

HOWTO: Create a Custom Point Annotation

DotImage does not include a "Point" annotation out of the box. This topic discusses how to create a custom Point annotation in Visual Basic.

First, we create the PointAnnotation class. To make life easier, we will derive from FrameableAnnotation, override OnPaint to draw the cross, and override Grips because we do not want to show any grips when the point is selected. We also add a Point property that returns the center of the annotation, calculated from the Location and Size.

[C#]

```
using Atalasoft.Imaging.Annotate; using System.Drawing; public class PointAnnotation :
FrameableAnnotation, IAnnotationPen { private System.Drawing.Pen _pen = new Pen(Color.Black);
private PointGrips _grips = new PointGrips(); const int CROSSSIZE = 25; public new override
void Paint(Graphics graphics, PointF offset, PointF scale, float resolution) {
graphics.TranslateTransform(offset.X, offset.Y); graphics.ScaleTransform(scale.X, scale.Y);
graphics.DrawLine(_pen, Location.X, Location.Y, Location.X + Size.Width, Location.Y +
Size.Height); graphics.DrawLine(_pen, Location.X, Location.Y + Size.Height, Location.X +
Size.Width, Location.Y); graphics.DrawEllipse(_pen, new RectangleF(Location, Size));
graphics.ResetTransform(); } public Pen Pen { get { return _pen; } set { _pen = Value; } }
public PointF Point { get { return new PointF((Location.X + Location.X + Size.Width) /
(double)2,
(Location.Y + Location.Y + Size.Height) / (double)2); } set { Location = new PointF(Value.X -
Size.Width / (double)2, Value.Y - Size.Height / (double)2); } } public PointAnnotation() {
Size = new SizeF(CROSSIZE, CROSSIZE); this.Resizable = false; } public
PointAnnotation(PointF point) { Size = new SizeF(CROSSIZE, CROSSIZE); this.Point = point;
this.Resizable = false; } public override Atalasoft.Imaging.Annotate.AnnotationGrips Grips {
get { return _grips; } } }
```

[VB.NET]

```
Imports Atalasoft.Imaging.Annotate Imports System.Drawing Public Class PointAnnotation
Inherits FrameableAnnotation Implements IAnnotationPen Dim _pen As System.Drawing.Pen = New
Pen(Color.Black) Dim _grips As PointGrips = New PointGrips Const CROSSIZE As Integer = 25
Public Overloads Overrides Sub Paint(ByVal graphics As Graphics, ByVal offset As PointF, _
ByVal scale As PointF, _
ByVal resolution As Single) graphics.TranslateTransform(offset.X, offset.Y)
graphics.ScaleTransform(scale.X, scale.Y) graphics.DrawLine(_pen, Location.X, Location.Y,
Location.X + Size.Width, Location.Y + Size.Height) graphics.DrawLine(_pen, Location.X,
Location.Y + Size.Height, Location.X + Size.Width, Location.Y) graphics.DrawEllipse(_pen, New
RectangleF(Location, Size)) graphics.ResetTransform() End Sub Public Property Pen() As Pen
Implements Atalasoft.Imaging.Annotate.IAnnotationPen.Pen Get Return _pen End Get Set(ByVal
```

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```
Value As Pen) _pen = Value End Set End Property Public Property Point() As PointF Get Return
New PointF((Location.X + Location.X + Size.Width) / 2, (Location.Y + Location.Y +
Size.Height) / 2) End Get Set(ByVal Value As PointF) Location = New PointF(Value.X -
Size.Width / 2, Value.Y - Size.Height / 2) End Set End Property Public Sub New() Size = New
SizeF(CROSSSIZE, CROSSSIZE) Me.Resizable = False End Sub Public Sub New(ByVal point As
PointF) Size = New SizeF(CROSSSIZE, CROSSSIZE) Me.Point = point Me.Resizable = False End Sub
Public Overrides ReadOnly Property Grips() As Atalasoft.Imaging.Annotate.AnnotationGrips Get
Return _grips End Get End Property End Class
```

Now, in order to create the annotation, we do not want to use the "CreateAnnotation" method since that requires clicking and dragging to interactively position and size. We just want the user to click on the document to place the point. By handling the AnnotationController or AnnotateViewer's MouseDown event, we can simply add the new annotation to the Current Layer. We do have to create a HitTest method that will loop through all annotations and make sure we're not clicking on an existing one. This method will eventually be part of the AnnotationController class.

[C#]

```
private void AnnotateViewer1_MouseDown(object sender, System.Windows.Forms.MouseEventArgs e)
{ // place point annotation if we're not clicking on an existing one if (HitTest(new
PointF(e.X, e.Y)) == null) { // scale and offset the point PointF point = new PointF(e.X /
(double)this.AnnotateViewer1.Zoom + this.AnnotateViewer1.Location.X,

e.Y / (double)this.AnnotateViewer1.Zoom + this.AnnotateViewer1.Location.Y);
this.AnnotateViewer1.Annotations.CurrentLayer.Add(new PointAnnotation(Point)); } } // make
our own "HitTest" method to determine if the point is over an annotation private Annotation
HitTest(PointF point) { foreach (Layer layer in AnnotateViewer1.Annotations.Layers) { foreach
(Annotation an in layer) { Region reg = an.GetRegion(); if (reg.IsVisible(point.X, point.Y))
return an; } } }
```

[VB.NET]

```
Private Sub AnnotateViewer1_MouseDown(ByVal sender As Object, _
ByVal e As System.Windows.Forms.MouseEventArgs) _
Handles AnnotateViewer1.MouseDown 'place point annotation if we're not clicking on an
existing one If HitTest(New PointF(e.X, e.Y)) Is Nothing Then 'scale and offset the point Dim
point As PointF = New PointF(e.X / Me.AnnotateViewer1.Zoom + Me.AnnotateViewer1.Location.X, _
e.Y / Me.AnnotateViewer1.Zoom + Me.AnnotateViewer1.Location.Y)
Me.AnnotateViewer1.Annotations.CurrentLayer.Add(New PointAnnotation(Point)) End If End Sub
'make our own "HitTest" method to determine if the point is over an annotation Private
```

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```
Function HitTest(ByVal point As PointF) As Annotation For Each layer As Layer In
AnnotateViewer1.Annotations.Layers For Each an As Annotation In layer Dim reg As Region =
an.GetRegion() If reg.IsVisible(point.X, point.Y) Then Return an End If Next Next End
Function
```

If you wish to serialize the custom annotation in order to save it to XMP, you will also need to override the ToXmp and FromXmp methods. See the documentation on how to do that.

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Atalasoft Knowledge Base

<https://www.atalasoft.com/kb2/KB/50337/HOWTO-Create-a-Custom-Point-Annotati...>