

ESBPCS 3 will also have a Programmers Calculator Engine as well as an associated CalcEdit.


2.4 Unit Listing

Listing as of v3.0.0 - For detailed info on Components, Routines, etc see **ESBPCS.HLP**

- **Globals**  17
- **Routine Collections**  17
- **ColorSets & UICtrls**  20
- **StorageCtrls**  20
- **StateCtrls**  20
- **Edit Controls**  20
- **Matrix & Vector Controls**  23
- **Combo Boxes**  23
- **BtnEdits**  25
- **SpinEdits**  24
- **Calculators & CalcEdits**  25
- **Calendars & CalEdits**  26
- **Labels**  28
- **CheckBoxes & GroupCtrls**  27
- **Statistical Components**  28



- **Polled Components**  ²⁹
- **Buttons, Panels & Lines**  ²⁹
- **Unit Conversion Components**  ²⁹
- **Import & Export**  ³⁰
- **Property & Component Editors**  ³⁰
- **Utilities**  ³⁰

2.5 Globals

- **ESBPCSGlobals** - contains the various Constants, Types & Variables that are used throughout **ESBPCS**.
- **ESBPCSGlobals2** - contains the various Constants, Types & Variables that are dependent on units such as Graphics, SysUtils & Windows. These have been separated into a different unit to reduce overheads.
- **ESBPCSGlobalSettings** - this is a **deprecated** unit and should no longer be used, rather **UICtrls**  ²⁰ should be used.

2.6 Routine Collections

Data Aware Units are not included with ESBPCS Lite

- **ESBPCSAstronomy** - Provides Astronomical Routines including Time System Conversions, Sun Rise/Set Time and much more.
- **ESBPCSComplex** - Provides routines to process Complex Numbers. Includes String Conversions, Basic Arithmetic and more advanced operations. Also see **ESBPCSComplexEdit**  ²⁰ for Edit Control for Complex Numbers.
- **ESBPCSConversion** - Provides routines to do Unit Conversions from such things as Metres to Feet and Pounds to Kilograms. Types of Conversion include Temperature, Distance, Mass, Volume and Area.
- **ESBPCSConvert** - Provides various String and Conversion routines including Integer to String, Float to String, String to Integer, String to Float and much more.
- **ESBPCSCountries** - Provides Country based routines for ESBPCS. Uses data stored in an XML File. Also see **ESBPCSCountryComboBox**  ²³.
- **ESBPCSCurrency** - Provides Currency Conversions. Includes conversions between EUROS and Local Currency conversions for EMU Countries.
- **ESBPCSDatetime** - Provides various routines for Date and Time Manipulation. Includes improved Date to String, Time to String, String to Date, String to Time

routines. Also includes various Year Operations, Date Arithmetic, Time Arithmetic, Week Processing, ISO-8601 Compliant Routines and much more. Also see **ESBPCSDatetimeEdit**^[20] for Date/Time related Edit Controls.

- **ESBPCSDbStats** - Provides Statistical Routines that work on Data Sources.
- **ESBPCSExe** - Routines to make calling Executables easier. Includes routines for sending a URL to the Default Browser or Default Mailer.
- **ESBPCSFileIO** - Miscellaneous File & Directory Routines.
- **ESBPCSFinancials** - Routines supporting our compact currency type (4 bytes with 2 implied decimal places) and our long currency type (8 bytes with 6 implied decimal places) - plus full support for Delphi's Currency type. Includes Conversions between types, Financial Arithmetic, Conversion to string and string to currency, Interest, Annuities, Detailed Future Value Analysis, Detailed Present Value Analysis, Depreciation and other Business Math routines. With v3, MS Excel-like versions of Financial routines have also been added.
- **ESBPCSFractions** - Routines supporting our Fraction types. Includes conversions to string and string to fraction, conversion to Float and Float to fraction, Arithmetic and other routines. Also see **ESBPCSFractionEdit**^[20] for Edit Control that supports Fractions.
- **ESBPCSGeometry** - Routines covering Perimeters, Areas, Surface Areas & Volume. Also includes Triangle routines.
- **ESBPCSHolidays** - Routines allowing for the maintaining of Holiday Information.
- **ESBPCSImperial** - Routines to allow Arithmetic & Conversion of Mixed Imperial types such as Feet & Inches, Pounds & Ounces, etc.
- **ESBPCSMath** - Collection of Routines for Integer and Float Operations - you will never need Delphi's Math unit again. FPU BASM is used to optimise a number of the routines. Areas covered include Trigonometry, Logarithms & Powers, Hyperbolic functions, Special functions (like Gamma and Beta), and much more
- **ESBPCSMatrix** - Collection of Routines for Matrix Operation. Support for non-rectangular Matrices is included where appropriate. Many different types of Matrices supported. Includes Row Echelon Form, Matrix Rank, Linear Equation Solving, Matrix Inverse, Determinants and more.
- **ESBPCSMsgs** - Wrapper around Delphi's MessageDlg and InputQuery that preserve Cursor State and are easier to use.

- **ESBPCSPhysics** - Routines that deal with Mechanics & other Physics Formulae.
- **ESBPCSPositions** - Provides support for Latitude/Longitude Conversions and Calculations.
- **ESBPCSRandom** - Contains Random Number Generators that conform to various probability distributions. Basically the same as our Free **AMRandom**, but adapted to use **ESBPCS** Routines
- **ESBPCSRegIni** - Routines to aid in Registry & IniFile Support of **ESBPCS** Controls - should now use **StorageCtrls**^[20].
- **ESBPCSRegistry** - Routines to access the Registry. Currently includes routines to manipulate File Associations.
- **ESBPCSResources** - Routines to access the Bitmaps and other resources in the **ESBPCS.RES** file.
- **ESBPCSShellIO** - Routines to access the Win32 Shell. Currently includes routines to manipulate File Associations.
- **ESBPCSStatistics** - Collection of Statistical Routines covering all areas of Statistics with an emphasis on accuracy - most routines are accurate to 15-16 significant figures. Includes Normal, Student-T, Chi-Square and F Distributions (and their inverses). Also includes Mean, Median, Mode, Standard Deviation, Variance, Kurtosis, Skew, Linear Regression and more.
- **ESBPCSStrings** - Routines for the manipulation of TStrings & TStringLists.
- **ESBPCSSystem** - Collection of low level routines supporting 16 and 32 bit Bit Lists and low level data manipulation.
- **ESBPCSTimeZone** - Provides various routines for Time Zone Manipulation. Including RFC822 support, Registry-based Time Zones and GMT/UTC Conversions.
- **ESBPCSUITools** - Provides Routines for User Interface drawing.
- **ESBPCSVector** - Collection of Routines for Vector Operations. Many different types of Vectors supported. Routines are included for Vector Conversion, Vector Transformations, Maximums, Minimums, Sums, Norms, Quick Sorting, Arithmetic, Polynomial Evaluation and more.
- **ESBPCSXML** - Class and routines used for allowing structures in **ESBPCS** to be saved to and retrieved from XML Files.

2.7 ColorSets & UICtrls

- **ESBPCSColorSets** - Provides Classes that group the various Color, Flat and Font Style Settings. Most of the editable controls in **ESBPCS** have a **ColorSet** property.
- **ESBPCSUICtrl** - Provides a non-visual component that controls the **ColorSets**, Blank/Null Settings, Navigation and Format of the attached editable controls. Ideally placed on a Data Module or parent Form, so that a consistent and easily-configurable look-n-feel can be established throughout an application. **UICtrls** support the use of **StorageCtrls** ^[20].
- **ESBPCSRichUICtrl** - A descendant of **TESBUICtrl** that includes support for RichEdits.

2.8 StorageCtrls

- **ESBPCSStorageCtrl** - Provides a non-visual component that allows you to control the storage of configuration settings. Currently supports output to Registry and IniFile. Can be used as a replacement for Registry/IniFile operations.

2.9 StateCtrls

- **ESBPCSStateCtrl** - Provides a non-visual component that controls the Visible, ReadOnly and Enabled states of attached controls - not just **ESBPCS** ones.

2.10 Edit Controls

Data Aware Units are not included with ESBPCS Lite

- **ESBPCSEdit** - This contains the base controls as well as an enhanced general Edit. The **ESBPCSEdit** controls include Alignment, Read Only Coloring, Disabled Coloring, Focus Coloring, Optional Flat/"Hot" configuration, Optional Enter As Tab, Optional Arrows as Tab, Optional ESC as Undo and Null Handling. **TESBPCSEdit** is the general String Edit and it adds properties and methods for string manipulation including Trimming Leading Space, Trimming Trailing Spaces & Proper Case. Edit Controls also have the option of being LineEdits. Edit Controls utilize **ColorSets** ^[20] and **UICtrls** ^[20] for handling of the User Interface.
- **ESBPCSDBEEdit** - This contains the base controls as well as an enhanced general Edit. The **ESBPCSDBEEdit** controls include Alignment (plus controls remain aligned when editing), Read Only Coloring, Disabled Coloring, Focus Coloring, Optional Flat/"Hot" capabilities, Optional Enter As Tab, Optional

Arrows as Tab, Optional ESC as Undo and Null Handling. **TESBPCSDBEEdit** is the general String Edit and it adds properties and methods for string manipulation including Trimming Leading Space, Trimming Trailing Spaces & Proper Case. Edit Controls also have the option of being LineEdits.

- **ESBPCSNumEdit** - as descendants of the base controls, these have all the features mentioned in **ESBPCSEEdit** with the advantage that these controls are specifically designed for Numeric Entry - no more having unwanted Alphabetical Characters entered into your numeric edit controls. Controls are supplied for Positive Integers, Integers, Positive Floats, Floats & Scientific Floats. Where negatives are allowed then you can choose the Font Color for Positive & Negative values. Also supports display of '+' sign and using the '-' key as a Negative toggle. Also included here are **TESBIPEEdit** for editing IP Addresses and **TESBHexEdit** for editing in Hexadecimal.
- **ESBPCSDBNumEdit** - as descendants of the base controls, these have all the features mentioned in **ESBPCSDBEEdit** with the advantage that these controls are specifically designed for Numeric Entry - no more having unwanted Alphabetical Characters entered into your numeric edit controls. Controls are supplied for Positive Integers, Integers, Positive Floats, Floats & Scientific Floats. Where negatives are allowed then you can choose the Font Color for Positive & Negative values. Also supports display of '+' sign and using the '-' key as a Negative toggle. Also included here are **TESBDBIPEEdit** for editing IP Addresses and **TESBDBHexEdit** for editing in Hexadecimal.
- **ESBPCSDatetimeEdit** - as descendants of the base controls, these have all the features mentioned in **ESBPCSEEdit** with the advantage that these controls are specifically designed for Date/Time Entry. Includes support for various Date & Time formats as well as many Date/Time specific Methods. Controls are supplied for Year Entry (with control over how 2 digit years are processed), Date Entry, Time Entry, Month Entry & Day of Week Entry. The last two allow both numeric and descriptive input. Also included is a compound component **TESBdatetimeEdit** that allows both date and time to be edited in a single control, combining the strengths of the aforementioned controls. Support for Win32 API TFileTime is also included.
- **ESBPCSDBDatetimeEdit** - as descendants of the base controls, these have all the features mentioned in **ESBPCSDBEEdit** with the advantage that these controls are specifically designed for Date/Time Entry. Includes support for various Date & Time formats as well as many Date/Time specific Methods. Controls are supplied for Year Entry (with control over how 2 digit years are processed), Date Entry, Time Entry, Month Entry & Day of Week Entry. The last two allow both numeric and descriptive input. Also included is a compound component **TESBDbdatetimeEdit** that allows both date and time to be edited in a single control, combining the strengths of the aforementioned controls. Support for Win32 API TFileTime is also included.

- **ESBPCSCurrEdit** - as descendants of the base controls, these have all the features mentioned in **ESBPCSEdit** with the advantage that these controls are specifically designed for Currency Entry - thus allowing users to enter values with Thousand Separators AND with Currency Symbols. Controls can use the current system settings to display the Currency or you can fully customise it plus you can choose the Font Color for Positive & Negative values. Also supports display of '+' sign and using the '-' key as a Negative toggle. Control for Delphi Currency is included as well as controls for **TESBCurrency** (4 byte currency) and **TESBLongCurrency** (8 byte currency).
- **ESBPCSDBCurrEdit** - as descendants of the base controls, these have all the features mentioned in **ESBPCSDBEEdit** with the advantage that these controls are specifically designed for Currency Entry - thus allowing users to enter values with Thousand Separators AND with Currency Symbols. Controls can use the current system settings to display the Currency or you can fully customise it plus you can choose the Font Color for Positive & Negative values. Also supports display of '+' sign and using the '-' key as a Negative toggle. Control for Delphi Currency is included as well as a control for **TESBCurrency** (4 byte currency).
- **ESBPCSCComplexEdit** - Provides a Compound Edit Component with the features mentioned above that allows the editing of a Complex Number in normal (Real, Imaginary) form or in Polar form. Includes many methods to make Complex Number processing easier. See also **ESBPCSCComplex**^[17] for Complex Number Routines.
- **ESBPCSDbComplexEdit** - Provides a Data Aware Compound Edit Component with the features mentioned above that allows the editing of a Complex Number in normal (Real, Imaginary) form or in Polar form - with the Real & Imaginary components stored in different fields in the same table. Includes many methods to make Complex Number processing easier. See also **ESBPCSCComplex**^[17] for Complex Number Routines.
- **ESBPCSFractionEdit** - Provides a Compound Edit Component with the features mentioned above that allows the easy display and edit of Fractions. Includes many methods to make the use of Fractions easier. Also supplies an Fraction Expression Edit Component. Also supplies an Fraction Expression Edit Component. See also **ESBPCSFractions**^[17] for Fraction Routines.
- **ESBPCSDbFractionEdit** - Provides a Data Aware Fraction Expression Edit Component, where either the expression (String) or the Float Value can be saved to the Data Source.. See also **ESBPCSFractions**^[17] for Fraction Routines.
- **ESBPCSMemo** supplies a TMemo descendant with ESBPCS type Colors and options.

