

uniGUI guide

About uniGUI

Developing a stateful Rich Internet Application (**RIA**) is one of the challenging fields in software development. Tasks such as creating and handling user sessions, tracking view state, updating web controls, handling AJAX calls and etc. can be very challenging if your development tool doesn't automatically handle all these for you. **uniGUI** Web application framework makes developing stateful Web applications easier than ever.

uniGUI extends Web Application development experience to a new dimension. Each **uniGUI** application can be considered both as a desktop and a Web application at the same time. This new technology unique to **uniGUI** enables developers to create, design and debug their Delphi applications as if they are regular desktop applications and then choose one of the available options for Web deployment. Of course, with **uniGUI** it is possible to create, design and debug applications which target only the Web.

One of the unique features of **uniGUI** is its ability to use a single code base/resource base for creating a VCL desktop application or a Web application.

Developer's Guide

Web Deployment

Currently there are four options available for deploying your uniGUI project to the Web .

[VCL Application](#)

[Standalone Server](#)

[ISAPI Module](#)

[Windows Service](#) (not implemented in this version)

Ext JS License Considerations

Any uniGUI server requires deploying a full copy of [Ext JS](#) along with your Delphi generated modules. **FMSoft Inc.** in no way grants any form of license regarding **Ext JS** library and its files. All files (except where stated) distributed by **uniGUI** installer under "ext" folder are property of [Sencha Inc.](#). Regardless of licensing model that **uniGUI** may adopt in its future beta/non-beta releases, you are bound by **Ext JS** license terms imposed by [Sencha Inc.](#).

Ext JS files are distributed under <InstallFolder>\FMSoft\Framework\UniGUI\ext folder.

Ext JS license requires developers who want to develop a proprietary product to purchase a proper number of **Ext JS** commercial licenses. **Ext JS** license are sold in a per-developer and royalty free manner.

Please visit the following link for more information:

<http://www.sencha.com/products/license.php>

Ext JS Commercial License

This is the appropriate option if you are creating proprietary applications and you are not prepared to distribute and share the source code of your application under the GPL.

Based on the "[Quid Pro Quo](#)" principle, if you wish to derive a commercial advantage by not releasing your application under an open source license, you must purchase an appropriate number of commercial licenses from Ext. By purchasing

- commercial licenses, you are no longer obligated to publish your source code.

Commercial licenses:

- Are on a per developer basis. Each person who directly or indirectly creates an application or user interface containing Ext components is considered a developer.

Are perpetual and include upgrades to all minor revisions. For example: a 3.0 license includes all publicly 3.x releases

- including 3.0, 3.1, 3.3, etc.

Do not include access to patch releases until they are rolled up into the next minor release. For example: the 3.0.3 patch

- release will be available to commercial licensees when 3.1 is released.

- Are royalty-free.

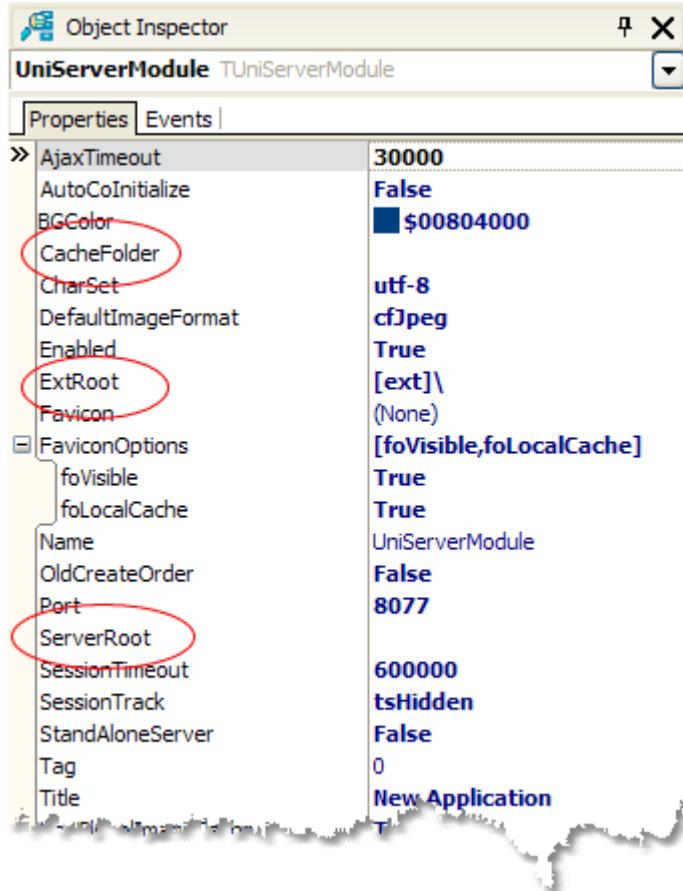
- Remove any obligations to release any source code under GPL.

- [View the license terms](#)
- [Purchase a commercial Ext JS license](#)
(Current price for a single Ext JS Developer license is \$329)

Adjusting Paths

There are some essential paths for a **uniGUI** application which must be adjusted before you deploy it to the outside world.

First of all, you must be sure that your Web Application knows where **Ext JS** files are located. For this, in your Application **ServerModule** you must assign a proper path to **ExtRoot** property. Default value of **ExtRoot** is "[ext]" which means Ext JS files are located under `<InstallFolder>\FMSoft\Framework\uniGU\ext`



Since you will not install **uniGUI** library on target PC, you must assign a full or a relative path to **ExtRoot**. If you assign a relative path it will be relative to **ServerRoot** and you can use the "...\\..\\path" notation. The easiest method is to set the **ExtRoot** to blank and copy the "ext" folder to same folder your Web application executable/module resides. (A blank value is automatically translated to '**ext**') However, for security reasons it is better to put "ext" folder in another folder and deploy all "ext" files as read-only. Under **IIS** you must be sure that your application has enough credentials for a read-only access to "ext" folder and its files.

In **ServerModule** there are two other path related parameters, **ServerRoot** and **CacheFolder**.

ServerRoot:

ServerRoot defines root path for all relative paths. A blank value points to application startup folder.

CacheFolder

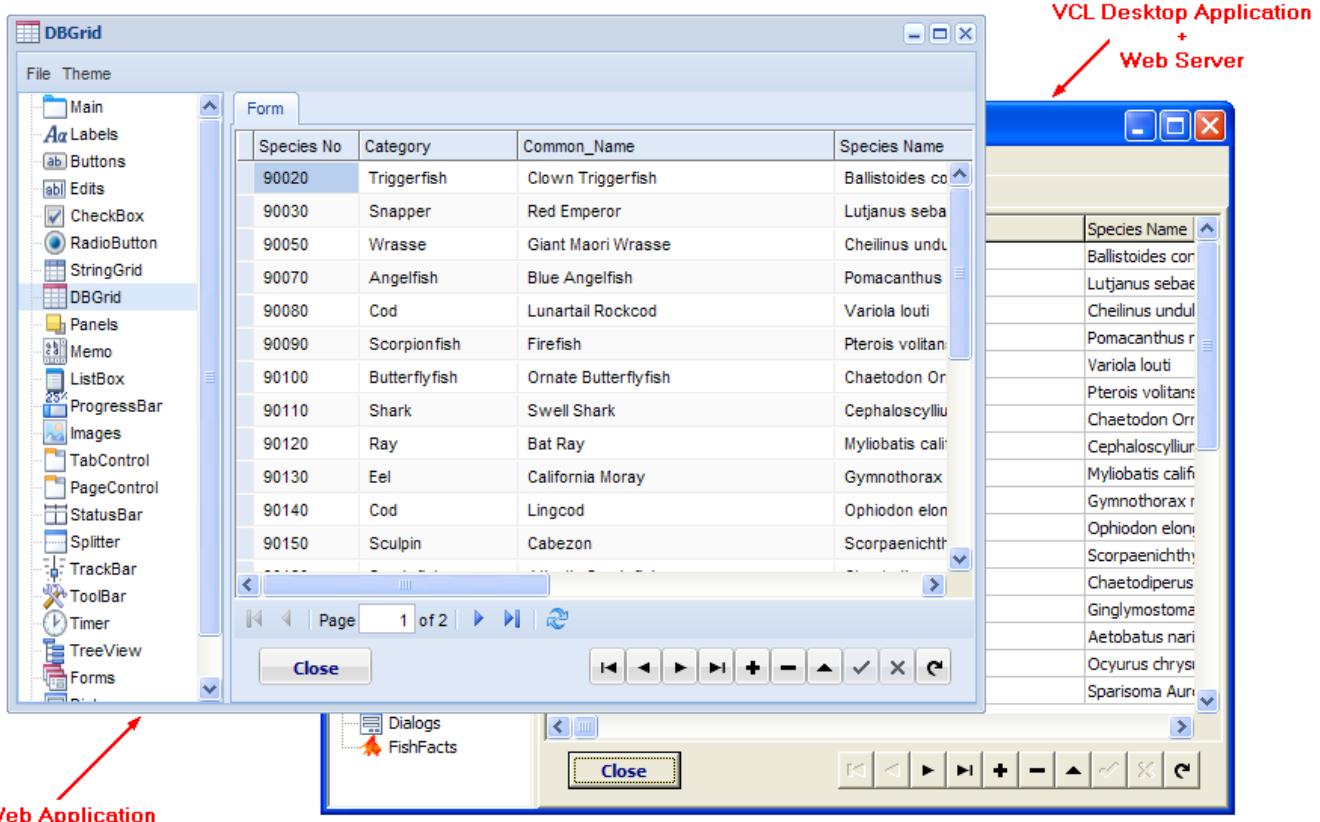
A **uniGUI** server needs a folder to create temporary files. Normally, it is a folder named **Cache** created under same folder your module exists. You can change this by assigning a different path to **CacheFolder** parameter. Under **IIS** you must be sure that your application has enough credentials for a full access to **CacheFolder**.

VCL Application

One of the unique features of uniGUI is its ability to create VCL applications which are a web server at the same time. This means that each VCL Application created with uniGUI library contains a Web Server. This web server allows multiple sessions of same application served through the Web using a regular browser. By this mean, you can simultaneously test your application inside your desktop and in a browser window. While your desktop application is running, you can run a visually intact copy of it inside a browser window.

It is the default mode selected in project wizard when you start a new uniGUI project and probably you will not use this mode for serious web deployment unless it is a small application which needs a temporary web gateway.

Needless to say that closing the VCL application also terminates the web Server, so web gateway is available as long as VCL application is running. It is not a reliable solution when there is a need for a permanent 7x24 web server.

