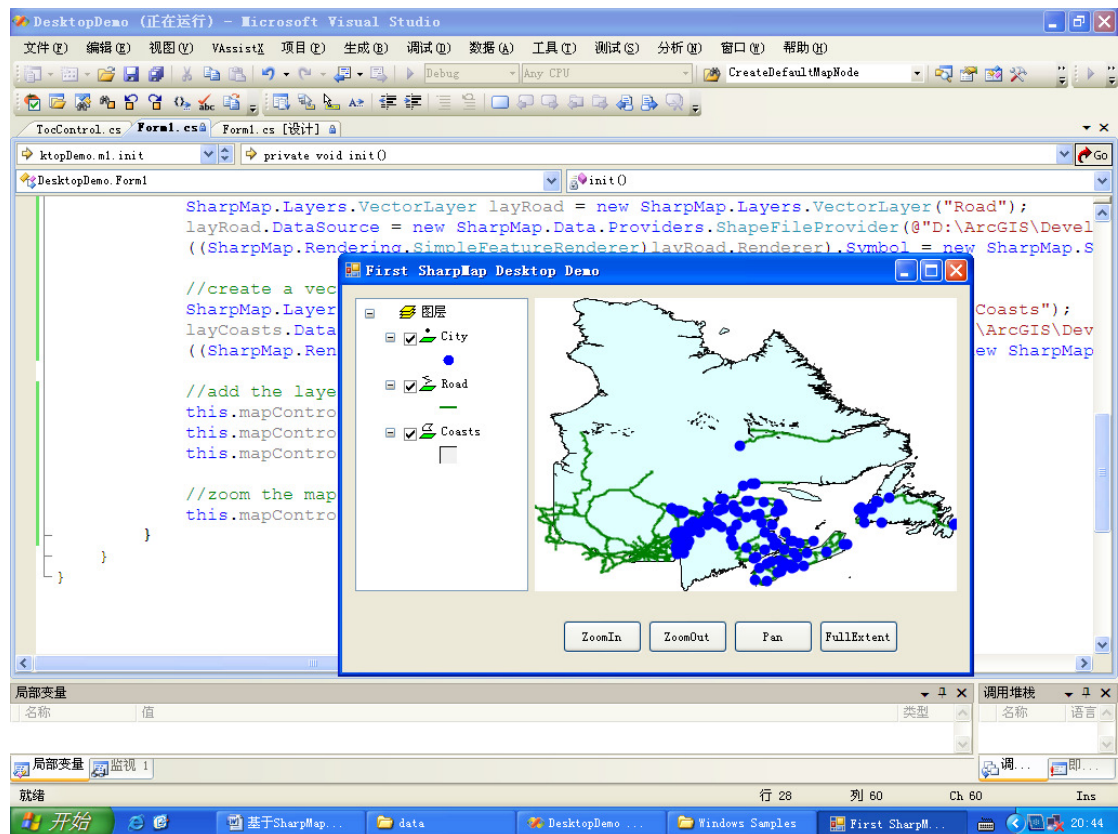


基于 SharpMap 扩展程序开发实例

SharpMap 是基于 .Net 平台开发的 GIS 地图渲染组件。在 SharpMap 的内部设计了基于 OGC 标准的几何模型构架，设计了 IProvider 策略模式的多源矢量地图数据适配器接口，地图要素渲染的底层主要通过几何变换将 Geometry 转换为 .Net 支持的几何模型如 System.Drawing.Point 、 System.Drawing.Rectangle 、 System.Drawing.Drawing2D.GraphicsPath 等，然后调用 System.Drawing.Graphics 类的 Draw 方法实现地图要素的绘制。在 SharpMap 内部由于没有设计 Symbol 的构架，因此，对于需要开发真正的 GIS 系统，需要封装 Symbol 架构，以便实现专题渲染和地图符号库。

SharpMap 为我们提供了 GIS 系统最基本的功能集合，如地图可视化、空间查询等功能，因此我们可以利用 SharpMap 提供的部分功能为我们在 .Net 平台上实现地图可视化提供支持，而不需要借助一些商业组件。本文就将简单的介绍一些基于 SharpMap 实现部分程序的代码示例，希望对研究开源的朋友有所启示和帮助。注：我已经对 SharpMap 部分 Bug 做了修改，重新设计了系统的构架，也新开发了一些新的模块。这些都将在以后的文章中有所阐述。

