Integrate WebScheduler to Microsoft SharePoint 2007

This white paper describes the techniques and walkthrough about integrating WebScheduler to Microsoft SharePoint 2007 as webpart.

Prerequisites

The following are the required software and development environments before proceeding.

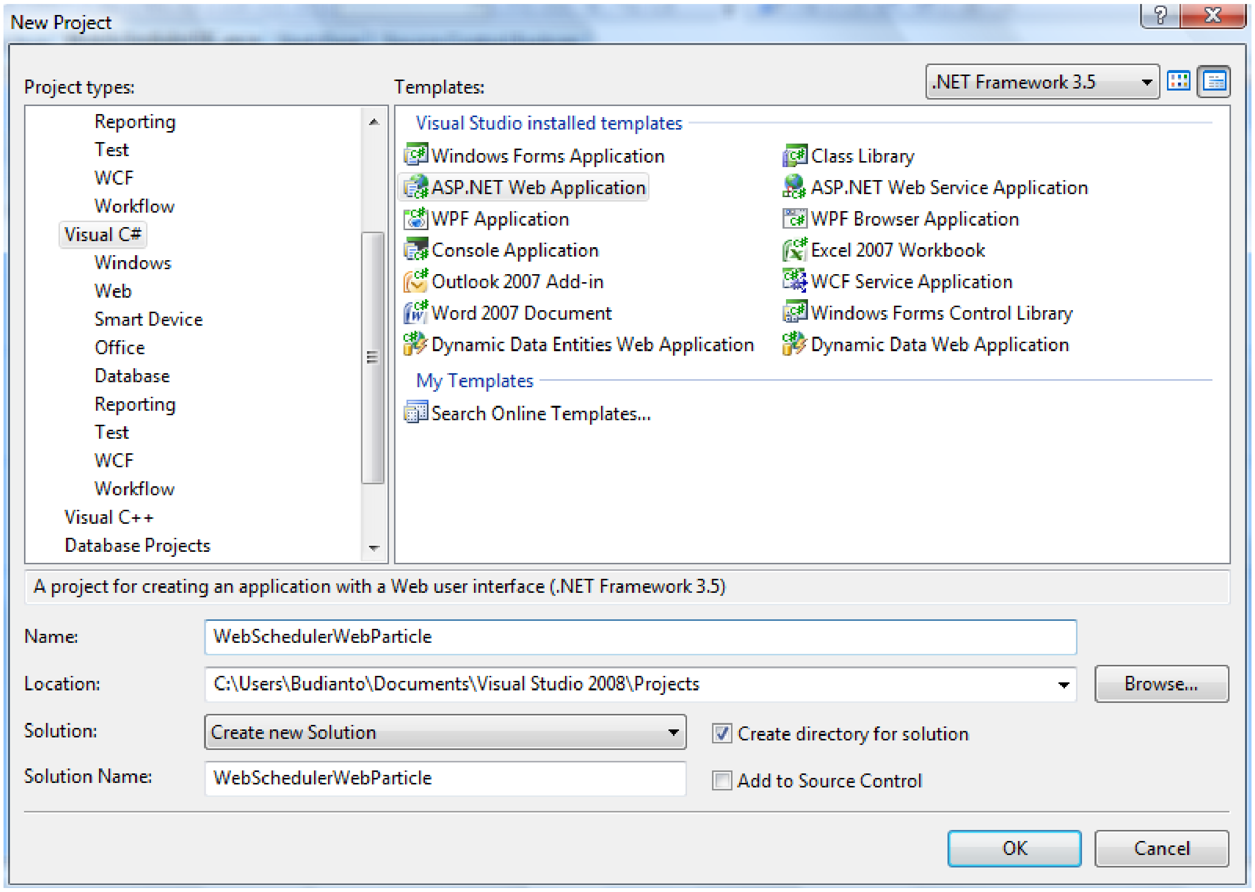
- Windows 2003 Server with IIS installed.
- Microsoft Office SharePoint Server 2007.
- Intersoft WebUI Studio 2009 R2.

SharePoint Server 2007 Virtual PC Image can be downloaded from Microsoft Website at here and here for the 30-day full trial of Intersoft WebUI Studio 2009 R2.

In summary, we are going to create a Visual Studio Web Application project, create a Web User Control (ASCX), a class that can act as the Web Part interface to our ASCX Web User Control and ASP.NET web page for testing and debugging.

Creating ASP.NET Web Application

1. In Visual Studio, choose **ASP.NET Web Application** and give it a name, for example: WebSchedulerWebParticle.



New Project

.NET Framework 3.5

A project for creating an application with a Web user interface (.NET Framework 3.5)

