



RKD Software

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# TwainControl ActiveX

## Developer's Guide

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# 1. Getting Started

## 1.1. Operating Systems

TwainControl ActiveX compatible with following operating systems:

Windows XP

Windows Vista

Windows 7

Windows 8

Windows Server from 2003 to 2012

## 1.2. Installation

TwainControl ActiveX is supplied as an executable. Simply run the file. If TwainControl ActiveX is not activated, it automatically switches to the demo mode.

The demo mode has the following limitations. An image received from a Twain device will have the DEMO label over it. TwainControl ActiveX can decode barcodes, but a part of the barcode will be replaced with the DEMO label.

## 1.3. Directory Structure

TwainControlAx.dll	Main component
qpdfax.dll	The file TwainControl uses to work with PDF files. If you don't plan to use PDF, the file isn't needed.
TwainControlAx.pdf	This manual
32bit	32-bit folder
64bit	64-bit folder
Examples	Folder with examples

## 1.4. Barcode Decoding

TwainControl ActiveX supports barcode decoding (a license with barcode decoding support is required). Use the [BarcodeScan](#) method to perform barcode decoding.

## 1.5 Barcode Technical Specifications

Decodes all popular barcode types.

### Linear:

Interleaved 2/5, Industrial 2/5, Code 39, Code 39 Extended, Codabar, Code 11, Code 128, Code 128 Extended, EAN/UCC 128, UPC-E, UPC-A, EAN-8, EAN-13, Code 93, Code 93 Extended, DataBar Omnidirectional (RSS-14), DataBar Truncated (RSS-14 Truncated), DataBar Limited (RSS Limited), DataBar Stacked, DataBar Expanded, DataBar Expanded Stacked.

**2D:** PDF417 (PDF417 Compact), QRCode (Micro QR), DataMatrix, Aztec (Aztec Compact)

Decodes any oriented barcodes.

Decoding time: depends from many factors (library settings, image size, barcode count, etc.) but usually up to 50ms on 2 GHz machine on 840x480 image.

Approximately barcode resolution (minimal module size) in pixel

Linear: 0.7 px

PDF417: 1.3 px

DataMatrix: 2 px

QRCode: 1.6 px

AztecCode: 1.6 px

## 1.6 32-bit and 64-bit Versions

The installation package includes both 32-bit and 64-bit versions. So the component can work both in 32-bit and 64-bit applications.

If TwainControl is installed on a 32-bit PC, 64-bit files are not copied. If it is installed under a 64-bit OS, both versions are copied into 32bit and 64bit folders respectively.

32-bit and 64 bit versions use the same class names and id, so the application shouldn't distinguish which version to use, this is done automatically.

## 1.7. Brief Example

```
[VB6]

Dim twain As TwainControl

Set twain = CreateObject("TwainControlAx.TwainControl.1")

twain.Connect (twain.Devices.Item(0).Id)

twain.GetImage

twain.SaveImage ("c:\MyImage.jpg")
```

```
[C#]

TwainControl twainControl = new TwainControl();

twainControl.Connect(twainControl.Devices.item(0).Id);

twainControl.GetImage(0);

twainControl.SaveImage("c:\\1.jpg", 0, 0, 0, 0);
```



## 2. TwainControl object

### 2.1 Methods

#### 2.1.1. Connect

---

Connects a control with the specified device. This method must be called first, before you acquire an image or change device properties.

##### Syntax

```
Connect(deviceId As Long)
```

##### Parameters

deviceId	Device Id obtained from a <a href="#">Device</a> object.
----------	--

##### Return Value

No return value.

##### Example

```
twain.Connect (twain.Devices.Item(0).Id)  
twain.GetImage
```

No return value.

#### 2.1.2. Disconnect

---

Stops working with the twain interface of the device and disconnects from it. The method is called automatically when the object is destroyed.

##### Syntax

```
Disconnect()
```

##### Return Value

No return value.

### 2.1.3. GetImage

---

Acquire an image from the twain device.

#### Syntax

```
GetImage (TimeOut As Long) As Boolean
```

#### Parameters

TimeOut	Default value[0]. Specifies the scanner ready state timeout, in milliseconds. If zero, timeout is unlimited.
---------	--

#### Return Value

Indicates if there are more images.