基于 Jackey.Framework 开发 Windows 应用程序示例



//初始化代码，请在窗体装载事件中调用该方法。

```
private void init()
{
    //Set buddy control.
    this.tocControl1.MapControl = this.mapControl1;

    //create a vector layer and set the default renderer.
    SharpMap.Layers.VectorLayer layCity=new
    SharpMap.Layers.VectorLayer("City");
    layCity.DataSource=new
    SharpMap.Data.Providers.ShapeFileProvider(@"D:\ArcGIS\DeveloperKit\SamplesNE
    T\data\GulfOfStLawrence\data\Can_Mjr_Cities.shp");

    ((SharpMap.Rendering.SimpleFeatureRenderer) layCity.Renderer).Symbol=new
    SharpMap.Symbols.MarkerSymbol(SharpMap.Symbols.SymbolType.Circle,Color.Blue,
    10f);

    //create a vector layer and set the default renderer.
    SharpMap.Layers.VectorLayer layRoad = new
    SharpMap.Layers.VectorLayer("Road");
    layRoad.DataSource = new
    SharpMap.Data.Providers.ShapeFileProvider(@"D:\ArcGIS\DeveloperKit\SamplesNE
    T\data\GulfOfStLawrence\data\mjrroads.shp");
```

```
((SharpMap.Rendering.SimpleFeatureRenderer) layRoad.Renderer).Symbol = new
SharpMap.Symbols.LineSymbol(Color.Green, 2f);

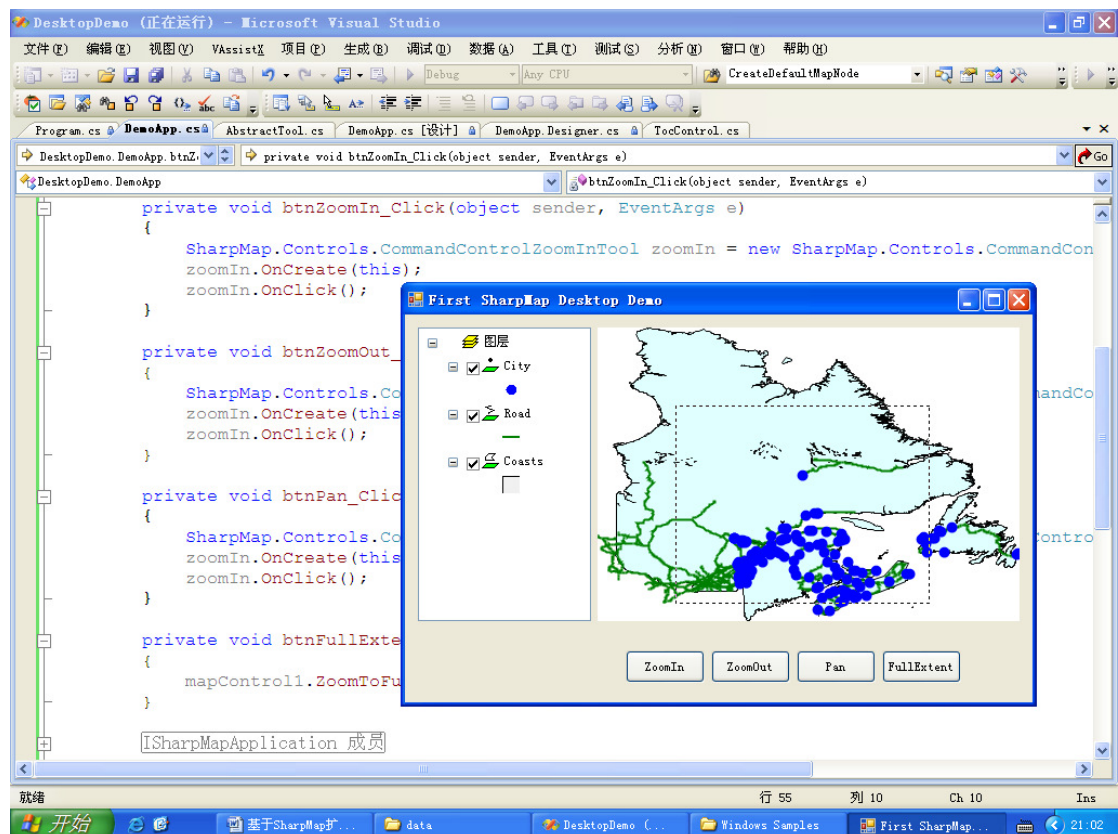
//create a vector layer and set the default renderer.
SharpMap.Layers.VectorLayer layCoasts = new
SharpMap.Layers.VectorLayer("Coasts");
layCoasts.DataSource = new
SharpMap.Data.Providers.ShapeFileProvider(@"D:\ArcGIS\DeveloperKit\SamplesNE
T\data\GulfOfStLawrence\data\Coasts.shp");

((SharpMap.Rendering.SimpleFeatureRenderer) layCoasts.Renderer).Symbol = new
SharpMap.Symbols.FillSymbol(Color.LightCyan);

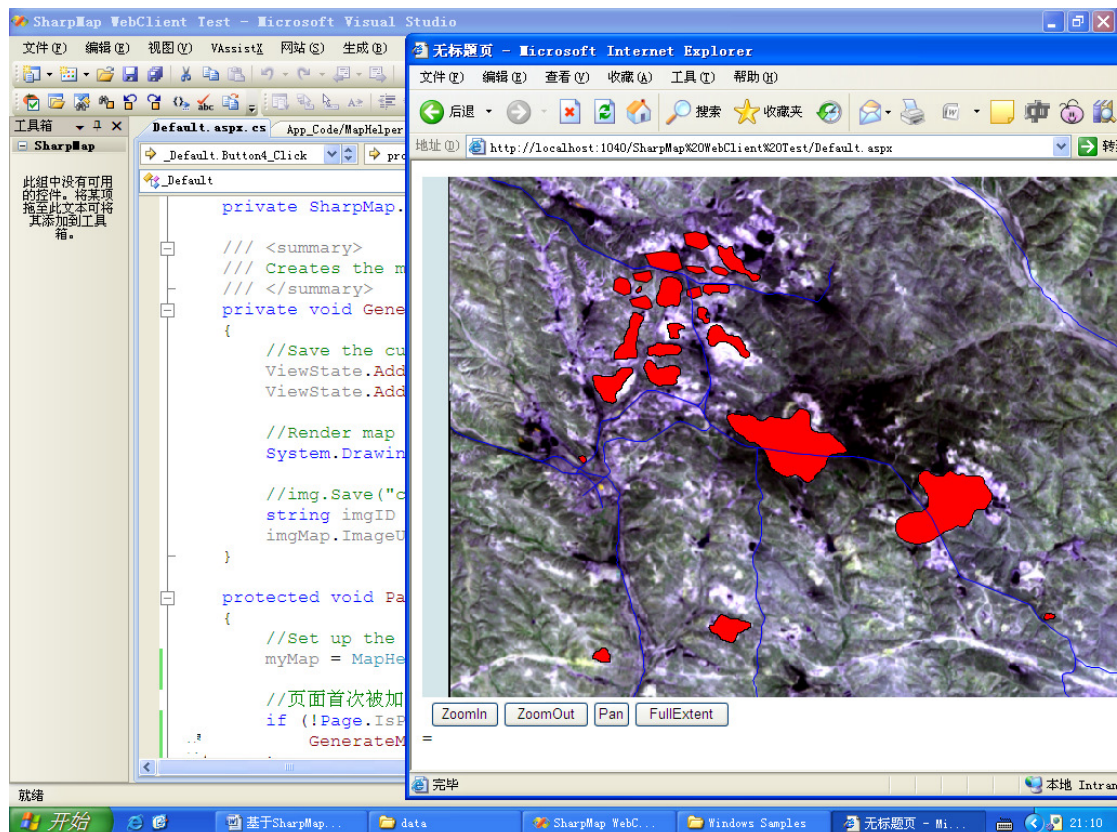
//add the layer to the map
this.mapControl1.Map.Layers.Add(layCoasts);
this.mapControl1.Map.Layers.Add(layRoad);
this.mapControl1.Map.Layers.Add(layCity);

//zoom the map to the full extent
this.mapControl1.ZoomToFullExtent();

}
```