Name: WebSchedulerWebParticle

Location: C:\Users\Budianto\Documents\Visual Studio 2008\Projects

Solution: Create new Solution

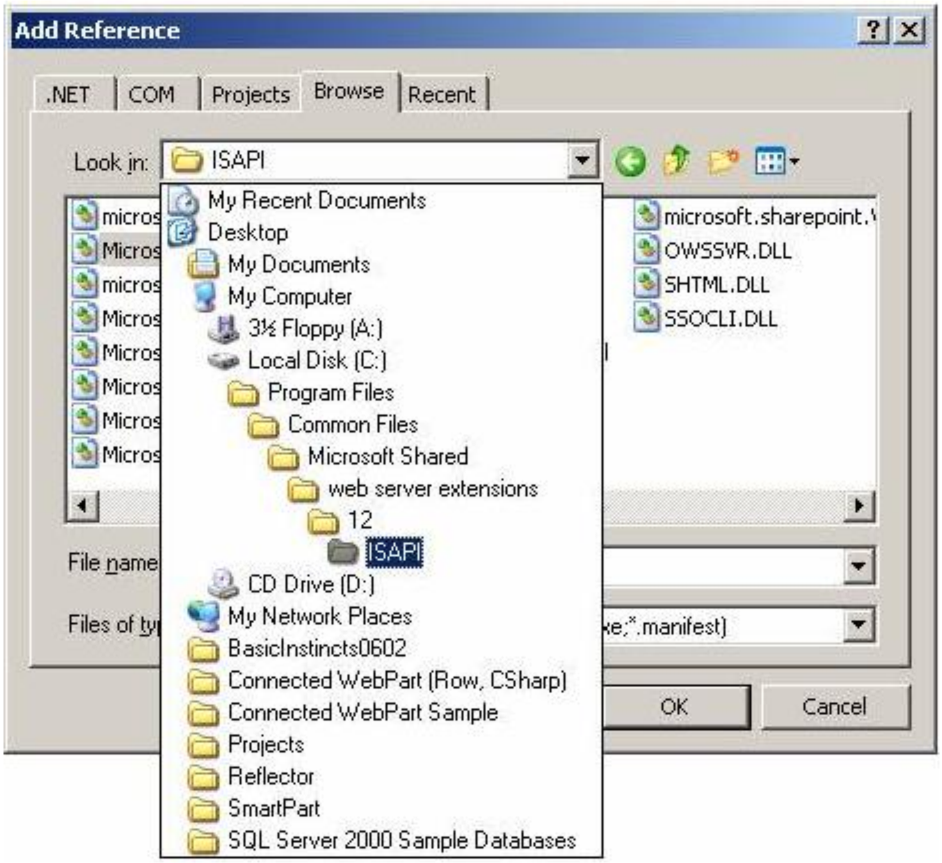
Solution Name: WebSchedulerWebParticle

☑ Create directory for solution

☐ Add to Source Control

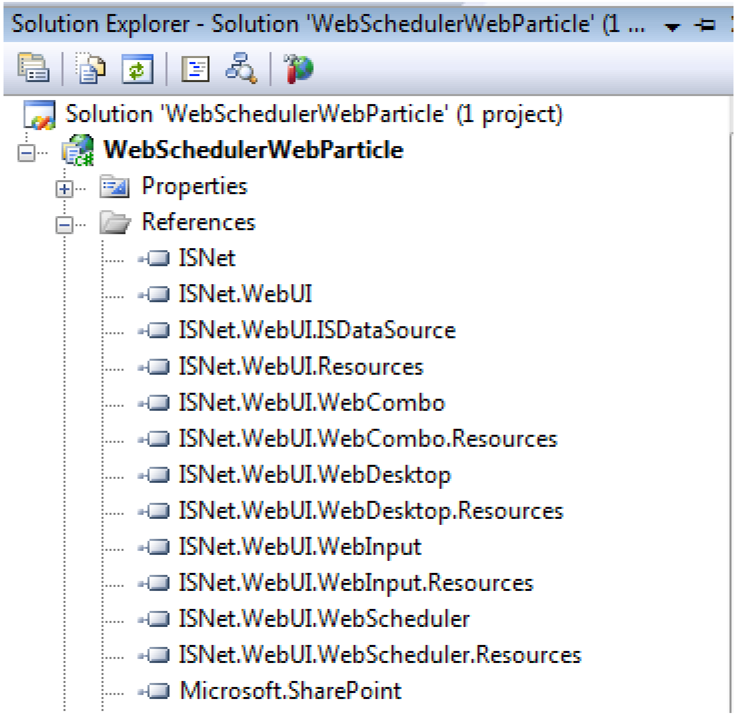
Create a new ASP.NET Web Application

2. Add the SharePoint.dll to as a reference. The file is by default located in %ProgramFiles%\Microsoft Shared\Web Server Extensions\12\ISAPI Directory.



3. Add the follow Intersoft's references:
   - ISNet.dll
   - ISNet.WebUI..dll
   - ISNet.WebUI.ISDataSource.dll
   - ISNet.WebUI.WebCombo.dll
   - ISNet.WebUI.WebCombo.Resources.dll
   - ISNet.WebUI.WebInput.dll
   - ISNet.WebUI.WebInput.Resources.dll
   - ISNet.WebUI.WebDesktop.dll
   - ISNet.WebUI.WebDesktop.Resources.dll
   - ISNet.WebUI.WebScheduler.dll
   - ISNet.WebUI.WebScheduler.Resources.dll

   All files can be found under %ProgramFiles%\Intersoft Solutions\WebUI Studio for ASP.NET*

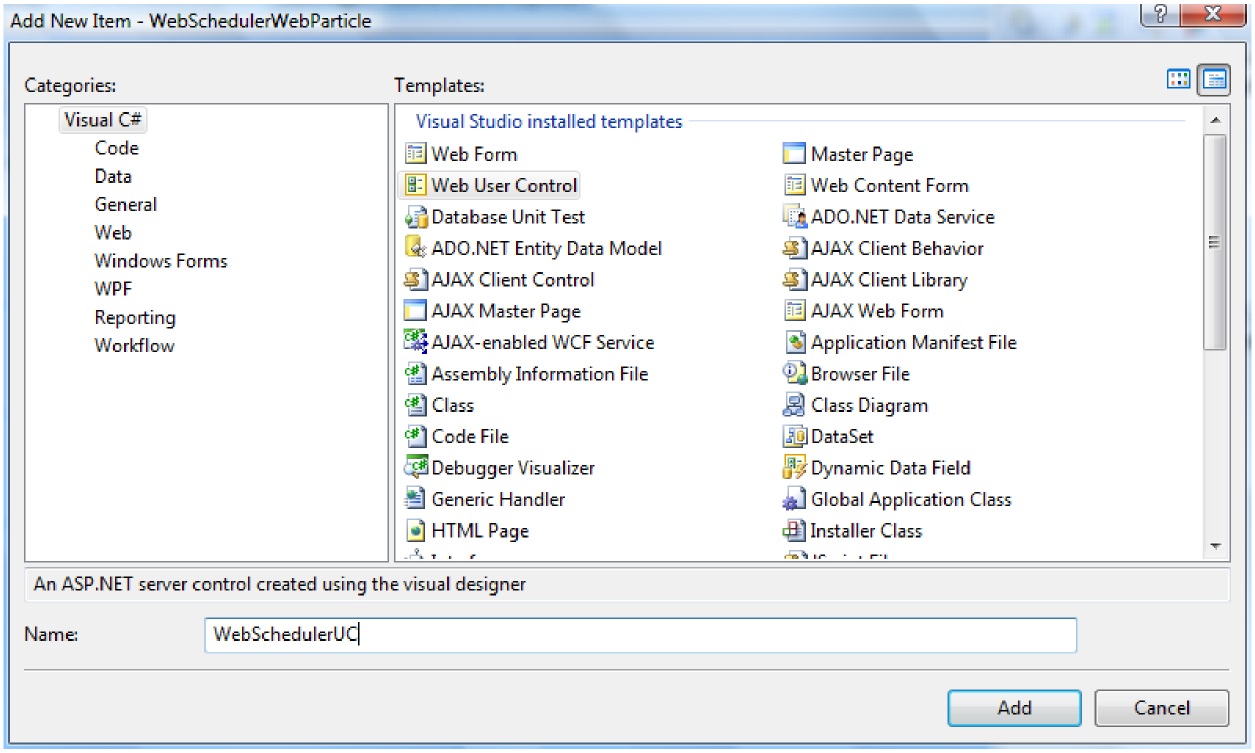


Solution Explorer - Solution 'WebSchedulerWebParticle' (1 ...

```
Solution 'WebSchedulerWebParticle' (1 project)
  WebSchedulerWebParticle
    Properties
    References
      ISNet
      ISNet.WebUI
      ISNet.WebUI.ISDataSource
      ISNet.WebUI.Resources
      ISNet.WebUI.WebCombo
      ISNet.WebUI.WebCombo.Resources
      ISNet.WebUI.WebDesktop
      ISNet.WebUI.WebDesktop.Resources
      ISNet.WebUI.WebInput
      ISNet.WebUI.WebInput.Resources
      ISNet.WebUI.WebScheduler
      ISNet.WebUI.WebScheduler.Resources
      Microsoft.SharePoint
```

Create a User Control and bind WebScheduler to Intersoft Datasource (ISDataSource) control