### 2.1.4. SaveImage

---

Saves the scanned image onto the disk. The image must be acquired first using the [GetImage](#) method. Supports the following image formats – bmp, jpg, tiff, png, gif.

#### Syntax

```
SaveImage (FileName As String, width As Long, height As Long, xRes As Double,  
yRes As Double)
```

#### Parameters

FileName	File name
width	Default value [0]. If width and height parameters are 0, the picture size is equal to the original size of the scanned image. Otherwise, the picture size is set according to the specified width and height values. The output picture is also a subject to <a href="#">SaveAspectRatio</a> and <a href="#">StretchImage</a> properties.

height	Default value [0].
xRes	Default value [0]. Sets X resolution of a jpeg file. If 0, the default resolution is set.
yRes	Default value [0]. Sets Y resolution of jpeg file.

## Return Value

No return value.

## Example

[VB6]

```
Dim twain As TwainControl
Set twain = CreateObject("TwainControlAx.TwainControl.1")
twain.Connect (twain.Devices.Item(0).Id)
'twain.SetImageLayout 0, 0, 1, 1
twain.GetImage
twain.SaveImage ("c:\MyImage.jpg")
```

[VB6]

```
twain.Connect (twain.Devices.Item(0).Id)

twain.GetImage

twain.SaveAspectRatio = False
twain.StretchImage = True

Call twain.SaveImage("c:\MyImage.jpg", 800, 900)
```

### 2.1.5. SavePDF

Saves an acquired image to a PDF file. If the PDF file does not exist, a new file is created. If such file already exists, the scanned image is added to the PDF file as a new page in the end of the document. If [PDFPageWidth](#) and [PDFPageHeight](#) properties are both zero, the page is saved using original scanned page width and height. If [PDFPageWidth](#) and [PDFPageHeight](#) properties are set, the page is saved using those values in [PDFMeasurementUnits](#) units.

## Syntax

SavePDF (FileName As String, FilePassword As String)

### Parameters

FileName	File name to save.
FilePassword	Default value [""]. PDF file name password.

### Return Value

No return value.

### Example

```
[VB6]

twain.PDFMeasurementUnits = unCentimeters
twain.PDFPageWidth = 20
twain.PDFPageHeight = 20
twain.SavePDF ("c:\My.pdf")
```

## 2.1.6. SetPDFInformation

---

Sets various PDF file attributes. These attributes are used when a PDF file is saved using the [SavePDF](#) method.

### Syntax

SetPDFInformation (Key As [EnPDFInfoKey](#), Info As String)

### Parameters

Key	This parameter defines information being set. See <a href="#">EnPDFInfoKey</a>
Info	Information.

### Return Value

No return value.

### Example

```
[VB6]
```

```
Call twain.SetPDFInformation (pikAuthor, "John Doe")  
twain.SavePDF ("c:\My.pdf")
```

### 2.1.7. BarcodeScan

Detects barcodes on the scanned image. Found barcodes are available via the [Barcodes](#) property. You can specify parameters of the decoder using the [Barcode SetProperty](#) method and the [BarcodeTypes](#) property.

#### Syntax

```
BarcodeScan ()
```

#### Return Value

No return value.

#### Example

```
[VB6]
```

```
Call TwainControl1.Connect(TwainControl1.Devices.Item(Combo1.ListIndex).Id)  
  
TwainControl1.ResolutionX = 100  
TwainControl1.ResolutionY = 100  
TwainControl1.ImageType = itGrayScale  
  
TwainControl1.GetImage  
  
TwainControl1.BarcodeTypes = TwainControl1.BarcodeTypes Or DataMatrix Or PDF417  
TwainControl1.BarcodeScan  
  
For i = 0 To TwainControl1.Barcodes.length - 1  
    Dim bc As Barcode  
    Set bc = TwainControl1.Barcodes.Item(i)  
    MsgBox bc.Text  
Next i
```

### 2.1.8. BarcodeSetProperty

Sets barcode decoder properties. Parameters of this method correspond to parameters of the [SetProperty](#) method of our Barcode Recognition SDK ([www.DataSymbol.com](http://www.DataSymbol.com)).

## Syntax

```
Barcode SetProperty (PropertyName As String, PropertyValue As Variant)
```

## Parameters

PropertyName	Defines the property name.
PropertyValue	Variant that contains the property value.

