



C# .NET a GIS

Programové mapové komponenty



- COM nebo .NET komponenty
 - Třídy, metody, vlastnosti
 - součástí je i UI (vizualizace)
- Reference z C# projektu

Programové mapové komponenty



- MapObjects
- ArcObjects
- GeoMedia Controls
- DotSpatial
- SharpMap
- ...

MapObjects



The screenshot shows the Microsoft Visual Basic .NET IDE in design mode for a form named `frmMapa`. A context menu is open over the form, listing standard actions like Cut, Copy, Paste, Delete, and Rename Item, along with **Add/Remove Items...**, Sort Items Alphabetically, List View, Add Tab, Show All Tabs, Move Up, and Move Down. The **Toolbox** on the left shows `My User Controls` with `Pointer` and `FileBrowser`. The **Solution Explorer** on the right shows the project structure for `WindowsApplication1`, including `References`, `AssemblyInfo.vb`, `FileBrowser.vb`, `frmMapa.vb`, and `TestForm.vb`. The **Properties** window on the right shows the `Misc` and `Window Style` properties for `frmMapa`.

Property	Value
AcceptButton	(none)
CancelButton	(none)
KeyPreview	False
Language	(Default)
Localizable	False
ControlBox	True
HelpButton	False

The Windows taskbar at the bottom shows the Start button, taskbar icons for The GIMP, WindowsApplication1, FormDesign.png, Microsoft PowerPoint, and Control Panel, along with the system tray showing the time as 1:58 PM.

COM - Properties



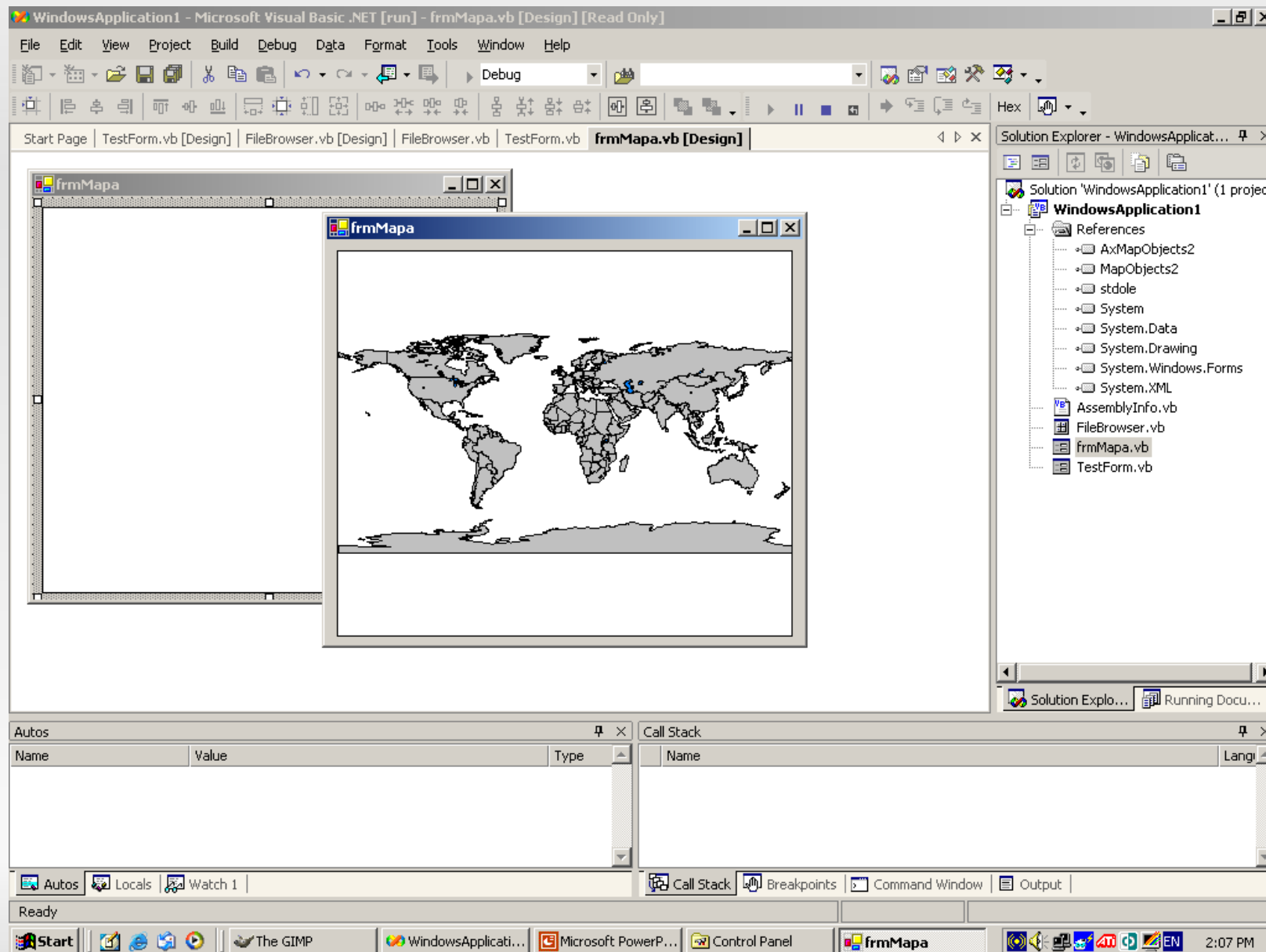
A screenshot of the Microsoft Visual Basic .NET IDE in design mode. The main window displays a form titled 'frmMapa' with a large map control. A context menu is open over the map control, listing options such as 'View Code', 'Bring to Front', 'Send to Back', 'Align to Grid', 'Lock Controls', 'ActiveX - Properties...', 'ActiveX - About...', 'Cut', 'Copy', 'Paste', 'Delete', and 'Properties'. The 'Properties' option is highlighted. The interface includes a menu bar (File, Edit, View, Project, Build, Debug, Data, Format, Tools, Window, Help), a toolbar, a Toolbox on the left with 'My User Controls' (Pointer, FileBrowser, MapObjects 2.0 Map Control), a Solution Explorer on the right showing the project structure, and a Properties window at the bottom right showing the 'Misc' properties for 'AxMap1'. The Windows taskbar at the bottom shows the Start button, taskbar icons for 'The GIMP', 'WindowsApplic...', 'Microsoft PowerP...', and 'Control Panel', and the system tray with the time '2:03 PM'.