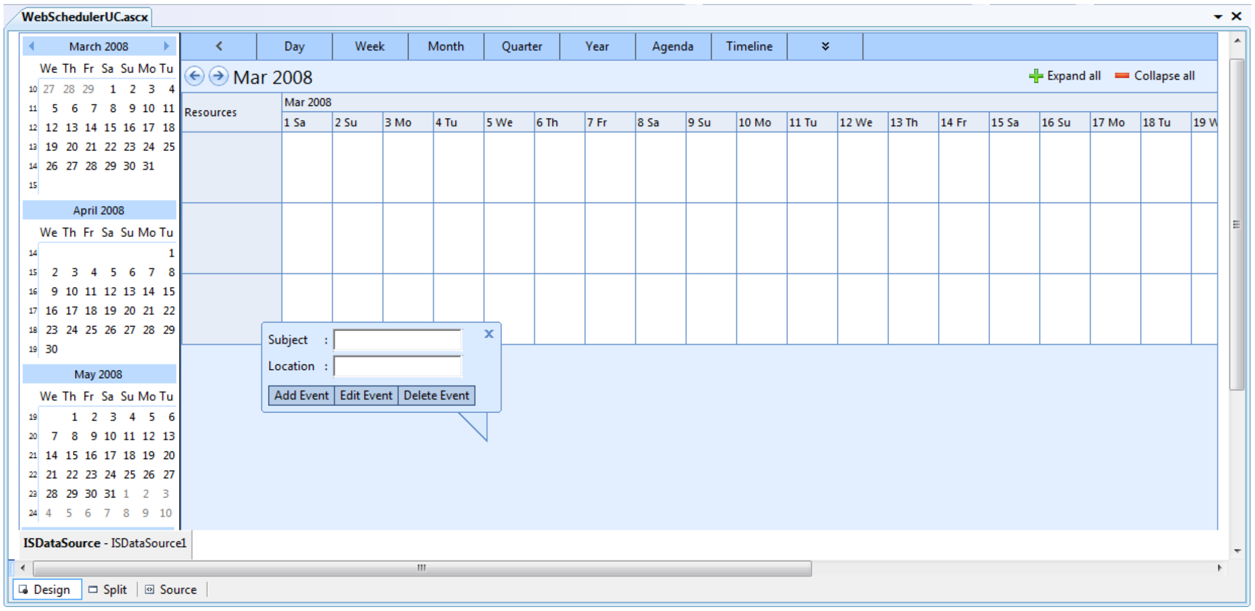
1. Add a Web User Control file to your project and name it WebSchedulerUC.ascx.



An ASP.NET server control created using the visual designer

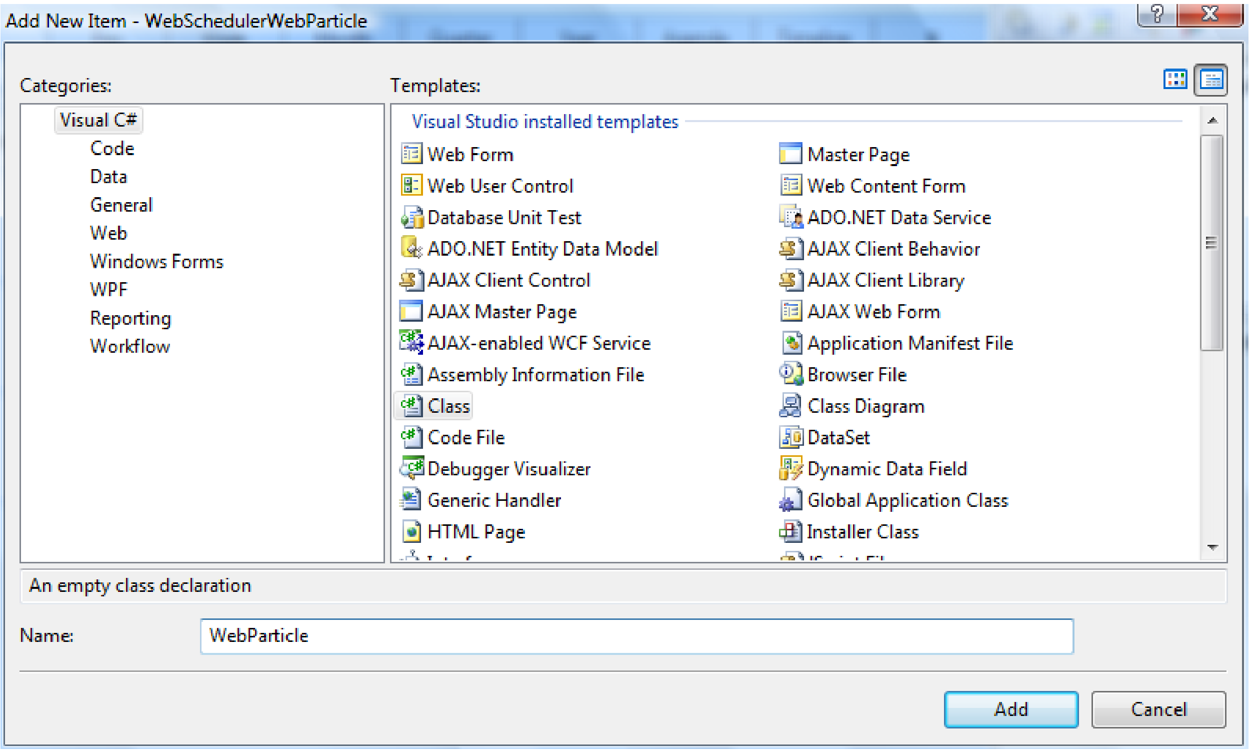
Name: WebSchedulerUC

2. Bind WebScheduler to ISDataSource. A through data binding tutorial can be found in WebScheduler's documentation. (WebScheduler's documentation > Walkthrough Topics > DataBinding).



Create a class file

1. Add a class file to your project give it a name. For example: *WebParticle.cs*. This class acts the Web Part interface to the earlier ASCX WebScheduler User Control.



An empty class declaration

Name: WebParticle

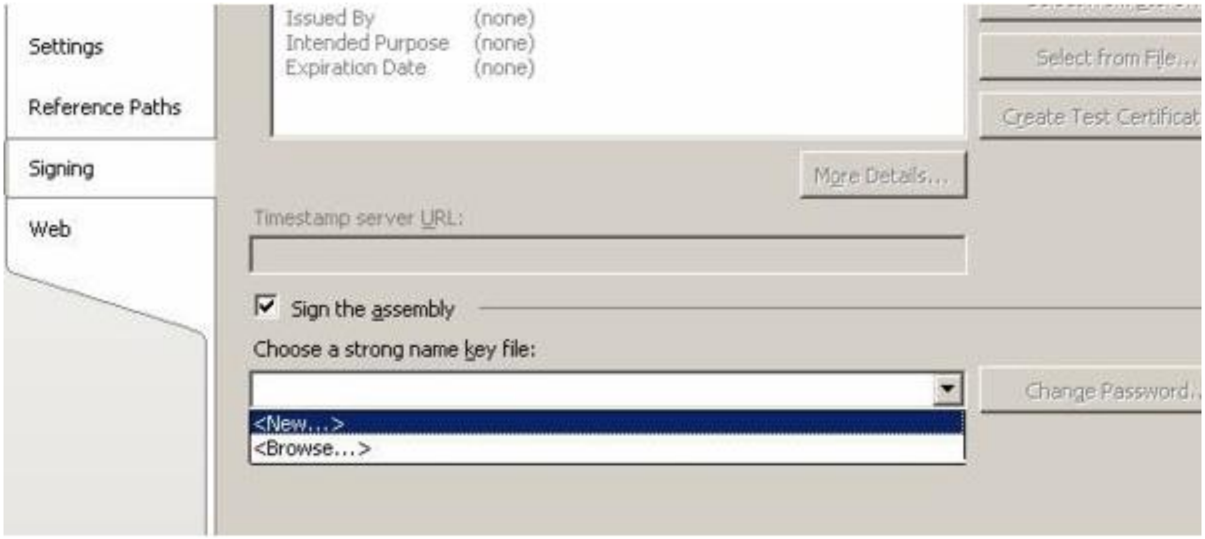
It will be inherited from Microsoft.SharePoint.WebPartPages.WebPart and override the CreateChildControls and RenderContents methods to load and render the ASCX Web Control created earlier.

