

STK X Tutorial – Visual Basic.NET

In this exercise you will gain hands-on experience using STK X to embed STK functionality in a container application created with Visual Basic.NET.

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Tutorial Source code

Completed project and VB.Net source code can be found in the STK / STK Engine install at the following location:

<STK Install Folder>/CodeSamples/CustomApplications/VB.Net/Tutorial

Create the project

- 1) Start Visual Studio.
- 2) From the **File** menu, select New Project....
- 3) Under Installed>Templates, select Visual Basic as the Project type and the Windows Forms Application template. Enter a project name and location of your choice.
- 4) The **Form1.vb** windows form is opened in Design mode.

NOTE:

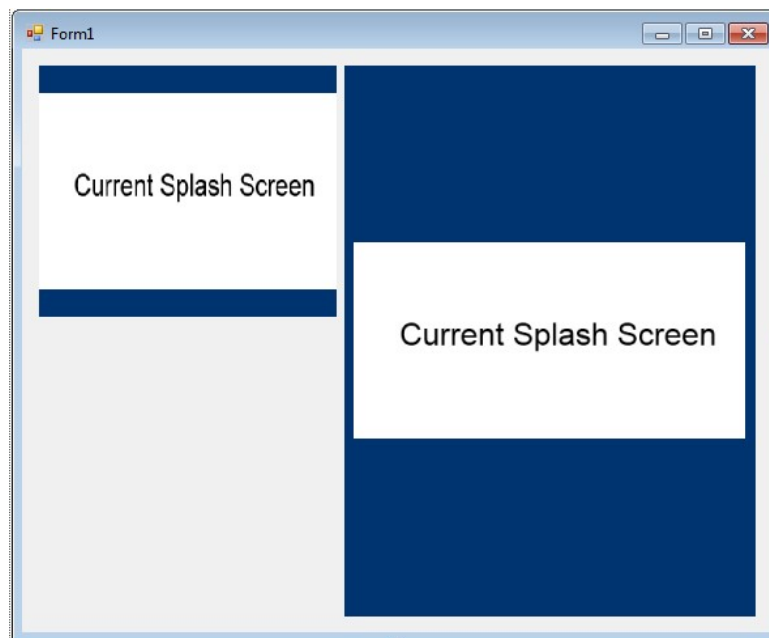
- If your platform configuration is AnyCPU make sure the "Prefer 32-bit" option is unchecked in the Project's build settings.

Add the STK X controls to the Toolbox

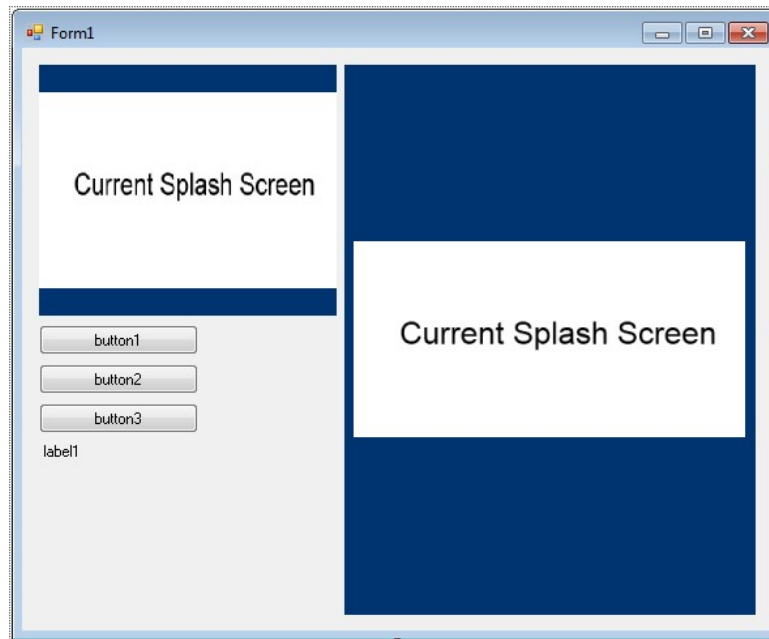
- 1) If the Toolbox is not already displayed, select it from the View menu.
- 2) Right click inside the toolbox's General section and select "Choose Items..." from the context menu.
- 3) On the ".NET Framework Components" tab, click the browse button and browse to the following location: <STK INSTALL FOLDER>/bin/Primary Interop Assemblies
- 4) Select the AGI.STKX.Controls.Interop.dll and click the Open button.
- 5) Click the OK button. The controls are now ready to be drag and dropped onto your Windows form.