- **ESBPCSDbMemo** supplies a Data Aware TMemo descendant with **ESBPCS** type Colors and options.
- **ESBPCSRichEdit** supplies a TRichEdit descendant with **ESBPCS** type Colors and options.
- **ESBPCSDbRichEdit** supplies a Data Aware TRichEdit descendant with **ESBPCS** type Colors and options.
- **ESBPCSMaskEdit** supplies a MaskEdit descendant with **ESBPCS** type Colors and options.
- **ESBPCSDbMaskEdit** supplies a Data Aware MaskEdit descendant with **ESBPCS** type Colors and options.

2.11 Matrix & Vector Controls

- **ESBPCSVector** - Collection of Routines for Vector Operations. Many different types of Vectors supported. Routines are included for Vector Conversion, Vector Transformations, Maximums, Minimums, Sums, Norms, Quick Sorting, Arithmetic, Polynomial Evaluation and more.
- **ESBPCSVectorEdit** - Compound components that allow easy display and editing of Vectors whilst giving all the flexibility you are used to from **ESBPCSEdit** with the power of **ESBPCSVector**. Includes a Labelled VectorEdit which allows each element to be labelled. Components also support Virtual Vectors to reduce Memory overheads. Many Vector Specific Methods included. VectorEdits utilize **ColorSets**^[20] and **UICtrls**^[20] for handling of the User Interface.
- **ESBPCSMatrix** - Collection of Routines for Matrix Operation. Support for non-rectangular Matrices is included where appropriate. Many different types of Matrices supported. Includes Row Echelon Form, Matrix Rank, Linear Equation Solving, Matrix Inverse, Determinants and more.
- **ESBPCSMatrixEdit** - Compound components that allow easy display and editing of Matrices whilst giving all the flexibility you are used to from **ESBPCSEdit** with the power of **ESBPCSMatrix**. Components also support Virtual Matrices to reduce Memory overheads. Many Matrix specific method included. MatrixEdits utilize **ColorSets**^[20] and **UICtrls**^[20] for handling of the User Interface.

2.12 ComboBoxes

Data Aware Units are not included with ESBPCS Lite

- **ESBPCSComboBox** - Provides Enhanced ComboBoxes that include Read Only Property and Coloring. ComboBoxes now also support Disabled Coloring and a Flat ("Hot") option. Base ComboBox is provided for those that follow. Support for string methods included. ComboBoxes utilize **ColorSets**^[20] and **UICtrls**^[20] for handling of the User Interface.
- **ESBPCSDBComboBox** - Provides Enhanced Data Aware ComboBoxes that include Read Only Property and Coloring. Base ComboBox is provided for those that follow. ComboBoxes now also support Disabled Coloring and a Flat ("Hot") option. Support for string methods included.
- **ESBPCSDatetimeComboBox** - ComboBoxes with the features of **ESBPCSComboBox** but specifically designed for Date/Time related display. ComboBoxes include Month & Day of Week Combo boxes that display info as Numeric or uses the Regional Settings to Display Short or Long forms. A Time Zone ComboBox is also included that allows the Display of Time Zones like in Windows Date/Time Applet. Many specific Methods included.
- **ESBPCSDBDatetimeComboBox** - Data Aware ComboBoxes with the features of **ESBPCSDBComboBox** but specifically designed for Date/Time related display. ComboBoxes include Month & Day of Week Combo boxes that display info as Numeric or uses the Regional Settings to Display Short or Long forms. A Time Zone ComboBox is also included that allows the Display of Time Zones like in Windows Date/Time Applet. Many specific Methods included.
- **ESBPCSCurrComboBox** - ComboBoxes with the features of **ESBPCSComboBox** but specifically designed for Currency related display. Includes a ComboBox for displaying EMU (European Monetary Union) Countries in different formats.
- **ESBPCSCountryComboBox** - ComboBoxes with the feature of **ESBPCSComboBox** but specifically designed for Country related display. See **ESBPCSCountry**^[17] for more details of the routines. Data is stored in XML File.
- **ESBPCSDBLUCombo** - Provides Enhanced Data Aware Look Up ComboBoxes that include Read Only Property and Coloring. Base ComboBox is provided for those that follow. ComboBoxes now also support Disabled Coloring and a Flat ("Hot") option. Support for string methods included.
- **ESBPCSLookupComboBox** - Provides an **ESBPCS** ComboBox with two StringLists - Items and Values.

2.13 SpinEdits

Data Aware Units are not included with ESBPCS Lite

- **ESBPCSSpinEdit** - Provides a Compound Component made up of an

ESBPCSEdit Control together with up & down buttons, which allow the displayed value to be incremented or decrement. Control over the size of the Increment/Decrement is provided as well as the ability to have values Wrap and to go in "page" steps. Keyboard support for all the features included. The Spin Buttons can be Flat as can the Edit Portion. SpinEdits utilize **ColorSets**^[20] and **UICtrls**^[20] for handling of the User Interface.

- **ESBPCSDatetimeSpinEdits** - SpinEdits with the features of **ESBPCSSpinEdit** but specifically designed for Date/Time related display. Included are Month & Day of Week SpinEdits that display info as Numeric or uses the Regional Settings to Display Short or Long forms.
- **ESBPCSDbSpinEdit** - Provides a Datat Aware Compound Component made up of an **ESBPCSDbEdit** Control together with up & down buttons, which allow the displayed value to be incremented or decrement. Control over the size of the Increment/Decrement is provided as well as the ability to have values Wrap and to go in "page" steps. Keyboard support for all the features included. The Spin Buttons can be Flat as can the Edit Portion.
- **ESBPCSDbDatetimeSpinEdits** - Datat Aware SpinEdits with the features of **ESBPCSDbSpinEdit** but specifically designed for Date/Time related display. Included are Month & Day of Week SpinEdits that display info as Numeric or uses the Regional Settings to Display Short or Long forms.

2.14 BtnEdits

Data Aware Units are not included with ESBPCS Lite

- **ESBPCSBtnEdit** - Provides a Compound Component made up of an **ESBPCSEdit** Control together with a button that can be user defined. The Button can have a glyph assigned and can be flat. The Edit portion can also be optionally Flat. BtnEdits utilize **ColorSets**^[20] and **UICtrls**^[20] for handling of the User Interface.
- **ESBPCSDbBtnEdit** - Provides a Compound Component made up of an **ESBPCSDbEdit** Control together with a button that can be user defined. The Button can have a glyph assigned and can be flat. The Edit portion can also be optionally Flat.

2.15 Calculators & CalcEdits

Data Aware Units are not included with ESBPCS Lite

- **ESBPCSCalculator** - Provides both Routine and Component Access to a Pop-up Full Featured Scientific Calculator. The Calculator does have an Option for a "Flat Look" and an Option for a "Small Calculator" that hides the Functions.

- **ESBPCSCalcEngine** - Provides a **Calculator Engine** Interface that is used by the **ESBPCS** Calculators.
- **ESBPCSCalcEdit** - Provides a Compound Component made up of an **ESBPCSCFloatEdit** Control together with a button that displays an **ESBPCSCCalculator** Popup. The Calculator Button has a choice of glyphs and can be flat. The Edit portion can also be optionally Flat and the popup Calculator can optionally be Flat.
- **ESBPCSDbCalcEdit** - Provides a Compound Component made up of an **ESBDbFloatEdit** Control together with a button that displays a **ESBPCSCCalculator** Popup. The Calculator Button has a choice of glyphs and can be flat. The Edit portion can also be optionally Flat. The Edit portion can also be optionally Flat and the popup Calculator can optionally be Flat.
- **ESBPCSCurrCalcEdits** - CalcEdits with the features of **ESBPCSCalcEdit** but specifically designed for Currency types including Delphi Currency, **TESBCurrency** (4 byte currency) & **TESBLongCurrency** (8 byte currency).
- **ESBPCSDbCurrCalcEdits** - Data Aware CalcEdits with the features of **ESBPCSDbCalcEdit** but specifically designed for Currency types including Delphi Currency & **TESBCurrency** (4 byte currency).
- **ESBPCSSciCalculator** - Provides both Routine and Component Access to a Pop-up Full Featured Scientific Calculator with Exponential Notation. The Calculator does have an Option for a "Flat Look".
- **ESBPCSSciCalcEdit** - Provides a Compound Component made up of an **ESBPCSSciFloatEdit** Control together with a button that displays an **ESBPCSSciCalculator** Popup. The Calculator Button has a choice of glyphs and can be flat. The Edit portion can also be optionally Flat and the popup Calculator can optionally be Flat.
- **ESBPCSDbSciCalcEdit** - Provides a Compound Component made up of an **ESBDbSciFloatEdit** Control together with a button that displays a **ESBPCSSciCalculator** Popup. The Calculator Button has a choice of glyphs and can be flat. The Edit portion can also be optionally Flat. The Edit portion can also be optionally Flat and the popup Calculator can optionally be Flat.

2.16 Calendars & CalEdits

Data Aware Units are not included with ESBPCS Lite

- **ESBPCSCalPanel** - Provides a Panel that supplies a Calendar Month. Through various properties and Methods, this can be customised and interrogated.
- **ESBPCSHolidays** - Routines allowing for the maintaining of Holiday

Information.

- **ESBPCSCalendar** - Provides both Routine and Component Access to a Pop-up Full Featured Calendar.
- **ESBPCSCalEdit** - Provides a Compound Component made up of an **ESBDateEdit** Control together with a button that displays a **ESBPCSCalendar** Popup. The Calendar Button has a choice of glyphs and can be flat. The Edit portion can also be optionally Flat.
- **ESBPCSDbCalEdit** - Provides a Compound Component made up of an **ESBDbDateEdit** Control together with a button that displays a **ESBPCSCalendar** Popup. The Calendar Button has a choice of glyphs and can be flat. The Edit portion can also be optionally Flat.

2.17 CheckBoxes & GroupCtrls

Data Aware Units are not included with ESBPCS Lite

- **ESBPCSCheckBox** - .Provides an Enhanced CheckBox which supports ReadOnly Coloring, Disabled Coloring, Choice of Cross or Tick, Caption can be Raised or Sunken, Frame properties, enhanced control over spacings, and much more.
- **ESBPCSDbCheckBox** - .Provides an Enhanced Data Aware CheckBox which supports ReadOnly Coloring, Disabled Coloring, Choice of Cross or Tick, Caption can be Raised or Sunken, Frame properties, enhanced control over spacings, and much more.
- **ESBPCSRadioBtn** - Provides an Enhanced Radio Button which support ReadOnly Coloring, Disabled Coloring, Caption Enhancements & Frames.
- **ESBPCSGroupCtrls** - Provides enhanced GroupCtrl, RadioGroup and CheckGroup. These support the enhanced Coloring of **ESBPCS** Controls, as well allowing extensive control over the spacing and look. Caption has separate formatting. RadioGroups & CheckGroups allow for individual element enabling and much more.
- **ESBPCSDbGroupCtrls** - Provides enhanced Data Aware RadioGroup and CheckGroup. These support the enhanced Coloring of **ESBPCS** Controls, as well allowing extensive control over the spacing and look. Caption has separate formatting. RadioGroups & CheckGroups allow for individual element enabling and much more. Also the **ESBDBRadioGroup** does allow the ItemIndex to be the value stored to the Data Source.