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Web;
using Microsoft.SharePoint.WebPartPages;
using System.Web.UI;

namespace WebSchedulerWebParticle
{
    public class WebParticle : Microsoft.SharePoint.WebPartPages.WebPart
    {
        private Control _control;
        private string _exceptions = "";
        protected string UserControlPath = @"~/usercontrols/";
        protected string UserControlFileName = @"WebSchedulerUC.ascx";

        protected override void CreateChildControls()
        {
            try
            {
                // load the control ... this could require GAC installation
                // of your DLL to avoid File.IO permissions denial exceptions

                _control = this.Page.LoadControl(UserControlPath + 
UserControlFileName);
                // add it to the controls collection to wire up events

                Controls.Add(_control);
            }
            catch (Exception CreateChildControls_Exception)
            {
                _exceptions += "CreateChildControls_Exception: " + 
CreateChildControls_Exception.Message;
            }//end catch

            finally
            {
                base.CreateChildControls();
            }//end try/catch/finally block

        }//end protected override void CreateChildControls()

        protected override void RenderContents(HtmlTextWriter writer)
        {
            // not much to do here except to programmatically and cleanly

            // handle exceptions

            try
            {
                base.RenderContents(writer);
            }
            catch (Exception RenderContents_Exception)
            {
                _exceptions += "RenderContents_Exception: " + 
RenderContents_Exception.Message;
            }
            finally
            {
                if (_exceptions.Length > 0)
                {
                    writer.WriteLine(_exceptions);
                }
            }//end try/catch/finally

        }//end protected override void RenderContents(HtmlTextWriter writer)
    }
}
```

Signing and Building the Project

Next step is to assign a strong name key and sign the control. This step ensures the WebPart and Web User Control live in Microsoft Office SharePoint Server and Global Assembly cache.

1. Simply right-click on the project in Solution Explorer and select Properties. Check the "Sign the assembly" box and select <New...> from the "Choose a strong name key file" drop down list.



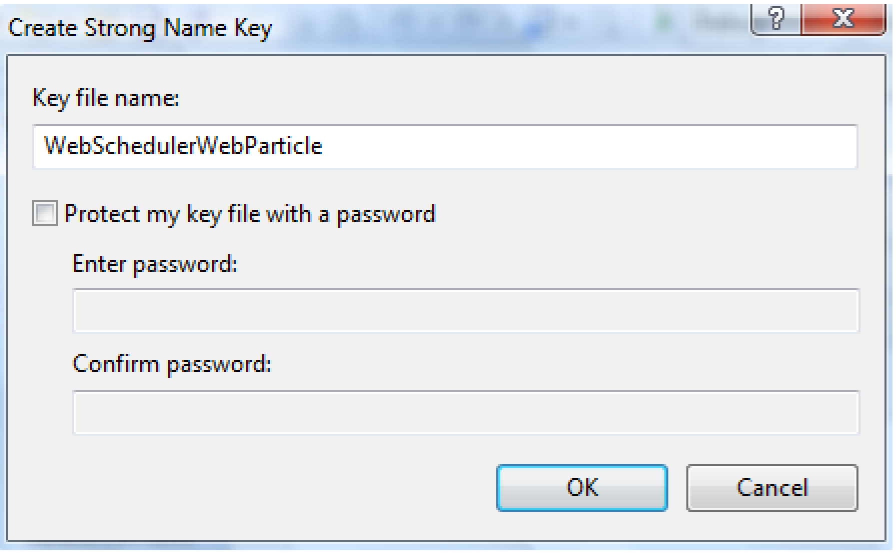
Issued By (none)
Intended Purpose (none)
Expiration Date (none)

☑ Sign the assembly

Choose a strong name key file:

<New...>
<Browse...>

2. Enter a name (for example: *WebSchedulerWebParticle.snk*) in the "Key file name" field. Uncheck the box marked "Protect my key file with a password" and click “OK”.



Key file name:

WebSchedulerWebParticle

□ Protect my key file with a password

Enter password:

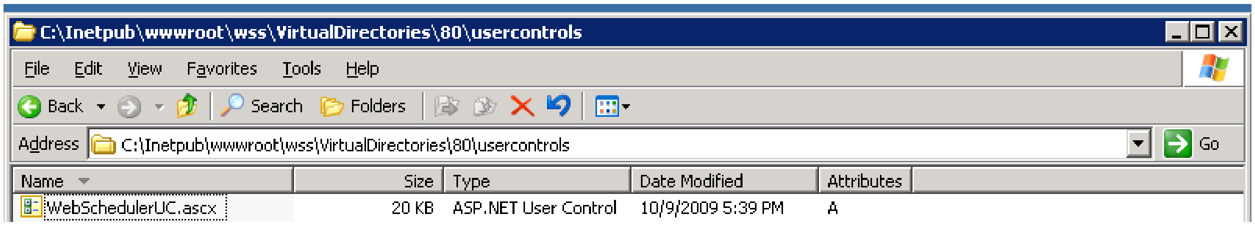
Confirm password:

3. The WebSchedulerWebParticle.snk strong name key file is added to your project. Now, build your project.

Deploying your custom WebPart and Web User Control

Since we are using the WebParticle approach, we need to deploy both the ASCX file and the WebPart compiled in a .dll. Here are the steps.

1. Build Project and Copy User Control ASCX to SharePoint folder
   Use the Visual Studio Build menu to build your project. Next, copy WebSchedulerUC.ascx Web User Control to /UserControls/ directory.

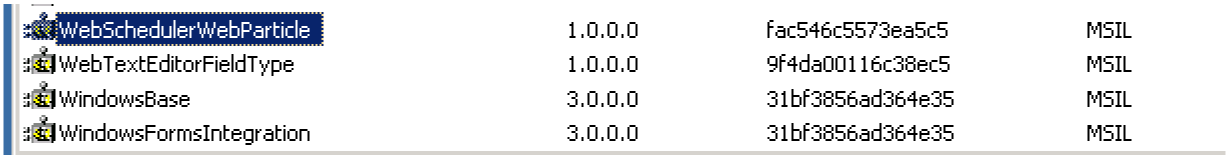


C:\Inetpub\wwwroot\wss\VirtualDirectories\80\usercontrols

Address C:\Inetpub\wwwroot\wss\VirtualDirectories\80\usercontrols

Name	Size	Type	Date Modified	Attributes
WebSchedulerUC.ascx	20 KB	ASP.NET User Control	10/9/2009 5:39 PM	A

2. Copy App_Code, App_Data to SharePoint folder
   Since WebScheduler user control is bound to data through ISDataSource. It's important for you to copy the data sets and database along. By default, all are located in App_Code and App_Data folder.
3. Drag and drop WebSchedulerWebParticle.dll into GAC
   The Global Assembly Cache (GAC) is a special folder located at %WINDIR%\Assembly. Remember to drag-drop the assembly, not copy-paste it.
4. Finding the public KeyToken of the WebPart assembly
   Go to your GAC (or %WINDIR%\Assembly) and scroll to your WebPart assembly.



WebSchedulerWebParticle	1.0.0.0	fac546c5573ea5c5	MSIL
WebTextEditorFieldType	1.0.0.0	9f4da00116c38ec5	MSIL
WindowsBase	3.0.0.0	31bf3856ad364e35	MSIL
WindowsFormsIntegration	3.0.0.0	31bf3856ad364e35	MSIL

This information is required when marking the WebPart assembly as a safe control. Open SharePoint's Web.config file. Under the <SafeControls> add a new entry pointing to your Web Part assembly with its PublicKeyToken.

