Configuring .NET based Applications in Internet Information Server to use Virtual Clocks from Time Machine®

**System Details: The development & deployment for this documentation was performed on the following:**

Operating System	Microsoft® Windows Server® 2008 Enterprise
Version	6.0.6002 Service Pack 2 Build 6002
Web Server	Internet Information Services (IIS) version 7.0
ASP .NET Framework	version 4.0.30319
Time Machine	Version 7.0.0-S
Development Platform	Microsoft Visual Studio 10.0

The following guide is intended as a basic outline for running ASP .NET applications under different user identities for the purpose of running simultaneous tests on applications that are hosted on a Microsoft web server.

There are many ways in which .NET applications can be deployed and how they run on a web server, however in general it is sufficient to have the ASP code run under a user context that is either statically assigned as in this paper or under the context of the user that logins in to the application. Once this has been configured that code set will run under a virtual date if the user account has one assigned.

This example assumes you have an existing .NET application for testing. If you do not, a version of the ".DLL" used for this paper is available here: ClockTest.zip

1) Start Internet Information Services (IIS) Manager (%SystemRoot%\system32\inetsrv\InetMgr.exe)

2) Click & expand your server's name in the left pane (example: WIN2008X64-ENT)
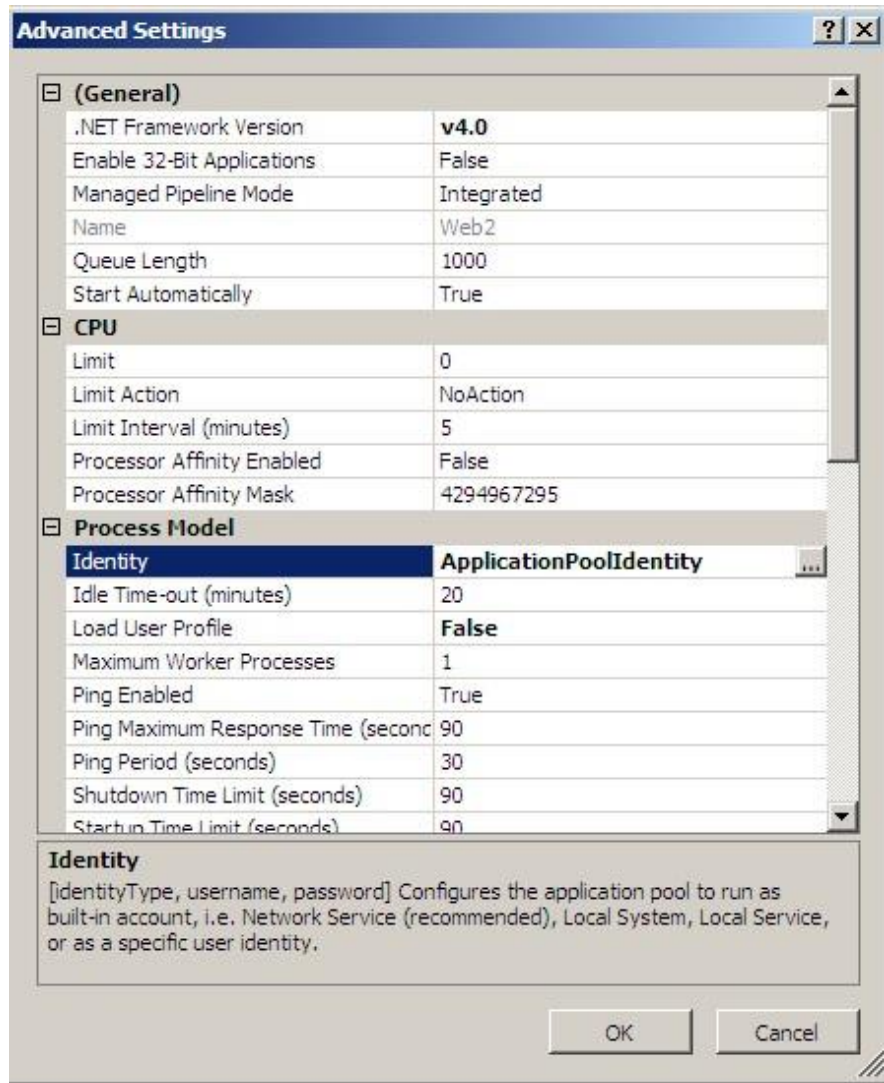
3) Left click "Application Pools"
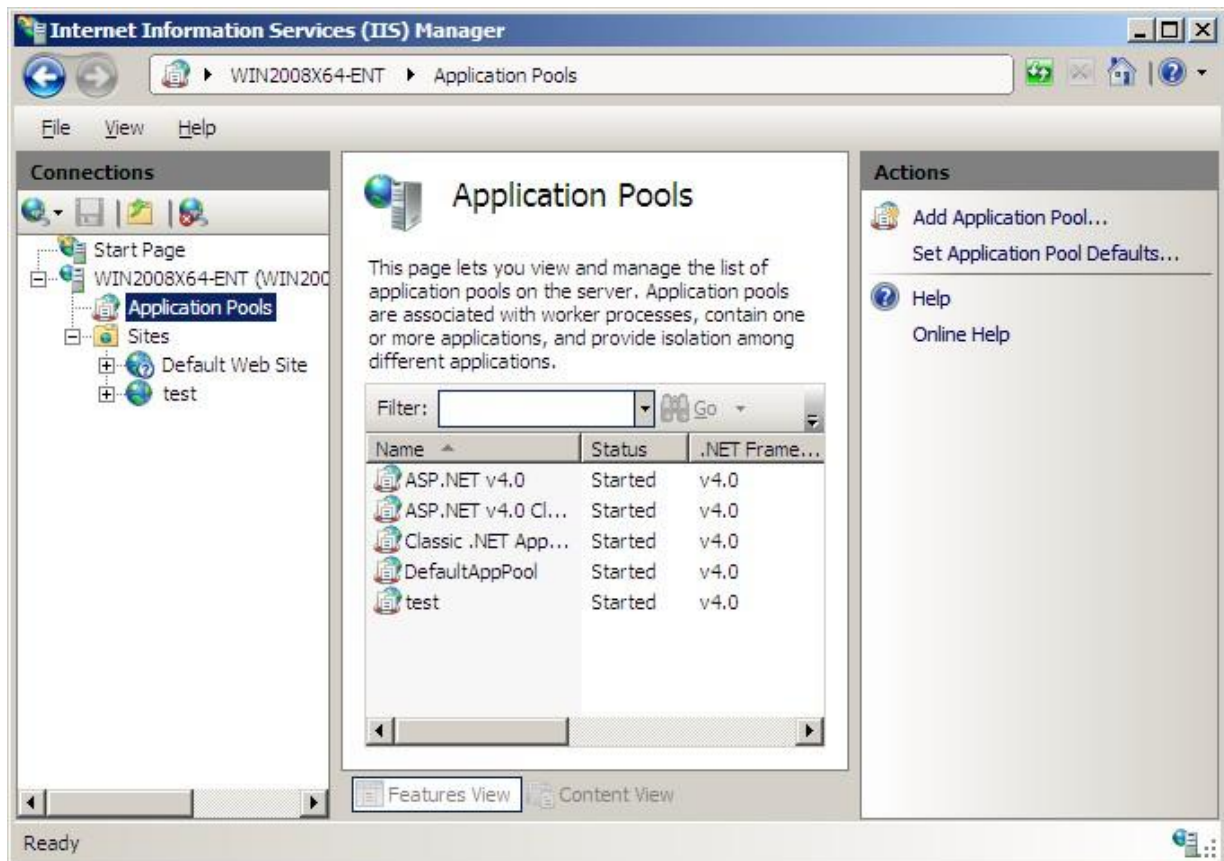
4) In the center pane right click "Add Application Pool"
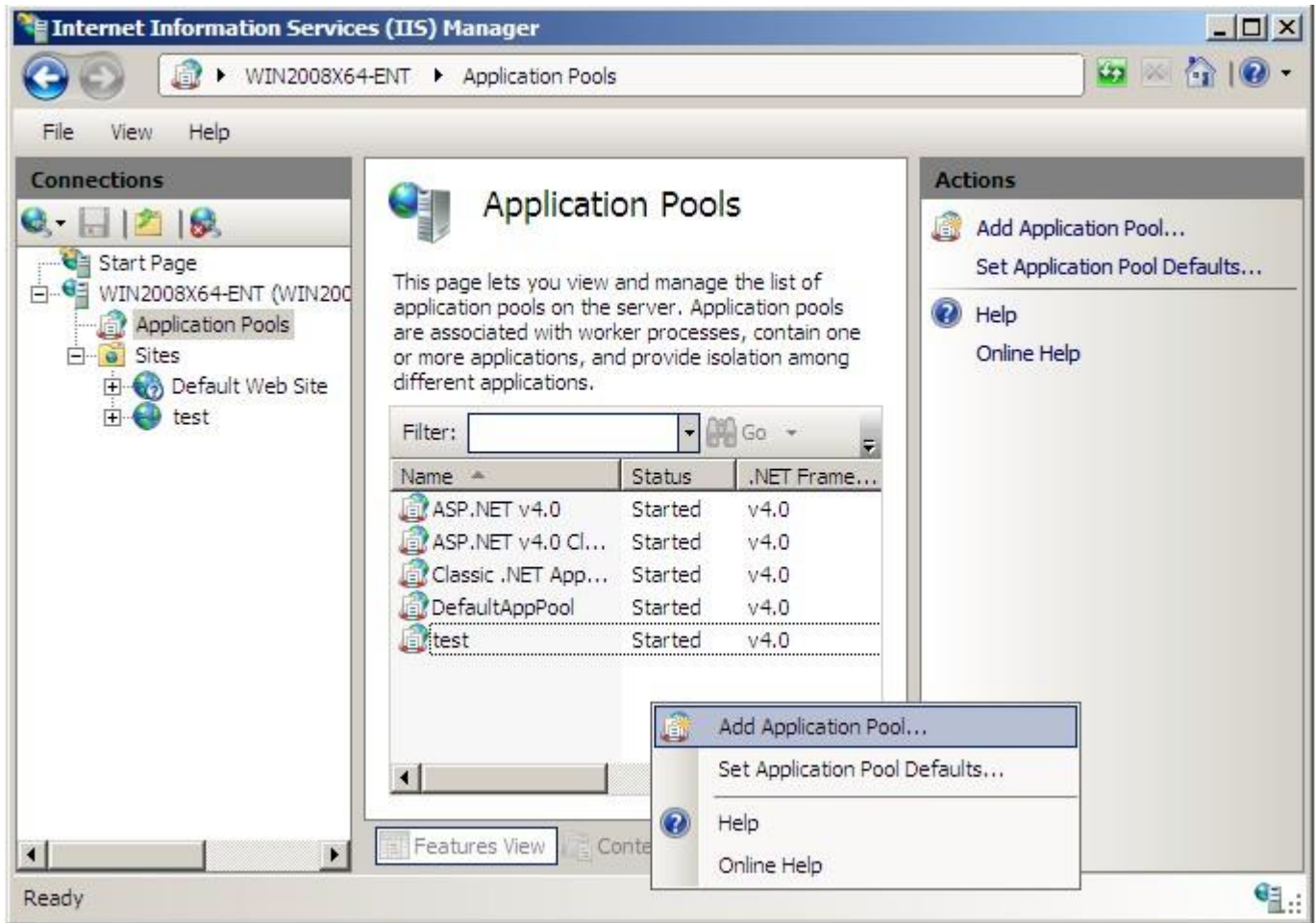
5) Enter the name of the account you want to run this new pool under "name", choose your .NET Framework version (this example uses 4.0.30319) & click [OK]. This paper uses the local account "Web2" which is a member of the Administrators Group.
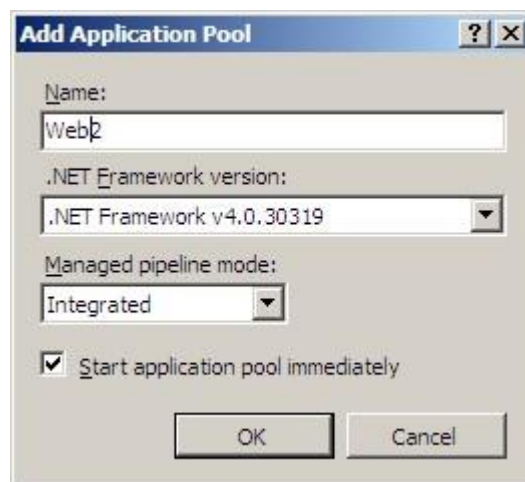
6) Your new Application Pool should now be running. In the IIS manager screen left click the new pool then on the right pane click on "Advanced Settings"

