Brushes in Windows Phone

This article shows how to use the Silverlight Brush API in Windows Phone 7 using XAML. The Brush classes allow you to paint an area of the screen, to set the background color or image, and also to access the device camera using the video brush.

02 Sep 2012

Types of Brush

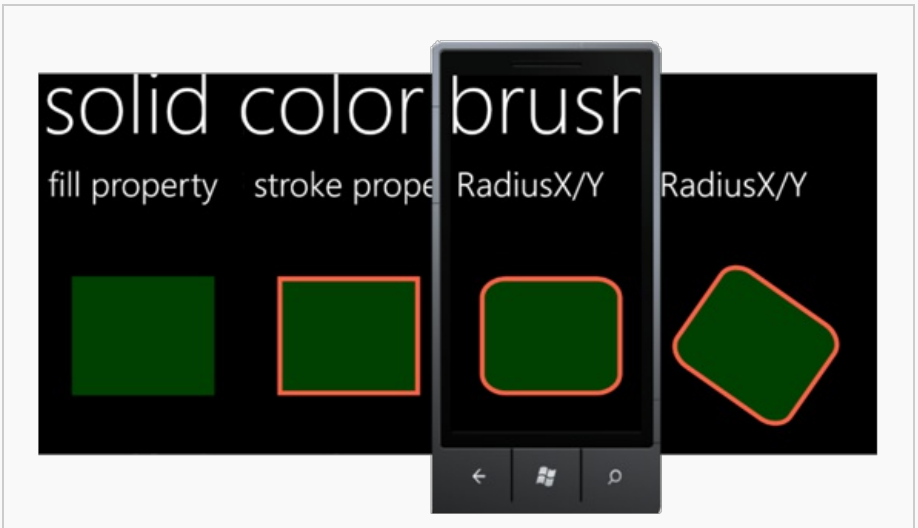
In Windows Phone 7.5 SDK and Windows Phone 8 SDK, Silverlight supports five different types of brushes:

1. SolidColorBrush
2. LinearGradientBrush
3. RadialGradientBrush
4. ImageBrush
5. VideoBrush

In this example I have used separate panoramic pages to achieve functionality on different drawing objects such as (Rectangle, Circle, Polygon, Text and Page Background)

SolidColorBrush

Solid Color Brush API used to paint/fill with a single color with transparency of color using set opacity property between 0 and 1. Where 0 is fully transparent and 1 is fully opaque.



Solid colour brush in the XAML Page Design View

Create a `SolidColorBrush` in XAML, see the below code snippet.

```
<SolidColorBrush Color="Green" Opacity="0.5" />
```

PPSolidColorBrush.xaml

```
<Grid x:Name="LayoutRoot">
        <controls:Panorama Title="solid color brush">
            <!--Panorama item one-->
            <controls:PanoramaItem Header="fill property">
                <Grid>
                    <Rectangle Width="300" Height="250">
                        <Rectangle.Fill>
                            <SolidColorBrush Color="Green" Opacity="0.5" />
                        </Rectangle.Fill>
                    </Rectangle>
```


(C) Copyright Nokia 2014. All rights reserved.

```
                </Grid>
            </controls:PanoramaItem>

            <!--Panorama item two-->
            <controls:PanoramaItem Header="stroke property">
                <Grid>
                    <Rectangle Width="300" Height="250" Stroke="Tomato"
StrokeThickness="10">
                        <Rectangle.Fill>
                            <SolidColorBrush Color="Green" Opacity="0.5" />
                        </Rectangle.Fill>
                    </Rectangle>
                </Grid>

            </controls:PanoramaItem>

            <!--Panorama item three-->
            <controls:PanoramaItem Header="RadiusX/Y">
                <Grid>
                    <Rectangle Width="300" Height="250" Stroke="Tomato"
StrokeThickness="10" RadiusX="50" RadiusY="40">
                        <Rectangle.Fill>
                            <SolidColorBrush Color="Green" Opacity="0.5" />
                        </Rectangle.Fill>
                    </Rectangle>
                </Grid>

            </controls:PanoramaItem>

            <!--Panorama item four-->
            <controls:PanoramaItem Header="RadiusX/Y">
                <Grid>
                    <Rectangle Width="300" Height="250" Stroke="Tomato"
StrokeThickness="10" RadiusX="50" RadiusY="40">
                        <Rectangle.Fill>
                            <SolidColorBrush Color="Green" Opacity="0.5" />
                        </Rectangle.Fill>
                        <Rectangle.RenderTransform>
                            <RotateTransform Angle="35" CenterX="120" CenterY="140" />
                        </Rectangle.RenderTransform>
                    </Rectangle>
                </Grid>

            </controls:PanoramaItem>
        </controls:Panorama>
    </Grid>
```

LinearGradientBrush

Linear Gradient Brush used to paint more than two colors with a linear gradient using two main properties `StartPoint="0,0"` `EndPoint="1,0"` which is a by default values.