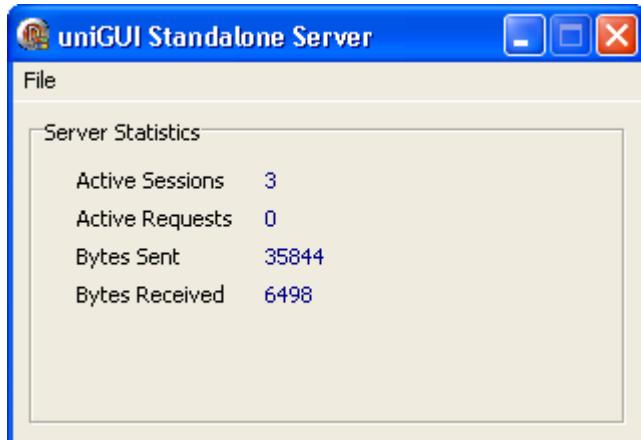


Standalone Server

Standalone Server mode is very similar to VCL Application with some differences which makes it a better option for Web deployment. In this mode your application main form is no longer visible on the desktop, instead an icon is placed in Windows taskbar.



Double-clicking on this icon will open application control panel. Below you see an initial version of control panel.

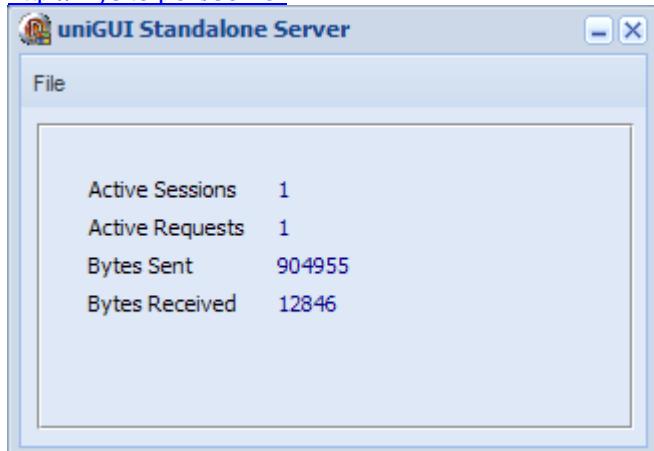


You can shutdown the server by right-clicking the icon and selecting **Shutdown** menu item.

Restore
Shutdown

One of the advanced features in uniGUI is accessibility of the Control Panel from web. You can access control panel from this URL:

<http://mysite:port/server>



Default Icon can be customized by either Changing the Delphi Application Icon or assigning a new Icon to **ServerModule->Favicon**

Standalone Server is a good option when you need a web server where server availability is not very important. To automatically start the server you must place a shortcut to server executable in Windows **Startup** folder. No need to mention that server will not start until a Windows user logs in.

In order to turn your application to a Standalone Server simply open the **ServerModule** Unit and set the **StandAloneServer** parameter to **True**.



ISAPI Module

Deploying your Internet application as ISAPI module probably is best method of deployment. You can run several modules together without a need to dedicate a TCP port to each application.

You can use all Web Servers which support ISAPI extention. uniGUI generated modules are tested with IIS 5.1, IIS 6.0, IIS 7.0 and Apache 2.2.

Installing instructions are different for each Web server. Please refer to below sections for instructions:

[IIS 5.1](#)

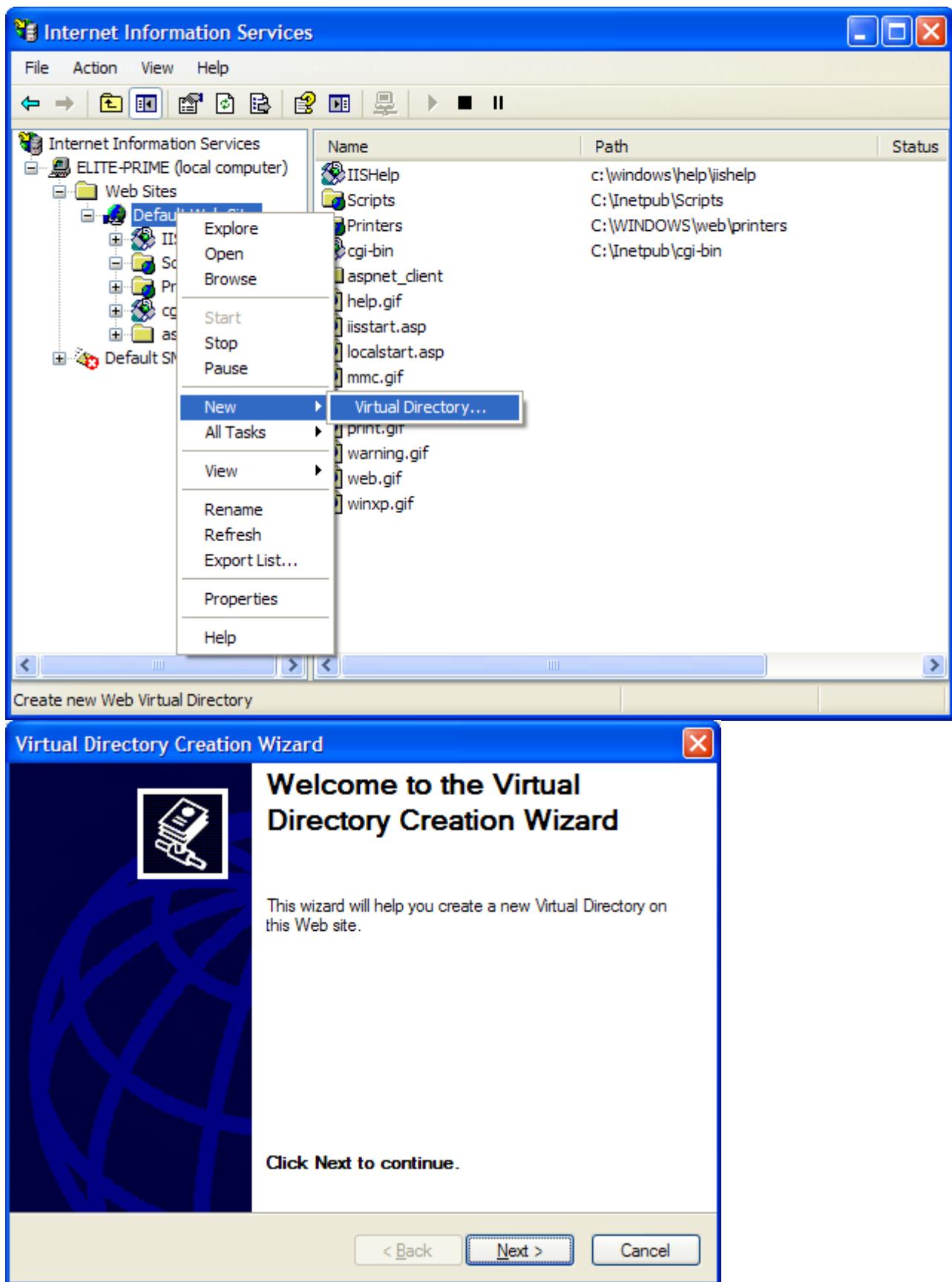
[IIS 6.0](#)

[IIS 7.0](#)

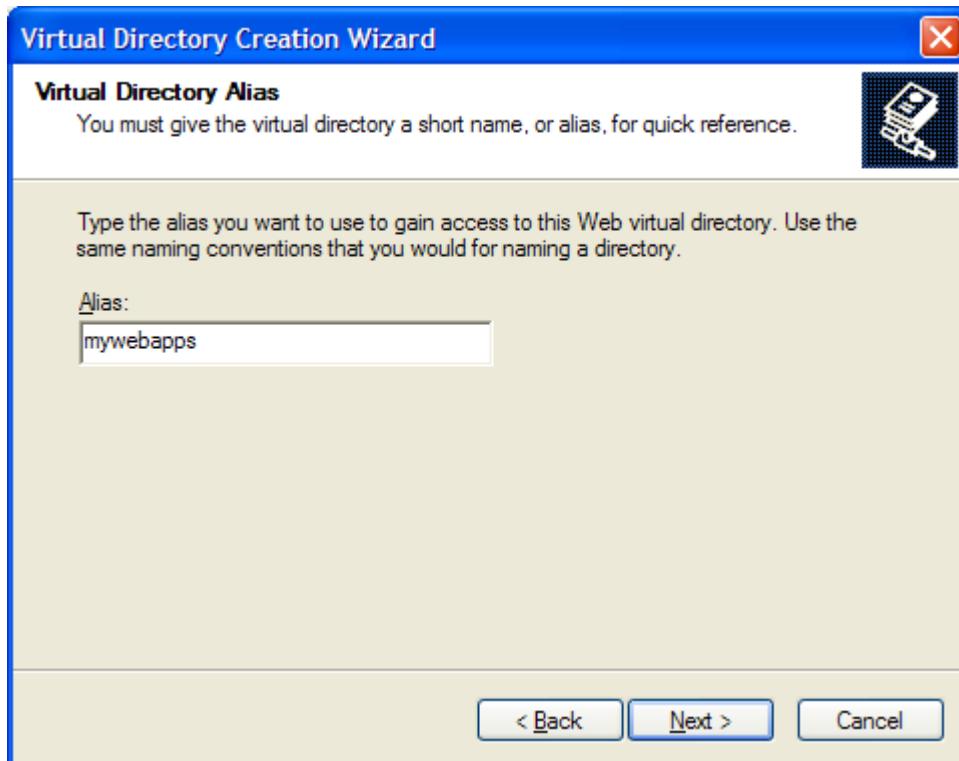
[Apache 2.2](#)

IIS 5

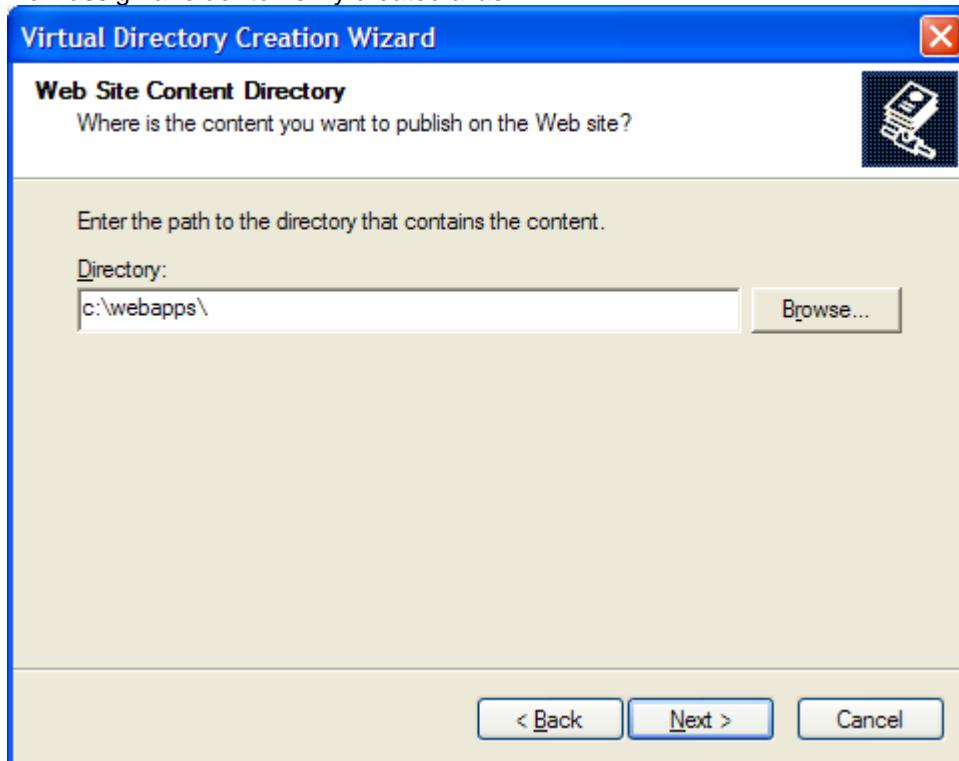
First step is to create a new Virtual Directory.