Advanced Settings ? X

(General)	
.NET Framework Version	**v4.0**
Enable 32-Bit Applications	False
Managed Pipeline Mode	Integrated
Name	Web2
Queue Length	1000
Start Automatically	True
CPU	
Limit	0
Limit Action	NoAction
Limit Interval (minutes)	5
Processor Affinity Enabled	False
Processor Affinity Mask	4294967295
Process Model	
Identity	**ApplicationPoolIdentity** ...
Idle Time-out (minutes)	20
Load User Profile	**False**
Maximum Worker Processes	1
Ping Enabled	True
Ping Maximum Response Time (second	90
Ping Period (seconds)	30
Shutdown Time Limit (seconds)	90
Startup Time Limit (seconds)	90

Identity
[identityType, username, password] Configures the application pool to run as built-in account, i.e. Network Service (recommended), Local System, Local Service, or as a specific user identity.

OK   Cancel

7) In the Advanced Settings menu locate the "Identity" tag under the "Process Model" section & click the expansion [...] box to change to a custom account. Click on "() Custom Account" You will be prompted for the user name and password. Click [OK].

Application Pool Identity ? X

○ Built-in account:

ApplicationPoolIdentity ▼

● Custom account:

web2   Set...

OK   Cancel

You now have an Application Pool that can run any ASP applications under a different user Identity.

Now create a new Web Site to host the applications you want to run under Time Machine virtual clocks. These can be either copies of your existing applications or entirely new code.

8) In the left pane of the IIS Manager right click on sites and choose "Add Web Site"
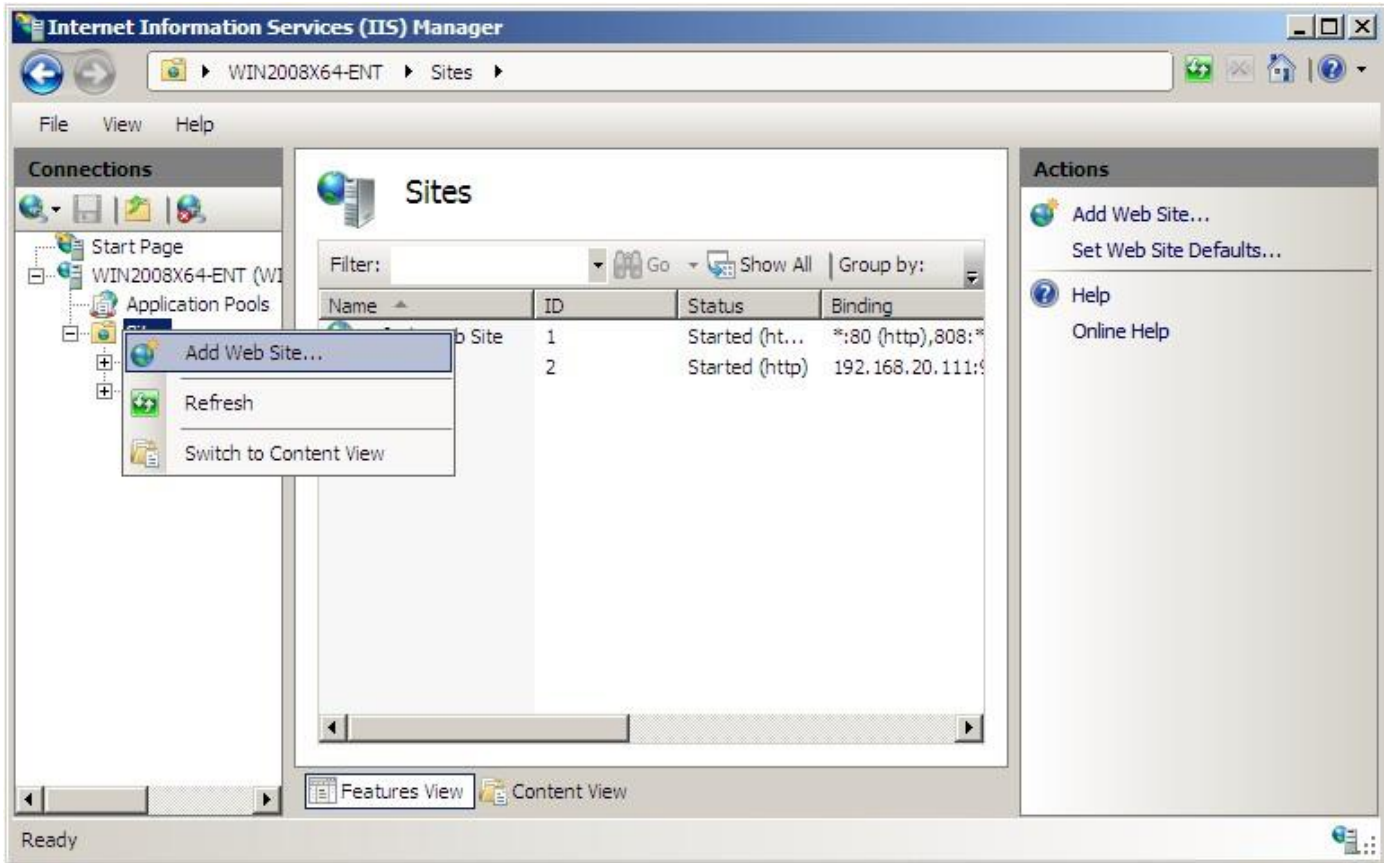
You will see the following window:
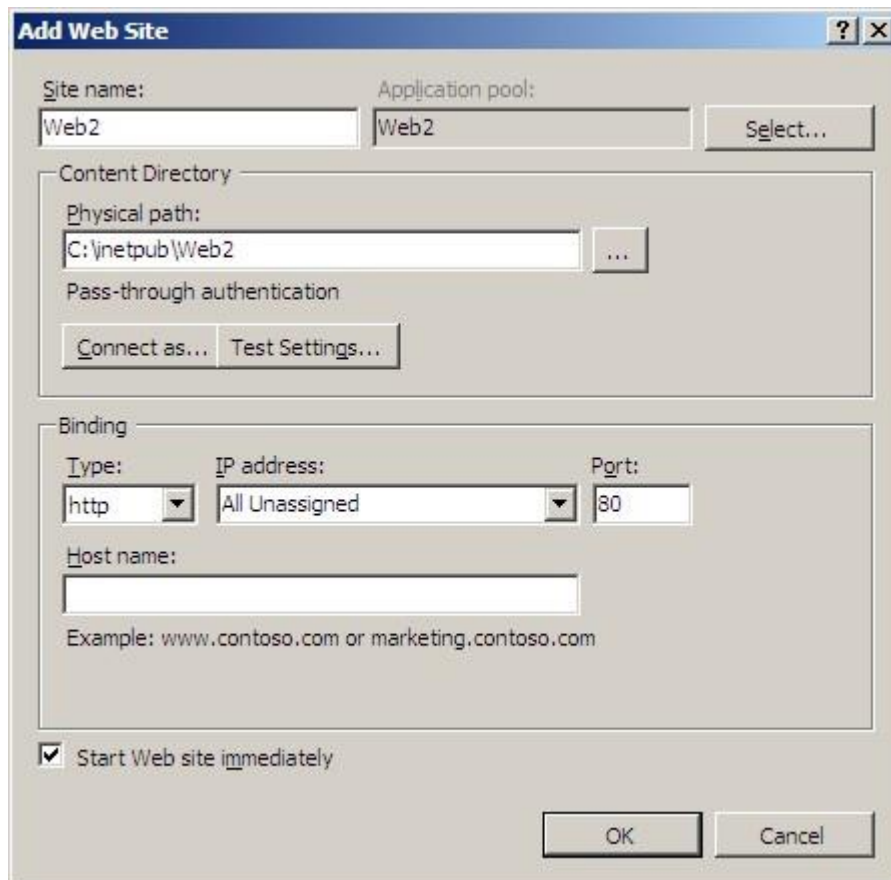
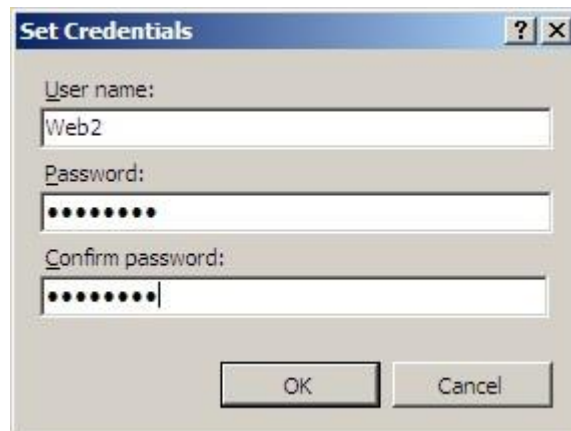9) For site name enter the Identity name used above e.g.:"Web2"