(C) Copyright Nokia 2014. All rights reserved.

Linear Gradient brush in the XAML Page Design View

Create a `LinearGradientBrush` in XAML, see the below code snippet.

```
<LinearGradientBrush StartPoint="0,0" EndPoint="1,0">
    <GradientStop Color="Yellow" Offset="0.0" />
    <GradientStop Color="Red" Offset="0.25" />
    <GradientStop Color="Blue" Offset="0.75" />
    <GradientStop Color="LimeGreen" Offset="1.0" />
</LinearGradientBrush>
```

LinearGradientBrush.xaml

```
 <Grid x:Name="LayoutRoot">
        <controls:Panorama Title="linear gradient brush">

            <!--Panorama item one-->
            <controls:PanoramaItem Header="horizontal">
                <Grid>
                    <Rectangle Width="300" Height="250">
                        <Rectangle.Fill>
                            <LinearGradientBrush StartPoint="0,0" EndPoint="1,0">
                                <GradientStop Color="Yellow" Offset="0.0" />
                                <GradientStop Color="Red" Offset="0.25" />
                                <GradientStop Color="Blue" Offset="0.75" />
                                <GradientStop Color="LimeGreen" Offset="1.0" />
                            </LinearGradientBrush>
                        </Rectangle.Fill>
                    </Rectangle>
                </Grid>
            </controls:PanoramaItem>

            <!--Panorama item two-->
            <controls:PanoramaItem Header="vertical">
                <Grid>
                    <Rectangle Width="300" Height="250">
                        <Rectangle.Fill>
```


(C) Copyright Nokia 2014. All rights reserved.

```
                            <LinearGradientBrush StartPoint="0,0" EndPoint="0,1">
                                <GradientStop Color="Yellow" Offset="0.0" />
                                <GradientStop Color="Red" Offset="0.25" />
                                <GradientStop Color="Blue" Offset="0.75" />
                                <GradientStop Color="LimeGreen" Offset="1.0" />
                            </LinearGradientBrush>
                        </Rectangle.Fill>
                    </Rectangle>
                </Grid>
            </controls:PanoramaItem>

            <!--Panorama item three-->
            <controls:PanoramaItem Header="diagonal">
                <Grid>
                    <Rectangle Width="300" Height="250">
                        <Rectangle.Fill>
                            <LinearGradientBrush StartPoint="0,0" EndPoint="1,1">
                                <GradientStop Color="Green" Offset="0.0" />
                                <GradientStop Color="Yellow" Offset="0.25" />
                                <GradientStop Color="Blue" Offset="0.75" />
                                <GradientStop Color="Red" Offset="1.0" />
                            </LinearGradientBrush>
                        </Rectangle.Fill>
                    </Rectangle>
                </Grid>
            </controls:PanoramaItem>
        </controls:Panorama>
    </Grid>
```

RadialGradientBrush

Radial Gradient Brush used to paint or fill more than two colors in the circular gradient or a circular manner.

Radial Gradient brush in the XAML Page Design View

Create a `RadialGradientBrush` in XAML, see the below code snippet.

```
<RadialGradientBrush RadiusX=".5" RadiusY=".5" GradientOrigin=".0,.5"
SpreadMethod="Reflect">
       <GradientStop Color="Red" Offset="0.5" />
       <GradientStop Color="BlueViolet" Offset="1" />
</RadialGradientBrush>
```


(C) Copyright Nokia 2014. All rights reserved.

Here:

- `Radius x`, `Radius y`:' This property used to set Gradient x-Radius and y-Radius.
- `GradientOrigin`: This property used to set Focal point to the radial.
- `SpreadMethod`: This property used to set Gradient Reflect.