## Return Value

No return value.

## Example

[VB6]

```
Call TwainControl1.BarcodeSetProperty("DataMatrixSymbologyID", True)
TwainControl1.BarcodeTypes = TwainControl1.BarcodeTypes Or DataMatrix
TwainControl1.BarcodeScan
```

## 2.1.9. BarcodeGetProperty

---

Returns the barcode decoder property.

## Syntax

```
BarcodeGetProperty (PropertyName As String) As Variant
```

## Parameters

PropertyName	Defines the property name.
--------------	----------------------------

## Return Value

Variant that contains the property value.

## 2.1.10. SetImageLayout

---

Sets [FrameLeft](#), [FrameTop](#), [FrameRight](#), [FrameBottom](#) at once. Coordinates are measured in [Units](#).

### Syntax

```
SetImageLayout (Left As Double, Top As Double, Right As Double, Bottom As Double)
```

### Parameters

Left	Left coordinate of scanned frame
Top	Top coordinate of scanned frame
Right	Right coordinate of scanned frame
Bottom	Bottom coordinate of scanned frame

### Return Value

No return value.

### Example

```
[VB6]

twain.Units = unCentimeters
twain.SetImageLayout 0, 0, 10, 10

twain.GetImage
```

## 2.1.11. About

---

Shows About window.

### Syntax

```
About ()
```

### Return Value

No return value.

## 2.2 Properties

### 2.2.1. **UserInterface**

---

If true, when the [GetImage](#) method is evoked, the standard scanner interface is used.

#### **Syntax**

```
UserInterface As Boolean
```

The property is read/write.

### 2.2.2. **ShowProgress**

---

Whether to show or not the standard progress window.

#### **Syntax**

```
ShowProgress As Boolean
```

The property is read/write.

### 2.2.3. **Units**

---

Units all scanners settings are specified in.

#### **Syntax**

```
UnitsAs As EnUnits
```

The property is read/write.

### 2.2.4. **Devices**

---

Returns a [DeviceList](#) object that enumerates available devices in the system.

#### **Syntax**

```
Devices As DeviceList
```



The property is read only.

### Example

```
[VB6]

Dim twain As TwainControl

Set twain = CreateObject("TwainControlAx.TwainControl.1")

For i = 0 To twain.Devices.length - 1
    Dim dev As Device
    Set dev = twain.Devices.Item(i)
    MsgBox dev.Id & "-" & dev.ProductName
Next i
```

### 2.2.5. SaveAspectRatio

---

Keeps width and height ratio of the scanned image.

#### Syntax

```
SaveAspectRatio As Boolean
```

The property is read/write.

### 2.2.6. StretchImage

---

Whether to stretch image over the size of the control or not.

#### Syntax

```
StretchImage As Boolean
```

The property is read/write.

### 2.2.7. JPEGQuality

---

Sets JPEG image quality.

#### Syntax

```
JPEGQuality As Long
```

## Possible Values

0...100

The property is read/write.

## 2.2.8. ImageWidth

---

Returns width in pixels of the scanned image.

### Syntax

```
ImageWidth As Long
```

The property is read only.

## 2.2.9. ImageHeight

---

Returns height in pixels of the scanned image.

### Syntax

```
ImageHeight As Long
```

The property is read only.

## 2.2.10. FillBackground

---

Whether to paint the background color of the control with [BackColor](#) or not

### Syntax

```
FillBackground As Boolean
```

The property is read/write.

### 2.2.11. BackColor

---

The background color of the control.

#### Syntax

```
FillBackground As OLE_COLOR
```

The property is read/write.

### 2.2.12. IsConnected

---

Checks if a twain device is connected or not (see the [Connect](#) method).

#### Syntax

```
IsConnected As Boolean
```

The property is read only.

### 2.2.13. ResolutionX

---

Sets resolution along the X axis. You can check for valid values of resolution using the [XResolutionValues](#) property.

#### Syntax

```
ResolutionX As Float
```

The property is read/write.

### 2.2.14. ResolutionY

---

Sets resolution along the Y axis. You can check for valid values of resolution using the [YResolutionValues](#) property.

#### Syntax

```
ResolutionY As Float
```

The property is read/write.

### 2.2.15. ImageType

---

Sets the type of the image – black and white, color or grayscale.