```
<SafeControls>
      …
      …
      <SafeControl Assembly="WebSchedulerWebParticle, Version=1.0.0.0,
Culture=neutral, PublicKeyToken=fac546c5573ea5c5"
Namespace="WebSchedulerWebParticle" TypeName="WebParticle" Safe="True"/>
      <SafeControl Assembly="WebSchedulerWebParticle, Version=1.0.0.0,
Culture=neutral, PublicKeyToken=fac546c5573ea5c5"
Namespace="WebSchedulerWebParticle" TypeName="WebParticleControl"
Safe="True"/>
      <SafeControl Assembly="WebSchedulerWebParticle, Version=1.0.0.0,
Culture=neutral, PublicKeyToken=fac546c5573ea5c5" Namespace="SmartParticles"
TypeName="*" Safe="True"/>
```

```
</SafeControls>
```

5. Add your WebPart assembly to the assemblies section in SharePoint's Web.config file
   This is an important part where you need to provide more information about your custom WebPart to SharePoint as it doesn’t check the SafeControl section until it loads the Assembly using Reflection. The first thing to do is that SharePoint must know the location of your WebPart. You can place your assembly inside the SharePoint folder, but it’s not a good practice in the long run. When you make any changes in the future, you will need to update the assembly in two different places. The best thing to do is to have a centralized location where you can refer to it via Web.config. Here is how you tell SharePoint the location of your WebPart.

```
<assemblies>
   <add assembly="Microsoft.SharePoint, Version=12.0.0.0, Culture=neutral,
PublicKeyToken=71e9bce111e9429c" />
   <add assembly="ISNet.WebUI, Version=3.0.5000.1, Culture=neutral,
PublicKeyToken=b1f2a8511635667a" />
   <add assembly="ISNet, Version=3.0.5000.1, Culture=neutral,
PublicKeyToken=b1f2a8511635667a" />
   <add assembly="WebSchedulerWebParticle, Version=1.0.0.0, Culture=neutral,
PublicKeyToken=fac546c5573ea5c5" />
</assemblies>
```

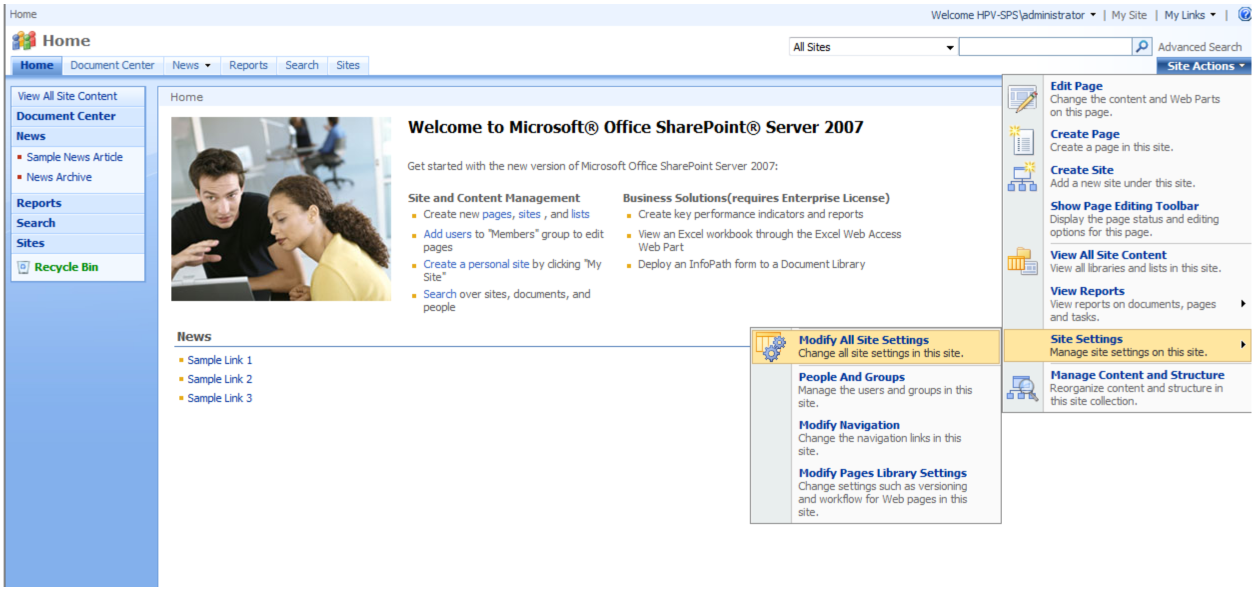
6. Add a connection string for ISDataSource in SharePoint’s Web.config file
   Here is how you add a new connection string for ISDataSource inside SharePoint’s Web.config file.