RadialGradientBrush.xaml

```
 <Grid x:Name="LayoutRoot">

        <controls:Panorama Title="radial gradient brush">
            <!--Panorama item one-->
            <controls:PanoramaItem Header="rectangle">
                <Grid>
                    <Rectangle Width="300" Height="250" RadiusX="100" RadiusY="100">
                        <Rectangle.Fill>
                            <RadialGradientBrush RadiusX=".5" RadiusY=".5"
GradientOrigin=".0,.5" SpreadMethod="Reflect">
                                <GradientStop Color="Red" Offset="0.5" />
                                <GradientStop Color="BlueViolet" Offset="1" />
                            </RadialGradientBrush>
                        </Rectangle.Fill>
                    </Rectangle>
                </Grid>
            </controls:PanoramaItem>

            <!--Panorama item two-->
            <controls:PanoramaItem Header="rectangle">
                <Grid>
                    <Rectangle Width="300" Height="250">
                        <Rectangle.Fill>
                            <RadialGradientBrush>
                                <GradientStop Color="Red" Offset=".1"/>
                                <GradientStop Color="Blue" Offset=".2"/>
                                <GradientStop Color="Wheat" Offset=".3"/>
                                <GradientStop Color="Green" Offset=".4"/>
                                <GradientStop Color="Yellow" Offset=".6"/>
                                <GradientStop Color="BlueViolet" Offset="1"/>
                            </RadialGradientBrush>
                        </Rectangle.Fill>
                    </Rectangle>
                </Grid>
            </controls:PanoramaItem>

            <!--Panorama item three-->
            <controls:PanoramaItem Header="ellipse">
                <Grid>
                    <Ellipse Height="300" Width="300">
                        <Ellipse.Fill>
                            <RadialGradientBrush>
                                <GradientStop Color="Red" Offset="0.0"/>
                                <GradientStop Color="LightPink" Offset="0.5"/>
                                <GradientStop Color="DarkGray" Offset="1.0"/>
                            </RadialGradientBrush>
                        </Ellipse.Fill>
```


(C) Copyright Nokia 2014. All rights reserved.

```
                    </Ellipse>
                </Grid>
            </controls:PanoramaItem>

            <controls:PanoramaItem Header="ellipse">
                <Grid>
                    <Ellipse Height="300" Width="300">
                        <Ellipse.Fill>
                            <RadialGradientBrush>
                                <GradientStop Color="Red" Offset="0.0"/>
                                <GradientStop Color="Yellow" Offset="0.5"/>
                                <GradientStop Offset="1.0"/>
                            </RadialGradientBrush>
                        </Ellipse.Fill>
                    </Ellipse>
                </Grid>
            </controls:PanoramaItem>

        </controls:Panorama>
    </Grid>
```

Tip: By default windows phone 7 app runs on 16-bit colour. However we can also use 32-bit color to get better color effect binding in gradient brush or image resources to set BitsPerPixel attributes inside the App tag of **WMAppManifest.xml** - see here for more information.

ImageBrush

Image Brush used to paint or fill the area with an image, to specify by its ImageSource property and Stretch property by default use Fill.