2.18 Labels

Data Aware Units are not included with ESBPCS Lite

- **ESBPCSLabel** - unit contains the Base label type which is an Enhanced Attachable Label with the ability to add a Sunken or a Raised Look to the Label. Labels support being attached to a Windowed Control. This feature is attained using SubClassing. However this is not a foolproof method and problems can arise when more then one label is attached to the same control as well as when other third party controls that use SubClassing are attached to that control. When only a single attachment is being used with a Windowed Control everything should be fine.
- **ESBPCSDbLabel** - unit contains the Base label type which is an Enhanced Attachable Data Aware Label with the ability to add a Sunken or a Raised Look to the Label. Labels support being attached to a Windowed Control. This feature is attained using SubClassing. However this is not a foolproof method and problems can arise when more then one label is attached to the same control as well as when other third party controls that use SubClassing are attached to that control. When only a single attachment is being used with a Windowed Control everything should be fine.
- **ESBPCSMathLabel** - an enhanced label component that allows for easier display of Mathematical Formulae using the Symbol Font, with the features of **ESBPCSLabel**.
- **ESBPCSDatetimeLabel** - an enhanced label component that allows for easier display of Date/Times, with the features of **ESBPCSLabel**.
- **ESBPCSDbDateTimeLabel** - an enhanced Data Aware label component that allows for easier display of Date/Times, with the features of **ESBPCSDbLabel**.
- **ESBPCSURLLabel** - an enhanced label that allows for clicking or double clicking to execute the URL. The Label Caption does not need to be the URL as a separate property handles this. Easy access to your default Browser or Mailer. Also has the features introduced in **ESBPCSLabel**.
- **ESBPCSDbURLLabel** - an enhanced Data Aware label that allows for clicking or double clicking to execute the URL. The Label Caption does not need to be the URL as a separate property handles this. Easy access to your default Browser or Mailer. Also has the features introduced in **ESBPCSDbLabel**.

2.19 Descriptive Statistics

Data Aware Units are not included with ESBPCS Lite

- **ESBPCSDescStats** - Provides access to many of the Statistical routines

available in ESBPCSStatistics via a component interface. Includes Mean, Median, Mode, Range, Variance, Standard Deviation, Kurtosis, Skew, Quartiles & Inter-Quartile Ranges. Support for both Samples & Populations. Includes a TStrings output with information nicely summarised.

- **ESBPCSDBDescStats** - Provides a Data Aware version of the above - can be connected to any numerical field.
- **ESBPCSDbHypAnal** - Adds Data Aware Hypothesis Analysis of the Mean and Data Aware Hypothesis Analysis of the Variance via components.
- **ESBPCSDbLinReg** - Supplies Data Aware Linear Regression via a component

2.20 Polled Components

- **ESBPCSTimerPool** - Allows a single TTimer to be used by all the poll-based instances of ESBPCS Components.
- **ESBPCSTimeStatus** - an enhanced label which uses the above Timer Pool to display the current Date/Time, continuously updating, in a user defined way. Features introduced in **ESBPCSLabel** are included. Control has Time Zone support, so the displayed time can be for any given Time Zone.

2.21 Buttons, Panels & Lines

- **ESBPCSButtons** - Contains a Speed Button that allows the OnClick Event to be repeatable without the use of a Timer. Used in SpinEdit Controls.
- **ESBPCSPanel** - Contains base panel used for making Compound Components.
- **ESBPCSLines** - Miscellaneous components for drawing Horizontal, Vertical & Diagonal Lines.

2.22 Unit Conversions

- **ESBPCSConversion** - Provides routines to do Unit Conversions from such things as Acceleration, Angles, Angular Velocity, Area, Density, Distance, Energy, Flow, Flow (Mass), Force, Fuel Consumption, Illumination, Luminance, Luminous Flux, Luminous Intensity, Mass, Power, Pressure, Radioactivity, Temperature, Time, Torque, Velocity & Volume. For each type of conversion a plethora of unit types are covered.
- **ESBPCSImperial** - Routines to allow Arithmetic & Conversion of Mixed Imperial types such as Feet & Inches, Pounds & Ounces, etc.

- **ESBPCSConvertors** - Collection of Components that encompass the routines from **ESBPCSConversion**.

2.23 Import & Export

- **ESBPCSExcel** - Routines to provide Import & Export to Microsoft Excel (OLE Based so needs Excel 95 or later). These are designed for use with ESBPCS and are not meant as a generalised solution.
- **ESBPCSXML** - Routines to provide Import & Export to XML. These are designed for use with ESBPCS and are not meant as a generalised solution.

2.24 Property & Component Editors

Data Aware Units are not included with ESBPCS Lite

Note: These are Design Time only units and CANNOT be used in your Applications. You are welcome to examine the code to see how to write your own Property & Component Editors.

- **ESBPCSDesignAbout** - contains the default component editor for all **ESBPCS** Components. This displays a dialog with about information as well as the ability to configure the Property Editors. It is obtained by Right-Clicking on an **ESBPCS** component.
- **ESBPCSDesignGen** - Adds configurable Currency Property Editors that display Delphi Currency, **TESBCurrency** & **TESBLongCurrency** (D5 only) properties in the Object Inspector as formatted Currencies. Also adds an optional Property Editor to all Single, Double & Extended Properties (not just ESBPCS) in the Object Inspector - they now have a pop-up Calculator.
- **ESBPCSDesignTZ** - Adds Time Zone Property Editors so that Key Names, Display Names, Standard Names & Daylight Names appear as ComboBoxes in the Object Inspector populated from the Time Zone Info in the Registry.
- **ESBPCSColSel** - Adds a Color Selection Component Editor for Edit, SpinEdit & CalcEdit Controls.
- **ESBPCSDbColSel** - Adds a Color Selection Component Editor for Data Aware Edit, SpinEdit & CalcEdit Controls.

2.25 Utilities

Full Source included for **ESBPCS** Registered Users

- **ESBCountryEditor** - Allows you to display and edit the contents of an XML file

containing Country Data.

- **ESBHolidayEditor** - Allows you to display and edit the contents on an XML file containing Holiday Data.
- **ESBUnitConvertor** - Allows you to easily convert between Units of Measurement.
- **ESBCalc** - An example of a Calculator with a Paper Trail.
- **ESBSmallCalc** - An example of a small standalone calculator.
- **ESBPCS Installer** - Registered users get access to a more sophisticated Installer as well as access to the full source of the Installer. *Owners of the "Lite" Version do not get the Installer Source.*

3 License Agreement

3.1 License Agreement

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You may not distribute the **ESBPCS** source code in any form to anyone else. If your clients require full source code then they must purchase appropriate Developer Licenses.

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AUSTRALIA

Email: support@esbconsult.com.au

Fax: (08) 9093 2220 (AUSTRALIA) +618-9093-2220 (Rest of the World)

4 Installation

4.1 Installation

ESBPCS Registered Users receive the **ESBPCS Installer** to handle the building and installation of the packages and the installation of the Help into their IDE.

ESBPCS Trial versions have a cut down installer that installs the supplied packages and help.

Note: Due to the size of **ESBPCS** WinHelp file the IDE Help Index may end up blank under Win9X Platforms - this shouldn't happen with Windows NT/2000/XP. However on all platforms the Find Capabilities may not work. Registered Users have access to a HTMLHelp version of the **ESBPCS** Help file that will allow searching.

5 Benefits of Registering

5.1 Benefits of Registering

30-Day Money Back Guarantee

ESBPCS is an Electronic Package so does not included printed manual nor media.

Register ESBPCS v3.x for only \$159US per Developer (or \$89US per Developer for "Lite") and get:

- Full Source for Delphi 5, 6 and 7 (which also works in C++ Builder 5 and 6). No DLLs or OCXs.

- Full Source to all Demos and even more Demos.
- More Comprehensive Help File for integration with IDE.
- HTMLHelp File to allow more extensive searching of the **ESBPCS** Help.
- Full Royalty Free rights to include **ESBPCS** in your Applications (see License for more info).
- Bonus Libraries.
- Extra Design Time Component Editors.
- A small set of useful **GlyFX** Glyphs.
- **JPMOpen** Components (which are freely available) are bundled with the Registered Version with permission of the author.
-
- **ESBPCS** Enhanced Installer which allows you to build your DCUs, DCPs & BPLs (or DCUs, BPIs, LIBs & BPLs for C++ Builder) from Source; Install into Delphi or C++ Builder. Also installs your Help into Delphi or C++ Builder. PLUS you get the Full Source for the Installer (not included in Lite version).
- FULL Source to included Utilities such as **ESBCountryEditor**, **ESBHolidayEditor**, **ESBCalc**, **ESBSmallCalc** and **ESB Unit Conversion Utility**.
- More Frequent Updates - not all minor versions are released as Trial Versions, but updated source is always available to registered users.
- Access to Registered Users only site. You will be supplied a password to access the Registered Users Site.
- Notification of Bugs & Fixes - even before we release an update we will notify registered users via the Mailing List of any verified bug, and the fix when available.
- Discounted Upgrades to New versions.
- Registration includes all minor upgrades for Free (eg 3.xx.xx), downloadable from our site PLUS any major upgrade (eg. 4.00.00) if released within 6 months of purchase.
- Discounts on related Products from **ESB** and from other Development Partners.

- Pre-release versions. If you wish to test out new features before they become available - Registered Users get not only "inside information" but an opportunity to be involved in shaping the product.

5.2 Bonus Libraries

Registered users receive access to Bonus Libraries and other supplemental information.

ESBPCS Bonus Library 1 contains input dialogs that take advantage of Calendar Input, Date Input, Date Range Input, Time Input, Date/Time Input, Integer Input, Float Input with Calculator, Currency Input with Calculator and more.









Bonus Libraries come with full source and help files, but do not include full installation and thus no BPLs nor DCPs. They are fully supported. Users are encouraged to base their own developments on these and thus make use of their other 3rd Party Components.

These will be updated for ESBPCS v3 shortly

6 Products recommended for use with ESBPCS













6.1 Products Recommend

Products and companies mentioned below are involved in close relationship with ours, and we believe make a valuable edition to your development library. Clicking on the link will give you more details about the product as well as links to their website.

- **TMS Software**  ³⁷
- **Addict Spell Check & Thesaurus**  ³⁸
- **KeyDB**  ³⁹
- **BS/1 Accounting**  ³⁹
- **PlusMemo**  ⁴⁰
- **GlyFX**  ⁴⁰
- **LMD-Tools**  ⁴¹
- **Team Coherence**  ⁴¹

- Ozmosys Australia  42
- EctoSet Modeller  42

The above companies offer discounts to owners of ESBPCS and similarly we offer discounts on ESBPCS when their customers purchase ESBPCS.

- RAVE  42
- ODBCExpress  43
- WPTools  44
- DBISAM  44
- Time2HELP  45
- ProDelphi  45
- Gnostice Information Technologies  45
- EC Software  46
- Peganza  46
- DLite  46
- FinalBuilder  47
- IntraWeb  47

6.2 TMS Software

Web: <http://www.tmssoftware.com/>

Mail: info@tmssoftware.com

TMS Software produce a superb Grid replacement, **TAdvStringGrid**, for Borland Delphi and C++ Builder - it has all the features you wished Borland had added. PLUS you can **TAdvSpreadGrid** to it to give your Application Spreadsheet like capabilities at a truly economical price. They also produce an excellent **Planner** component if you want something more flexible than **ESBPCS** Calendar Components.

Whilst the **TAdvStringGrid** is excellent value for money, for just a bit more you can get the Component Pack (which include **TAdvStringGrid**) which now includes over

40 components with very nice features. The enhanced ListView and ComboBoxes are worth checking out, as are the various Data Aware Controls. This is a very nice complement to **ESBPCS** and we do recommend you check it out.

TMS Software has added support for **ESBPCS** Components within their fabulous Grids - check it out today.

ESBPCS Users can freely use **ESBPCSMathLib** which adds 71 Constants and 68 Functions to **TAdvSpreadGrid**. Check out more details on the **ESBPCSMathLib** Page.

Registered owners of TMS Component Pack or TMS Grid Pack receive a 20% discount when purchasing ESBPCS.

Registered user of ESBPCS will receive a 15% discount when purchasing TMS GridPack.

6.3 Addict Spell Check

Addictive Software



Web: <http://www.addictivesoftware.com>

Mail: support@addictivesoftware.com

Addict supplies very fast and professional Spell Checking with support for Standard Delphi Controls as well as an ever growing range of Third Party Edit Controls.

Since the end of 1998, we have been working in a paid support role for **Addictive Software**, but we have been using **Addict** in our Application since it first came out back in the Delphi 1 days. It is a reliable, fast tool.

Addict includes American Dictionary (other languages downloadable) and a Thesaurus - PLUS you can create your own dictionaries and Thesaurus through the optional compilers. The Professional version includes RichEdit's which do Live Spelling!

If you use it together with **WPTools**  or **PlusMemo**  you get Live Spelling like in MS Word 2002 (and earlier).

Since we work with **Addict** Support we can assure you that it is a product that well complements **ESBPCS**.

Registered owners of Addict receive a 20% discount when purchasing ESBPCS.

Registered user of ESBPCS will receive a 15% discount when purchasing Addict 3 Pro + Plus Pack.

6.4 KeyDB

Web: <http://www.keydb.com>

Mail: support@keydb.com

This is a superb Desktop Database that includes Multi User Support, Security and SQL Support. It works very well with ESBPCS. Database resides in a single file and includes support for encryption, in-memory tables, transactions and optimized filters.

Registered owners of KeyDB receive a 20% discount when purchasing ESBPCS.

Registered Users of ESBPCS can receive a 20% discount when purchasing KeyDB Professional.

6.5 BS/1

Davis Business Systems Ltd

Web: <http://www.dbsonline.com/source.htm>

Mail: info@dbsonline.com

BS/1 Small Business - a complete, double entry, multi-currency and Year 2000 compliant accounting package ready to add to your vertical market applications.