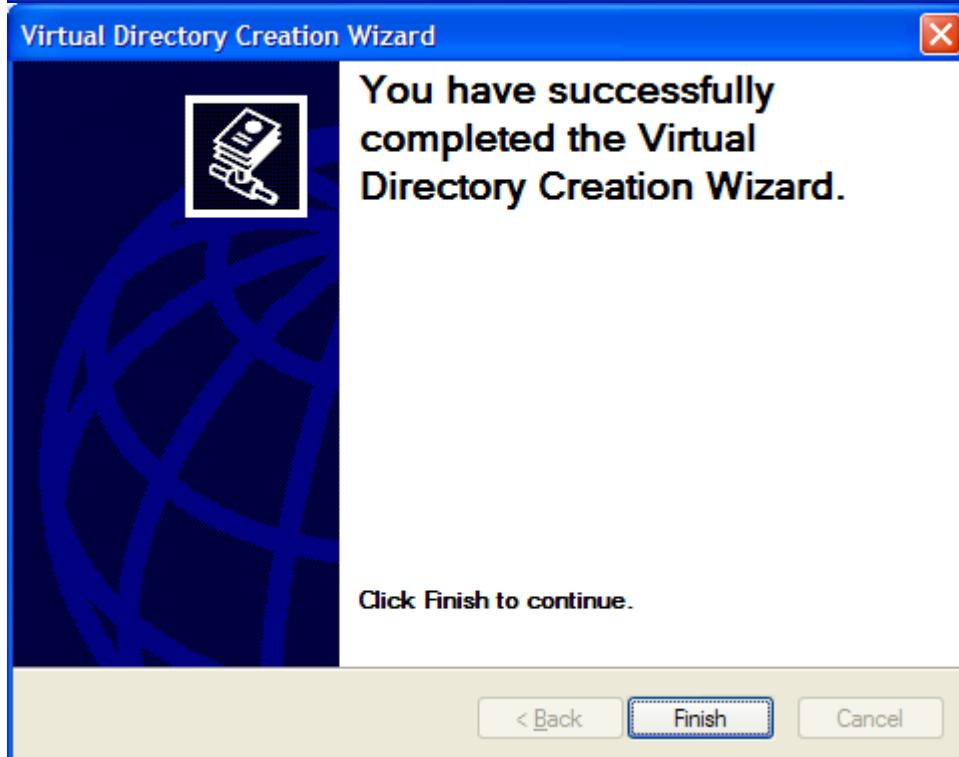
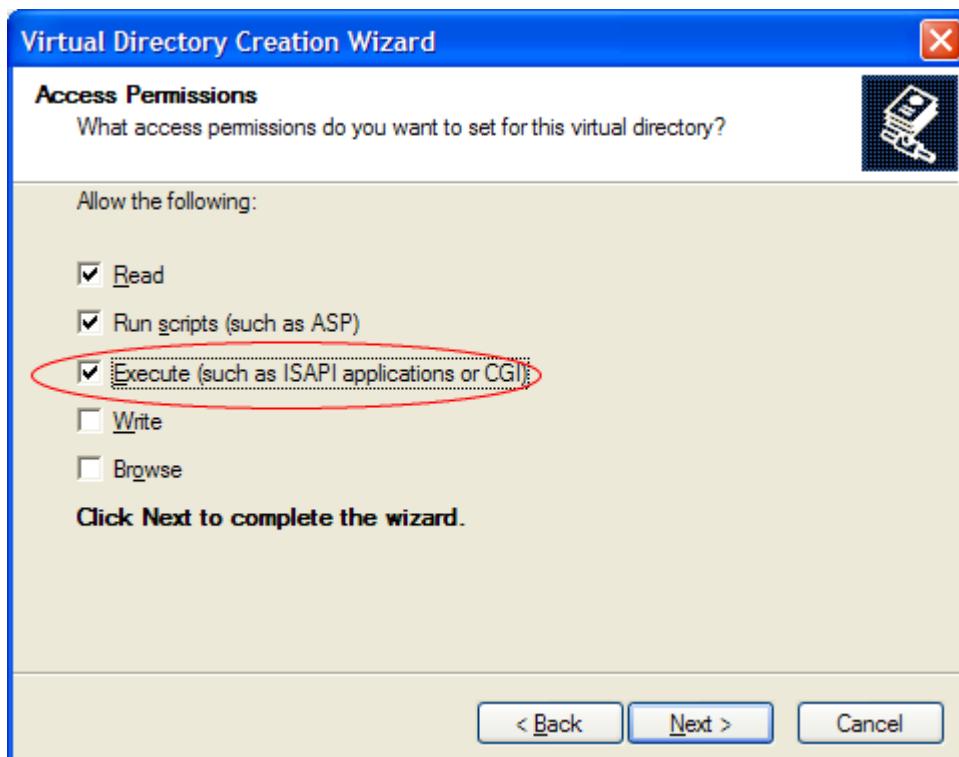
Select an alias for new virtual Directory.



Now assign a folder to newly created alias.



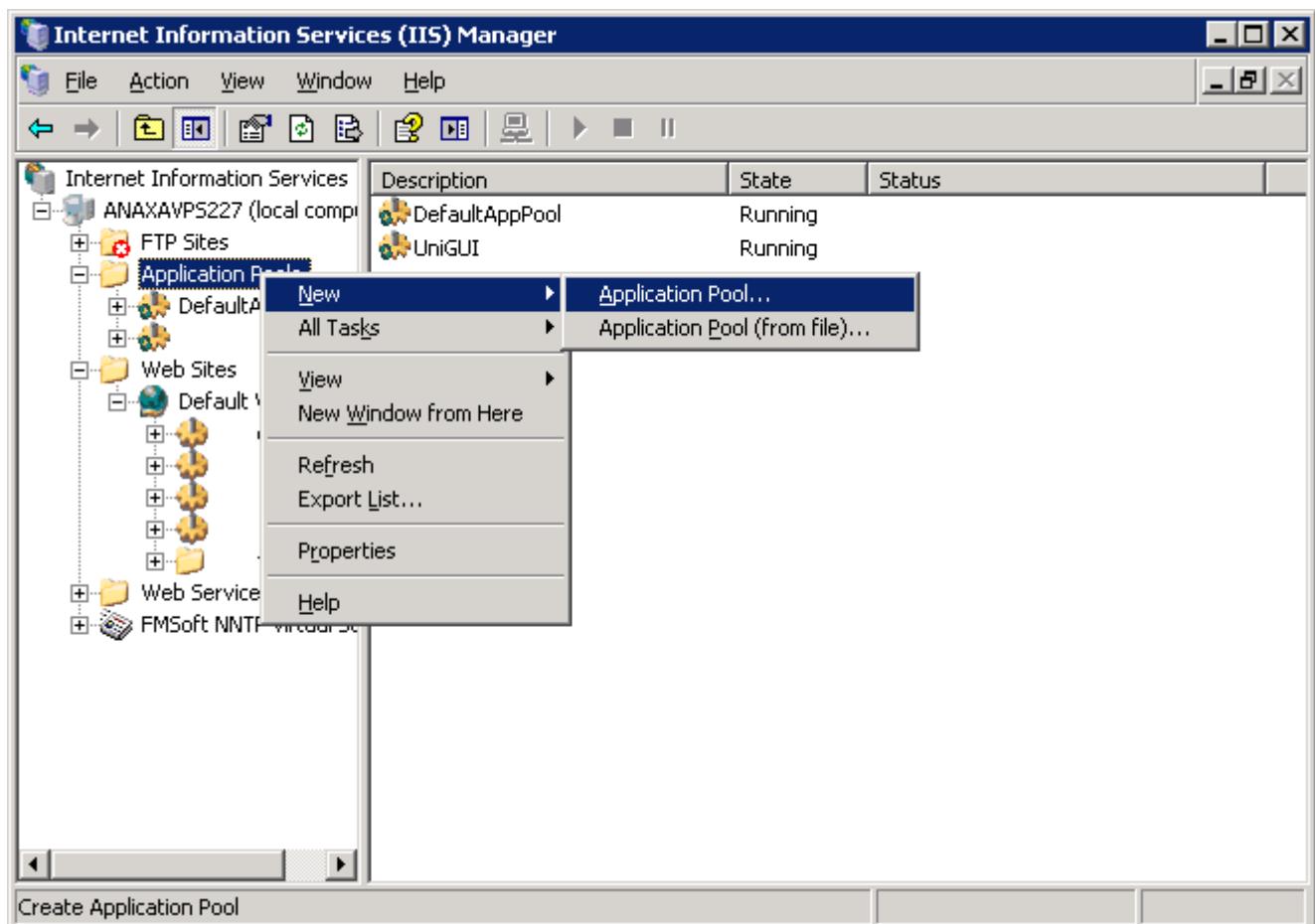
In next step give necessary permissions. **Execute** permission is required.