```
  <connectionStrings>
    <add name="WebSchedulerDataConnectionString"
connectionString="Provider=Microsoft.Jet.OLEDB.4.0;Data
Source=|DataDirectory|\WebSchedulerData.mdb;Persist Security Info=True"
providerName="System.Data.OleDb"/>
  </connectionStrings>
```

7. Compile your project.

Populate your custom WebPart to WebPart's Gallery

1. Go to Site Action >Site Settings > Modify All Settings.


Home
Welcome HPV-SPS\administrator ▾ | My Site | My Links ▾ |
Home
All Sites
Advanced Search
Home
Document Center
News ▾
Reports
Search
Sites
Site Actions ▾
View All Site Content
Document Center
News
Sample News Article
News Archive
Reports
Search
Sites
Recycle Bin
Home
Edit Page
Change the content and Web Parts on this page.
Create Page
Create a page in this site.
Create Site
Add a new site under this site.
Show Page Editing Toolbar
Display the page status and editing options for this page.
View All Site Content
View all libraries and lists in this site.
View Reports
View reports on documents, pages and tasks.
Site Settings
Manage site settings on this site.
Manage Content and Structure
Reorganize content and structure in this site collection.
Modify All Site Settings
Change all site settings in this site.
People And Groups
Manage the users and groups in this site.
Modify Navigation
Change the navigation links in this site.
Modify Pages Library Settings
Change settings such as versioning and workflow for Web pages in this site.
News
Sample Link 1
Sample Link 2
Sample Link 3

Welcome to Microsoft® Office SharePoint® Server 2007

Get started with the new version of Microsoft Office SharePoint Server 2007:

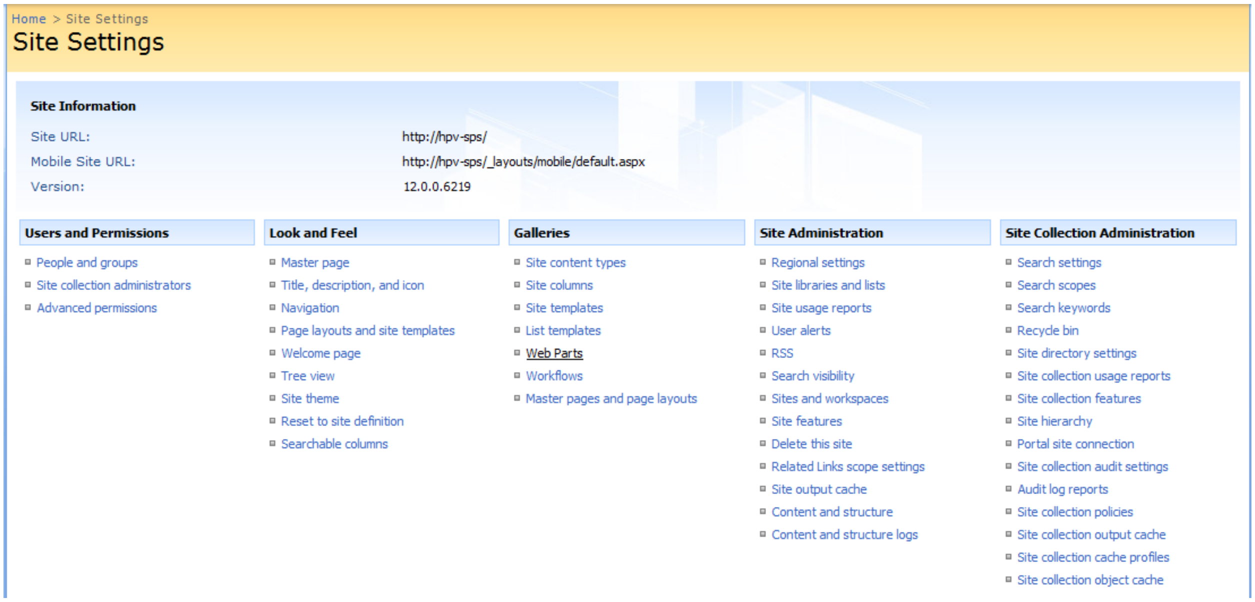
Site and Content Management

- Create new pages, sites , and lists
- Add users to "Members" group to edit pages
- Create a personal site by clicking "My Site"
- Search over sites, documents, and people

Business Solutions(requires Enterprise License)

- Create key performance indicators and reports
- View an Excel workbook through the Excel Web Access Web Part
- Deploy an InfoPath form to a Document Library

2. In Site Settings, go to Gallery column and choose WebPart


Home > Site Settings

Site Settings

Site Information

Site URL:	http://hpv-sps/
Mobile Site URL:	http://hpv-sps/_layouts/mobile/default.aspx
Version:	12.0.0.6219

Users and Permissions

- People and groups
- Site collection administrators
- Advanced permissions

Look and Feel

- Master page
- Title, description, and icon
- Navigation
- Page layouts and site templates
- Welcome page
- Tree view
- Site theme
- Reset to site definition
- Searchable columns

Galleries

- Site content types
- Site columns
- Site templates
- List templates
- Web Parts
- Workflows
- Master pages and page layouts

Site Administration

- Regional settings