BS/1 Professional - adds Time Billing. **BS/1 Enterprise** - adds Distribution and Manufacturing.

The following is from Scott Kane of MicroNexus Software Australia, member of the **ESBPCS** Development Team:

"We searched high and low for the right accounting source solution for our software consultancy. Many packages costing considerable sums. Our final decision was **BS/1** and we have not looked back since. **BS/1** is a complete, feature rich, accounting package with full Delphi source code and we unreservedly recommend it to all Delphi users. Trevor Davis (CEO of Davis Business Systems - developers of **BS/1**) provides excellent support and service with timely updates. It was one of the best development tool purchases we've ever made! No more re-inventing the wheel!

"We especially like the multi-currency feature of BS/1 in this increasingly globalised world!

"BS/1 allows you to integrate a complete accounting solution into your own products. It is flexible and fast. **BS/1** is available for **Paradox**, **DBISAM**, and **Advantage** databases.

"One of the first applications we modified to use **ESBPCS** was **BS/1 Small Business** and it shone! Control of field types, user interface design and flexibility became unparalleled for us. We were very pleased."

Registered owners of BS/1 Delphi Source receive a 20% discount when purchasing ESBPCS.

Registered Users of ESBPCS can receive a 20% discount when purchasing BS/1 Small Business direct from Davis Business Systems.

6.6 PlusMemo

Electro-Concept Mauricie

Web: <http://www.ecmqc.com>

Mail: ecm@ecmqc.com

PlusMemo is a powerful TMemo/TDbMemo replacement which includes unlimited Text size, display in two fonts with enhancements, multi-level undo/redo, Syntax Highlighting, Gutter, Justifying, URL Highlighting and much more.

Plus together with **Addict Spell Check**  you get Live Spelling like in MS Word 97/2000/2002.

This is what Borland should have done with the TMemo & TDbMemo - it is easy to use and the NotePadP demo shows you the power that is available in this economical component.

Registered owners of PlusMemo Professional Edition receive a 20% discount when purchasing ESBPCS.

Registered user of ESBPCS will receive a 20% discount when purchasing PlusMemo Professional Edition - please contact ECM for details.

6.7 GlyFX

Web: <http://www.glyfx.com>

Mail: glyfx@perthweb.com.au

GlyFX supply Glyphs in 16x16 and 24x24 (and shortly in other sizes as well) which are ideal for giving your toolbar that professional look. Glyphs are supplied in three states: normal, disabled and hot. This is a great way to give your Application that Windows XP look.

We are now using these Glyphs in all our Client Work and the new versions of **ESBPDF Analysis** and **ESBStats** due out shortly. You can also see these Glyphs

at work in our **Calculators**.

PerthWeb also does a great job of developing custom Glyphs, Icons and Splash Screens.

Registered owners of GlyFX receive a 20% discount when purchasing ESBPCS.

Registered user of ESBPCS will receive a 25% discount when purchasing GlyFX Glyph Packs.

6.8 LMD-Tools

LMD-Tools

LMD Innovative

Web: <http://www.lmdtools.com>

Mail: support@lmd.de

LMD-Tools v6 includes more than 170 Native Components for Delphi 5, 6 & 7 (and BCB 5 & 6).

We especially like their buttons, containers and system components. Plus their support is good. We have been happy users of **LMD-Tools** for many years and thoroughly recommend it to all Delphi users.

LMD-Tools allows you to give your application a consistent, well-designed look-and-feel. It allows you to customise how the components look - whether they have a Windows 2000 or Win 3.1, or anywhere any between - plus many quite unique properties. The components are feature rich with intelligent code.

One of our biggest difficulties was in constructing the **ESBPCS** Demos without using **LMD-Tools**.

6.9 Team Coherence

QSC

Web: <http://www.qsc.co.uk>

Mail: support@www.qsc.co.uk

We had checked out quite a few Version Control Systems over the past decade and whilst they all had some good points, we were never really happy with any of them. Until a colleague recommended Team Coherence to us. We find that it has both an excellent standalone client as well as integrating well into the Borland IDE. It was very easy to setup - and the Server installed as a Service without any problems. We highly recommend it to all our fellow developers.

Also worth checking out are TC Tracker (Issue Tracking) and TC Builder (Build Management) add-ons for Team Coherence.

Registered owners of Team Coherence also receive a 20% discount when purchasing ESBPCS.

Registered Users of ESBPCS will also receive a 20% discount when purchasing Team Coherence - this applies to Personal, Professional & Enterprise versions.

6.10 Ozmosys Australia

Web: <http://www.ozmosys.net.au>

Mail: info@ozmosys.net.au

Knowledge Base is a software developer's repository that handles not just code snippets (which it does really well) but all forms of information. The more you use this product the more dependent on it you will become. It has a friendly modern interface that is quite configurable and supports such things as Syntax Highlighting (for code snippets), Spell Checker, Sophisticated Searching and much more. Plus it is quite economical, so check it out today.

ESBPCS Registered owners are entitled to a 20% discount when purchasing Knowledge Base.

6.11 EctoSet

Web: <http://www.ectoset.com/>

Mail: support@ectoset.com

EctoSet Modeller is an easy-to-use tool to help you Model your Software. With good software design, you end up with less problems in your software development, maintenance and support. Many software modelling tools are very expensive, at least for small businesses, but this product is very reasonably priced and well worth checking out.

Registered owners of EctoSet receive a 20% discount when purchasing ESBPCS.

Registered user of ESBPCS will receive a discount when purchasing EctoSet.

6.12 RAVE

Nevrona Designs

Web: <http://www.nevrona.com>

Mail: cust@nevrona.com

RAVE is the ultimate in code-based and visual-design Report Generation for Delphi and BCB. With 14 components and over 500 methods, this feature-heavy solution allows you to do just about anything with a printer. Support is included for BarCodes, Graphics, TeeCharts, RTF, PDF, HTML, Plain Text, Output to File, Printer Previewing, etc. PLUS you get Report Authoring Visual Environment which gives you easy Report Development through Page Design with interface to your Database.

We like that **RAVE** is both easy-to-use and powerful - you are given access to the very low levels of printing, and the Engine is stable and fast. We have been using **RAVE** (formerly **RPPro**) in our applications for many years, and not only have we been happy as developers, our clients are also very happy.

Don't be fooled by having QuickReports bundled with earlier versions of Delphi, **RAVE** is definitely worth the money. And if you have Delphi 7 with the bundled RAVE, then you should consider purchasing the BEX Version which includes source and frequent updates.

***Note:** Glenn Crouch is a member of TeamND, the official volunteer support group for Nevrona Designs.*

6.13 ODBCExpress

Korbitec Pty Ltd

Web: <http://www.odbcexpress.com>

Mail: support@odbcexpress.com

ODBCExpress v5 (currently v5.06) allows you fast, efficient Database development and access without all the overhead of the BDE. ODBCExpress gives you a Delphi friendly interface into the power of Microsoft's ODBC (which forms a layer between the application and the database). Through powerful components, you can do just about anything.

We primarily use **ODBCExpress** with **Microsoft Access** and **Microsoft SQL Server**. It supplies the low level of control we want for some operations, as well as the easy use of SQL to control the Data Flow over the network. Given the prevalence of ODBC due to Microsoft Office, ODBCExpress also gives us relatively small application installs.

The Data Aware components within **ESBPCS** work well with **ODBCExpress**.

If you are still using the BDE, we strongly suggest you check **ODBCExpress** out - you will not be sorry.

Note: Glenn Crouch is a member of TeamOE, the official volunteer support group for ODBCExpress.

6.14 WPTools


wpCubed GmbH

Web: <http://www.wptools.de>

Mail: support@wptools.de

WPTools (currently at v4.11) supplies sophisticated Word Processing features with its own RTF Engine, so it is not dependent upon which RichEdit DLL you have.

We have been using **WPTools** for some time (even before we started helping out with **Addictive Software Support**) and we have found it to be a very fast and flexible tool. All the nice displays in our **ESBStats** with the integrated links to Help, are done with **WPTools**.

Plus if you use it together with **Addict Spell Check & Thesaurus**  you get Live Spelling like in MS Word 2000 (and earlier).

If you need to have editing and display abilities better than TMemo, then it is well worth the time to grab this product and test it out.

wPDF: Create full featured PDF files directly from your application using this powerful DLL. Simply attach one component to the **WPTools** editor and execute the 'Print' procedure.

Also check out their **WP Form&Report** for an excellent Publishing solution.

6.15 DBISAM

Elevate Software

Web: <http://www.elevatesoft.com>

Mail: info@mail.elevatesoft.com

DBISAM is a powerful BDE alternative that compiles completely into your Applications. Comes with its own Database format making it an ideal solution for Desktop Development. Includes sophisticated SQL, Null Support, all Delphi Types, configurable blocks sizes for BLOBs, and much more.

ESBPCS & DBISAM Demo available on **ESBPCS Download Page**.

Grab a trial version and check it out and see what this powerful tool has to offer.

6.16 Time2Help

Web: <http://www.time2help.com>

Mail: info@time2HELP.com

Time2HELP does for Delphi what JavaDoc does for Java - plus much more. You can have well commented source code and produce good looking help without a lot of effort.

We use **Time2HELP** for **ESBPCS** so registered users can see how the comments are turned into the Help file. We also use **Time2HELP** for documenting our in-house development and our Shareware/Freeware. We thoroughly recommend it to fellow developers.

ESBPCS also includes a **T2H** file produced with **Time2HELP** and the Freely available **T2H Viewer** - so you can view the structures and statistics of **ESBPCS**!

6.17 ProDelphi

Web: <http://www.prodelphi.de>

Mail: helmuth.adolph@prodelphi.de

ProDelphi is an essential tool for your developmental library. It helps you identify where "problem code" is that chews up all your valuable computer time. Make your applications much more efficient using **ProDelphi**.

Plus **ProDelphi** comes in two forms - a Freeware Edition and a Professional Edition - well worth the investment. It comes with good documentation and is easy to use.

6.18 Gnostice Information Technologies

Web: <http://www.gnostice.com>

Mail: info@gnostice.com

If you would like to be able to send your Reports to PDF, HTML, RTF, JPEG or heaps of other different formats then you should check out what **Gnositce** has to offer.

We especially like their new **Renders for Rave Reports** which we are now using in all our Applications. We believe this is a must have add on for all users of **Nevrona's RAVE** .

6.19 EC Software

Web: <http://www.ec-software.com>

Mail: office@ec-software.com

Help & Manual is an excellent, well feature Help Authoring Tool for developing WinHelp, HTML Help, HTML Documentation, PDF & Printed Documentation.

EC Software also supply a set of FREE (with source) components to make it easier to integrate your Help System with your Delphi Applications.

Plus they have excellent Tutorials concerning Help File production and use for several development platforms.

For **ESBPCS** the ESBPCS Info & FAQ Help files have been produced with **Help & Manual**.

6.20 Peganza

Web: <http://www.peganza.com>

Mail: info@peganza.com

Pascal Analyzer, or **PAL** for short, is a development tool that measures, checks, and documents your Delphi source code. It makes software projects of any size easier to understand and enables developers to produce more flawless and reliable code. **PAL** contains numerous optimization, validation, and documentation features, which help in fine-tuning and managing the development process. In addition, it is an extremely easy tool to use: just select a source file, push a button, and off you go!

6.21 DLite

Software By Martin

Web: <http://www.softwarebymartin.com/dlite>

Mail: info@softwarebymartin.com

This handy tools is a "light" IDE that allows you to quickly edit and build your Delphi Projects. Includes support for the new Delphi for .NET Compiler included with Delphi 7.

6.22 FinalBuilder

AtoZed Software - FinalBuilder

Web: <http://www.atozedsoftware.com/finalbuilder>

Mail: info@atozedsoftware.com

FinalBuilder automates the tedious build process for you, so that you can build often - which is one of the secrets of good software design. **FinalBuilder** works with heaps of other products - many of them are also **ESBPCS** Development partners.

So check out and see how much time your production and development teams could be saving with this product

6.23 IntraWeb

AtoZed Software - IntraWeb

Web: <http://www.atozedsoftware.com/intraweb>

Mail: info@atozedsoftware.com

IntraWeb makes developing web-based applications easy since you use the development environment that you are already familiar with. It takes an intelligent and sophisticated approach to web development and is well supported.

7 FAQ













7.1 ESBPCS FAQ

Last Updated: 19 July 2003 - for ESBPCS for VCL v3.0.0 and higher.

This is currently a work in progress and we would appreciate hearing from users about what they would like to have more info about.

Also see discussion of **what's new in v3**^[10] for other useful FAQ.









- **General Issues**^[48]
- **Help System**^[52]
- **Data Aware Issues**^[53]
- **Calculator & CalcEdits**^[55]
- **Colors & ColorSets**^[56]
- **ComboBoxes**^[59]
- **Complex Numbers**^[61]

- **Date & Time Issues** 
- **Date/Time Edits** 
- **Edit Controls - General** 
- **Financials** 
- **Fractions** 
- **GroupCtrls** 
- **Math** 
- **Matrices** 
- **Matrix Edits** 
- **Statistics** 
- **Statistics, Descriptive** 
- **Unit Conversion** 

7.2 General Issues

7.2.1 General Issues

This covers general issues concerning **ESBPCS**

- **Getting Support** 
- **Installing ESBPCS** 
- **Customizing ESBPCS** 
- **What is the Lite Version** 
- **What about CLX** 
- **Minimizing in Delphi 5** 
- **EConvertError in IDE** 
- **Support for Other Languages** 

7.2.2 Getting Support

Question

How do I get support for **ESBPCS**?