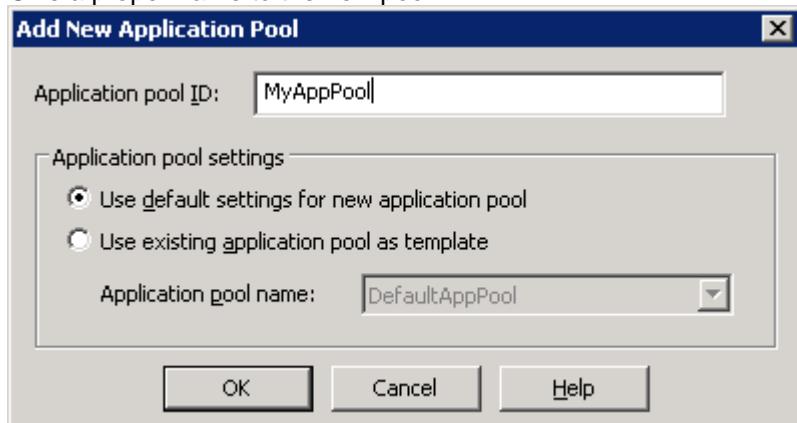
After creating a new virtual directory you are ready to deploy your uniGUI server. Copy your ISAPI module and other required files to virtual directory. You must be certain that **IIS** built-in user **IUSR_<ComputerName>** has enough credentials to access your virtual directory and other folders that may be accessed during web application execution. Your web application can be loaded by browsing to this URL: *http://localhost/<virtualdirectory>/<modulename>.dll* Also refer to [Adjusting Paths](#) for more information.

IIS 6

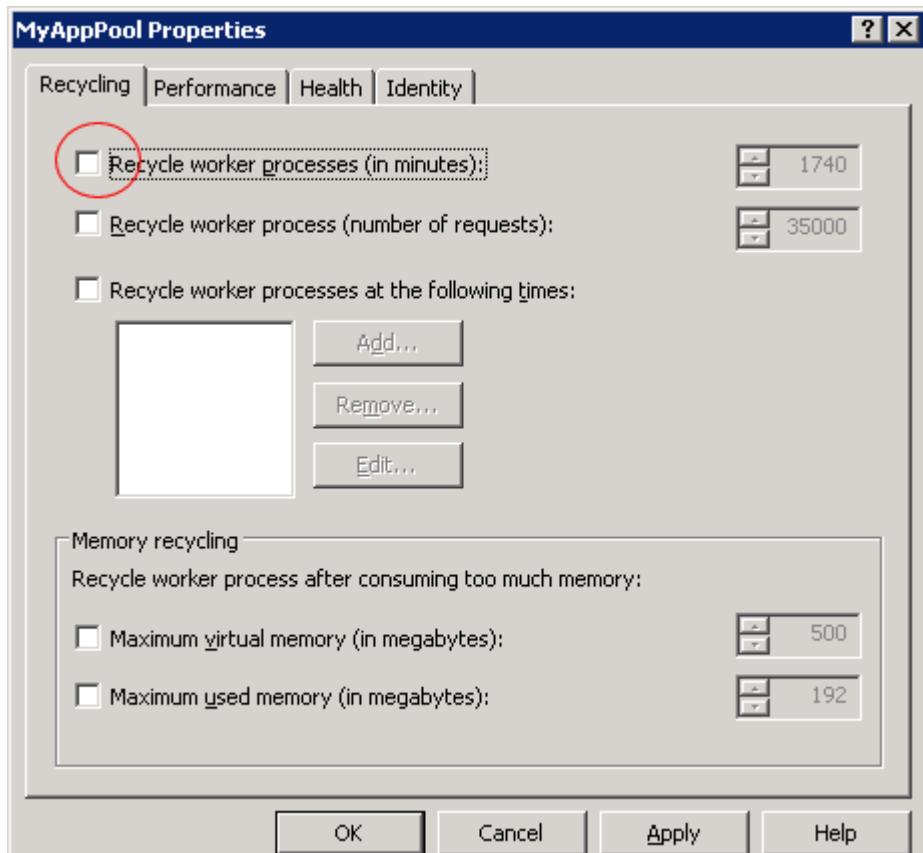
In IIS 6 first step is to create a compatible application pool.



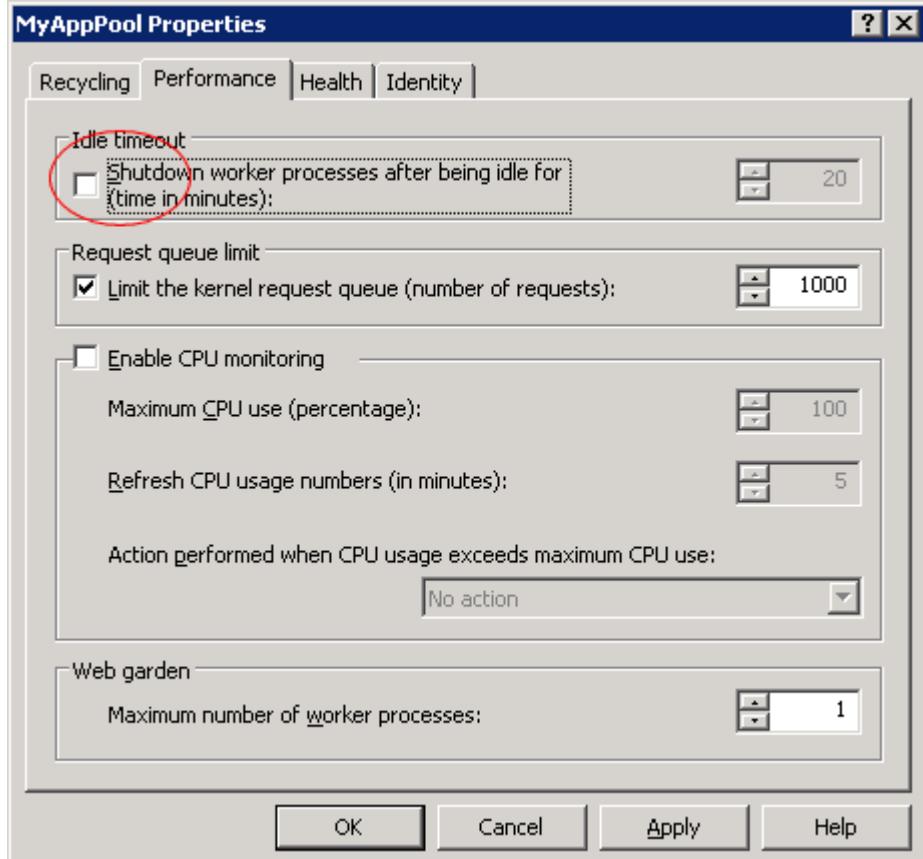
Give a proper name to the new pool.



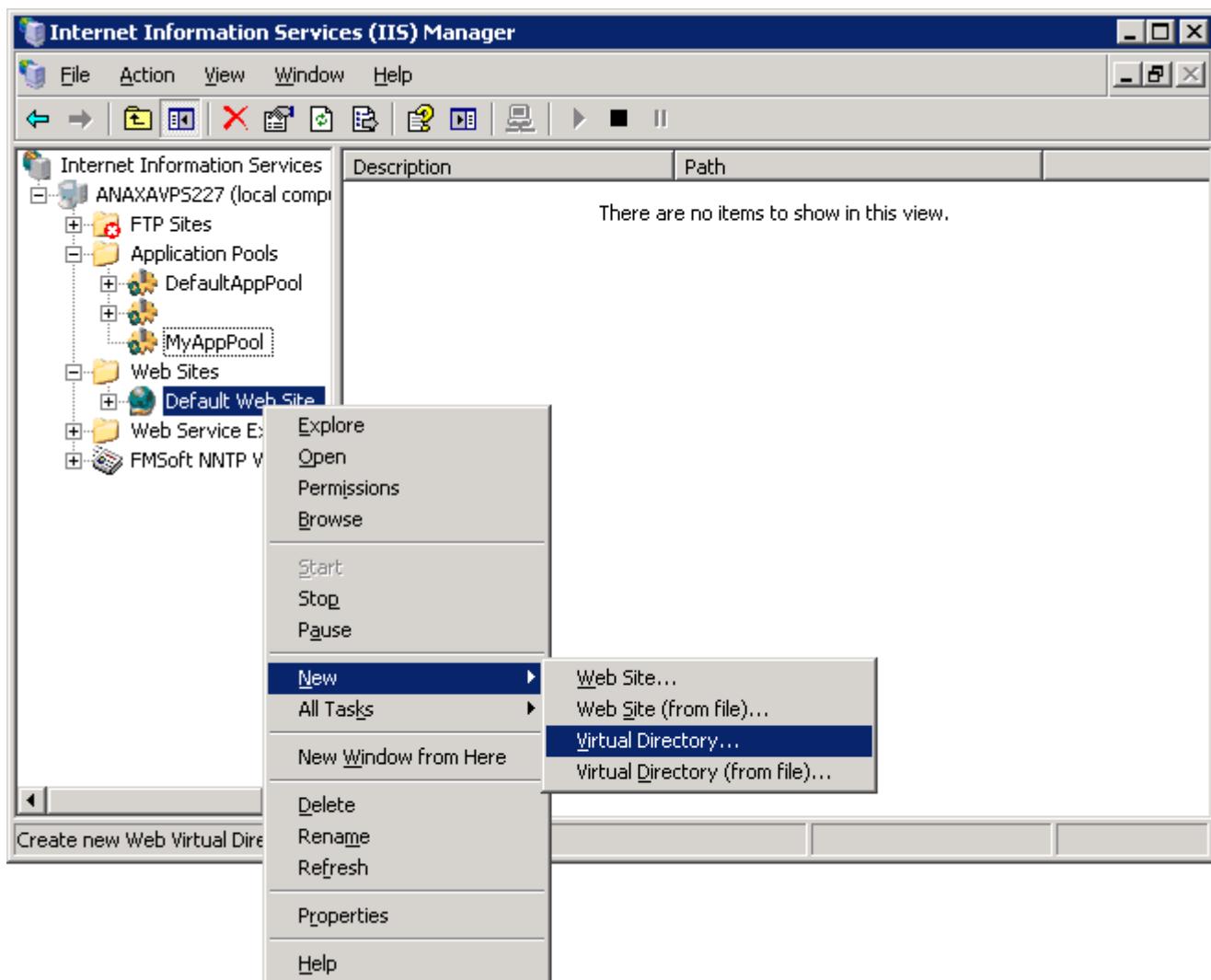
In Application Pool properties, Recycling Tab uncheck the **Recycle worker processes** option.