- Site libraries and lists
- Site usage reports
- User alerts
- RSS
- Search visibility
- Sites and workspaces
- Site features
- Delete this site
- Related Links scope settings
- Site output cache
- Content and structure
- Content and structure logs

Site Collection Administration

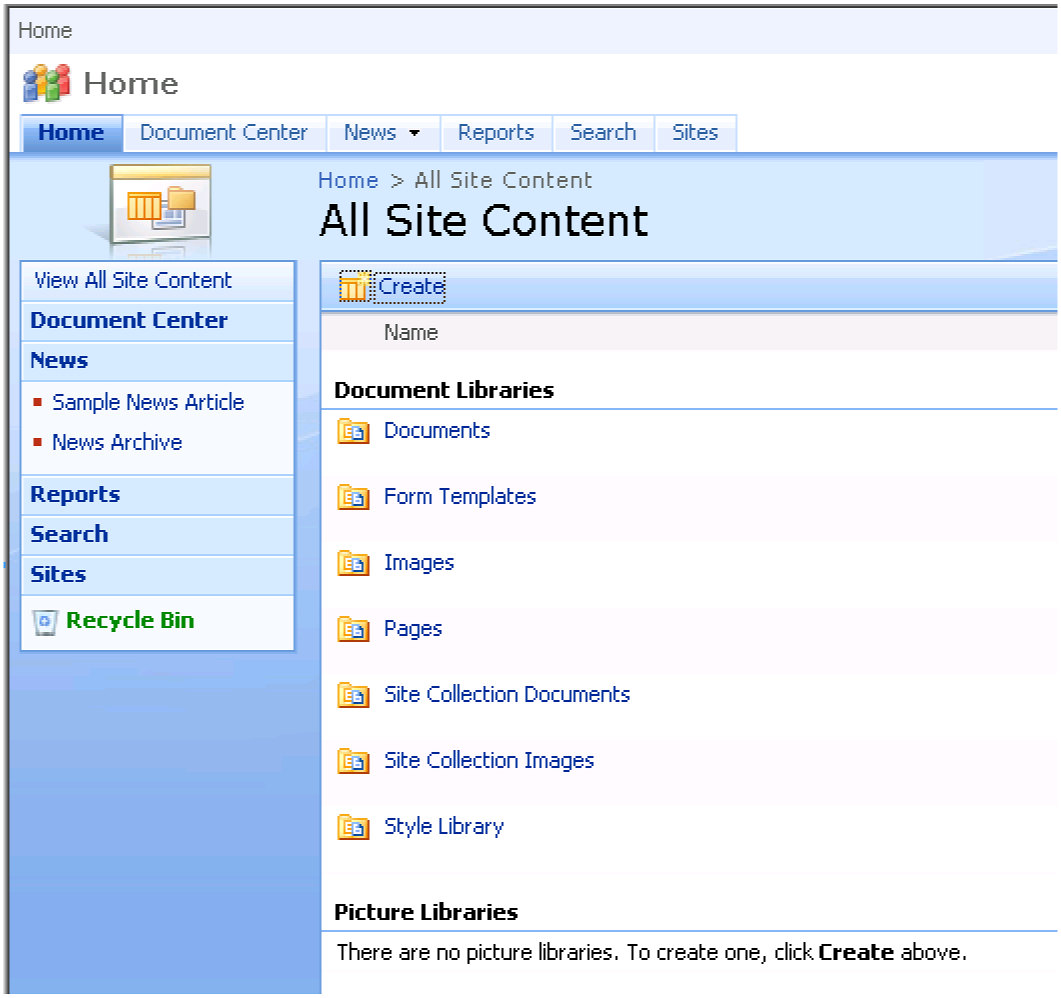
- Search settings
- Search scopes
- Search keywords
- Recycle bin
- Site directory settings
- Site collection usage reports
- Site collection features
- Site hierarchy
- Portal site connection
- Site collection audit settings
- Audit log reports
- Site collection policies
- Site collection output cache
- Site collection cache profiles
- Site collection object cache

3. In Web Part Gallery, Click New > Checked the WebPart name (WebSchedulerWebParticle.WebParticle) > Populate Gallery.

4. Now, we have the WebScheduler User Control WebPart.

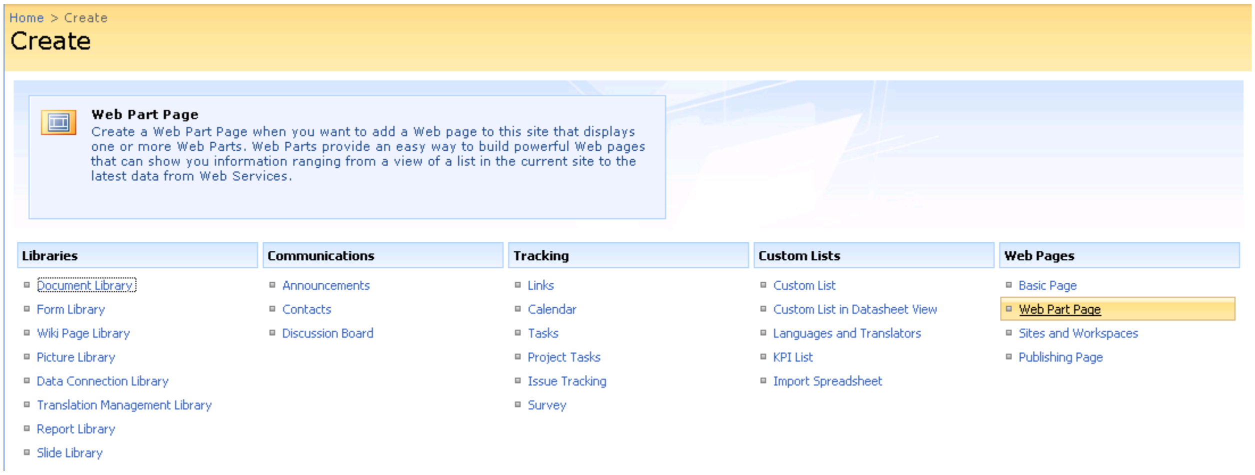
Creating a SharePoint page with WebScheduler User Control WebPart

1. Go to View All Site Content > Create.



There are no picture libraries. To create one, click **Create** above.

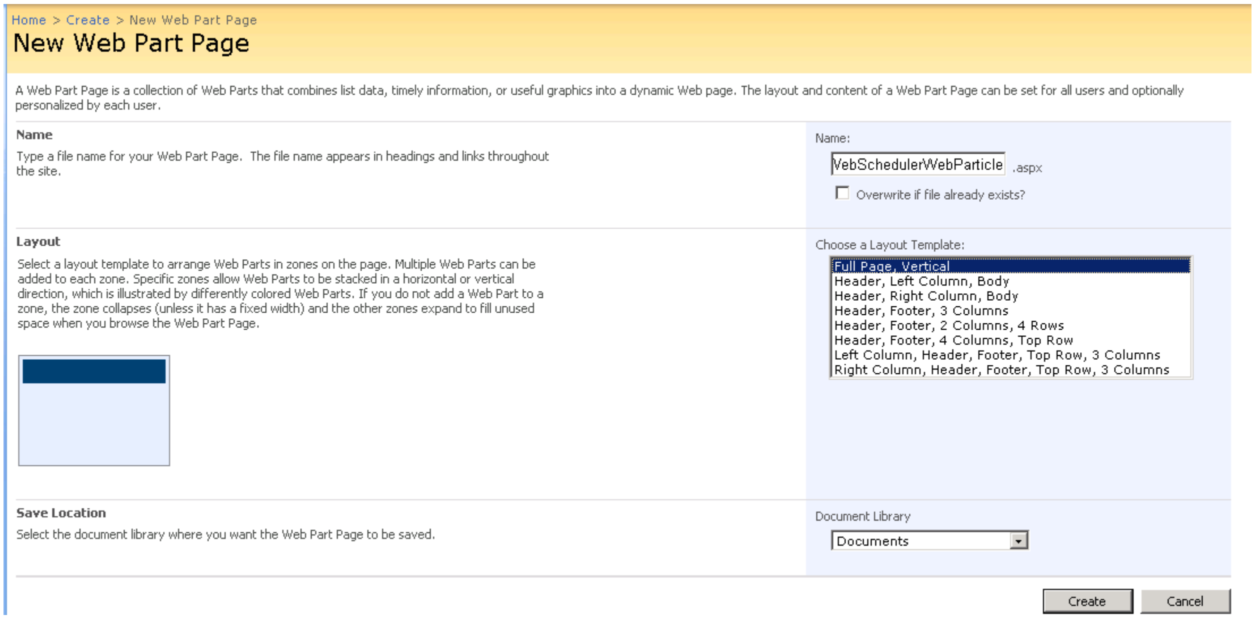
2. On the WebPages column, click the Web Part Pages.



Web Part Page

Create a Web Part Page when you want to add a Web page to this site that displays one or more Web Parts. Web Parts provide an easy way to build powerful Web pages that can show you information ranging from a view of a list in the current site to the latest data from Web Services.

3. Enter your SharePoint page name hit the Create button.



Home > Create > New Web Part Page

New Web Part Page

A Web Part Page is a collection of Web Parts that combines list data, timely information, or useful graphics into a dynamic Web page. The layout and content of a Web Part Page can be set for all users and optionally personalized by each user.

Name

Type a file name for your Web Part Page. The file name appears in headings and links throughout the site.

Name: VebSchedulerWebParticle .aspx

☐ Overwrite if file already exists?

Layout

Select a layout template to arrange Web Parts in zones on the page. Multiple Web Parts can be added to each zone. Specific zones allow Web Parts to be stacked in a horizontal or vertical direction, which is illustrated by differently colored Web Parts. If you do not add a Web Part to a zone, the zone collapses (unless it has a fixed width) and the other zones expand to fill unused space when you browse the Web Part Page.

Choose a Layout Template:

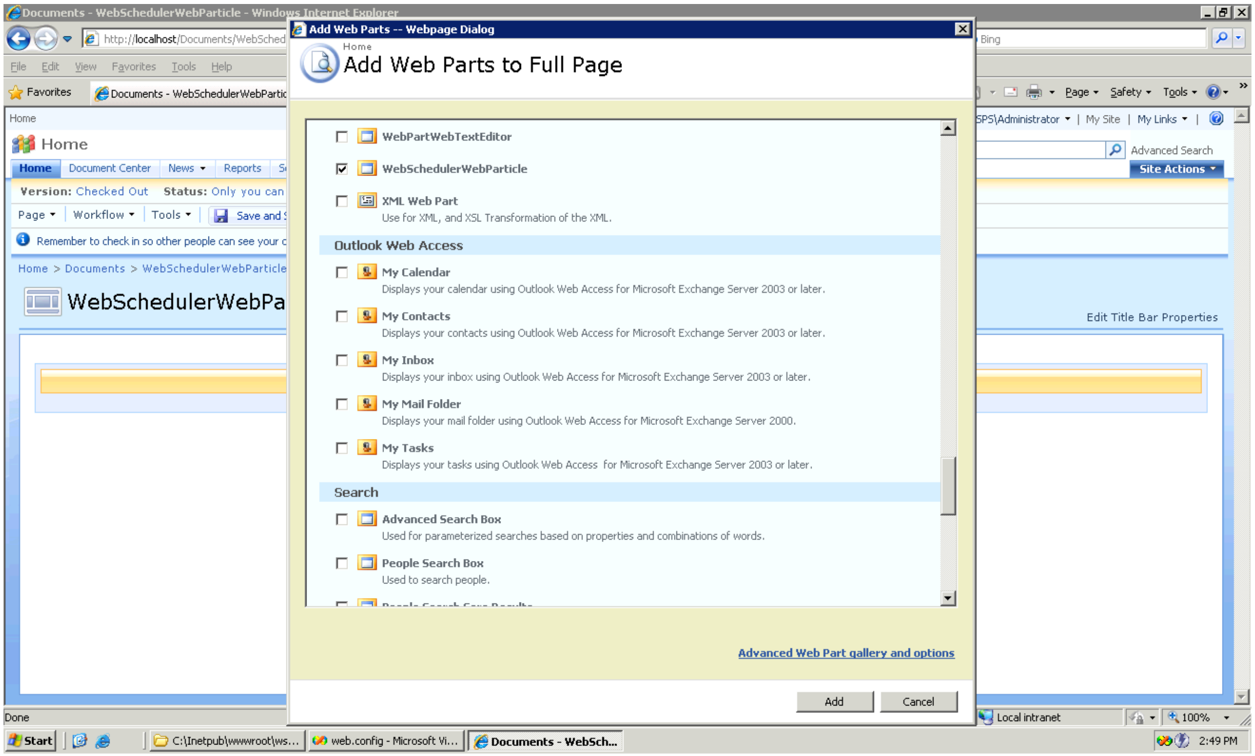
- Full Page, Vertical
- Header, Left Column, Body
- Header, Right Column, Body
- Header, Footer, 3 Columns
- Header, Footer, 2 Columns, 4 Rows
- Header, Footer, 4 Columns, Top Row
- Left Column, Header, Footer, Top Row, 3 Columns
- Right Column, Header, Footer, Top Row, 3 Columns