Send commands to STK X

- 1) Drag the AxAgUiAxVOCntrl onto **Form1.vb**. Place and size the control it so that it approximately fills the right-hand portion of the form. Then drag the AxAgUiAx2DCntrl onto the left-hand portion of the form, sizing it so that it leaves some space for other controls to be added.

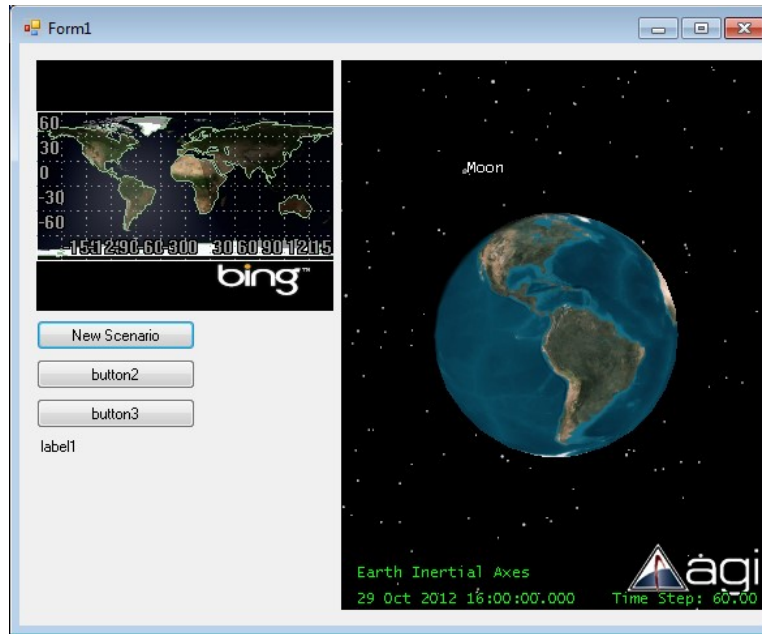


- 2) Add 3 buttons and a label to the form, arranged as shown here:



- 3) Change the Text property for the top button to New Scenario.
- 4) Double-click the New Scenario button in the Designer to expose the code for its Click event handler.
- 5) Modify the **Button1_Click** method by adding the following line:

```
Me.AxAgUiAx2DCntrl1.Application.ExecuteCommand("New / Scenario Test")
```
- 6) Build and run the application.
- 7) Click the New Scenario button. It may take a few minutes for the results to display.



- 8) Move the mouse in the **Globe** window to rotate the globe (holding down the left mouse button) or zoom in and out on it (holding down the right mouse button).

Add Zoom In/Out to the Map control

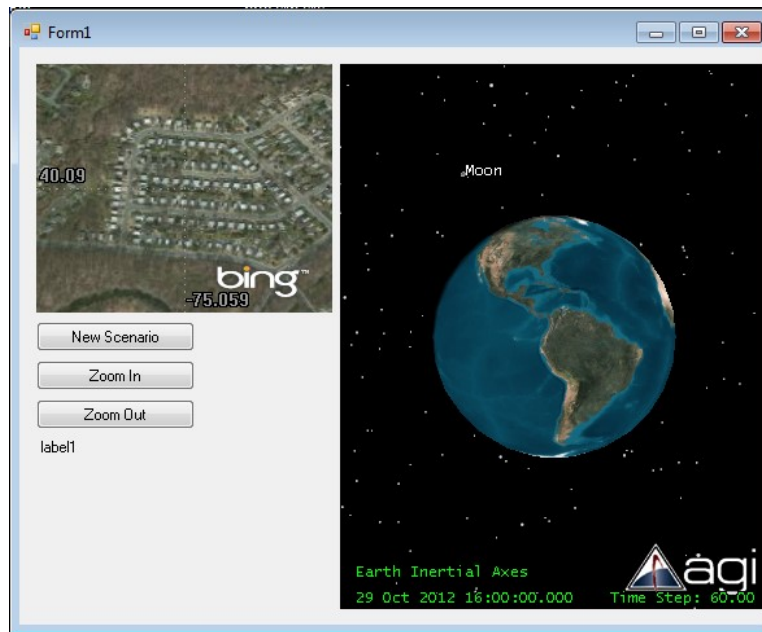
- 1) Change the Text properties of the remaining 2 buttons to Zoom In and Zoom Out.
- 2) Double-click on the Zoom In button to expose the code for the click event handler.
- 3) Add the following line to the event handler:

```
Me.AxAgUiAx2DCntrl1.ZoomIn()
```

