

Chapter 6 : C# Tutorial

Loading AvisMap Objects into C#.net

6.1 Creating a new project: MyAvisMap

1. Create a working directory (C:\Myproject)
2. Copy data files World.zip (Include World.sdb and World.sdd) to working directory(C:\MyProject)
3. Start Visual Studio.NET
4. Create a new windows application named MyFirstAvisMap in working directory (C:\Myproject)

6.2 Loading AvisMap Engine controls

1. Load AvisMap Engine control to ToolBox: Right-click on the ToolBox and click "Add Tab", and name the new tab as AvisMap Right-click on the ToolBox, and click "Add/Remove Items...", the Customize dialog will be displayed.

In the COM Components tab of the above dialog box, check"A visMap Control and AvisWorkspace Control", press OK button. There are two controls in the ToolBox .

6.3 Opening a map and adding layers

1. Rename the window form as FrmMain. Add AvisMap and AvisWorkspace controls to the form and name them as AvisMap1 and AvisWorkspace1 respectively.
2. Add the following code to FrmMain_Load in FrmMain:

```
private void Form1_Load(object sender, EventArgs e)
{
    AvisMap1.Connect(AvisWorkspace1.CtlHandle);
    //'Establish the relation between AvisWorkspace and AvisMap
    String strAlias;
    //'Alias of datasource
    AvisMapLib.seEngineType nEngineType;
    //'Type of data engine
    String strDataSourceName;
    //'Absolute path of datasource
    AvisMapLib.soDataSource objDataSource;
    //' The datasource object point to the open datasource
    bool bReadOnly;
    //' Whether the data of datasource can read only
    bool bAddToHead;
    //'Whether adding to head or not
    int i;
    //'The cycle variable
    strAlias = "MyDataSource";
    //' Alias can be named arbitrarily in principle, but you'd better advise that the main name same to
datasource file
    nEngineType = AvisMapLib.seEngineType.sceSDBPlus;
    //'AvisMap can support various type,here is SDB+
    strDataSourceName = "C:\\MyProject\\World.sdb";
    bReadOnly = false; //'Not set read only
```

```
// Open the data source
objDataSource = AvisWorkspacel.OpenDataSource(strDataSourceName, strAlias, nEngineType, bReadOnly);

if (objDataSource == null)
{
    MessageBox.Show("Please copy the datasource files(world.sdb,world.sdd) to directory
C:\\MyProject\\World.sdb,then run the program, Thanks", "Failed to open the datasource");
    return;
}
else
{
    //Add all layers of datasource to AvisMap
    for (i = 1; i <= objDataSource.Datasets.Count; i++)
    {
        bAddToHead = true;
        AvisMap1.Layers.AddDataset(objDataSource.Datasets[i], bAddToHead);
    }
}
AvisMap1.Refresh();//Refresh the map window
//Modifythe selection objects style
AvisMap1.selection.Style.PenColor =
System.Convert.ToUInt32(System.Drawing.ColorTranslator.ToOle(Color.FromArgb(231, 77, 0)));
AvisMap1.selection.Style.PenWidth = 1;
AvisMap1.selection.Style.PenStyle = 1;
AvisMap1.selection.Style.BrushStyle = 5;
```

```

        AvisMap1.selection.Style.BrushColor =
System.Convert.ToUInt32(System.Drawing.ColorTranslator.ToOle(Color.FromArgb(115, 69, 140)));
        AvisMap1.selection.Style.BrushBackColor =
System.Convert.ToUInt32(System.Drawing.ColorTranslator.ToOle(Color.FromArgb(239, 150, 255)));
        AvisMap1.selection.Style.BrushOpaqueRate = 50;
        objDataSource = null;
    }

```

2. Insert the code at the "frmMain_Closing" event:

```

private void Form1_FormClosing(object sender, FormClosingEventArgs e)
{
    //Close the windows and workspace, noted the right order
    AvisMap1.Close();
    AvisMap1.Disconnect();
    AvisWorkspacel.Close();
}

```

Run the code, and the result will be displayed.