COM - Properties



A screenshot of the Microsoft Visual Basic .NET IDE. The main window is titled "frmMapa" and is in design mode. A "Properties" dialog box is open over the form, showing the "General" tab. The "Layers" list contains "LAKES", "CNTRY92", and "CITIES". The "Window mode" is set to "Windowed", "Border style" is "Single", and "Cancel Action" is "Cancel Map". The "Scrollbars" checkbox is checked. The "Solution Explorer" on the right shows the project structure, including "References" and "frmMapa.vb". The "Properties" window for "AxMap1" is also visible, showing properties like "Appearance" (moFlat), "BorderStyle" (1 - Fixed Single), "CancelAction" (moCancelMap), "CoordinateSys", and "FullRedrawOn" (False). The taskbar at the bottom shows the Start button, taskbar icons for The GIMP, WindowsApplication1, Microsoft PowerPoint, and Control Panel, and the system tray with the time 2:05 PM.

Běžící aplikace



Add Map Layer



```
MapObjects2.DataConnection ds = new  
MapObjects2.DataConnection()
```

```
MapObjects2.GeoDataset g = new  
MapObjects2.GeoDataset()
```

```
MapObjects2.MapLayer l = new  
MapObjects2.MapLayer()
```

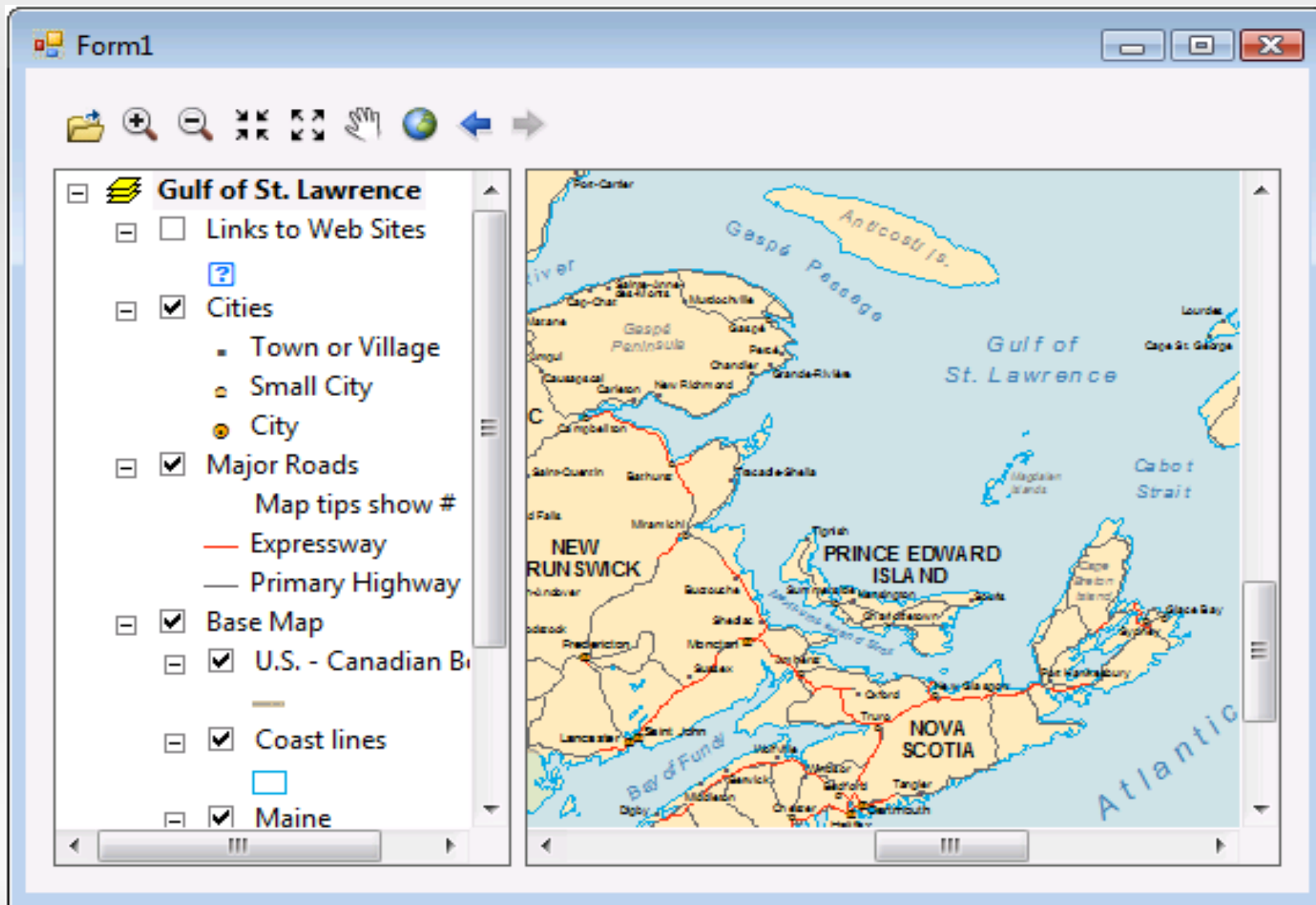
```
ds.Database = directory;
```

```
g = ds.FindGeoDataset(layername);
```

```
l.GeoDataset = g;
```

```
AxMap1.Layers.Add(l);
```