Solution

1. Users have access to the ESBPCS Discussion List - <http://e-fora.net:8080/~ESB>
2. Send email to support@esbconsult.com or support@esbpcs.com.

Note: Registered Users receive priority when it comes to support, though we do try and help everyone.

7.2.3 Installing ESBPCS

Question

How do I Install **ESBPCS**?

Solution

ESBPCS comes with the **ESBPCS Installer** which handles the installation of the **ESBPCS** Packages, and for registered users, it also handles the building of the packages.

7.2.4 Customizing ESBPCS

Note: This only applies to Registered Users who have the full source.

Question

What if I don't want all the components that comes with ESBPCS to be installed?

Solution

Go to **ESBPCSREG.PAS** (**ESBPCSREGDB.PAS** for Data Aware components). In here you can "remove" components from getting installed.

However you need to BE CAREFUL - since compound components like **TESBDateTimeEdit** do require **TESBDateEdit** and **TESBTimeEdit**.

But with a bit of experimenting, you should be able to have a custom subset of components.

Once you have done the changes, try reinstalling using the **ESBPCS Installer**. If this has problems then you probably removed a component that is used in a Compound component that you have kept.

Warning: When getting updates the **ESBPCSREG.PAS** file may be overwritten so you might want to do your changes in a copy of the Source directory or at least backup any files you have changed before applying the update.

Likewise, you can change default settings in **ESBPCSGlobals** and **ESBPCSGlobals2** and then re-run the **ESBPCS Installer**.

7.2.5 What is the Lite Version

Question

What is the **Lite Version** of **ESBPCS for VCL**?

Solution

ESBPCS can also be purchased as a **Lite Version** - which simply does not include any of the Data Aware components or routines. It also doesn't include the source to the **ESBPCS Installer** nor access to Betas.

If you have purchased the **Lite Version** and you need Data Aware controls at a later date, then an ***upgrade path is available***.

7.2.6 What About CLX

Question

Can I use **ESBPCS** with CLX?

Solution

ESBPCS for VCL is purely for VCL development in Delphi 5, 6 & 7 and C++ Builder 5 & 6.

There is a freeware subset of **ESBPCS for CLX** - but at this time we do not plan to release a full version.

7.2.7 Minimizing in Delphi 5

Question

How do I minimise a Modal Form in Delphi 5?.

Solution

When Issuing an Application.Minimize in a Delphi 5 Modal form, it doesn't Minimise like it does in Delphi 4. In Delphi 5, the processing of Application Messages has been improved to properly handle Animation and give consistent behaviour to other Win32 Applications.

But if you, like us, like to be able to have Application.Minimize called in a Modal form, minimise the whole Application, then you need to do the following (this can also be seen in any of the Demo Projects).

```
procedure TForm1.AppMinimize(Sender: TObject);  
begin  
    ShowWindow (Application.Handle, SW_MINIMIZE);  
end;
```

```
procedure TForm1.AppRestore(Sender: TObject);  
begin  
    ShowWindow (Application.Handle, SW_RESTORE);  
end;  
  
procedure TForm1.FormCreate(Sender: TObject);  
begin  
    Application.OnMinimize := AppMinimize;  
    Application.OnRestore := AppRestore;  
    . . .  
end;
```

7.2.8 EConvertError

Question

Why do I get Exceptions when running **ESBPCS**?

Solution

Many of the conversion routines use Exception Handling in the conversion - the Exception that is raised is normally handled, and if not an appropriate Exception is then raised. As such when running a program in the IDE you may get **EConvertError** Exceptions that you don't see when running the standalone Application.

We normally disable **EConvertError** notification in our IDE's on our Development Machines - either that or just ignore these Exceptions.

To ignore go to Tools/Debugger Options and under Language Exceptions add **EConvertError** as one to ignore.

7.2.9 Support for other Languages

Question

What if I want my application to use a different language to English?

Solution

Run the **ESBPCS Installer** again, and choose the Language that you desire.

We even support English International (Default) and English US - one of the most noticeable differences is in the Unit Conversions, where the Default displays 'metres' and the English US will display 'meters'.

Currently we also support:

- Czech Translation done by Miloslav Skácel
- Danish Translation done by Lars C. Svane
- French Translation done by S. Ben
- German Translation done by Christian Lauer
- Norwegian Translation done by Kai Bohli
- Polish Translation done by Tomasz Trejderowsk
- Portuguese (Brazilian) Translation done by Bruno Sonnino
- Russian Translation done by Vilis Eglitis




Languages, other than English, are supplied by **ESBPCS Users** and we thank them for their generosity.

Languages support is done through a series of units **ESBPCS_RS_*.PAS** that contain Resource Strings. In your **ESBPCS** Source Directory you will see a strings subdirectory, and under that are various language directories. The **ESBPCS Installer**, simply copies the units from the language you choose into the install directory.

7.3 Help System

7.3.1 Help System

This covers general issues concerning **ESBPCS's Help System**

- **Index seems to be Missing** ⁵²
- **Can't create a Find Database** ⁵³
- **ESBPCS Help does appears with a Red Cross in OpenHelp** ⁵³

7.3.2 Index Seems to be Missing

Question

After installing **ESBPCS** Help my Index is Missing - how do I fix it?

Solution

Sadly this is a WinHelp limitation and the problem seems more common under Windows 9X then under NT or Windows 2000/XP, since Win9X uses a 16 bit Index. The only solution seems to do the following:

In the IDE, choose Help menu, then Customize Option and go to the Index Tab and

remove some of the Indexes to things you are less likely to use.

Note: A HTMLHelp version of the Help System is also included for Registered Users.

7.3.3 Can't Create a Find Database

Question

When using **ESBPCS** Help, I can't create a Find Database - how do I solve this?

Solution

Sadly this is a WinHelp limitation and the problem seems more common under Windows 9X then under NT or Windows 2000/XP. No known solution currently within WinHelp - HTMLHelp doesn't have that problem.

Note: A HTMLHelp version of the Help System is also included for Registered Users.

7.3.4 ESBPCS Help does appears with a Red Cross in OpenHelp

Question

After installing **ESBPCS** Help I notice that **ESBPCS** Help appears with a Red Cross in OpenHelp - why is this?

Solution

Most likely this has been caused by trying to install **ESBPCS** Help via the Installer when you are using Window NT or Windows 2000/XP and you did not have Administrator Privileges. Like installing Delphi (or C++ Builder), you need to have Administrator Privileges.

7.4 Data Aware Issues

7.4.1 Data Aware Issues

Issues relating to using Data Aware Controls

- Delphi 5 Standard & C++ Builder 5 Standard
- Delphi 6 Personal & C++ Builder 6 Personal
- Delphi 7 Personal
- I don't have any Data Aware Components

7.4.2 Delphi 5 Standard & C++ Builder 5 Standard

Question

Can I use **ESBPCS** Data Aware Components with my Delphi 5 Standard? (or C++ Builder 5 Standard)

Solution

Borland Delphi 5 Standard does not include the necessary support to use the Data Aware Controls included in **ESBPCS**. Same applies to C++ Builder 5 Standard.

All the other components should work fine.

The Delphi Packages have the Data Aware Components separated into their own package.

Sadly, the only solution is to get D5 Professional or D5 Enterprise (BCB5 Professional or BCB5 Enterprise)

7.4.3 Delphi 6 Personal & C++ Builder 6 Personal

Question

Can I use **ESBPCS** Data Aware Components with my Delphi 6 Personal? (or C++ Builder 6 Personal)

Solution

Borland Delphi 6 Personal does not include the necessary support to use the Data Aware Controls included in **ESBPCS**. Same applies to C++ Builder 6 Personal.

All the other components should work fine.

The Delphi Packages have the Data Aware Components separated into their own package.

Sadly, the only solution is to get D6 Professional or D6 Enterprise (BCB6 Professional or BCB6 Enterprise)

7.4.4 Delphi 7 Personal

Question

Can I use **ESBPCS** Data Aware Components with my Delphi 7 Personal?

Solution

Borland Delphi 7 Personal does not include the necessary support to use the Data Aware Controls included in **ESBPCS**.

All the other components should work fine.

The Delphi Packages have the Data Aware Components separated into their own package.

Sadly, the only solution is to get D7 Professional, D7 Enterprise or D6 Architect.

7.4.5 I don't have any Data Aware Components

Question

After installing **ESBPCS** I don't have any Data Aware Components?

Solution

This can be caused by several things:

- You don't have the ability to have Data Aware Components because you have **Delphi 5 Standard, C++ Builder 5 Standard**^[54], **Delphi 6 Personal, C++ Builder 6**^[54] or **Delphi 7 Personal**^[55].
- You have not selected to install them using the **ESBPCS Installer** - re-run the Installer and Check the CheckBoxes to do so.
- You have purchased **ESBPCS Lite for VCL** rather than the "full" version - so you need to purchase an upgrade.

7.5 Calculator & CalcEdits

7.5.1 Calculator & CalcEdits

Issues concerning the use of the Calculators in **ESBPCS**

- **Changing Calculator Button Glyphs** 
- **Getting a Smaller Popup Calculator** 

7.5.2 Changing Calculator Button Glyphs

Question

How do I change the Glyphs on the Popup Calculator?

i

The **TESBCalculator** control allows the Copy, Paste, Cancel & Close Buttons to have their Glyphs replaced.

Also, we have been generously allowed by the good folks at **PerthWeb Pty Ltd** to include a set of replacement Glyphs, that ESBPCS Registered users can use for Free in their applications.

See the **GlyFX Demo** in the GlyFX Subdirectory of your **ESBPCS** Install (Registered version only) for an example of how it is done.

7.5.3 Getting a Smaller Popup Calculator

Question

How do I get a "small" popup calculator, as I don't really want all those functions?





Solution

The **TESBCalculator** control now has a SmallCalc property. Set this to true and you will get a smaller calculator without all the Function Buttons.

7.6 Colors & ColorSets

7.6.1 Colors & ColorSets

This covers issues about Color usage within ESBPCS Components

- **How do I get a different Color when a ESBPCS Control has the Focus** 
- **How do I get a different Color when a ESBPCS Control has the Mouse Pass over it** 
- **How do I get a different Color when a ESBPCS Control is ReadOnly** 
- **How do I get a different Color when a ESBPCS Control is not Enabled** 

- **Why doesn't my Control use the special color even though the conditions are met** 

7.6.2 On Focus Colors

Question

How do I get an **ESBPCS** Control to have a different color when it receives the focus?

How do I stop this from happening?

Solution

You should notice that **ESBPCS** Edit Controls have a ColorSet Property.

To enable Color (and Font Style) Changes when an Edit receives and loses Focus, you need to first set **ShowFocus** to True.

You then need to insure that FocusColor is different to RWColor then the control will display in a different Color, namely FocusColor, when the control has the focus.

Note: FocusColor will not be used on controls that are ReadOnly or Disabled.

To stop this happening, simply set **ShowFocus** to False.

7.6.3 Hot Tracking Colors

Question

How do I get an **ESBPCS** Control to have a different color when the mouse passes over it?

How do I stop this from happening?

Solution

You should notice that **ESBPCS** Edit Controls have a ColorSet Property.

To enable Color (and Font Style) Changes when an Edit has the mouse pass over it, you need to first set **HotTracking** to True.

You then need to insure that **HotColor** is different to **RWColor** then the control will

display in a different Color, namely **HotColor**, when the control has the focus.

Note: **HotColor** will not be used on Controls that have the Focus, ReadOnly or Disabled.

To stop this happening, simply set **HotTracking** to False.

7.6.4 ReadOnly Colors

Question

How do I get an **ESBPCS** Control to have a different color when it is ReadOnly?

How do I stop this from happening?

Solution

You should notice that **ESBPCS** Edit Controls have a ColorSet Property.

To enable Color Changes when an Edit is ReadOnly, you need to insure that **ROColor** is different to **RWColor** then the control will display in a different Color, namely **ROColor**, when the control is ReadOnly.

To stop this happening, Set **ROColor** to **clDefault** - this means that ReadOnly Color is ignored, and that the **RWColor** will be used, unless that is also **clDefault** and then the Parent Color will be used.

7.6.5 Disabled Colors

Question

How do I get an **ESBPCS** Control to have a different color when it is Disabled?

How do I stop this from happening?

Solution

You should notice that **ESBPCS** Edit Controls have a ColorSet Property.

To enable Color Changes when an Edit is Disabled, you need to insure that **DisabledColor** is different to **RWColor** then the control will display in a different Color, namely **DisabledColor**, when the control is ReadOnly.

To stop this happening, Set **DisabledColor** to **clDefault** - this means that ReadOnly Color is ignored, and that the **RWColor** will be used, unless that is also **clDefault** and then the Parent Color will be used.