#### Syntax

```
ImageType As EnImageType
```

The property is read/write.

### 2.2.16. PDFPageWidth

---

Sets the width of the page (measured in [PDFMeasurementUnits](#)) when saving a PDF file using the [SavePDF](#) method.

#### Syntax

```
PDFPageWidth As Double
```

The property is read/write.

### 2.2.17. PDFPageHeight

---

Sets the height of the page (measured in [PDFMeasurementUnits](#)) when saving a PDF file using the [SavePDF](#) method.

#### Syntax

```
PDFPageHeight As Double
```

The property is read/write.

### 2.2.18. PDFMeasurementUnits

---

Specifies measurement units for a PDF file

#### Syntax

PDFMeasurementUnits As [EnUnits](#)

The property is read/write.

### 2.2.19. Barcodes

---

Returns a [BarcodeList](#) object that enumerates all detected barcodes. To find barcodes on the image, use the [BarcodeScan](#) method.

#### Syntax

Barcodes As [BarcodeList](#)

The property is read only.

### 2.2.20. BarcodeTypes

---

Specifies which barcode types should be detected. Barcode types are set as binary flags combination. Values of various barcode types are set by [EBarcodeTypes](#).

#### Syntax

BarcodeTypes As Long

The property is read/write.

#### Example

```
[VB6]
```

```
TwainControl1.BarcodeTypes = TwainControl1.BarcodeTypes Or DataMatrix
```

### 2.2.21. MaxWidth

---

Returns the maximum physical width of the scanned region measured in [Units](#).

#### Syntax

MaxWidth As Double

The property is read only.

### 2.2.22. MaxHeight

---

Returns the maximum physical height of the scanned frame measured in [Units](#).

#### Syntax

```
MaxHeight As Double
```

The property is read only.

### 2.2.23. Brightness

---

Sets scanning brightness. You can learn valid values of brightness using the [BrightnessValues](#) property.

#### Syntax

```
Brightness As Double
```

The property is read/write.

### 2.2.24. Contrast

---

Sets scanning contrast. You can learn valid values of contrast using the [ContrastValues](#) property.

#### Syntax

```
Contrast As Double
```

The property is read/write.

### 2.2.24. FrameLeft

---

Sets the left boundary of the scanned frame measured in [Units](#). See also [SetImageLayout](#).

#### Syntax

```
FrameLeft As Double
```

The property is read/write.

### **2.2.25. FrameTop**

---

Sets the top boundary of the scanned frame measured in [Units](#). See also [SetImageLayout](#).

#### **Syntax**

```
FrameTop As Double
```

The property is read/write.

### **2.2.26. FrameRight**

---

Sets the right boundary of the scanned frame measured in [Units](#). See also [SetImageLayout](#).

#### **Syntax**

```
FrameRight As Double
```

The property is read/write.

### **2.2.27. FrameBottom**

---

Sets the bottom boundary of the scanned frame measured in [Units](#). See also [SetImageLayout](#).

#### **Syntax**

```
FrameBottom As Double
```

The property is read/write.

### **2.2.28. UnitsValues**

---

Returns a [TwainValue](#) object that defines valid values of the [Units](#) property.

#### **Syntax**

```
UnitsValues As TwainValue
```

The property is read only.

### 2.2.29. XResolutionValues

---

Returns a [TwainValue](#) object that defines valid values of the [ResolutionX](#) property.

#### Syntax

```
XResolutionValues As TwainValue
```

The property is read only.

### 2.2.30. YResolutionValues

---

Returns a [TwainValue](#) object that defines valid values of the [ResolutionY](#) property.

#### Syntax

```
YResolutionValues As TwainValue
```

The property is read only.

### 2.2.31. BrightnessValues

---

Returns a [TwainValue](#) object that defines valid values of the [Brightness](#) property.

#### Syntax

```
BrightnessValues As TwainValue
```

The property is read only.

### 2.2.32. ContrastValues

---

Returns a [TwainValue](#) object that defines valid values of the [Contrast](#) property.

#### Syntax

```
ContrastValues As TwainValue
```



The property is read only.

### 2.2.33. Picture

---

Returns an IPictureDisp object containing the scanned image.

#### Syntax

```
Picture As IPictureDisp
```

The property is read only.

## 2.3 Events

### 2.3.1. OnConnected

---

The event occurs upon connection of a device using the [Connect](#) method.