ArcObjects

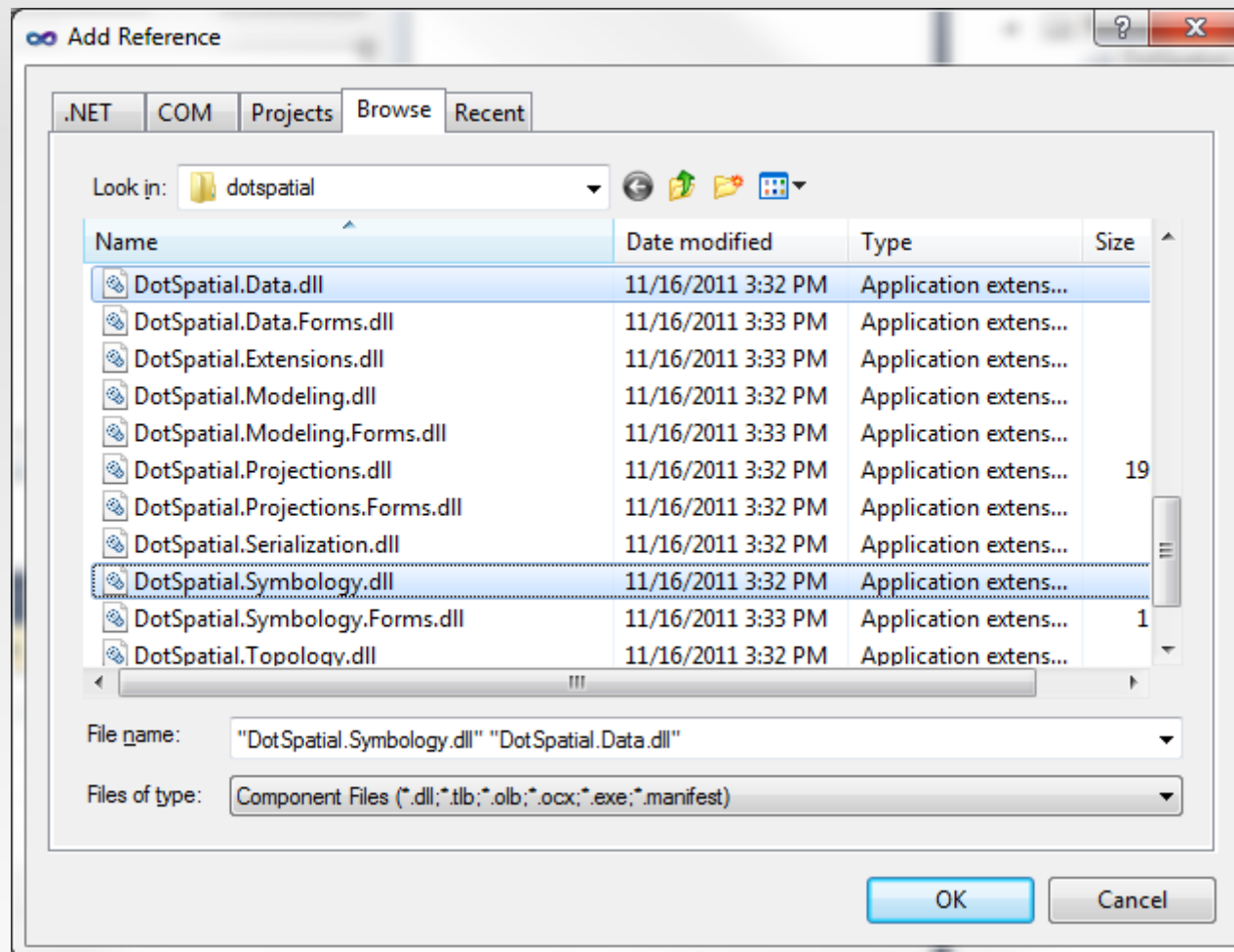


Add MXD

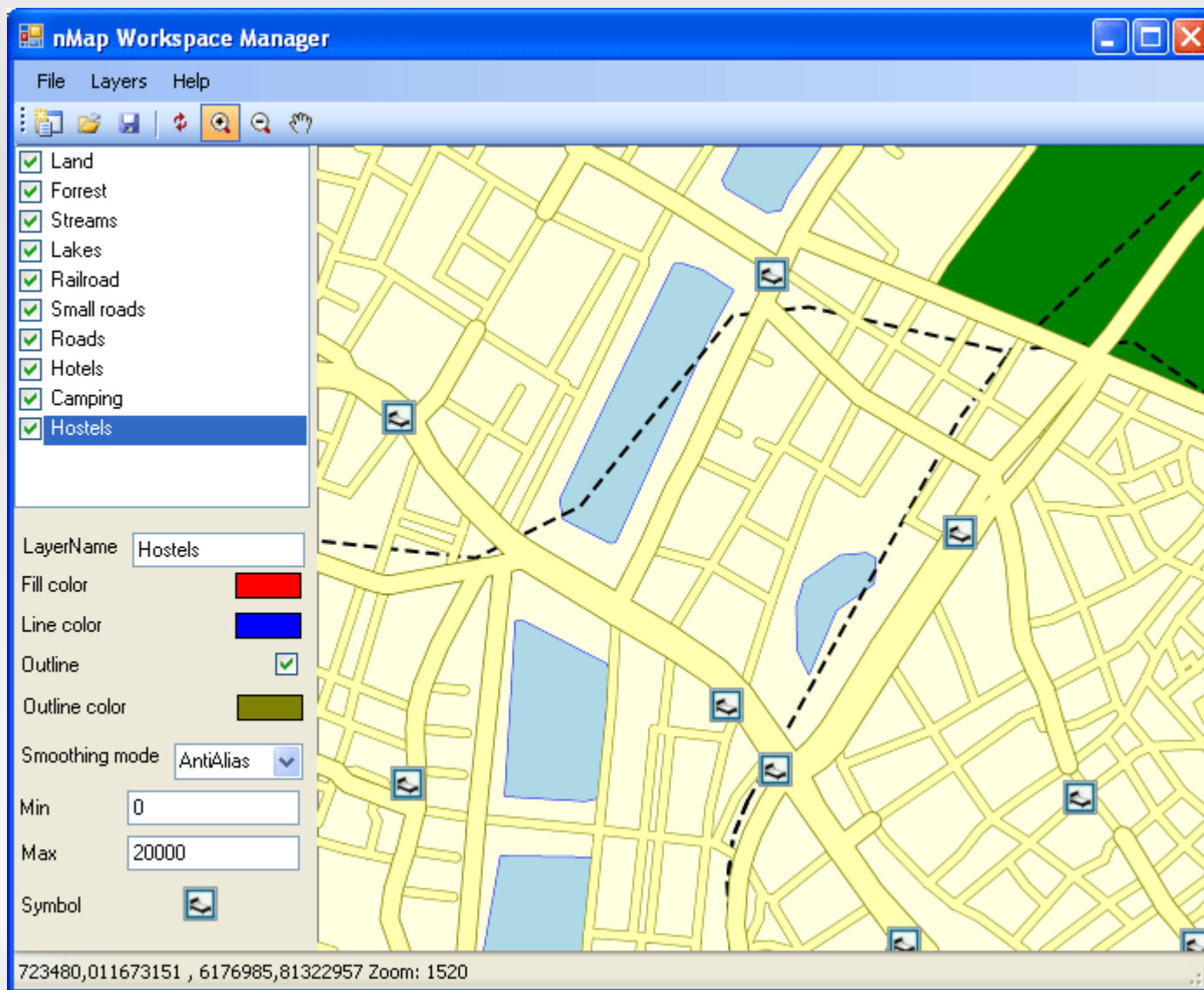


```
string path = @"C:\Temp\mapa.mxd";  
if (axMapControl1.CheckMxFile(path)) {  
    axMapControl1.LoadMxFile(path,  
    Type.Missing, Type.Missing);  
}
```