10) Under Physical Path this paper uses C:\Inetpub\Web2. You can specify whatever you like.
Also set the IP Address to that of the local machine and assign a port, e.g... 91

11) Now click on "Connect as..." and choose "() Specific user", the click the [set] button


12) Enter the User name & Password & click [OK]

13) Enter a different port number on the "Add Web Site" applet if you wish, then click [OK]

**The new Web Site should be running. Let's import an application for it to host.**

14) Copy the .NET package into the default web site's root.

15) In the IIS manager select the web site in the left pane and on the right pane, near the bottom of the panel, click on "Import Application". The following window displays:
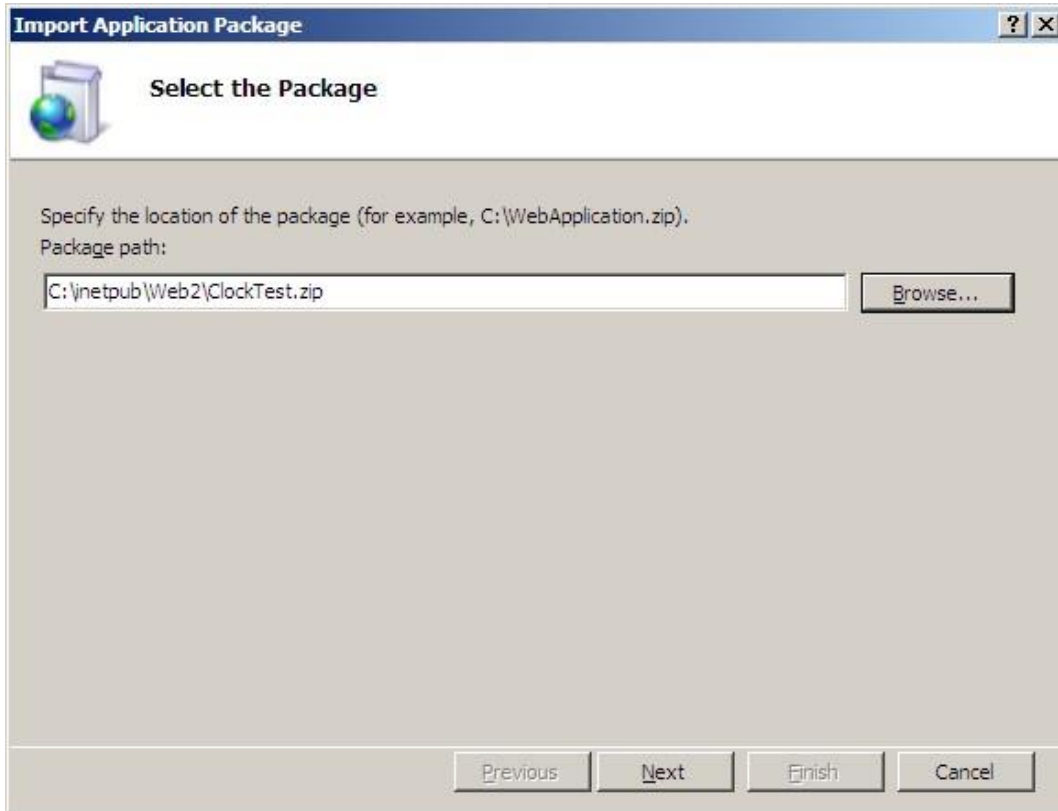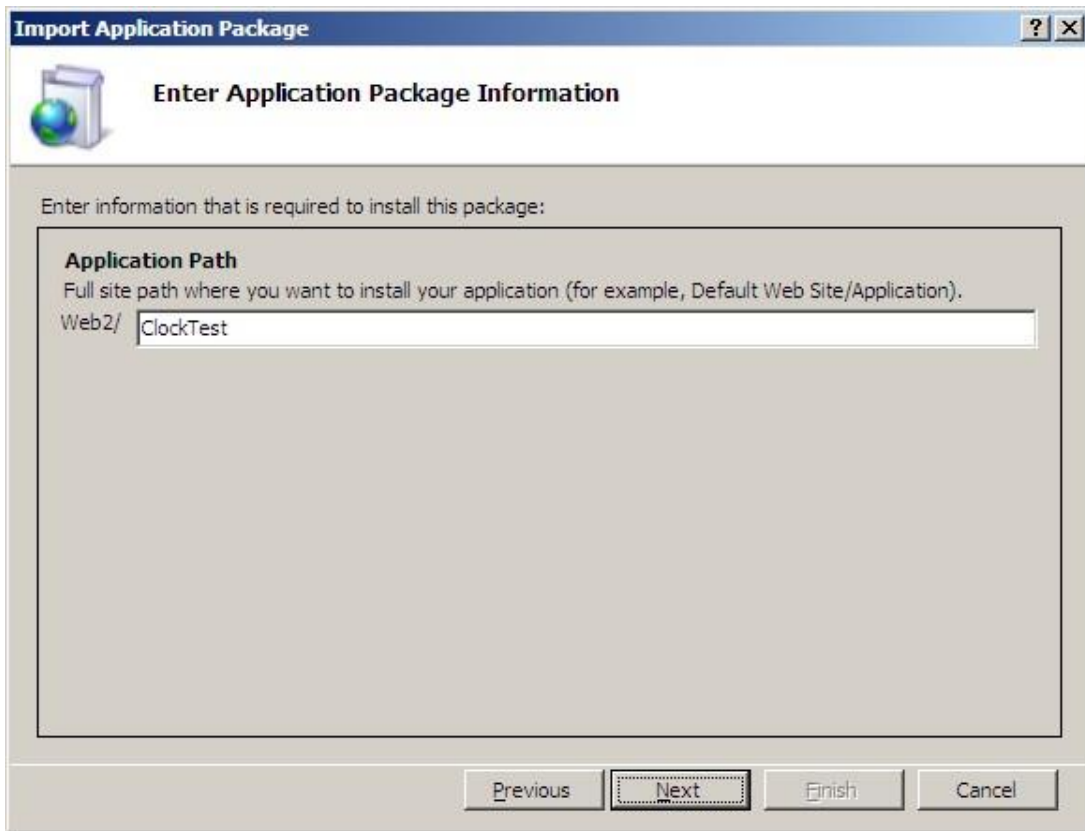