- 4) Similarly, modify the click event handler for the Zoom Out button by adding the following:


```
Me.AxAgUiAx2DCntrl1.ZoomOut()
```

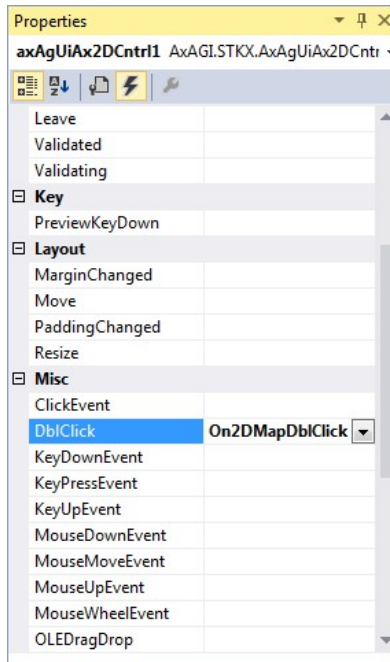
- 5) Build and run the application, and click the New Scenario button.
- 6) Click the Zoom In button. Use the mouse to define the zoom area in the **Map** window.



- 7) You can zoom out by clicking the Zoom Out button.

Respond to events raised by STK X

- 1) In the Visual Studio IDE, switch to the Design view.
- 2) Select the Map control, and display its **Properties** dialog.
- 3) In the **Properties** dialog, click the  (lightning bolt) icon.
- 4) On the line for the DblClick event, enter `On2DMapDbClick` and press **Enter**.



- 5) This exposes the code for the new event handler that you added. Modify that code as follows, add the following line to the event handler:

```
MessageBox.Show("2D Map double click")
```

- 6) Build and run the application.
- 7) Double-click in the **Map** window. The message box will be displayed.
- 8) You can use the same approach to hook up to Globe control events.
- 9) You will now respond to STK X application events. Add the line below to the form code at the beginning of the Form1 class definition. This adds the **stkxApp** member variable to your form. Through this variable you can access the STK X application object.

```
Private WithEvents stkxApp As AGI.STKX.AgSTKXApplication
```

- 10) You will now subscribe for notification on the STK X application object. As this object is not a control, the procedure is a little bit different.
- 11) In Form1.vb add the constructor near the beginning of the class definition by typing "sub new" and pressing Enter. Then add the following lines to the form constructor, after the call to InitializeComponent():

```
stkxApp = New AGI.STKX.AgSTKXApplication
```

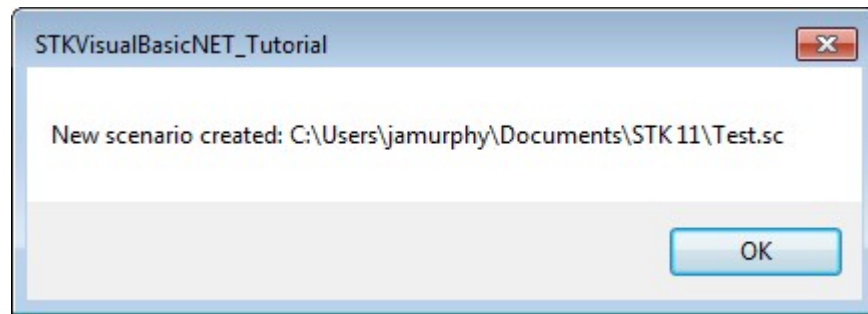
- 12) Now, add an event handler to the end of the Form1 class definition to listen for new scenario events.:


```


Private Sub OnNewScenario(ByVal path As String) _
    Handles stkxApp.OnScenarioNew
    MsgBox("New scenario created: " + path)
End Sub

```

- 13) Build and run the application.
- 14) Click the New Scenario button. A message box will be displayed as a result of this event.