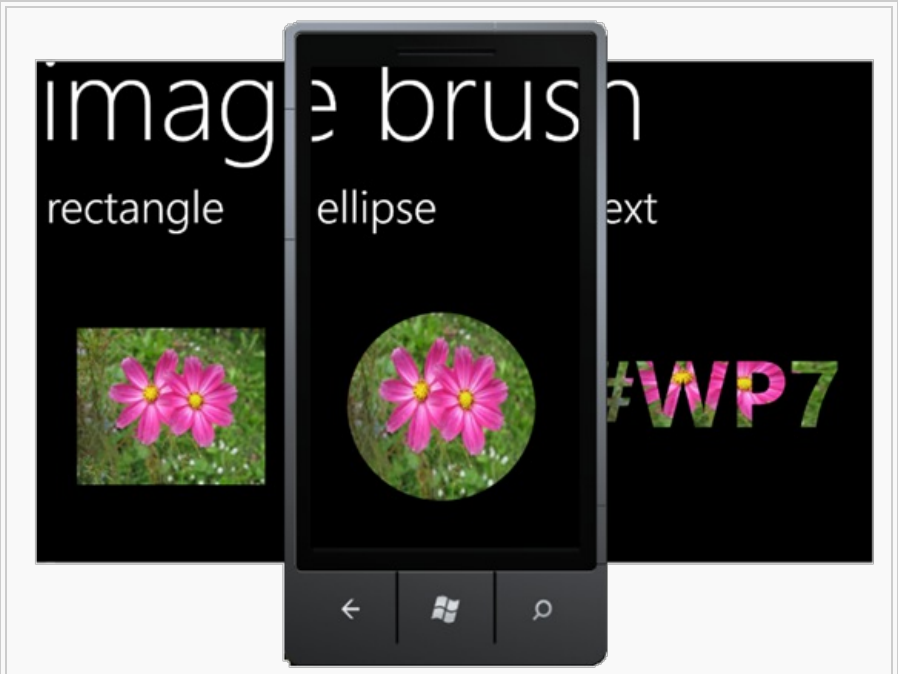


Image brush in the XAML Page Design View

Create an `ImageBrush` in XAML, see the below code snippet.

```
<ImageBrush ImageSource="images/Flower.jpg" Stretch="Fill" AlignmentX="Center"
AlignmentY="Center" />
```


(C) Copyright Nokia 2014. All rights reserved.

Here:

- `AlignmentX`: use to sets the horizontal alignment
- `AlignmentY`: use to set the vertical alignment

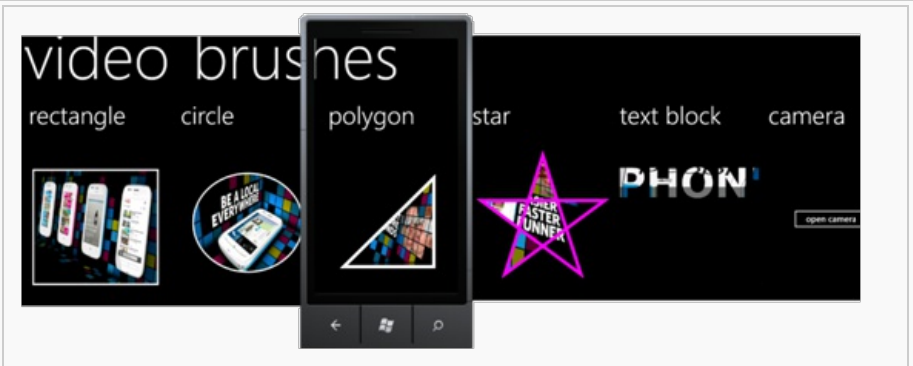
PPImageBrush.xaml

```
    <Grid x:Name="LayoutRoot">
        <controls:Panorama Title="image brush">
            <!--Panorama item one-->
            <controls:PanoramaItem Header="rectangle">
                <Grid>
                    <Rectangle Width="300" Height="250" >
                        <Rectangle.Fill>
                            <ImageBrush ImageSource="images/Flower.jpg"
                                        Stretch="Fill"
                                        AlignmentX="Center"
                                        AlignmentY="Center" />
                        </Rectangle.Fill>
                    </Rectangle>
                </Grid>
            </controls:PanoramaItem>

            <!--Panorama item two-->
            <controls:PanoramaItem Header="ellipse">
                <Grid>
                    <Ellipse Height="300" Width="300">
                        <Ellipse.Fill>
                            <ImageBrush ImageSource="images/Flower.jpg"
                                        AlignmentX="Center"
                                        AlignmentY="Center" />
                        </Ellipse.Fill>
                    </Ellipse>
                </Grid>
            </controls:PanoramaItem>

            <!--Panorama item three-->
            <controls:PanoramaItem Header="text">
                <Grid>
                    <TextBlock Text="#WP7" FontSize="150" FontWeight="ExtraBlack"
Margin="0,120">
                        <TextBlock.Foreground>
                            <ImageBrush ImageSource="images/Flower.jpg"
                                        Stretch="Fill"
                                        AlignmentX="Center"
                                        AlignmentY="Center" />
                        </TextBlock.Foreground>
                    </TextBlock>
                </Grid>
            </controls:PanoramaItem>
        </controls:Panorama>
    </Grid>
```

VideoBrush

(C) Copyright Nokia 2014. All rights reserved.

Video Brush used to paint or fill with running video in the specific area with MediaElement class object. `MediaElement` object supports audio or video both. I have used in this application mp4 file (video file) to play a video, see Supported Media Codes for Windows Phone in the Silverlight documentation on MSDN. Apart from that I have also integrated live camera as with `VideoBrush` and end item of panorama, you can access through the *camera open* button in this component.