Save Location

Select the document library where you want the Web Part Page to be saved.

Document Library: Documents

4. Navigate to the newly created page and edit it. Add your custom WebPart (WebSchedulerWebParticle) from WebPart gallery.



Documents - WebSchedulerWebParticle - Windows Internet Explorer
http://localhost/Documents/WebSched
File Edit View Favorites Tools Help
Favorites
Documents - WebSchedulerWebPartic
Bing
Page Safety Tools
Home
Home Document Center News Reports
SPS\Administrator My Site My Links
Advanced Search
Site Actions
Page Workflow Tools Save and
Edit Title Bar Properties
Done
Local intranet
100%
Start
C:\Inetpub\wwwroot\ws...
web.config - Microsoft Vi...
Documents - WebSch...
2:49 PM

Version: Checked Out Status: Only you can

Remember to check in so other people can see your c

Home > Documents > WebSchedulerWebParticle

WebSchedulerWebPa

Add Web Parts -- Webpage Dialog

Home

Add Web Parts to Full Page

☐ WebPartWebTextEditor

☑ WebSchedulerWebParticle

☐ XML Web Part
Use for XML, and XSL Transformation of the XML.

Outlook Web Access

☐ My Calendar
Displays your calendar using Outlook Web Access for Microsoft Exchange Server 2003 or later.

☐ My Contacts
Displays your contacts using Outlook Web Access for Microsoft Exchange Server 2003 or later.

☐ My Inbox
Displays your inbox using Outlook Web Access for Microsoft Exchange Server 2003 or later.

☐ My Mail Folder
Displays your mail folder using Outlook Web Access for Microsoft Exchange Server 2000.

☐ My Tasks
Displays your tasks using Outlook Web Access for Microsoft Exchange Server 2003 or later.

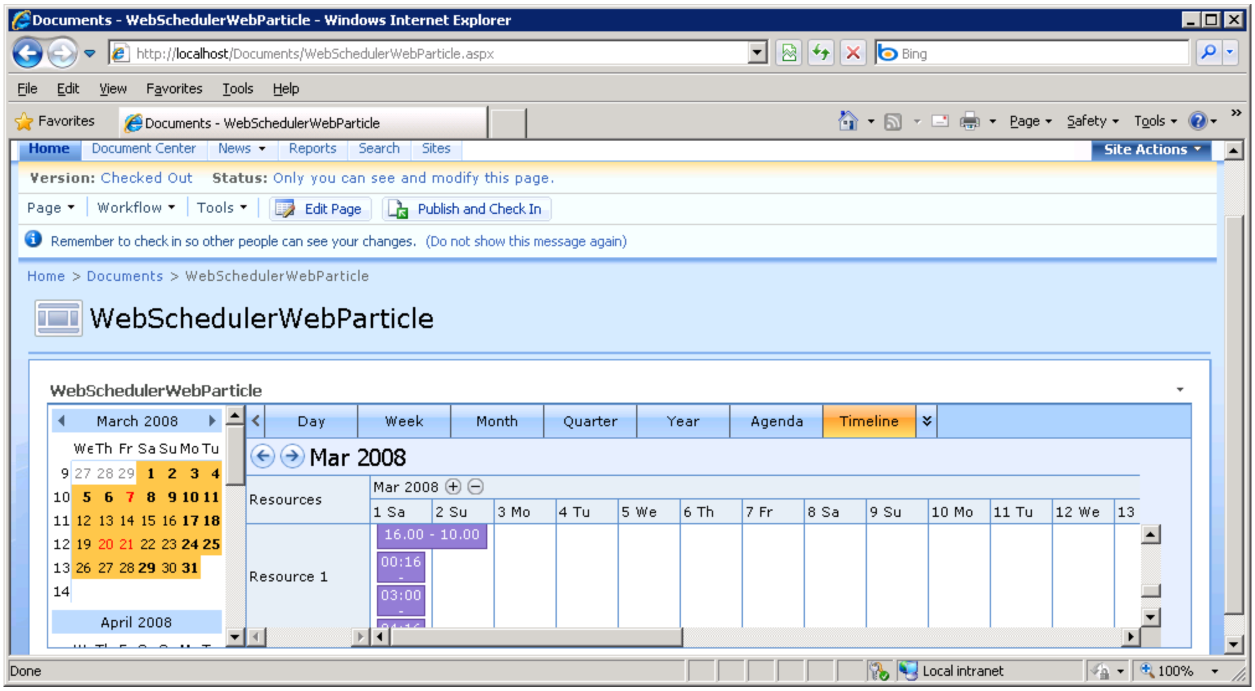
Search

☐ Advanced Search Box
Used for parameterized searches based on properties and combinations of words.

☐ People Search Box
Used to search people.

Advanced Web Part gallery and options

5. Apply the changes to see the final result of the WebTextEditor integration in Sharepoint such as shown in the screenshot below .


Documents - WebSchedulerWebParticle - Windows Internet Explorer
http://localhost/Documents/WebSchedulerWebParticle.aspx
Bing
File Edit View Favorites Tools Help
Favorites
Documents - WebSchedulerWebParticle
Page Safety Tools
Home Document Center News Reports Search Sites
Site Actions
Version: Checked Out Status: Only you can see and modify this page.
Page Workflow Tools Edit Page Publish and Check In
Remember to check in so other people can see your changes. (Do not show this message again)
Home > Documents > WebSchedulerWebParticle
WebSchedulerWebParticle
WebSchedulerWebParticle
March 2008
April 2008
Day Week Month Quarter Year Agenda Timeline
Mar 2008
Resources
Resource 1
1 Sa 2 Su 3 Mo 4 Tu 5 We 6 Th 7 Fr 8 Sa 9 Su 10 Mo 11 Tu 12 We 13
16.00 - 10.00
00:16
03:00
Done
Local intranet
100%