#### Syntax

```
OnConnected (deviceId As Long)
```

#### Parameters

deviceId	Id of the connected device (see <a href="#">Device.Id</a> )
----------	---

### 2.3.2. OnImageReady

---

The event occurs when an image is acquired from a twain device.

#### Syntax

```
OnImageReady (Continue As Boolean)
```

#### Parameters

Continue	Indicates if there are more images
----------	------------------------------------

### 2.3.3. OnImageError

---

The event occurs on any error during image acquiring, or when the Cancel button is clicked.

#### Syntax

```
OnImageError (Err As HRESULT)
```

#### Parameters

Err	Error code
-----	------------

## 3. DeviceList object

### 3.1. Properties

#### 3.1.1. length

---

Indicates the number of [Device](#) items in the collection.

##### Syntax

```
Length As Long
```

The property is read only.

### 3.2. Methods

#### 3.2.1. item

---

Allows random access to individual nodes within the collection.

##### Syntax

```
item (index As Long) As Device
```

##### Parameters

index	Index of the item within the collection. The first item is number zero.
-------	---

##### Return Value

Object. Returns [Device](#) object.

#### 3.2.2. nextNode

---

Returns the next node in the collection.

##### Syntax

```
nextNode () As Device
```

## Return Value

Object. Returns [Device](#).

### 3.2.3. reset

---

Resets the iterator.

#### Syntax

```
reset ()
```

## Return Value

No return value.

## Remarks

This method reinitializes the iterator to point before the first node in the DeviceList so that the next call to nextNode returns the first item in the list

## 4. Device object

### 4.1. Properties

#### 4.1.1. Id

---

Returns the Device Id.

##### Syntax

```
Id As Long
```

The property is read only.

#### 4.1.2. VerMajorNum

---

Returns the Device Major Number.

##### Syntax

```
VerMajorNum As Long
```

The property is read only.

#### 4.1.3. VerMinorNum

---

Returns the Device Minor Number.

##### Syntax

```
VerMinorNum As Long
```

The property is read only.

#### 4.1.4. VerLanguage

---

Returns the primary language of device.

##### Syntax

```
VerLanguage As Long
```

The property is read only.

#### **4.1.5. VerCountry**

---

Returns the primary country of device.

##### **Syntax**

```
VerCountry As Long
```

The property is read only.

#### **4.1.6. VerInfo**

---

Returns the Device version information.

##### **Syntax**

```
VerInfo As String
```

The property is read only.

#### **4.1.7. ProtocolMajor**

---

Returns the Device protocol major number.

##### **Syntax**

```
ProtocolMajor As Long
```

The property is read only.

#### **4.1.8. ProtocolMinor**

---

Returns the Device protocol minor number.

##### **Syntax**

```
ProtocolMinor As Long
```

The property is read only.

#### **4.1.9. Manufacturer**

---

Returns the Device manufacturer.

##### **Syntax**

```
Manufacturer As String
```

The property is read only.

#### **4.1.10. ProductFamily**

---

Returns the Device product family.

##### **Syntax**

```
ProductFamily As String
```

The property is read only.

#### **4.1.11. ProductName**

---

Returns the Device product name.

##### **Syntax**

```
ProductName As String
```

The property is read only.

## 5. BarcodeList object

### 5.1. Properties

#### 5.1.1. length

---

Indicates the number of [Barcode](#) items in the collection.

##### Syntax

```
Length As Long
```

The property is read only.

### 5.2. Methods

#### 5.2.1. item

---

Allows random access to individual nodes within the collection.

##### Syntax

```
item (index As Long) As Barcode
```

##### Parameters

index	Index of the item within the collection.
-------	--

##### Return Value

Object. Returns [Barcode](#).

#### 5.2.2. nextNode

---

Returns the next node in the collection.

##### Syntax

```
nextNode () As Barcode
```



## Return Value

Object. Returns [Barcode](#).

## 5.2.3. reset

---

Resets the iterator.

## Syntax

```
reset ()
```

## Return Value

No return value.

## 6. Barcode object

### 6.1. Properties

#### 6.1.1. BarcodeType

---

Returns the [barcode type](#).

##### Syntax

```
BarcodeType As EBarcodeTypes
```

The property is read only.