开发 Asp.Net 应用程序示例



页面代码为:

```
using System;
using System.Data;
using System.Configuration;
using System.Web;
using System.Web.Security;
using System.Web.UI;
using System.Web.UI.WebControls;
using System.Web.UI.WebControls.WebParts;
using System.Web.UI.HtmlControls;

public partial class _Default : System.Web.UI.Page
{
    private SharpMap.Map myMap;

    /// <summary>
    /// Creates the map, inserts it into the cache and sets the ImageButton Url
    /// </summary>
    private void GenerateMap()
    {
```

```
//Save the current mapcenter and zoom in the viewstate
ViewState.Add("mapCenter", myMap.Center);
ViewState.Add("mapZoom", myMap.Zoom);

//Render map
System.Drawing.Image img = myMap.GetMap();

//img.Save("c:\\testsharpmapimg.bmp");
string imgID = SharpMap.Web.Caching.InsertIntoCache(1, img);
imgMap.ImageUrl = "getmap.aspx?ID=" + HttpUtility.UrlEncode(imgID);
}

protected void Page_Load(object sender, EventArgs e)
{
    //Set up the map. We use the method in the App_Code folder for initializing
the map
    myMap = MapHelper.InitializeImageMap(new
System.Drawing.Size((int)imgMap.Width.Value, (int)imgMap.Height.Value));

    //页面首次被加载
    if (!Page.IsPostBack) {
        GenerateMap();
    }
    else{
        //Page is post back. Restore center and zoom-values from viewstate
        myMap.Center = (SharpMap.Geometries.Point)ViewState["mapCenter"];
        myMap.Zoom = (double)ViewState["mapZoom"];
    }
}

protected void Button1_Click(object sender, EventArgs e)
{
    //ZoomIn
    SharpMap.Geometries.BoundingBox bbox=myMap.VisibleBounds;
    bbox.Expand(0.5,0.5,true);
    myMap.ZoomToBox(bbox);
    GenerateMap();
}

protected void Button2_Click(object sender, EventArgs e)
{
    //ZoomOut
    SharpMap.Geometries.BoundingBox bbox = myMap.VisibleBounds;
    bbox.Expand(1.5, 1.5, true);
    myMap.ZoomToBox(bbox);
}
```

```
        GenerateMap();
    }
    protected void Button4_Click(object sender, EventArgs e)
    {
        //FullExtent
        myMap.ZoomToExtents();
        GenerateMap();
    }
    protected void imgMap_Click1(object sender, ImageClickEventArgs e)
    {
        //Set center of the map to where the client clicked
        myMap.Center = myMap.ToMapPoint(e.X, e.Y);
        GenerateMap();
    }
}
```

```
using System;
using System.Data;
using System.Configuration;
using System.Web;
using System.Web.Security;
using System.Web.UI;
using System.Web.UI.WebControls;
using System.Web.UI.WebControls.WebParts;
using System.Web.UI.HtmlControls;
using System.Drawing;
using System.Drawing.Drawing2D;

/// <summary>
/// Summary description for CreateMap
/// </summary>
public class MapHelper
{
    public static SharpMap.Map InitializeImageMap(System.Drawing.Size size)
    {
        //Initialize a new map of size 'imagesize'
        SharpMap.Map map = new SharpMap.Map(size);

        SharpMap.Layers.GdalRasterLayer imgLayer = new
        SharpMap.Layers.GdalRasterLayer("Aster",
        HttpContext.Current.Server.MapPath(@"~\App_data\aster.tif"));
        map.Layers.Add(imgLayer);

        //Set up the countries layer
```

```
        SharpMap.Layers.VectorLayer layCoal = new
SharpMap.Layers.VectorLayer("Coal");
        layCoal.DataSource = new
SharpMap.Data.Providers.ShapeFileProvider(HttpContext.Current.Server.MapPath
(@"~\App_data\huoqu.shp"), true);
        ((SharpMap.Rendering.SimpleFeatureRenderer) layCoal.Renderer).Symbol =
new SharpMap.Symbols.FillSymbol(Color.Red);
        map.Layers.Add(layCoal);

        //Set the datasource to a shapefile in the App_data folder
        SharpMap.Layers.VectorLayer layRoad=new
SharpMap.Layers.VectorLayer("Road");
        layRoad.DataSource = new
SharpMap.Data.Providers.ShapeFileProvider(HttpContext.Current.Server.MapPath
(@"~\App_data\daolu.shp"), true);
        ((SharpMap.Rendering.SimpleFeatureRenderer) layRoad.Renderer).Symbol =
new SharpMap.Symbols.LineSymbol(Color.Blue);
        map.Layers.Add(layRoad);

        map.ZoomToExtents();
        return map;
    }
}
```

下面是我定制实现的示例。