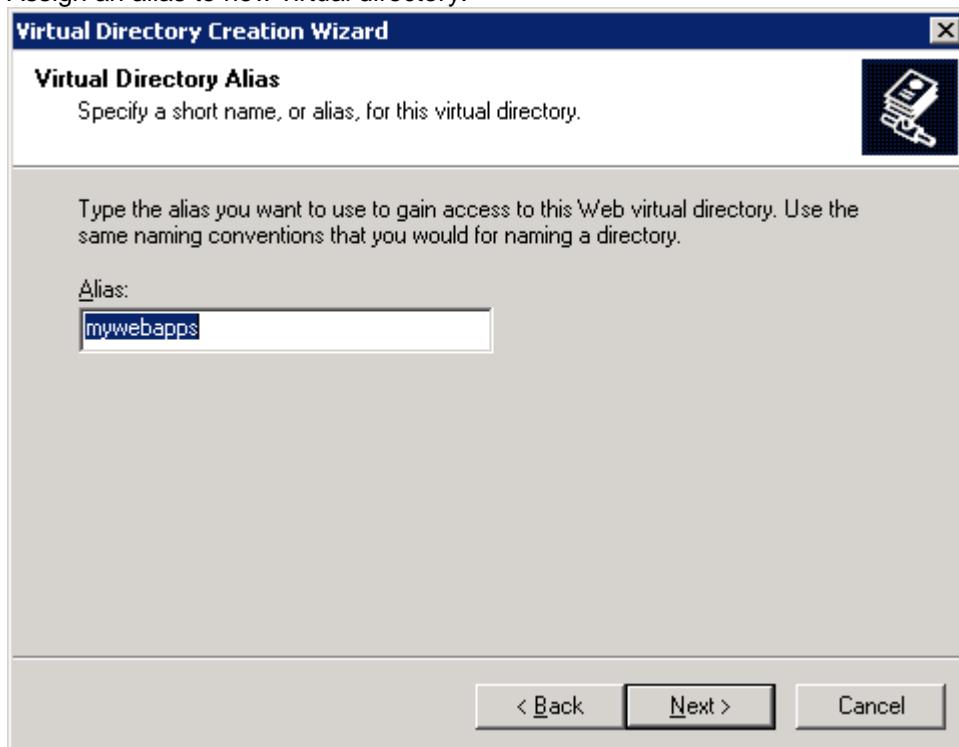
In Performance Tab uncheck the **Shutdown worker processes after being idle...** option.



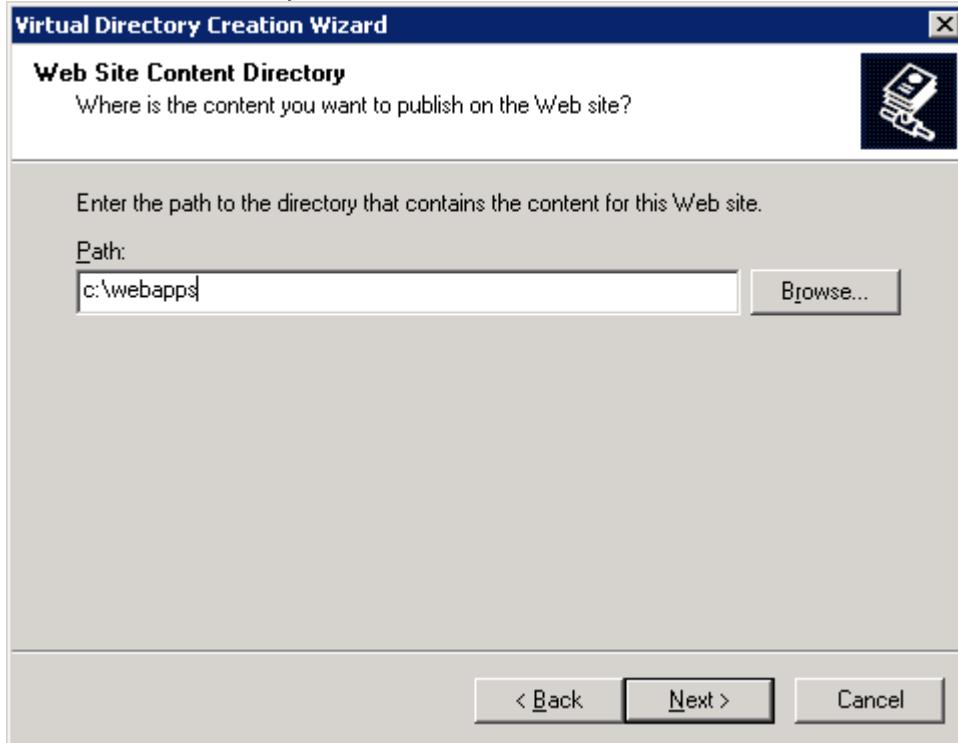
Next step is to create a Virtual Directory.



Assign an alias to new virtual directory.



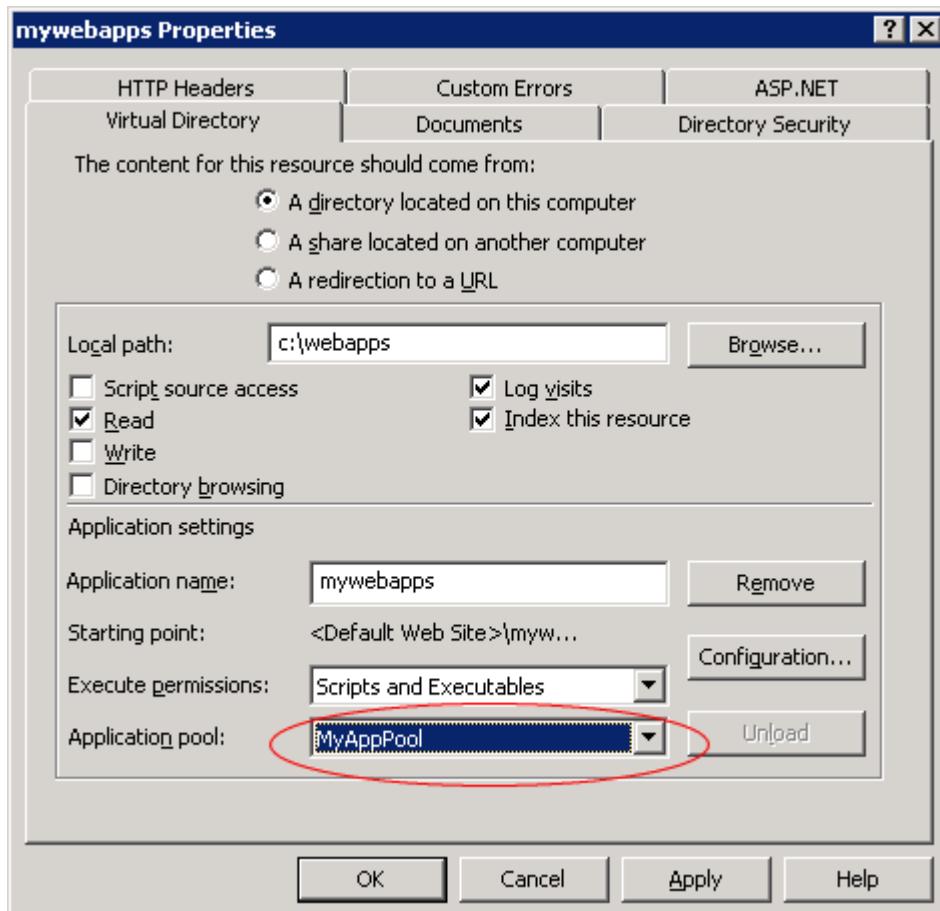
Select the folder where your ISAPI modules are located.



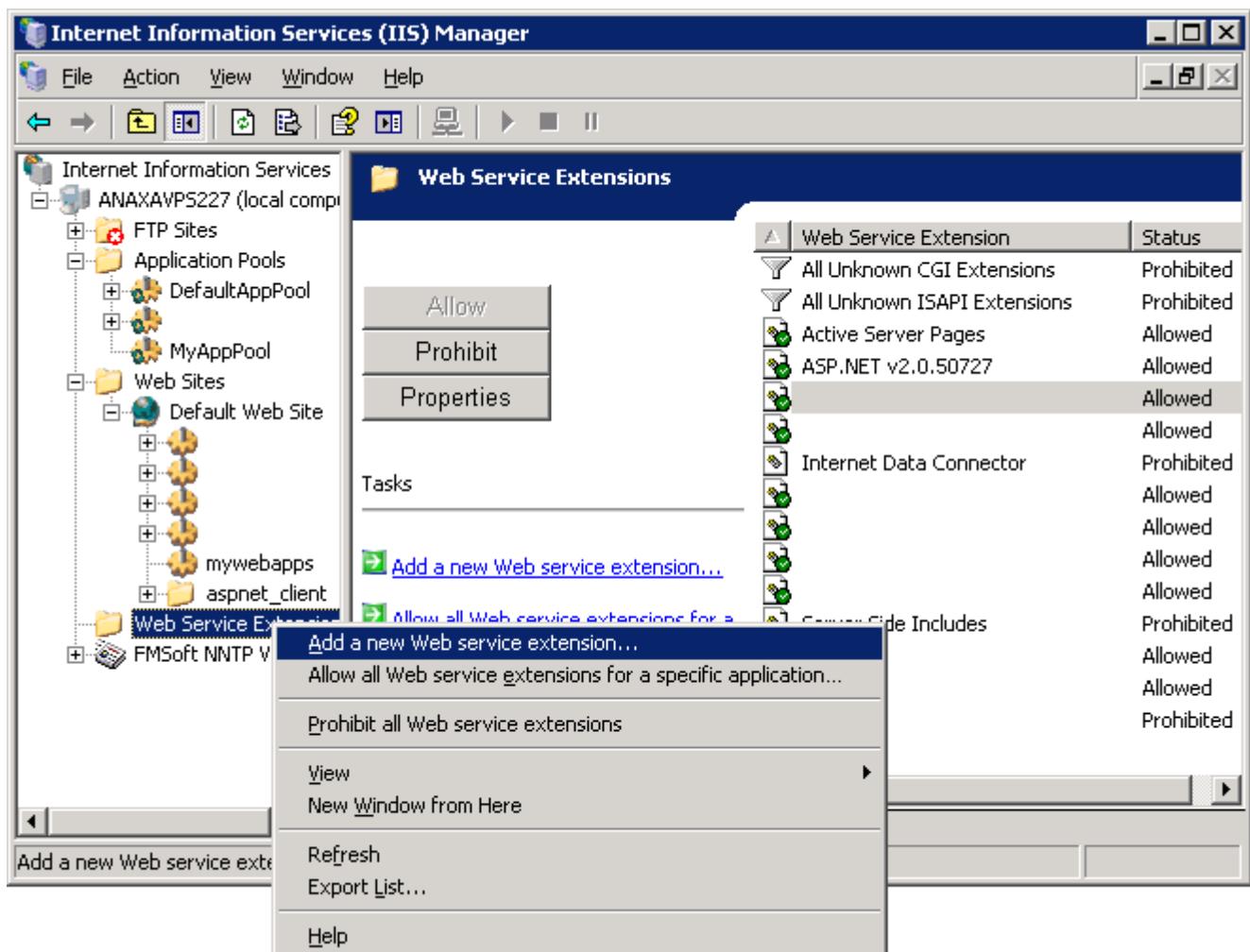
Be sure to grant **Execute** permission to Virtual Directory.