16) Browse to your application code directory, select your zip deployment file, and then click [Next]
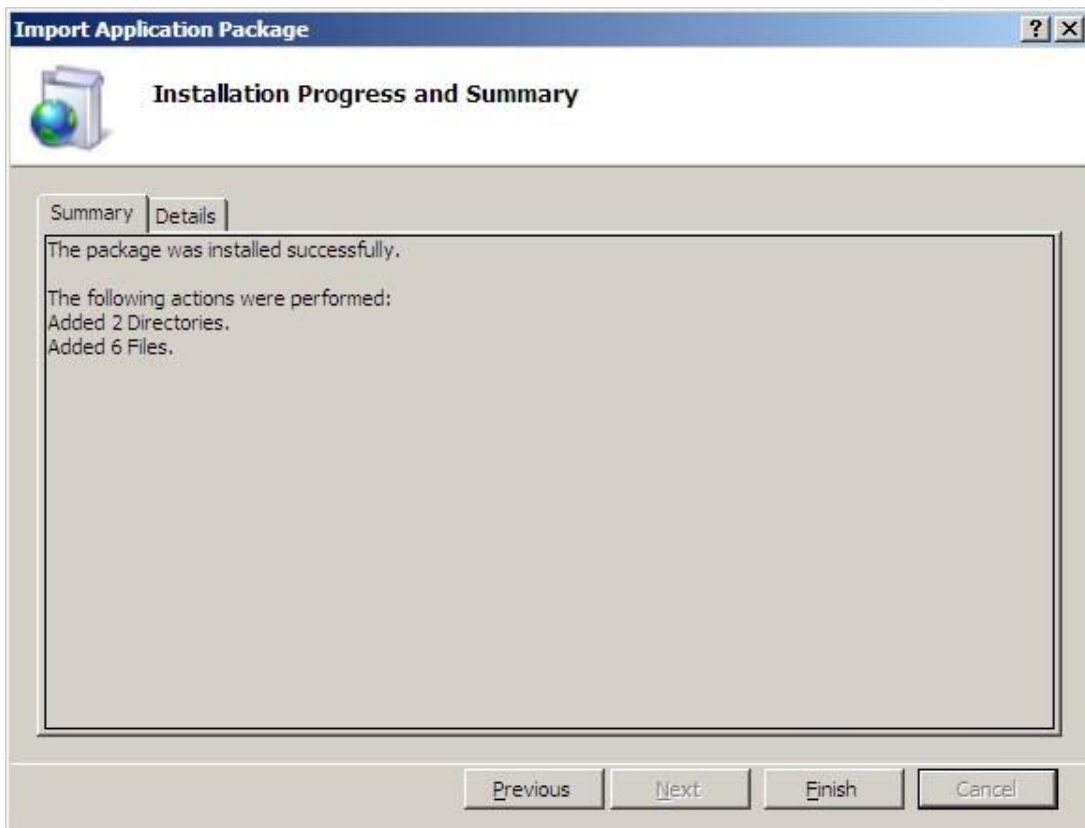
17) When you see the window below, just click [Next]
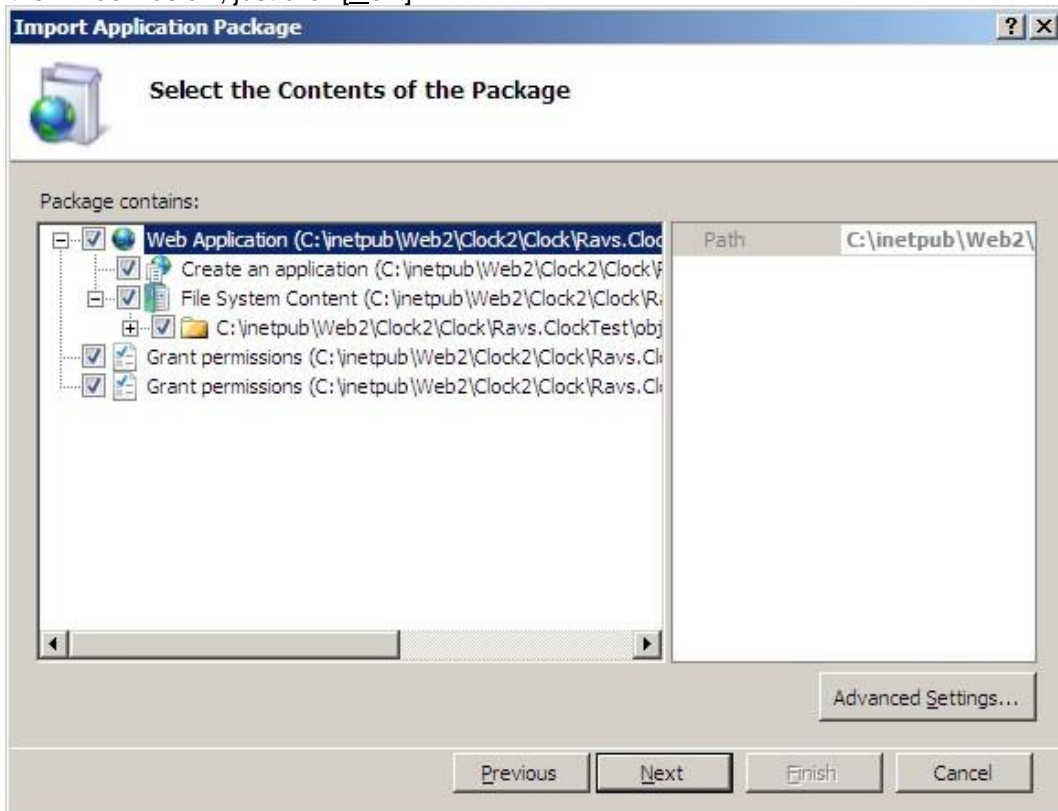
18) Enter the web path that should be used to access this application. Click [Next].


19) The Application will now be imported. If this succeeds you will see the success screen as below. Click [Finish]