Add map picking

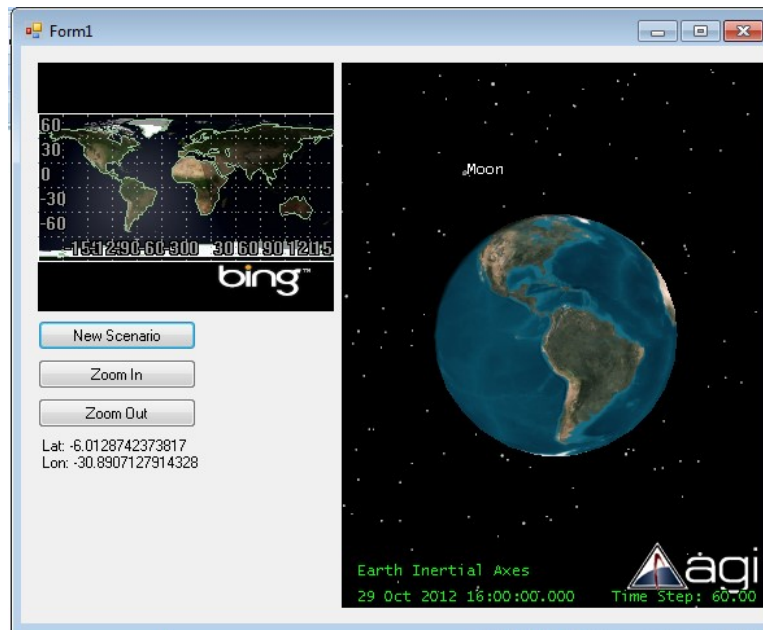
- 1) Return to the Design view of Form1 in Visual Studio. Bring up the **Properties** dialog for the label, and clear the Text property (so that no text displays initially).
- 2) Select the Globe control. In its **Properties** dialog, click the  (lightning bolt) icon.
- 3) On the line for the MouseMoveEvent event, enter On3DMouseMove and press Enter.
- 4) Enter the following code for your new event handler:

```

Dim pickInfoData As AGI.STKX.AgPickInfoData
pickInfoData = AxAgUiAxVOCntrl1.PickInfo(e.x, e.y)
If pickInfoData.IsLatLonAltValid Then
    Label1.Text = "Lat: " & pickInfoData.Lat & vbCrLf & "Lon: " _
        & pickInfoData.Lon
Else
    Label1.Text = ""
End If

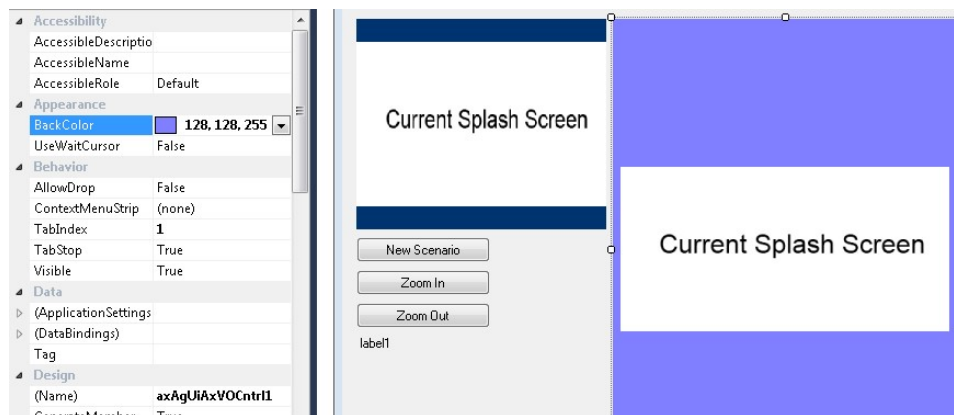
```


- 5) Build and run the application.
- 6) Click the New Scenario button. Move the mouse over the Globe control. The mouse move event will be called. The mouse coordinates are converted to latitude/longitude and displayed in the label.



Set STK X properties

- 1) Click on the Globe control in the Properties window you can now change the 'BackColor' property. Click on the dropdown box in the right column. The **Color** dialog box allows you to set the background color of the Globe control's viewing square. Set the color to a color or your choice. The background color on the Globe object will change.



- 2) Click on the 'Picture' property in the properties window. Click on the  (expand button) in the right column to bring up the "Select Resources" dialog box which

shows picture properties. These properties allow you to change or remove the splash panel displayed in the STK X control.

- 3) Click on Import... and navigate to an alternate picture.
- 4) Select the picture, and then click OK. Your picture will now be shown as the splash panel when no scenario is loaded.