SharpMap



SharpMap

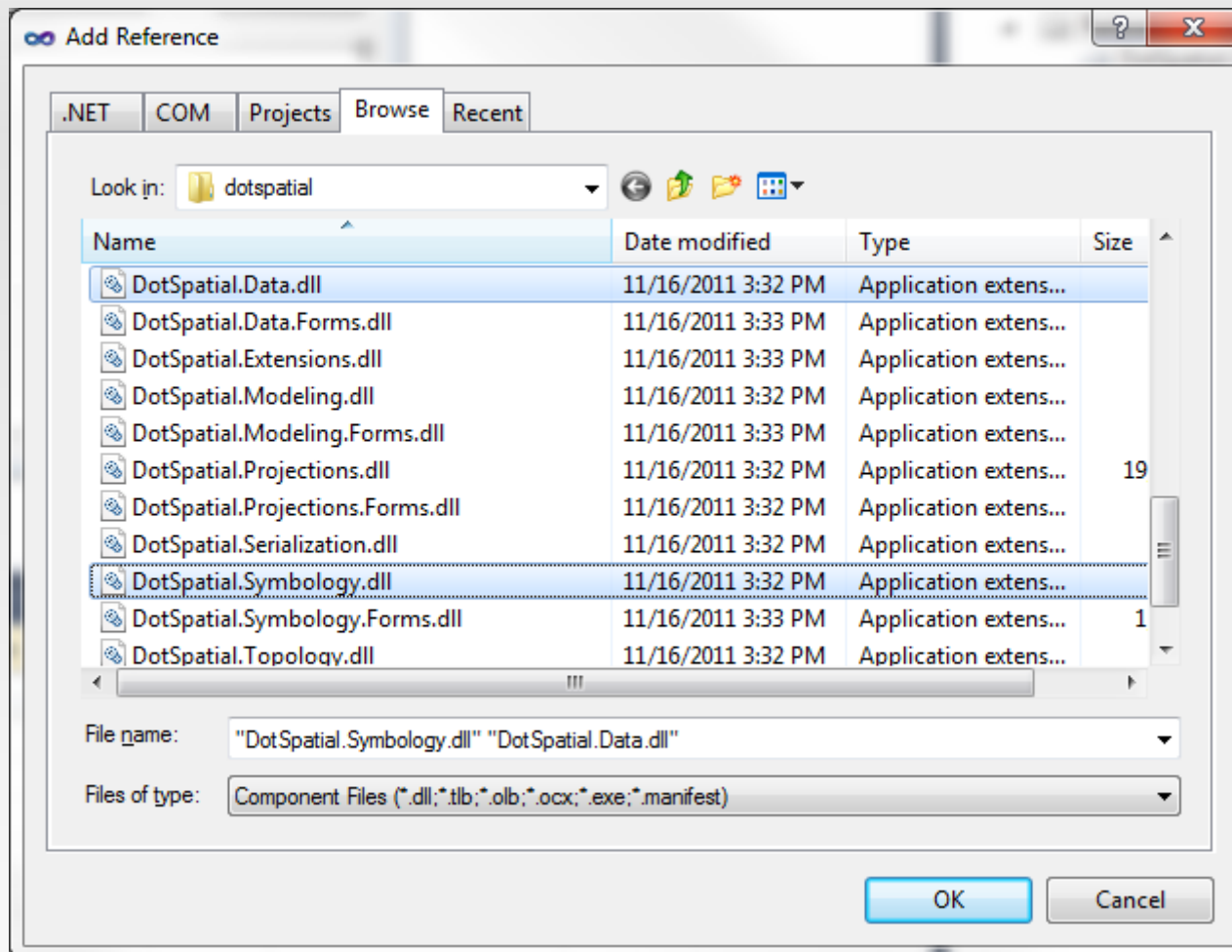


SharpMap



```
SharpMap.Map myMap = new  
SharpMap.Map(new Size(400,300));  
  
myMap.Size = new  
System.Drawing.Size(300,200);  
  
myMap.BackgroundColor = Color.White;  
  
myMap.Center = new  
SharpMap.Geometry.Point(725000, 6180000);
```

DotSpatial



DotSpatial



The screenshot displays the MapWindow 6 application interface. The main window has a toolbar with various tools categorized into File, Home, View, Zoom, Print, and Map Tools. The Map Tools section includes Select, Table Editor, Measure, and Identify. A Legend window on the left shows 'Map Layers'. A data table window titled 'Form1' is overlaid on the map area, displaying a table of order data.

Order ID ↑	Product Name	Unit Price	Quantity	Discount
10248	Queso Cabrales	\$14.00	12	0 %
10248	Singaporean Hokkien F...	\$9.80	10	0 %
10248	Mozzarella di Giovanni	\$34.80	5	0 %
10249	Tofu	\$18.60	9	0 %
10249	Manjimup Dried Apples	\$42.40	40	0 %
10250	Jack's New England Cl...	\$7.70	10	0 %



```
uxMap.AddLayer();
```

```
uxMap.ZoomIn();
```

```
uxMap.FunctionMode =  
DotSpatial.Controls.FunctionMode.Pan;
```

DotSpatial - přidání z adresáře



```
private void addAllShapefilesFromDirectory(string
directory)
{
    System.IO.DirectoryInfo dir = new
System.IO.DirectoryInfo(directory);
    foreach (System.IO.FileInfo f in
dir.GetFiles("*.shp")) {
        mapMain.AddLayer(f.FullName);
    }
}
```