

# Operator Overloading in Delphi Native

## introduction

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## Some introductory notes


- Originally needed for .NET
  - Delphi has introduced operator overloading for .NET interoperability
  - The same was done for “helpers”
- Very convenient in Delphi Native too
- Examples from the internet
- Historic use in Delphi RTL/VCL/FMX
- My own example: Nullable types

## Examples from the internet

- Concise example from Hallvard Vassbotn
  - <http://hallvards.blogspot.nl/2007/03/dn4dp5-redefining-operators.html>
- TFraction example
  - <http://www.delphi-treff.de/tutorials/objectpascal/das-ueberladen-von-operatoren/die-funktionsweise-am-beispiel/>
- Smart framework for running XPath queries
  - <http://members.adug.org.au/2012/08/17/dances-with-xml/>
- Don't use when not needed
  - <http://stackoverflow.com/questions/9546433/overload-operator-and-conversion-type>
- Overuse of "Implicit" operator
  - <http://www.pritaeas.net/view/articles/delphi-operator-overloading>
    - Looks smart, but isn't



RTL/VCL/FMX  
operator overloading


grep -ind "class operator" \*.pas



## Original for .NET support



Class	Unit	Delphi	Comments
TIdStream	IdStream	2005+	Indy .NET
<u>TComplex</u>	Vassbotn.Vcl.Complex	2006+	Demo Win32
<u>TBcd</u>	Borland.Vcl.FMTBcd Data.FMTBcd	2006 XE+	.NET VCL
<u>TSQLTimeStamp</u>	Borland.Vcl.SqlTimSt	2006	.NET VCL
<u>TMethod</u> ; <u>TCurrency</u> ; <u>TDateTime</u> ; <u>TAnsiString</u>	Borland.Delphi.System	2006	.NET RTL
TStream	Borland.Vcl.Classes	2006	.NET RTL
<u>TComplex</u>	Borland.Vcl.Complex	2006	.NET RTL
<u>TConvert</u>	Borland.Vcl.Convert	2006	.NET RTL
<u>VariantHelper</u> ; <u>OleVariantHelper</u>	Borland.Vcl.Variants	2006	.NET RTL



## D2009+ mostly conversion

Class	Unit	Delphi	Comments
<u>TCMDockNotification</u> ; <u>TCMPopupHwndDestroy</u> ; <u>TCMCreatePopup</u>	Controls Vcl.Controls	2009-XE XE2+	VCL
<u>TImageListHandle</u>	ImgList VCL.ImgList	2010-XE XE2+	VCL
<u>TValue</u>	Rtti System.Rtti	2010-XE XE2+	RTL
<u>TTimeSpan</u>	Timespan System.TimeSpan	2010-XE XE2+	RTL
<u>D2D_RECT_F</u> ; <u>D2D_MATRIX_3X2_F</u> ; <u>D2D_POINT_2F</u>	D2D1 Winapi.D2D1	2010-XE XE2+	RTL Win
<u>TGUID</u>	System	XE+	RTL
<u>TKeyModifier</u> ; <u>TVirtualKey</u>	KeyboardTypes Vcl.Touch.KeyboardTy	XE XE2+	VCL Touch

## DXE2+ mostly conversion

Class	Unit	Delphi	Comments
TColorRec; TAlphaColorRec	System.UITypes	XE2+	RTL
TCFArray; TCFBoolean; TCFData; TCFDictionary; TCFNumber; TCFString; TCFPropertyList	System.Mac.CFUtils	XE2+	RTL Mac OSX
TSingleRec; TDoubleRec; TExtended80Rec	System.SysUtils	XE2+	CFString impl RTL x64 conversion

## DXE2+ mostly conversion

Class	Unit	Delphi	Comments
<u>TPoint</u> ; <u>TRect</u> ; <u>TPointF</u> ; <u>TRectF</u> ; <u>TSize</u> ; <u>TSizeF</u> ; <u>TSmallPoint</u>	System.Types	XE2+	RTL
D3DXFLOAT16; D3DXVECTOR2; D3DXVECTOR2_16F; D3DXVECTOR4; D3DXVECTOR4_16F; <u>D3DXQUATERNION</u> ; D3DXPLANE	Winapi.D3DX10; Winapi.D3DX9	XE2+	RTL Win
<u>D3DVECTOR</u> ; <u>D3DMATRIX</u> ; <u>D3DCOLORVALUE</u>	Winapi.DXTypes	XE2+	RTL Win

# DXE2+ mostly conversion

Class	Unit	Delphi	Comments
TTextFormatFlags	Vcl.Graphics	XE2+	VCL
TImageListHandle	Vcl.ImgList	XE2+	VCL
TStyleElementEdges; TStyleElementEdgeFlags ; TThemeServicesClassHe lper	Vcl.Themes	XE2+	VCL
TTypeInfoFieldAccessor	System.TypeInfo	XE3+	RTL
_tagpropertykey	Winapi.ActiveX	XE3	RTL Win