7.6.6 Why doesn't my Control use the special color even though the conditions are met

Question

Why doesn't my Control use the special color even though the conditions are met?



Solution

Special Colors are used when the conditions specified by the SpecialType parameter are met. However, these special conditions (like Popup Menus) are not continuously monitored. If you change properties that affect the conditions that control the special colors, you need to call the **UpdateColorSet** Method - to ensure that the correct Colors are displayed.

7.7 ComboBoxes

7.7.1 ComboBoxes

Issues regarding ComboBoxes

- When programmatically changing the Index the OnChange Event does not fire 
- What about ComboBoxes for choosing Colors 
- What about ComboBoxes for choosing Fonts 
- Looking like Windows XP Controls 

7.7.2 OnChange Event

Question

When programmatically changing the Index the OnChange Event does not fire. How do I fix this?

Solution

This is the normal behaviour for Borland's ComboBoxes. And the default behaviour

for **ESBPCS** ComboBoxes. However we do supply a Property: **ItemIndexChange** - when this is set to True, then if ItemIndex is changed programmatically then the Change Method (and any associated OnChange Event) will be called.

7.7.3 Color ComboBoxes

Question

What about ComboBoxes for choosing Colors?

Solution

If you would like a nicely designed ComboBox for selection of Colors together with the **ESBPCS** ComboBox features then you should check out **J. Peter Mugaas' Open Components** as they include a Color ComboBox based on **ESBPCSComboBox**.

Note: Registered Users receive **JPM Open Components** with their Source Code.

Note: **JPM Open Components** are freely available and are used with permission.

7.7.4 Font ComboBoxes

Question

What about ComboBoxes for choosing Fonts?

Solution

If you would like a nicely designed ComboBox for selection of Fonts together with the **ESBPCS** ComboBox features then you should check out **J. Peter Mugaas' Open Components** as they include a FontComboBox based on **ESBPCSComboBox**.

Note: Registered Users receive **JPM Open Components** with their Source Code.

Note: **JPM Open Components** are freely available and are used with permission.

7.7.5 XP-Style ComboBoxes

Question

How do I get **ESBPCS** ComboBoxes looking like Windows XP ones when using XP Themes?



Solution

You should notice that **ESBPCS** ComboBoxes have a ColorSet Property. This has a **XPTthemesCombo** which will override Flat settings and allow the XP Theme to "draw" the ComboBox.

7.8 Complex Numbers

7.8.1 Complex Numbers

Issues relating to Complex Numbers

- **Complex Numbers - what are they** 
- **Complex Numbers - storage** 

7.8.2 What are Complex Numbers

Question

What is a Complex Number?

Solution

Complex Numbers are a superset of Real Numbers, such that every Polynomial of degree N with Real Coefficients, has N roots in the complex plane.

As such, a Complex number has two parts: the real and the imaginary, and the imaginary is related to i where the $i * i = -1$

Complex numbers are sometimes written as ordered pairs (x, y) where x is the real part, and y is the imaginary, or as: $x + i y$

Since the above represents a Cartesian notation, i.e. X & Y Axes - we can also have an ordered pair that displays the Polar Notation - (Absolute Value, Amplitude).

Complex Numbers are used in such fields as Aerodynamics, Electronics, Fast Fourier Transforms, etc.

7.8.3 Storage

Question

How do I store Complex Numbers?

Solution

Whilst **TESBComplex** may be used in Record Types, but when storing to a Database or some such, it is better to store and retrieve the parts of the Complex Number, as either Cartesian (Real, Imaginary) or Polar (Absolute Value, Amplitude).





Most Database support Doubles (8 byte Floats) rather than the Extended that **TESBComplex** uses for the 2 parts. However this shouldn't be much of a problem in most cases.

ESBPCS does include a **TESBDbComplexEdit** - a Data Aware Complex Number Edit Component - that solves these problems for you.

7.9 Date & Time Issues

7.9.1 Date & Time Issues

Issues relating to Dates, Times, TimeZones, Calendars, etc

- **Calendar Info**  62
- **ISO-8601**  62
- **RFC822**  63
- **TFileTime**  63

7.9.2 Calendar Info

Question

Where can I get more Calendar Info?

Solution

See **Calendar26.TXT** which is included with **ESBPCS** with permission from the author.

7.9.3 ISO-8601

Question

What does ISO-8601 have to do with Dates & Times?

Solution

This is a standard for the representation of Dates & Times.

Its official title is: ISO-8601:1988 Data elements and interchange formats - information interchange - Representation of dates and times.

A PDF version of the standard is available from our website - see the **Standards & Resources Page for ESBPCS**.

7.9.4 RFC822

Question

What does RFC822 have to do with Dates & Times?

Solution

This is a standard for the The Format of ARPA Internet Text Messages.

As such it includes guidelines for the formatting of Date/Time with regards to TimeZones.

A TEXT version of the standard is available from our website - see the **Standards & Resources Page for ESBPCS**.

7.9.5 TFileTime

Question

What is **TFileTime** and how does it differ from **TDateTime**?

Solution

TDateTime is an 8 byte Float type where the integer part is no of days that have passed since 30 Dec 1899. The Fractional Part is the time of the day (24 hours = 1 day, so every 1/24 is an hour etc) Time is normally considered accurate to the millisecond.

TFileTime is an 8 byte integer representing the number of 100-nanosecond intervals since January 1, 1601.

TFileTime is used in the Win32 API whereas **TDateTime** is designed for OLE/ActiveX.

Whilst they occupy the same amount of storage, TFileTime is in fact more accurate and more robust when it comes to storing Dates & Times - but is more cumbersome to deal with.





ESBPCSDatetime supplies routines to convert between **TFileTime** & **TDateTime**.

TESBDateEdit and **TESBDateTimeEdit** both allow accessing and setting of the Date/Time as a **TFileTime**.

7.10 Date/Time Edits

7.10.1 Date/Time Edits

Issues relating to Date Edits, Time Edits, DateTimeEdits, TimeZone Controls, etc

- **Quickly entering Today, Tomorrow, Next Week, etc** 
- **Enforcing Validation before Exiting** 
- **Preventing Validation when Cancelled** 
- **Displaying Current Date & Time** 

7.10.2 +/- Days

Question

Is there a quick way to enter Tomorrow, Yesterday, Last Week, Next Week, etc.

Solution

Yes - **ESBPCS DateEdits** and **CalEdits** can now have +DD and -DD type entries. For example:

+1 would give you tomorrow's date

-1 would give you yesterday's date

+7 would be seven days from now

-100 would be hundred days earlier.

7.10.3 Enforcing Validation before Exiting

Question

How do I ensure that a valid Date or Time is entered before a form is closed?

Solution

Examples of this can be found for **TESBDateEdit** and **TESBDateTimeEdit** in the DateTimeTest Demo that is available.

In the Form's CloseQuery Event you do the following:

```
procedure TForm1.FormCloseQuery(Sender: TObject; var CanClose: Boolean);  
begin  
    if ModalResult = mrOK then  
        begin  
            OkBtn.SetFocus;  
            CanClose := DateEdit1.ConvertOk;  
        end;  
end;
```

The ConvertOK ReadOnly Property will be set to True if the control has had the Date properly converted. Notice we need to ensure that the focus has left the control so that all the OnExit handling is done.

A similar methodology can be used for **TESBTimeEdit** and **TESBDateTimeEdit**.

7.10.4 Preventing Validation when Cancelled

Question

How do I stop the validation error message for a Date or Time when I have pressed Cancel?

Solution

Examples of this can be found for **TESBDateEdit** and **TESBDateTimeEdit** in the DateTimeTest Demo that is available.

In the Control's OnExitStart Event you do the following:

```
procedure TForm2.DateEdit1ExitStart(Sender: TObject; var Text: String;  
    var FurtherChecking: Boolean);  
begin  
    if ActiveControl = CancelBtn then  
        FurtherChecking := False;  
end;
```

Setting FurtherChecking to False will prevent the Exit Procedure from doing the validation as the control loses its focus.

A similar method can be applied to a **TESBTimeEdit** or a **TESBDateTimeEdit**.

7.10.5 Displaying Current Date & Time

Question

How do I get Date and/or Time Edits to show the current Date/Time - especially at design time?

Solution

The Design Time situation is of particular relevance to the non-Data Aware Controls. The Default state of Edit Controls is to store the value assigned at design time in the DFM - and since Date/Time Edits display the current Date/Time of when they were placed on the form, this is then stored in the DFM.

However, Date/Time edits are more likely to have their values set at Runtime. So to save some space in your DFM, you can set **StoreValue** property to False (True by Default). This also has the effect of giving your Date/Time Edits the current Date/Time whenever a form is opened at Design Time.




At runtime if you want to set a Date Edit to the current Date use the **Today** property.

At runtime if you want to set a Time Edit to the current Time use the **Now** property.

7.11 Edit Controls - General

7.11.1 Edit Controls - General

Issues regarding Edit Controls

- **Setting NullStr to "** 
- **Display Nothing when 0** 
- **Validation not Working** 

7.11.2 Setting NullStr to Empty String

Question

When I set **NullStr** to " (Empty String), I still get '<empty>' displayed at runtime - how do I fix this?

Solution

Sadly, empty strings - "" - don't get stored in the DFM - so when you set **NullStr** to "", the IDE decides that you don't need that property stored. Thus when your application is run, the property is not found in the DFM and thus the default value is used. This is not a bug in **ESBPCS** but how Delphi & BCB work.

To get around this, we have added a property called **BlankWhenNull** - simply set this to true and the value of **NullStr** will be ignored and a blank edit will be displayed.

7.11.3 Blank Edit when 0

Question

How do I get Numeric Edits to display nothing when they have a value of 0 (Zero)?

Solution

Since 0 is often the default value and often doesn't need to be seen, Numeric Edits have a special property called **BlankWhenZero** - if the control is 0 then a cleared edit field is shown.

For Floating point Edits, then the value must be within **ESBTolerance** of Zero to be blank.

7.11.4 Validation not Working

Question

In my numeric control I have set **Bounds** and **Enabled Bounds** checking but it still lets me type in invalid data - how come?

Solution

ESBPCS does it's validation checking On Exit - that is when the Edit Control loses focus. It doesn't check whilst the typing is done.








This can be especially a problem in Data Aware controls, where an invalid value can be edited and then the record Posted without the Edit Field losing focus.

So if you have Validation going on you must ensure that when posting and doing other changes, that you make the edit control lose the focus before such events occur.

7.12 Financials

7.12.1 Financials

Issues regarding Financials.

- **ESBCurrency**  68
- **ESBCurrency - Storing**  68
- **ESBLongCurrency**  69
- **ESBLongCurrency - Storing**  69
- **Amount Paid & Present Value**  70
- **Interest Per Period vs Interest Per Annum**  70
- **General vs Simple Annuities**  71

7.12.2 ESBCurrency

Question

How does **ESBCurrency** differ from the Delphi Currency?

Solution

Our type **TESBCurrency** differs from the Delphi Currency in a number of ways:

- **TESBCurrency** is a 32-bit Integer type whereas the Delphi Currency is a Floating Point Type. Thus most calculations are faster with **TESBCurrency**.
- Delphi Currency occupies 8 bytes whereas **TESBCurrency** occupies only 4 bytes, so in packed records and databases (since **TESBCurrency** can be type cast) **TESBCurrency** take less storage
- **TESBCurrency** has an implied 2 Decimal places whereas Delphi Currency has 4 - thus there may be accuracy issues when using **TESBCurrency**.

7.12.3 ESBCurrency - Storing

Question

How do I store **ESBCurrency** values?

Solution

TESBCurrency values can be stored in 32-bit variables using simple type casting:

```
LIntField1 := LongInt (ESBCurrency1);
```

and returned

```
ESBCurrency1 := TESBCurrency (LIntField1);
```

and thus could be stored in a Database or some such using similar methods.

7.12.4 ESBLongCurrency

Question

How does **ESBLongCurrency** differ from the Delphi Currency?

Solution

Our type **TESBLongCurrency** differs from the Delphi Currency in a number of ways:

- **TESBLongCurrency** is a 64-bit Integer type whereas the Delphi Currency is a Floating Point Type. Thus most calculations are faster with **TESBLongCurrency**.
- Delphi Currency occupies 8 bytes and **TESBLongCurrency** also occupies 8 bytes. So no storage savings.
- **TESBLongCurrency** has an implied 6 Decimal places whereas Delphi Currency has 4 - thus **TESBLongCurrency** has an increased accuracy that may be useful at times.

7.12.5 ESBLongCurrency - Storing

Question

How do I store **ESBLongCurrency** values?

Solution

TESBLongCurrency values can be stored in 64-bit variables using simple type casting:

```
Int64Field1 := Int64 (ESBLongCurrency1);
```

and returned

```
ESBLongCurrency1 := TESBLongCurrency (Int64Field1);
```

However, many Databases don't yet supply 64-bit Integer types, so you may need to break it up into 2 x 32 bit integers. To aid in this **ESBPCSSystem** has the following

routines:

```
{ Split a Int64 into High DWord and Low DWord }  
procedure SplitInt64 (const L: Int64; var HiDWord, LoDWord:  
LongWord);  
  
{ Combine High and Low DWord into Int64 }  
function MakeInt64 (const HiDWord, LoDWord: LongWord): Int64;
```

7.12.6 Amount Paid & Present Value

Question

In the Present Value Routines when is the Amount Paid taken as being paid?.