20) Back in the main view of IIS Manager expand the new web site until you see the listing of the new application. In this case it is /Sites/Web2/ClockTest.
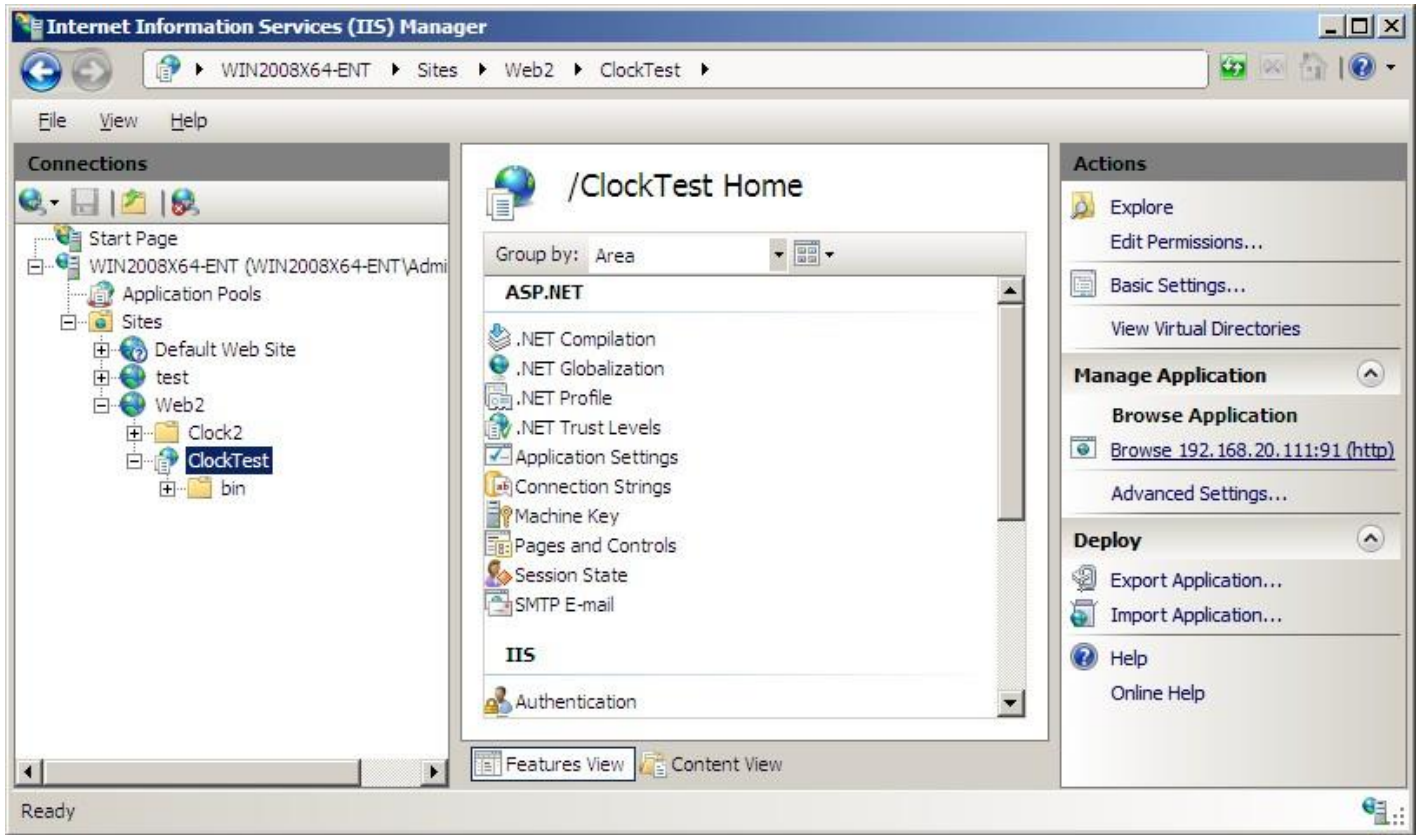
21) In the right Actions pane go to the Manage Application section then click on the http link under the Browse Application section. This will load the application in your Web Browser.
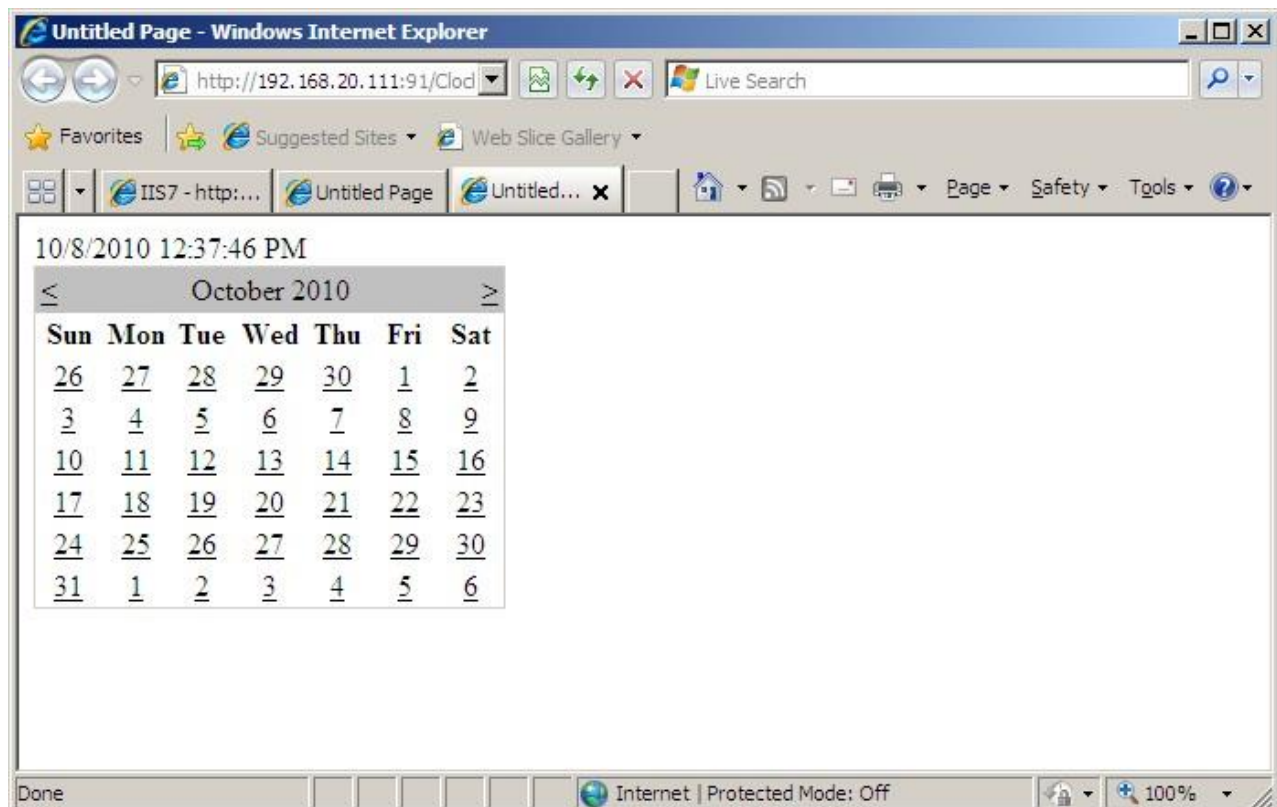
Now we will give the application a virtual date.

22) Start a command line, (click the [Start] button, then select "run", enter CMD, then select [OK]