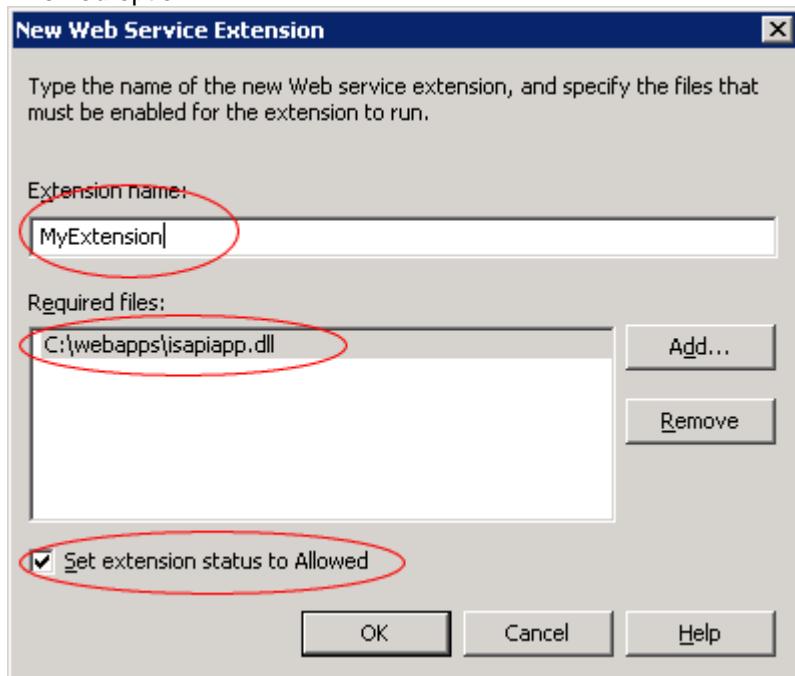
Now open the properties of newly created Virtual Directory and change the default pool to pool you created in first step.



There is one further step in IIS 6. Your ISAPI extension must be added to list of allowed extensions.



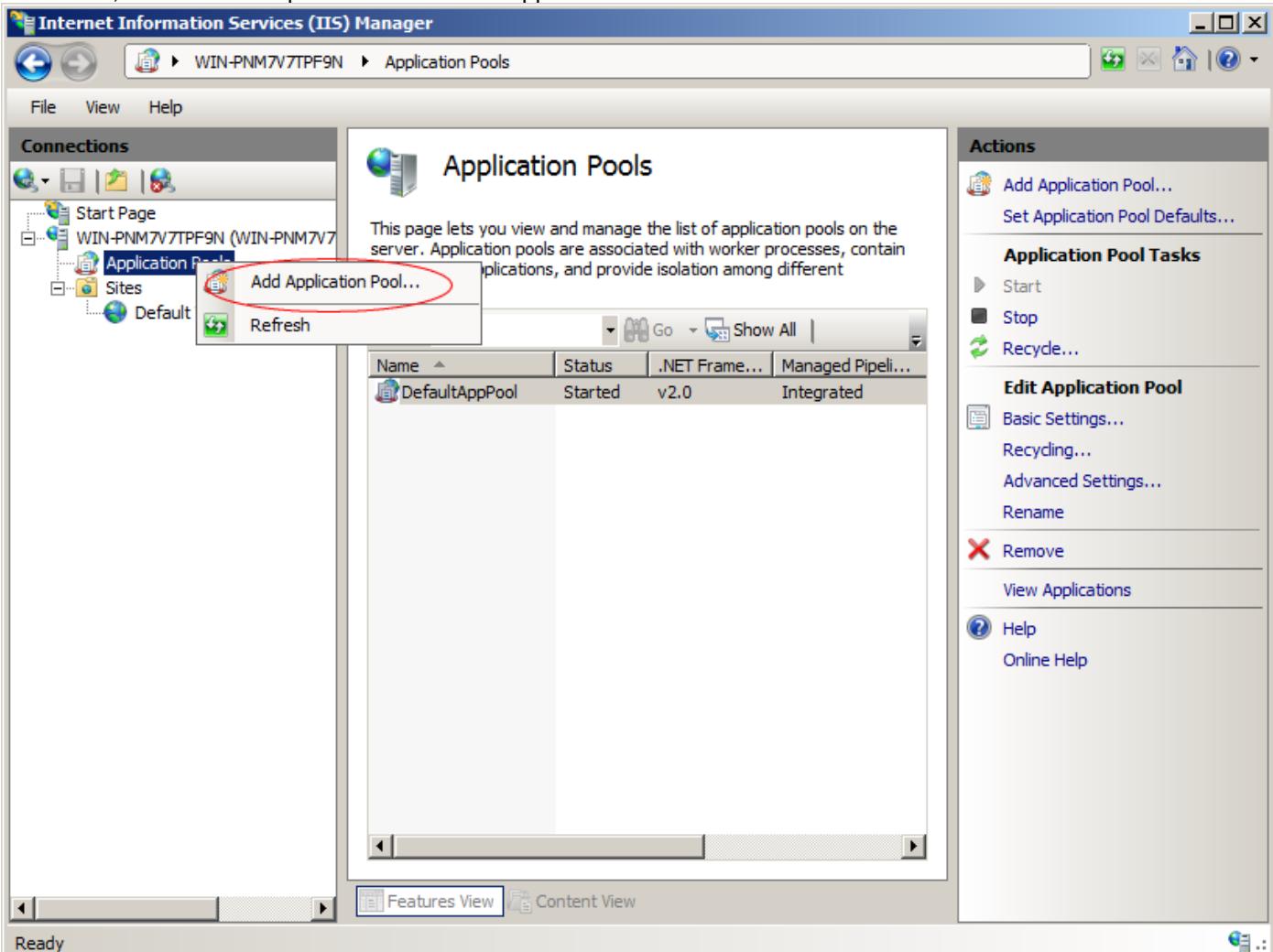
Assign a name to your extension, add the extension's module DLL file and check the **Set extension status to Allowed** option.



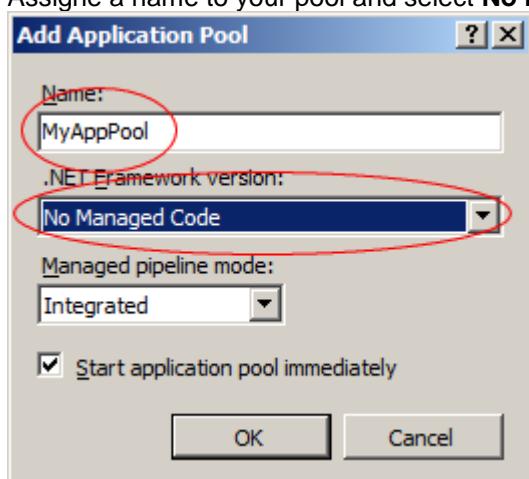
Also refer to [Adjusting Paths](#) for more information.

IIS 7

Like IIS 6, in IIS 7 first step is to create a new Application Pool.



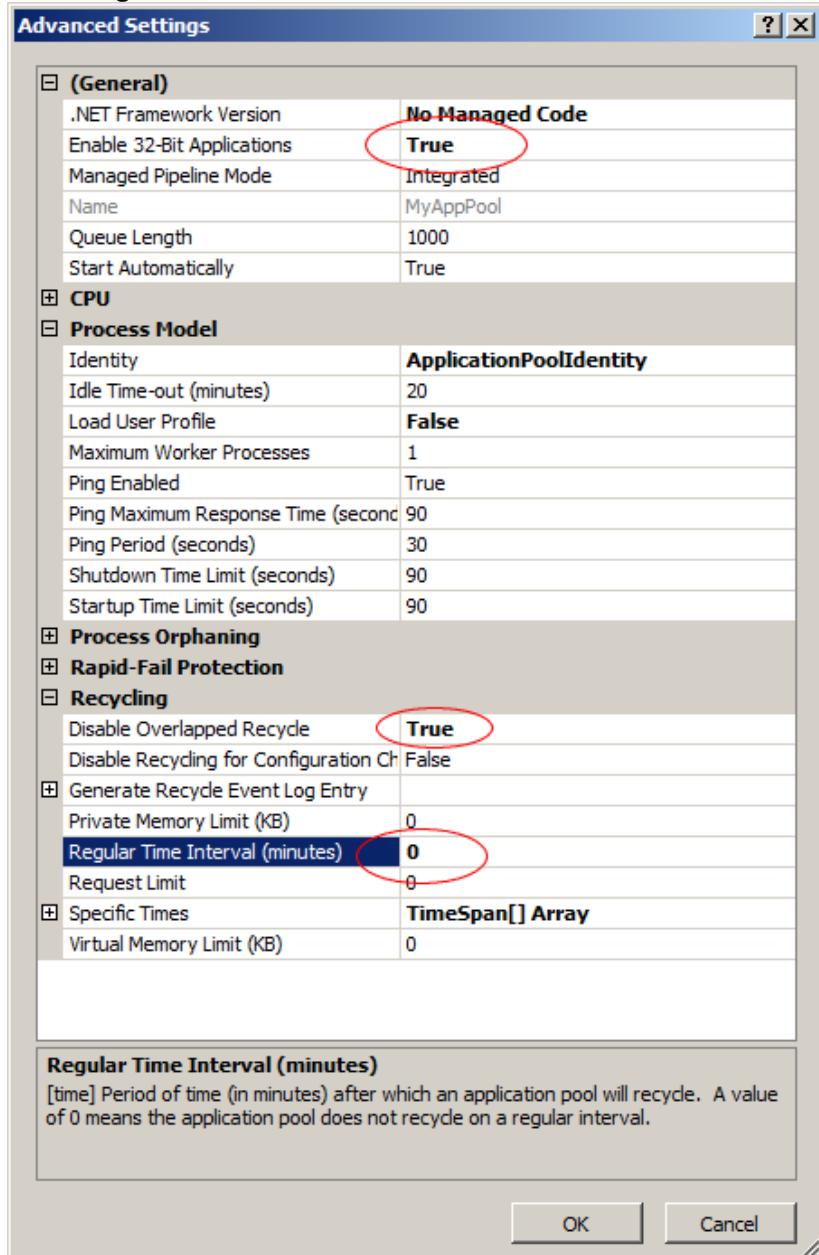
Assign a name to your pool and select **No Managed Code** option.