Solution

The algorithms we are using currently assume Amount Paid is at the end of the Period.

If you want to do Start of Period then you should find making:

```
PresentValue := PresentValue - AmountPaid;
```

will do the job.

Or check out the new MS Excel like Financial Functions which allows this to be set.

7.12.7 Interest Per Period vs Interest Per Annum

Question

How does Interest Per Period differ from Interest Per Annum?

Solution

Often Lending and Investing Institutions state their Interest rate as Per Annum or p.a. - which simply means interest per year. However, many of the Financial Routines require Interest Per Period - and the period is defined as when the interest is compounded...

So when you have an interest rate of 12% p.a. compounded monthly - this would mean a 1% interest rate per period - which in this case is a month.

Thus:

```
InterestPerPeriod := InterestPerAnnum / PeriodsPerYear;
```

7.12.8 General vs Simple Annuities

Question

What is the difference between General Annuities and Simple Annuities?

Solution

Basically, a General Annuity is more flexible in that it allows for the payment period to be different to the interest rate compounded period. So Simple Annuity problems can be done using the General Annuity routines by setting the payment period and the rate period to the same value.

In **ESBPCS**, the General Annuity routines also have the following differences to the Simple Annuity Routines:

- The Interest Rate is entered as per annum (per year) not per period.
- The Periods are Floats rather than integers, so things like 4.5 years can be handled.

7.13 Fractions

7.13.1 Fractions

Issues regarding the use of Fractions

- **Fractions - storage** 

7.13.2 Fractions - Storage

Question

How do I store Fractions?

Solution


Whilst **TESBFraction** may be used in Record Types, when storing to a Database or some such, it is better to store and retrieve the parts of the Fraction, namely the Numerator or Denominator which are 32 bit Integers - or alternatively store as the "floating point" representation (which is less accurate).

Denominator is actually a 32-bit Unsigned Integer (LongWord), though this can be handled by typecasting.

7.14 GroupCtrls

7.14.1 GroupCtrls

Issues regarding GroupCtrls

- **Disable an Entry in an RadioGroup** 
- **Disable an Entry in an CheckGroup** 

7.14.2 Disable an Entry in a RadioGroup

Question

How do I disable an Entry in an **ESBRadioGroup**?

Solution

Use the **OnItemEnabled** event to set the Enabled to false for the desired elements (Enabled is True by Default).

```
procedure TForm1.ESBRadioGroup1ItemEnabled(Sender: TObject;  
  const ElementNo: Cardinal; var Enabled: Boolean);  
begin  
  if ElementNo = 2 then  
    Enabled := False;  
end;
```

The above would disable the third entry in the RadioGroup (remember that Element Numbering starts at 0).

7.14.3 Disable an Entry in a CheckGroup

Question

How do I disable an Entry in an **ESBCheckGroup**?

Solution

Use the **OnItemEnabled** event to set the Enabled to false for the desired elements (Enabled is True by Default).

```
procedure TForm1.ESBCheckGroup1ItemEnabled(Sender: TObject;  
  const ElementNo: Cardinal; var Enabled: Boolean);  
begin  
  if ElementNo = 2 then
```

```

        Enabled := False;
    end;

```

The above would disable the third entry in the CheckGroup (remember that Element Numbering starts at 0).

7.15 Math

7.15.1 Math

Issues regarding the use of Math in **ESBPCS**


- **Beta Function** 
- **Gamma Function** 
- **Trigonometric Functions give wrong results** 

7.15.2 Beta Function

Question

What is the Beta Function?

Solution

The **Beta Function** is based on the **Gamma Function** :

$$\begin{aligned}
 B(x, y) &= \frac{\Gamma(x)\Gamma(y)}{\Gamma(x+y)} \\
 &= B(y, x)
 \end{aligned}$$

7.15.3 Gamma Function

Question

What is the Gamma Function?

Solution

The **Gamma Function** is often known as the Factorial Function since for Positive Integers we have the following property:

$$\Gamma(x) = (x-1)!, \quad x = 1, 2, \dots$$

A more formal definition is given through Euler's Integral:

$$\Gamma(x) = \int_0^{\infty} t^{x-1} e^{-t} dt, x > 0$$

And to incorporate non-integral negatives, we have Euler's Formula:

$$\Gamma(x) = \lim_{n \rightarrow \infty} \frac{n! n^x}{x(x+1) \cdots (x+n)}, x \neq 0, -1, -2, \dots$$

7.15.4 Trigonometric Functions give Wrong Results

Question

Why do the Trig Functions (sin, cos, esbtan, etc) give me the wrong results?.

Solution

One reason could be that you are entering the values in Degrees rather than Radians. All the Trigonometric Functions in Delphi & most in **ESBPCS** work in Radians. To convert see the Deg2Rad Function in **ESBPCSMath**.

So to find the Tangent of an angle of 45 Degrees:

```
X := ESBTan (Deg2Rad (45));
```

However, **ESBPCS** also supplied Degree versions of most of the Trigonometric Functions - check out the following routines in **ESBPCSMath**:

```
function ESBTanDeg (const Angle : Extended): Extended;
function ESBSinDeg (const Angle : Extended): Extended;
function ESBCosDeg (const Angle : Extended): Extended;
function ESBCotDeg (const Angle : Extended): Extended;
function ESBSecDeg (const Angle : Extended): Extended;
function ESBCosecDeg (const Angle : Extended): Extended;
procedure ESBSinCosDeg (const Angle: Extended; var SinX, CosX:
Extended);
function ESBArcTanDeg (const X, Y: Extended): Extended;
function ESBArcCosDeg (const X: Extended): Extended;
function ESBArcSinDeg (const X: Extended): Extended;
function ESBArcSecDeg (const X: Extended): Extended;
function ESBArcCosecDeg (const X: Extended): Extended;
```

7.16 Matrices

7.16.1 Matrices

Issues regarding the use of Matrices.

- **Faster Matrix Operations for Rectangular Matrices** 
- **Non-Rectangular Matrices** 

7.16.2 Faster Matrix Operations for Rectangular Matrices

Question

Can I get Faster Matrix Operations if I only use Rectangular Matrices?

Solution

In many cases YES - if you take on the responsibility for ensuring that the Matrices involved are rectangular, then change the global variable:

```
ESBMatrixRectangularCheck: Boolean = False;
```

By default the above is true. When True, most routines do a through check of the Matrix to ensure it is Rectangular before proceeding.

7.16.3 Non-Rectangular Matrices

Question

What are these non-Rectangular Matrices that are talked about?

Solution

In Mathematics, a Matrix is normally rectangular with M rows and N columns, and when $M = N$ we call it a Square Matrix.

However, Delphi allows us with Dynamic Arrays (which underlie our Matrices) to have M rows, with each row having a different number of columns - thus Non Rectangular!

Many of the supplied routines in **ESBPCSMatrix** do handle Non-Rectangular Matrices - though we would encourage you to use only Rectangular Matrices.

7.17 MatrixEdits & VectorEdits

7.17.1 MatrixEdits & VectorEdits

Issues regarding MatrixEdits & VectorEdits.

- **Speeding up Matrix Manipulation**  76
- **Speeding up Vector Manipulation**  76

7.17.2 Speeding up Matrix Manipulation

Question

Can I speed up my Matrix Manipulation when using **ESBMatrixEdit**?

Solution

When doing a series of operations, you can use the Methods **BeginUpdate** and **EndUpdate** to enclose the operation, thus preventing screen updates for every change.

See the **MatrixEdit** Demo program for examples

7.17.3 Speeding up Vector Manipulation

Question

Can I speed up my Vector Manipulation when using **ESBVectorEdit**?

Solution

When doing a series of operations, you can use the Methods **BeginUpdate** and **EndUpdate** to enclose the operation, thus preventing screen updates for every change.














See the **VectorEdit** Demo program for examples

7.18 Statistics

7.18.1 Statistics

Issues regarding the use of Statistics in **ESBPCS**

- **Binomial Distribution**  77

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7.18.2 Binomial Distribution

Question

What is a Binomial Distribution?

Solution

A **Binomial Experiment** is defined as:

- It has a fixed number of trials, which we will signify with n .
- The outcome of each trial can be classified as one of two categories: success or failure.
- The probability of success (denoted by p) remains the same for each trial.
- Each trial is independent of the other trials.

A **Binomial Random Variable** is defined as one that indicates the number of successes in n trials of a Binomial Experiment.

Probability Distribution of a Binomial Experiment:

Random Variable X is the number of successes in n trials of a Binomial Experiment.

The probability of success in a given trial is given by p and the probability of failure is given by $q = 1 - p$.

Then:

$$P(X = a) = C_a^n p^a q^{n-a}$$

$$= \frac{n!}{a!(n-a)!} p^a q^{n-a}$$

7.18.3 Chi Square Distribution

Question

What is a Chi Square Distribution?

Solution

A random variable X is Chi Square distributed if its probability density function is given by:

$$f(x) = \frac{x^{\frac{\nu-2}{2}} e^{-\frac{x}{2}}}{2^{\frac{\nu}{2}} \Gamma\left(\frac{\nu}{2}\right)}, \text{ for } x > 0$$

where $x = \chi^2$

and ν is the degrees of freedom

If a random variable X is **Normally Distributed** then the Square of X will be Chi Squared Distributed with **Degrees of Freedom** = 1.

Also referred to as the **Chi-Squared Distribution**.

7.18.4 Deciles

Question

What are Deciles?

Solution

Deciles are calculated by dividing the sorted Data into 10 equal parts.

The 5th Decile is also known as the **Median**.

The 1st and 9th Decile is used for calculating the 10-90 **Percentile Range**.

For Raw Data:

$$D_i = x_{k+0.5} \text{ where } k = \frac{i}{10} \text{ for } i = 1, 2, \dots, 9$$

For Grouped Data:

$$D_i = L + \left(\frac{\frac{i \times n}{10} - cf_p}{f_d} \right) \times cs$$

where L is the lower bound of the Decile Class

n is the total number of values

cf_p is the cumulative frequency of the previous class

f_d is the frequency of the Decile Class

cs is the Class Size

7.18.5 F Distribution

Question

What is an F Distribution?

Solution

A random variable X is **F distributed** if its probability density function is given by:

$$f(x) = \frac{\Gamma\left(\frac{\nu_1 + \nu_2}{2}\right)}{\Gamma\left(\frac{\nu_1}{2}\right)\Gamma\left(\frac{\nu_2}{2}\right)} \times \left(\frac{\nu_1}{\nu_2}\right)^{\nu_1/2} \\ \times x^{(\nu_1-2)/2} \times \left(1 + \frac{\nu_1}{\nu_2}x\right)^{-\frac{(\nu_1+\nu_2)}{2}}$$

where $x > 0$ and $x = \frac{u/\nu_1}{v/\nu_2}$

where u and v are independent random variables with Chi Squared Distributions and Degrees of Freedom ν_1, ν_2 respectively.

And:

ν_1 is the Numerator or
Horizontal Degree of Freedom
 ν_2 is the Denominator or
Vertical Degree of Freedom

Often F will be used as the random variable instead of X but we have stuck with X to be consistent with our descriptions.

Also referred to as the **Variance Ratio Distribution**.

7.18.6 Inter Quartile Range

Question

How do I calculate the Inter Quartile Range (IQR)?

Solution

The **Inter Quartile Range** (or **IQR**) is another Measure of Dispersion (i.e. tells how

"spread out" the data are). The IQR is also sometimes referred to as the **Quartile Deviation**.

Unlike Range this measurement is not as easily effected by extreme values.

Quartiles⁸⁴ are related to the Median, which is in fact the 2nd Quartile. This done, the Inter Quartile Range is calculated by:

$$IQR = Q_3 - Q_1$$

So in **ESBPCSStatistics** use **GetQuartiles** to get Q1 and Q3 then use,

$IQR := Q3 - Q1;$

7.18.7 Kurtosis

Question

What is Kurtosis?

Solution

Kurtosis measures the flatness of the data, in comparison to the **Normal Distribution**⁸³.

We are really calculating the **Moment Coefficient of Kurtosis**.

Traditionally, a Normal Distribution has a Kurtosis of 3 and data that has a Kurtosis of 3 (or near to it) is called **mesokurtic** (meso- means middle). Data that has a Kurtosis > 3 is called **platykurtic** (platy- means flat). Data that has a Kurtosis < 3 is called **leptokurtic** (lepti- means slender).

We use the same formula as Microsoft Excel for Samples and follow's Excel's example of making a Normal Distribution have a Kurtosis of 0.

Note: At least 4 data points are required to calculate this statistic.