#### 6.1.2. Text

---

Returns the barcode string.

##### Syntax

```
Text As String
```

The property is read only.

#### 6.1.3. Data

---

Returns the barcode raw data.

##### Syntax

```
Data As Variant
```

The property is read only.

#### 6.1.4. BarNums

---

Returns the number of bars.

##### Syntax

```
BarNums As Long
```

The property is read only.

### 6.1.5. PageNum

---

Returns the page number (for multi page .tiff or .gif files).

#### Syntax

PageNum As Long

The property is read only.

### 6.1.6. x1,y1,x2,y2,x3,y3,x4,y4

---

Returns the coordinates of barcode corners.

#### Syntax

x, y As Long

The property is read only.

### 6.1.5. dq

---

Returns the barcode decoding reliability

Works only for PDF417, DataMatrix, QRCode, AztecCode barcodes.

Possible values 0...100. 100 is the best reliability.

#### Syntax

dq As Long

The property is read only.

## 7. TwainValue object

### 7.1. Properties

#### 7.1.1. Type

---

Returns the type that the TwainValue object contains.

If the type is Range then the [Min](#), [Max](#), [Step](#) properties are essential, otherwise – the [Value](#) property is.

#### Syntax

```
Type As EnTwainValueType
```

The property is read only.

#### 7.1.2. Value

---

Can hold an individual value (Boolean, Integer, Float) or an array.

#### Syntax

```
Value As Variant
```

The property is read only.

#### Example

```
[VB6]

'enumerate allowed Units
v = TwainControl1.UnitsValues.Value
For i = LBound(v) To UBound(v)
  Select Case v(i)
    Case 0
      MsgBox "Inches"
    Case 1
      MsgBox "Centimeters"
    Case 2
      MsgBox "Picas"
    Case 3
      MsgBox "Points"
    Case 4
      MsgBox "Twips"
    Case 5
      MsgBox "Pixels"
    Case 6
```

```
MsgBox "Millimeters"  
End Select  
Next i
```

### 7.1.3. Min

---

Minimal threshold of Range type value.

#### Syntax

```
Min As Variant
```

The property is read only.

### 7.1.4. Max

---

Maximal threshold of Range type value.

#### Syntax

```
Max As Variant
```

The property is read only.

### 7.1.5. Step

---

Step of Range type value.

#### Syntax

```
Step As Variant
```

The property is read only.

## 8. Other Types

### 8.1. EnUnits Enumeration

Units enumeration.

unInches	= 0,
unCentimeters	= 1,
unPicas	= 2,
unPoints	= 3,
unTwips	= 4,
unPixels	= 5,
unMillimeters	= 6,

### 8.2. EnImageType Enumeration

Image types enumeration.

itBlackWhite	= 0,
itGrayScale	= 1,
itColor,	= 2,

### 8.3. EnPDFInfoKey Enumeration

PDF information key enumeration.

pikVersion	=0,
pikAuthor	=1,
pikTitle	=2,
pikSubject	=3,
pikKeywords	=4,
pikCreator	=5,
pikProducer	=6,

### 8.4. EBarcodeTypes Enumeration

Barcode types enumeration.

Code128	= 0x00000001,
Code39	= 0x00000002,
Interl25	= 0x00000004,
EAN13	= 0x00000008,
EAN8	= 0x00000010,
Codabar	= 0x00000020,

Code11	= 0x00000040,
UPCA	= 0x00000080,
UPCE	= 0x00000100,
Industr25	= 0x00000200,
Code93	= 0x00000400,
DataBarOmni	= 0x00000800,
DataBarLim	= 0x00001000,
DataBarStacked	= 0x00002000,
DataBarExp	= 0x00004000,
DataBarExpStacked	= 0x00008000,
AztecUnrecognized	= 0x00100000,
LinearUnrecognized	= 0x01000000,
PDF417Unrecognized	= 0x02000000,
DataMatrixUnrecognized	= 0x04000000,
QRCodeUnrecognized	= 0x08000000,
DataMatrix	= 0x10000000,
PDF417	= 0x20000000,
QRCode	= 0x40000000,
AztecCode	= 0x80000000,

## 8.5. EnTwainValueType Enumeration

Twain value type enumeration.

twtOneValue	=0,
twtRange	=1,
twtEnumeration	=2,
twtArray	=3,