Video brush in the XAML Page Design View

Create a `VideoBrush` and `MediaElement` object in XAML, see the below code snippet:

```
<MediaElement x:Name="media1" Source="video/NokiaLumia710.mp4"
                              IsMuted="False"
                              Opacity="0.0"
                              Volume="10"
                              IsHitTestVisible="False"/>

<VideoBrush x:Name="viewVideo" SourceName="media1"/>
```

PPVideoBrushes.xaml

```
<Grid x:Name="LayoutRoot">
        <MediaElement x:Name="media1"
                                  Source="video/NokiaLumia710.mp4"
                                  IsMuted="False"
                                  Opacity="0.0"
                                  Volume="10"
                                  IsHitTestVisible="False"  />

        <controls:Panorama x:Name="vp" Title="video brushes">

            <!--Panorama item one-->
            <controls:PanoramaItem Header="rectangle">
                <Grid>
                    <Rectangle Width="372" Height="340" Stroke="White"
StrokeThickness="5" Margin="21,88,27,70">
                        <Rectangle.Fill>
                            <VideoBrush x:Name="viewVideo" SourceName="media1"/>
                        </Rectangle.Fill>
                    </Rectangle>
                </Grid>
            </controls:PanoramaItem>

            <controls:PanoramaItem Header="circle">
                <Grid>
                    <Ellipse Margin="44,98,48,106"
                        Height="294"
                        Width="328"
```


(C) Copyright Nokia 2014. All rights reserved.

```
                        StrokeThickness="5"
                        Stroke="White">
                        <Ellipse.Fill>
                            <VideoBrush x:Name="viewVideoc" SourceName="media1"/>
                        </Ellipse.Fill>

                    </Ellipse>
                </Grid>
            </controls:PanoramaItem>

            <controls:PanoramaItem Header="polygon">
                <Grid>
                    <Polygon Points="5,270 270,270 270,10"
                             Stroke="White"
                             StrokeThickness="10"
                             Margin="51,104,57,114" Height="280" Width="312" >
                        <Polygon.Fill>
                            <VideoBrush x:Name="viewVideoP" SourceName="media1"/>
                        </Polygon.Fill>
                    </Polygon>
                </Grid>
            </controls:PanoramaItem>

            <controls:PanoramaItem Header="star">
                <Grid>
                    <Polygon Points="240 48, 352 396, 58 180, 422 180, 128 396"
                             Stroke="Magenta"
                             StrokeThickness="10" FillRule="NonZero" Margin="-22,0,2,0"
Width="440">
                        <Polygon.Fill>
                            <VideoBrush x:Name="viewVideoT" SourceName="media1"/>
                        </Polygon.Fill>
                    </Polygon>

                </Grid>
            </controls:PanoramaItem>

            <!--Panorama item four-->
            <controls:PanoramaItem Header="text block">
                <Grid>
                    <TextBlock FontFamily="Verdana"
                               Margin="0,50"
                               FontSize="120"
                               FontWeight="Bold"
                               Text="PHONE">
                      <TextBlock.Foreground>
                         <VideoBrush SourceName="media1" />
                      </TextBlock.Foreground>
                    </TextBlock>
                </Grid>
            </controls:PanoramaItem>
            <!--Panorama item five-->
            <controls:PanoramaItem Header="camera">
                <Grid>
                    <Button Content="open camera" Height="72" HorizontalAlignment="Left"
Margin="76,198,0,0" Name="button1" VerticalAlignment="Top" Width="239"
Click="button1_Click" />
```


(C) Copyright Nokia 2014. All rights reserved.

```
                </Grid>
            </controls:PanoramaItem>
        </controls:Panorama>
    </Grid>
```

Camera with video brush

Image brush in the XAML Page Design View

To play camera using video brush, tap on open camera button and it will navigate to camera screen and add the below mentioned code in **PPCamera.xaml.cs** class

PPCamera.xaml

```
public partial class PPCamera : PhoneApplicationPage
    {
        private PhotoCamera devicePhotoCamera;

        public PPCamera()
        {
            InitializeComponent();

            this.Loaded += new RoutedEventHandler(PPCamera_Loaded);
        }

        void PPCamera_Loaded(object sender, RoutedEventArgs e)
        {
            devicePhotoCamera = new PhotoCamera();
            viewCamera1.SetSource(devicePhotoCamera);
        }
    }
```

~ Happy Coding ~

Download

Windows Phone 7.5 - Media:WP Brushes.zip

Windows Phone 8.0 - File:WP8 Brushes.zip

Summary

Silverlight Brush API is very useful to create elegant UI (User Interface) for developing Metro style app for Windows Phone 7.5

(C) Copyright Nokia 2014. All rights reserved.

(C) Copyright Nokia 2014. All rights reserved.