Raw Data:

Given Sample Data the formula used is:

$$\frac{n(n+1)}{(n-1)(n-2)(n-3)} \times \frac{\sum (x_i - \bar{x})^4}{s^4} - \frac{3(n-1)^2}{(n-2)(n-3)}$$

and for Population Data the formula used is:

$$\frac{\sum (x_i - \mu)^4}{n \times \sigma^4} - 3$$

Grouped Data:

Given Sample Data the formula used is:

$$\frac{n(n+1)}{(n-1)(n-2)(n-3)} \times \frac{\sum f_i (x_i - \bar{x})^4}{s^4} - \frac{3(n-1)^2}{(n-2)(n-3)}$$

where x_i are the midpoints and

f_i are the frequencies of the classes

and for Population Data the formula used is:

$$\frac{\sum f_i (x_i - \mu)^4}{n \times \sigma^4} - 3$$

where x_i are the midpoints and

f_i are the frequencies of the classes

When looking at data as a distribution of a Random Variable, then the following definition of Kurtosis is used:

$$\alpha_4 = \frac{\mu_4}{\sigma^4} = \frac{\mu_4}{\mu_2^2}$$

This relates the Kurtosis to the **Moments of Distribution** of the Random Variable.

7.18.8 Linear Regression

Question

What is Linear Regression?

Solution

This involves taking two **TESB Vectors** and treating one as the Independent variable (X) and the other as the Dependent variable (Y). In Linear Regression, we analyse whether there is a **Linear Relationship** between X and Y of the form:

$$Y = \beta_0 + \beta_1 X$$

Note: Regression Analysis does not prove causation. Just because a Linear Relationship between X and Y is found with a very low error, does not mean that X causes Y.

7.18.9 Normal Distribution

Question

What is a Normal Distribution?

Solution

A random variable X with given **Mean** μ and **Standard Deviation** σ is **normally distributed** if its probability density function is given by:

$$f(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{\left(\frac{x-\mu}{\sigma}\right)^2}{2}}, \quad -\infty < x < \infty$$

The Normal Distribution is probably the most important of all continuous probability distributions, and its familiar "Bell-shaped" curve is widely recognised.

A **Standard Normal Distribution** is one with a Mean of 0 and a Standard Deviation

of 1, and often Z is used rather than X to represent this.

7.18.10 Poisson Distribution

Question

What is a Poisson Distribution?

Solution

A **Poisson Experiment** is defined as:

- The number of successes that occur in a given interval is independent.
- Equal sized intervals have the same probability of success, and this probability of success is proportional to the size of the interval.
- As the size of the interval gets smaller (approaches 0) the probability of 2 or more successes also gets smaller (approaches 0).

A **Poisson Random Variable** is defined as one that indicates the number of successes that occur in a given interval..

Probability Distribution of a Poisson Experiment:

Random Variable X is the number of successes in given interval of a Poisson Experiment.

The average number of success in the given interval is μ

Then:

$$P(X = a) = \frac{e^{-\mu} \mu^a}{a!}$$

7.18.11 Quartiles

Question

What are Quartiles?

Solution

Quartiles are calculated by dividing the sorted Data into 4 equal parts.

See also the entry for **Inter Quartile Range** ⁸⁰.

Quartiles are related to the **Median**, which is in fact the 2nd Quartile. Just as the Median is found by dividing the data into halves, Quartiles are found by dividing the data into quarters.

For Raw Data, the 1st Quartile is given by:

$$Q_1 = x_{k+0.5} \text{ where } k = \frac{n}{4}$$

If the subscript is an integer then the value is the one specified.

If the subscript ends in $k + 0.25$ then the values k and $k + 1$ are added and multiplied by 0.25

If the subscript ends in $k + 0.5$ then the values k and $k + 1$ are added and multiplied by 0.5

If the subscript ends in $k + 0.75$ then the values k and $k + 1$ are added and multiplied by 0.75

The 3rd Quartile is given by:

$$Q_3 = x_{k+0.5} \text{ where } k = \frac{3n}{4}$$

and the value calculated from the subscript as for the 1st Quartile.

For Grouped Data, the 1st and 3rd Quartiles are calculated by identifying the Quartile Class for each Quartile, in a manner similar to that done for Median Class when finding the Median of Grouped Data. Once these 2 classes are identified, the following formulae are used:

$$Q_1 = L + \left(\frac{\frac{n}{4} - cf_p}{f_q} \right) \times cs$$

$$Q_3 = L + \left(\frac{\frac{3n}{4} - cf_p}{f_q} \right) \times cs$$

where L is the lower bound of the Quartile Class

n is the total number of values

cf_p is the cumulative frequency of the previous class

f_q is the frequency of the Quartile Class

cs is the Class Size

7.18.12 Skewness

Question

What is Skewness?

Solution

Skew is a measure of the **skewness** (i.e. **lack of Symmetry**) of the data.

We are really calculating the **Moment Coefficient of Skewness**.

The closer the value is to 0 then the more Symmetrical the Data is.

A Positive value implies the data is bunched up more to the left i.e. **positively skewed**.

A Negative value implies the data is bunched up more to the right i.e. **negatively skewed**.

Note: At least 3 data points are required to calculate this statistic.

We use the same formula as Microsoft Excel for Sample Data for the Sample Calculations..

Raw Data:

Given Sample Data the formula used is:

$$\frac{n}{(n-1)(n-2)} \times \frac{\sum (x_i - \bar{x})^3}{s^3}$$

and for Population Data the formula used is:

$$\frac{\sum (x_i - \mu)^3}{n \times \sigma^3}$$

Grouped Data:

Given Sample Data the formula used is:

$$\frac{n}{(n-1)(n-2)} \times \frac{\sum f_i (x_i - \bar{x})^3}{s^3}$$

where x_i are the midpoints and
 f_i are the frequencies of the classes.

and for Population Data the formula used is:

$$\frac{\sum f_i (x_i - \mu)^3}{n \times \sigma^3}$$

where x_i are the midpoints and
 f_i are the frequencies of the classes.

When looking at data as a distribution of a Random Variable, then the following definition of Skewness is used:

$$\alpha_3 = \frac{\mu_3}{\sigma^3} \text{ where } \mu_k = E[(x - \mu)^k]$$

This relates the Skewness to the **Moments of Distribution** of the Random Variable.

7.18.13 Standard Deviation

Question

What is the Standard Deviation?

Solution

The **Standard Deviation** is probably the most common **Measure of Dispersion** (i.e. tells how "spread out" the data are). It is calculated by finding the square root of the **Variance**^[89]. Unlike Variance, the Standard Deviation is in the same units as the mean, and hence the same units as the original data.

For Raw Data the Standard Deviation is calculated as follows:

$$\sigma = \sqrt{\frac{\sum (x_i - \mu)^2}{n}} \text{ for populations}$$

$$s = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n-1}} \text{ for samples}$$

For Grouped Data, the mid-point of the classes is used, and the Standard Deviation is calculated as follows:

$$\sigma = \sqrt{\frac{\sum f_i (x_i - \mu)^2}{n}} \text{ for populations}$$

$$s = \sqrt{\frac{\sum f_i (x_i - \bar{x})^2}{n-1}} \text{ for samples}$$

where x_i are the midpoints and

f_i are the frequencies of the classes

7.18.14 Student t Distribution

Question

What is a Student t Distribution?

Solution

A random variable X is **Student t distributed** if its probability density function is given by:

$$f(x) = \frac{\Gamma\left(\frac{\nu+1}{2}\right)}{\sqrt{\pi\nu} \times \Gamma\left(\frac{\nu}{2}\right) \left(1 + \frac{x^2}{\nu}\right)^{\frac{\nu+1}{2}}} \text{ for } -\infty < x < \infty$$

where $x = \frac{z}{\sqrt{\frac{y}{\nu}}}$ and y and z are independent random variables,

y has a Chi-Square distribution with ν degrees of freedom and z has the standard normal distribution.

This distribution is also known as the **t distribution** or the **Student's distribution**. Normally when the above formula is given the variable t is used instead of x . We have used x to remain consistent with the other distributions.

When the Degrees of Freedom is large (> 200) then the Student t distribution "becomes" the Normal Distribution.

7.18.15 Variance

Question

What is the Variance?

Solution

The **Variance** is a useful **Measure of Dispersion** (i.e. tells how "spread out" the data are). It is calculated by finding the average of the squares of the difference between each value and the mean. The downside of this measurement is that it is in units that are the square of the units of the mean - this is one of the reasons why **Standard Deviation**^[88] is often more popular.

For Raw Data, the Variance is calculated as follows:

$$\sigma^2 = \frac{\sum (x_i - \mu)^2}{n} \text{ for populations}$$

$$s^2 = \frac{\sum (x_i - \bar{x})^2}{n-1} \text{ for samples}$$

For Grouped Data, the mid-point of the classes is used, and the Variance is calculated as follows:

$$\sigma^2 = \frac{\sum f_i (x_i - \mu)^2}{n} \text{ for populations}$$

$$s^2 = \frac{\sum f_i (x_i - \bar{x})^2}{n-1} \text{ for samples}$$

where x_i are the midpoints and

f_i are the frequencies of the classes

7.19 Statistics, Descriptive

7.19.1 Statistics, Descriptive

Issues regarding the use of Descriptive Statistics in **ESBPCS**.

- Value not being updated 

7.19.2 Value not being updated

Question

When accessing Values such as Sum I am getting 0 (or an incorrect value)?

Solution

Calculating Statistics, especially when connected to a Data Source can be quite time consuming, thus you need to call the method **RefreshStats** prior to accessing the various values supplied.

7.20 Unit Conversion

7.20.1 Unit Conversion

Issues regarding Unit Conversion

- **Meters rather than Metres** ⁹¹
- **Metric to Metric Conversions** ⁹¹
- **Missing Conversions** ⁹²

7.20.2 Meters rather than Metres

Question

I want to see '*meters*' rather than '*metres*' in my Unit Conversion components?

Solution

The default install for **ESBPCS** is to use English International - and thus units such as metres, litres etc are used.

If you would prefer the American spelling, then run **ESBPCS Installer** and choose English US.

Also see: **Language Support** ⁵¹.

7.20.3 Metric to Metric Conversions

Question

Where are the Metric to Metric conversions like grams to kilograms?

Solution

Most Metric Conversions are trivial if you keep in mind what the prefixes mean:

	US Name	
exa	quintillion	x 1,000,000,000,000,000,000
peta	quadrillion	x 1,000,000,000,000,000
tera	trillion	x 1,000,000,000,000
giga	billion	x 1,000,000,000
mega	million	x 1,000,000
kilo	thousand	x 1,000
hecta	hundred	x 100
deca/deka	ten	x 10
deci	tenth	x .1

centi	hundredth	x .01
milli	thousandth	x .001
micro	millionth	x .000 001
nano	billionth	x .000 000 001
pico	trillionth	x .000 000 000 001
femto	quadrillionth	x .000 000 000 000 001
atto	quintillionth	x .000 000 000 000 000 001

Of course for Area these are squared, and for many of the Volume measurements they are cubed.

Some Metric conversions are included like Square Metres to Hectares.

7.20.4 Missing Conversions

Question

Where is the conversion for XXX to YYY in the conversions?

Solution

ESBPCSConversion does not aim to be exhaustive but does try to be thorough. Many conversions can be done by going through a chain of steps XXX -> ZZZ -> YYY. For Example,

Convert from Miles to UK Nautical Miles:

```
UKNautMile := DistYards2UKNautMiles (DistMile2Yards (Miles));
```

Good examples can be found in the **ESBConvertors** Source.

And if you have conversions you would like to see added let us know.

8 Acknowledgements

8.1 Acknowledgements

ESBPCS wouldn't be here if it wasn't for the excellent compilers supplied by **Borland**

<http://www.borland.com>

The Info Help System and FAQ were developed using **EC Software's Help & Manual**

<http://www.ec-software.com>

The Help for the Delphi IDE (**esbpcs.hlp**) was developed using **Time2Help**.

<http://www.time2help.com>

The Installation System was developed using **Jordan Russell's Inno Setup**. This is an excellent Freeware application that I would recommend to all developers.

<http://www.jrsoftware.org>

We use **ISTool** as a nice front-end to the above.

<http://www.bhenden.org/istool>

The Executables supplied for the Demos have been compressed using **ASPack** which is an excellent Utility produced in Delphi.

<http://www.aspack.com>

For Text Editing, we use and recommend **EditPad Pro**.

<http://www.editpadpro.com>

See also: Books Referenced 

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Karen Crouch

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Beta Testers

Many thanks to the following who gave up much of their valuable time to help out in making **ESBPCS** the product it is:

J. Peter Mugaas

Nikolay Simeonov

Marcel Martin

Allan Knox

Trevor Davis

Kim Bracknell

John Manning

Miloslav Skácel

Lars C. Svane

S. Ben

Christian Lauer

Kai Bohli

Tomasz Trejderowsk

Bruno Sonnino

Vilis Eglitis

PLUS the many registered users who have supplied feedback and excellent suggestions.

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We would also like to recommend the following References as good sources to find out more information on Mathematics, Statistics, etc:

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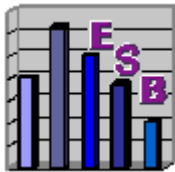
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9 Contact ESB

9.1 Contact ESB



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