6.4 Browsing map

It is very convenient to perform map operations with AvisMap Engine , such as zoom in, zoom out, zoom free, pan, full extent, draw point or line, etc. In the following table, some operations are listed as examples in this program. First, add five command buttons to form1, and then set their properties as follows,

Table 6-1 The button properties

Name	Caption
------	---------

cmdPan	Pan
cmdZoomIn	ZoomIn
cmdZoomOut	ZoonOut
cmdZoomFree	ZoomFree
cmdViewEntire	ViewEntire

Then, add the code to each Click event to implement corresponding function:

```
private void cmdZoomIn_Click(object sender, EventArgs e)
{
    this.AvisMap1.Action = AvisMapLib.seAction.scaZoomIn;//Zoom in
}

private void cmdZoomOut_Click(object sender, EventArgs e)
{
    this.AvisMap1.Action = AvisMapLib.seAction.scaZoomOut; //Zoom Out
}

private void cmdZoomFree_Click(object sender, EventArgs e)
{
    this.AvisMap1.Action = AvisMapLib.seAction.scaZoomFree;//Zoom free
}

private void cmdViewEntire_Click(object sender, EventArgs e)
{
    this.AvisMap1.ViewEntire();//View entire
}
```

```

}

private void cmdPan_Click(object sender, EventArgs e)
{
    this.AvisMap1.Action = AvisMapLib.seAction.scaPan; //Pan
}

```

6.5 Querying Properties

1. Add a command button to form and then set it's property, **Table 6-2**

Table 6-2 The button property

Name	Caption
cmdQueryProperties	Identity

2. Add the following code to the responded event of cmdQueryProperties_Click(object sender, System.EventArgs e)

```

private void cmdQueryProperties_Click(object sender, EventArgs e)
{
    this.AvisMap1.Action = AvisMapLib.seAction.scaSelect;//Identity map
}

```

3. Add the following code in AvisMap1_GeometrySelected:

```

private void AvisMap1_GeometrySelected(object sender, AxAvisMapLib._DAvisMapEvents_GeometrySelectedEvent e)
{

```

```

AvisMapLib.soSelection objSelection;
AvisMapLib.soRecordset objRd;
objSelection = this.AvisMap1.selection;
objRd = objSelection.ToRecordset(false);
//Get the attribute data of the selected features
string str = "";

for (int i = 1; i <= objRd.FieldCount; i++)
{
    str += objRd.GetFieldInfo(i).Name;
    //Get the property name
    str += ":" + objRd.GetFieldValue(i).ToString() + "\n";
    //Get property value
}

MessageBox.Show(str, "MyFirstAvisMap ");
objSelection = null;
objRd = null;
}

```

Run the code and click the Identity button, then select an object on the map, finally the properties of the selected object will be displayed.

6.6 Querying map

1. Add a command button and a textbox to form, and then set their properties as follows,

Table 6-3 The controls properties

Control	Name	Caption
Button	cmdQueryMaps	QueryMap
Textbox	textBox1	---

2. Add the code to the responded event in cmdQueryMaps_Click(object sender, System.EventArgs e)

```
private void cmdQueryMaps_Click(object sender, EventArgs e)
{
    if (this.textBox1.Text == "")
    {
        MessageBox.Show("The query text is not null");
        return;
    }
    AvisMapLib.soDatasetVector objDtv;
    //Vector dataset variable
    AvisMapLib.soDataset objDt;
    AvisMapLib.soSelection objSelection;
    //Selection variable
    AvisMapLib.soRecordset objRd;
    //Attribute dataset variable
    //Get the vector dataset World_countries in this datasource on which the query would be performed
    objDt = this.AvisMap1.Layers["world_countries@MyDatasource"].Dataset;
    objDtv = (AvisMapLib.soDatasetVector)objDt;
    //Query attribute data from dataset(The method of query only apply to the class object of soDatasetVector)
    objRd = objDtv.Query(this.textBox1.Text, true, null, "");
    //Add the data which have been queried to selection
    objSelection = this.AvisMap1.selection;
```

```
objSelection.FromRecordset(objRd);

//Refresh the map
this.AvisMap1.Refresh();
objRd = null;
objDt = null;
objDtv = null;
objSelection = null;
}
```

3. Type the SQL expression, e.g. `smid>50` in Query text box, then Click the "QueryMap" , the results will be displayed.