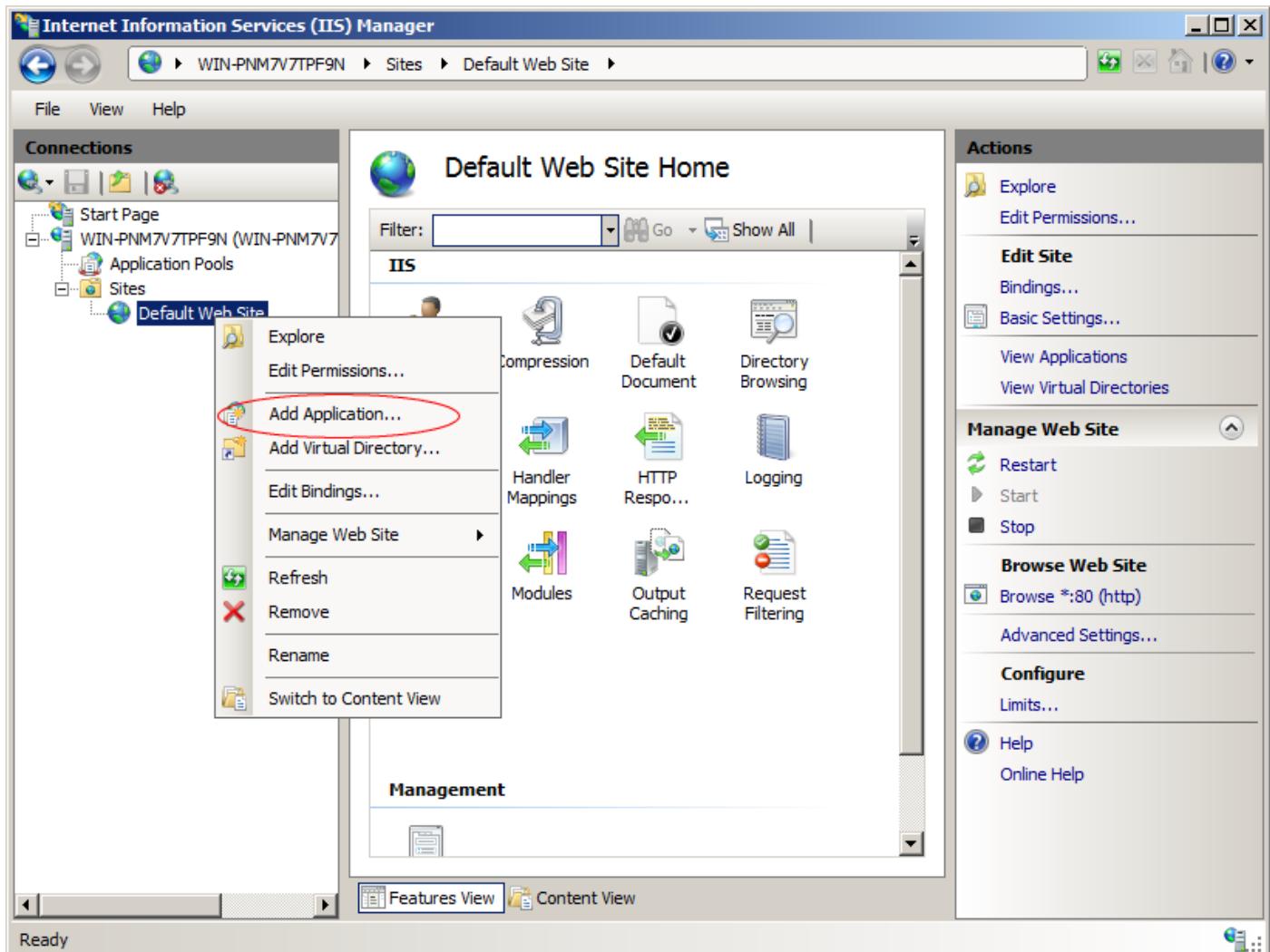
After creating the Pool open Pool's Advanced settings dialog and make the following modifications:

- Set **Enabled 32-Bit Applications** to **True**. (This option is available in 64-bit versions of Windows)
- Set **Disable Overlapped Recycle** to **True**.

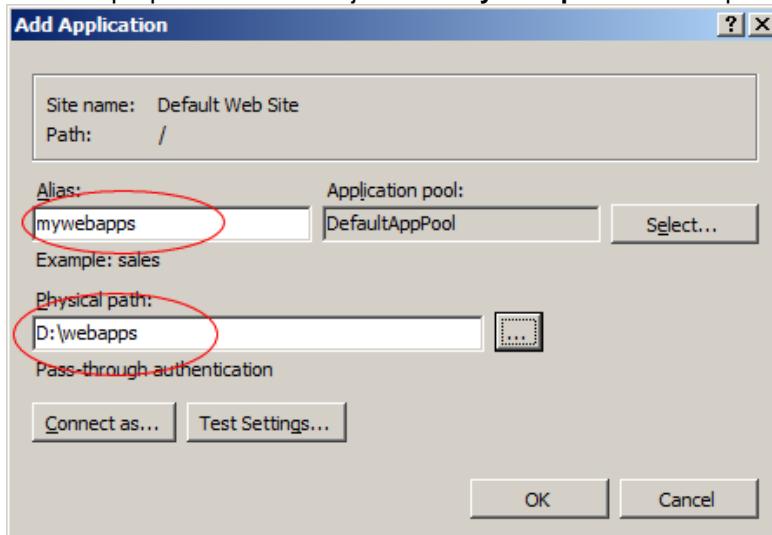
- Set Regular Time Interval to 0



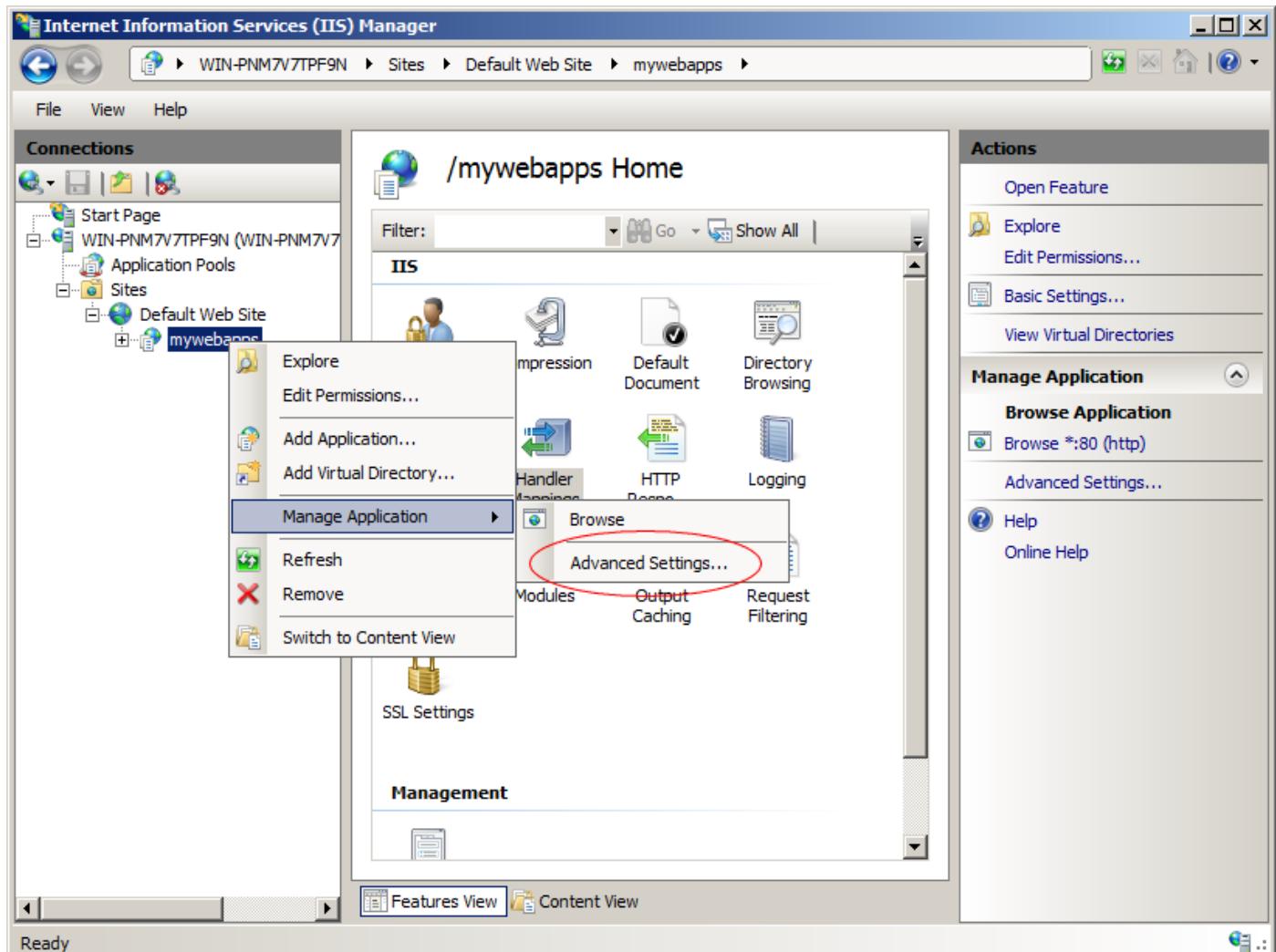
Now add a new Application.



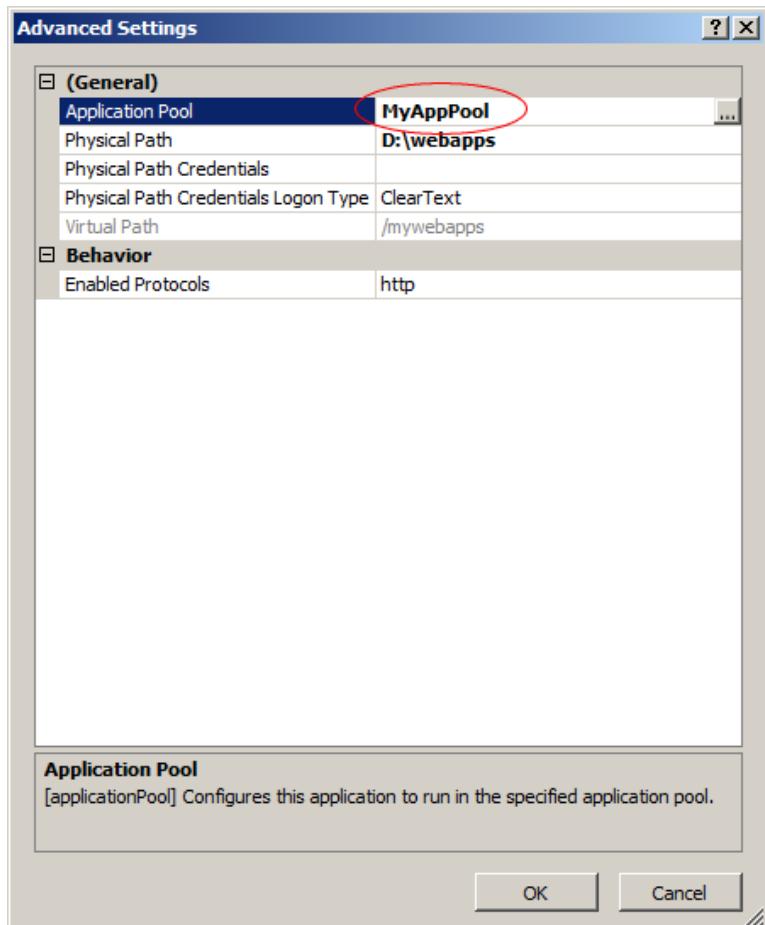
Give it a proper name and adjust the **Physical path**. It is the path where your module DLL files exist.



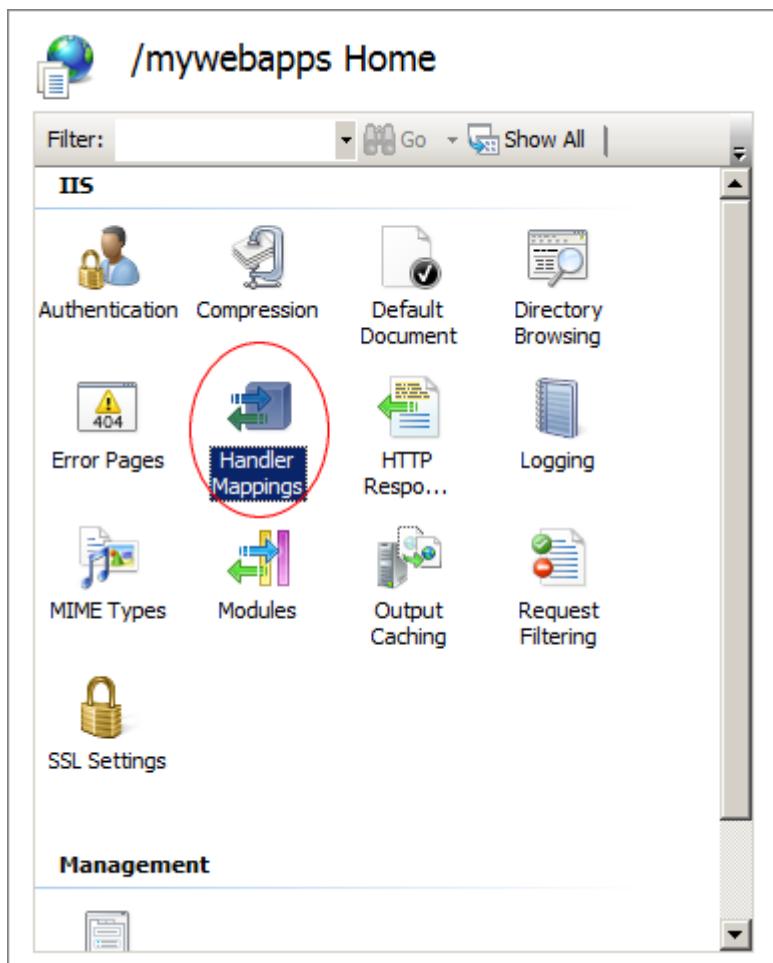
Select Advanced Settings menu and open Advanced Settings dialog.



In Advance Settings screen set the **Application Pool** to one you created in first step.



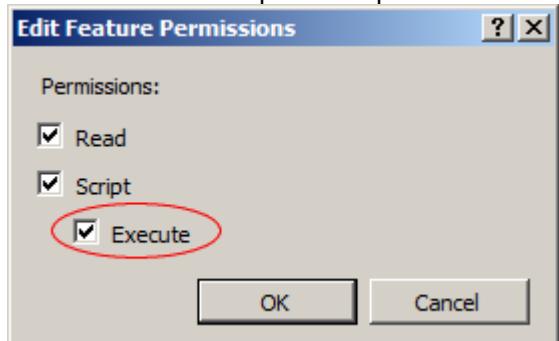
Next step is to adjust the handler mapping for the application you just created.



In Handler Mappings screen right-click on ISAPI-dll and select **Edit Feature Permissions**

| Name | Path | State |
|--------------------|-------|----------|
| Disabled | | |
| ISAPI-dll | *.dll | Disabled |
| Enabled | | |
| OPTIONSVerbHandler | * | Enabled |
| TRACEVerbHandler | * | Enabled |
| StaticFile | * | Enabled |

Check the **Execute** option and press OK.



Also refer to [Adjusting Paths](#) for more information.

Apache 2.2

Apache 2.2 web server for Windows allows running ISAPI modules. For this, a plugin called **mod_isapi** must be enabled.

Apache doesn't have a visual interface for configuration. You must do some modifications to **httpd.conf** file.

First of all, uncomment the following line:

```
LoadModule isapi_module modules/mod_isapi.so
```

Next you must associate **.dll** files with ISAPI module.

Add the following line

```
AddHandler isapi-handler .dll
```

Next step is add your module directory to Apache directory entries.

```
<Directory "C:/webapps">
    Options Indexes FollowSymLinks ExecCGI
    AllowOverride None
```

```
Order allow,deny  
Allow from all  
</Directory>
```

Finally create a new **Alias** for your directory.

```
Alias /mywebapps "C:/webapps"
```

Be sure to restart your Apache server after making the necessary modifications to **httpd.conf** file.

Windows Service

Windows service is created and deployed like other regular Service applications created using Delphi.

To install service simply type following command at command line:

```
MyServiceApp -install
```

You can start service from Windows service manager or type the following command:

```
net start ServiceName
```

When you create a new project default value for service name is: **UniServiceModule**

You can change it from **ServiceModule.pas->UniServiceModule->Name**

To uninstall service:

```
MyServiceApp -uninstall
```

Components and other smallness

Captcha component by Jason Reid

```
{*****  
{  
{      Captcha component for uniGUI  
{  
{      Copyright (C) 2011 Jason Reid  
{  
{*****  
  
unit Captcha;  
  
interface  
  
uses classes, Graphics, uniImage;  
  
type  
  TUniCaptcha = class(TUniImage)  
  private  
    FChallenge: ShortString;  
    procedure Render;  
    procedure Distort(aBitmap: TBitmap);  
  public  
    constructor Create(Owner: TComponent); override;  
    procedure SetChallenge(aChallenge: ShortString);  
  published  
    property Challenge: ShortString read FChallenge write FChallenge;  
  end;  
  
procedure Register;  
  
implementation  
  
constructor TUniCaptcha.Create(Owner: TComponent);  
begin
```

```

inherited;
end;

procedure TUniCaptcha.Distort(aBitmap: TBitmap);
var
  b: TBitmap; x, y: integer;
begin
  b := TBitmap.Create;
  try
    b.Width := aBitmap.Width;
    b.Height := aBitmap.Height;
    for x := 0 to aBitmap.Canvas.ClipRect.Right do
    begin
      for y := 0 to aBitmap.Canvas.ClipRect.Bottom do
      begin
        b.Canvas.Pixels[x, y + Trunc(sin(x / 4) * 4)] := aBitmap.Canvas.Pixels[x, y];
      end;
    end;
    Picture.Assign(B);
  finally
    b.Free;
  end;
end;

procedure TUniCaptcha.SetChallenge(aChallenge: ShortString);
begin
  FChallenge := aChallenge; Render;
end;

procedure TUniCaptcha.render;
var
  b: TBitmap;
  i: Integer;
begin
  b := TBitmap.Create;
  try
    with b do
    begin
      b.Width := Self.Width;
      b.Height := Self.Height;
      for i := 0 to 30 do
      begin
        Randomize;
        Canvas.Pen.Width := Random(5) + 5;
        Canvas.Pen.Color := Random(64738) + 64738;
        Canvas.Brush.Style := bsFDiagonal;
        Canvas.Ellipse(Random(width), Random(Height), Random(width), Random(Height));
      end;
      Canvas.Font.Color := clBlue;
      Canvas.Font.Size := 18;
      Canvas.TextOut(10, Trunc(Self.Height / 2), FChallenge);
      Canvas.Font.Color := clRed; Canvas.TextOut(8, Trunc(Self.height / 2) -
2, FChallenge);
    end;
    Distort(B);
  finally
    b.Free;
  end;
end;

procedure Register;

```

```

begin
  RegisterComponents ('UniCustom', [TUniCaptcha]);
end;

end.

```

Render a Boolean field in Grid with CheckBox by GM3H

I know that one day, Farshad will add any available field editor/viewer to the grid.
 But, for the moment it is not available.
 What I do is simple, setting the 'renderer' properties of the field.
 Here's what I do to make any Boolean field to be showed/rendered as CheckBox in the grid.

1. Set the Column Tag to 1, this is to mark that this column will be 'rendered' as CheckBox.
2. In the OnShow event of the form that contain the grid, put this code:

```

procedure TMainForm.UniformShow(Sender: TObject);
var st,xcolheader:string;
  i,j:integer;
begin
xcolheader:='';
j:=UniDBGrid1.Columns.Count;
for i := 0 to j-1 do
begin
  If UniDBGrid1.Columns[i].Tag=1 then
  begin
    xcolheader:=xcolheader+'colModel.columns[i].header==""'+UniDBGrid1.Columns[i].Title.Caption+'||';
    end;
  end;
xcolheader:=copy(xcolheader,1,Length(xcolheader)-2);
st:='OnReconfigure=function OnReconfigure(sender, store, colModel) {'+
  'for(i=1;i<colModel.columns.length;i++) {'+
  'if ('+xcolheader+') {'+
  '  colModel.columns[i].renderer=function(v, p, record){'+
  '    p.css += " x-grid3-check-col-td";'+
  '    return ''<div class="x-grid3-check-col'''+(v == ''1''?'on':'')+
  'on''':''')+'> </div>'+'};}'+
  '}';
UniDBGrid1.ClientEvents.ExtEvents.Add(st);
end;

```

I'm using Firebird, so the boolean value is 0 or 1....
 if you are using other DB, then you can modify the v == "1" above to any value that you need for 'true' condition....