23) Start the Time Machine service by entering "net start 3stms".

```
Administrator: C:\Windows\system32\cmd.exe                          _ □ ×

C:\Users\Administrator>net start 3stms
The Time Machine service is starting.
The Time Machine service was started successfully.


C:\Users\Administrator>_
```
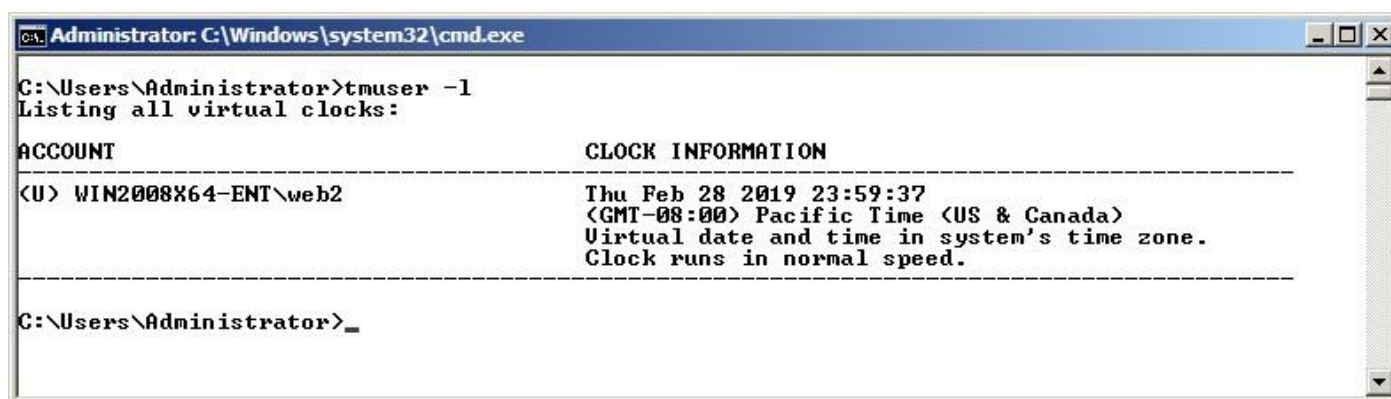
24) Assign a virtual date to the "Web2" account. In this example we will set the date to February 28, 2019 at 11:59 pm. The command will be "tmuser -a -u Web2 -x 022823592019".

```
Administrator: C:\Windows\system32\cmd.exe                          _ □ ×

C:\Users\Administrator>tmuser -a -u Web2 -x 022823592019

C:\Users\Administrator>
```

25) Verify the virtual date if you wish by running "tmuser -l".

```
Administrator: C:\Windows\system32\cmd.exe                          _ □ ×

C:\Users\Administrator>tmuser -l
Listing all virtual clocks:

ACCOUNT                             CLOCK INFORMATION
---------------------------------------------------------------------------
(U) WIN2008X64-ENT\web2             Thu Feb 28 2019 23:59:37
                                    (GMT-08:00) Pacific Time (US & Canada)
                                    Virtual date and time in system's time zone.
                                    Clock runs in normal speed.
---------------------------------------------------------------------------

C:\Users\Administrator>_
```

26) Now go back to the recently added .NET application in your web browser. You should see the code is now running under the virtual date.
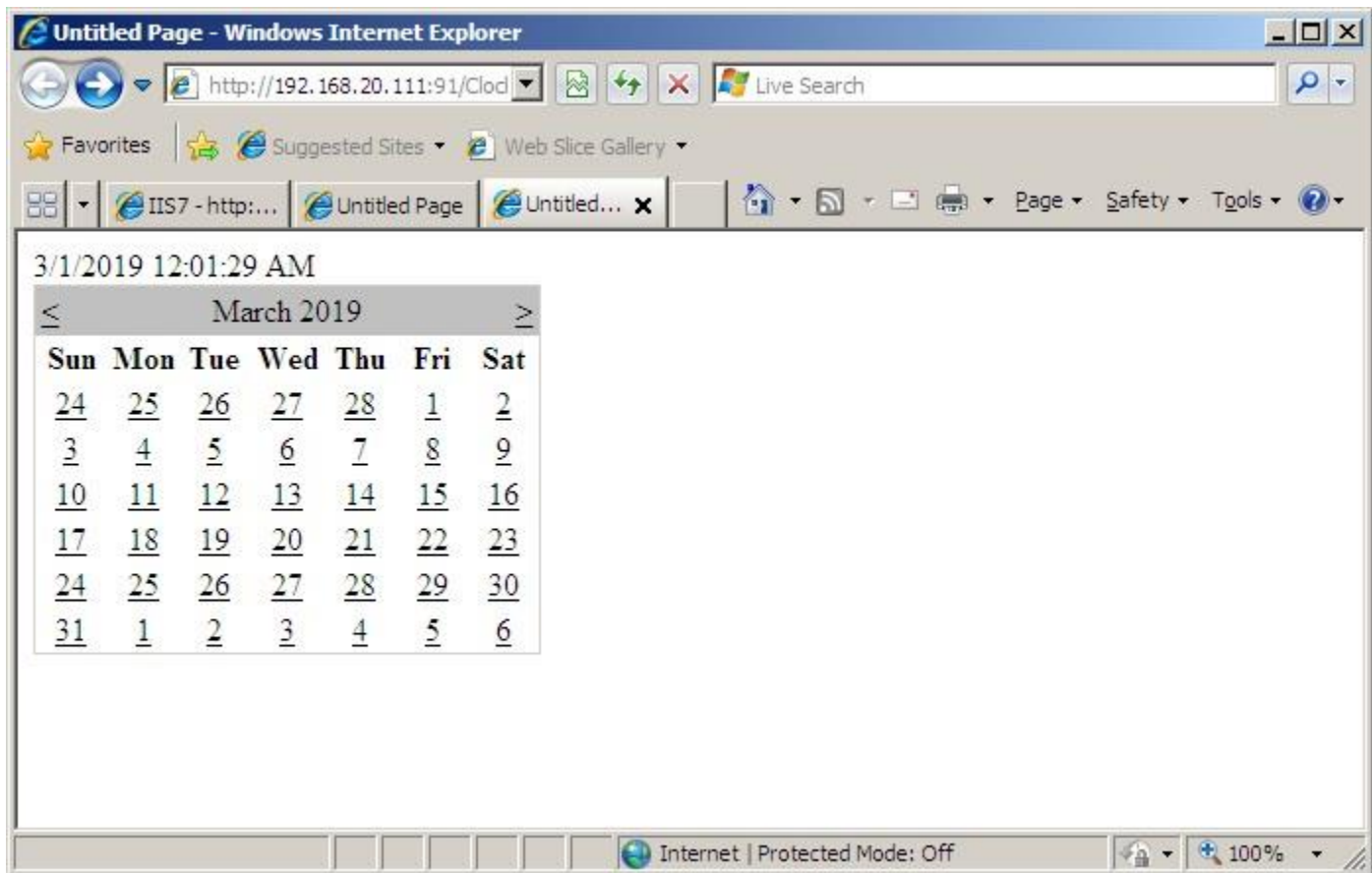
27) The following is a screen shot of a similar version of the same application running in system time concurrently.
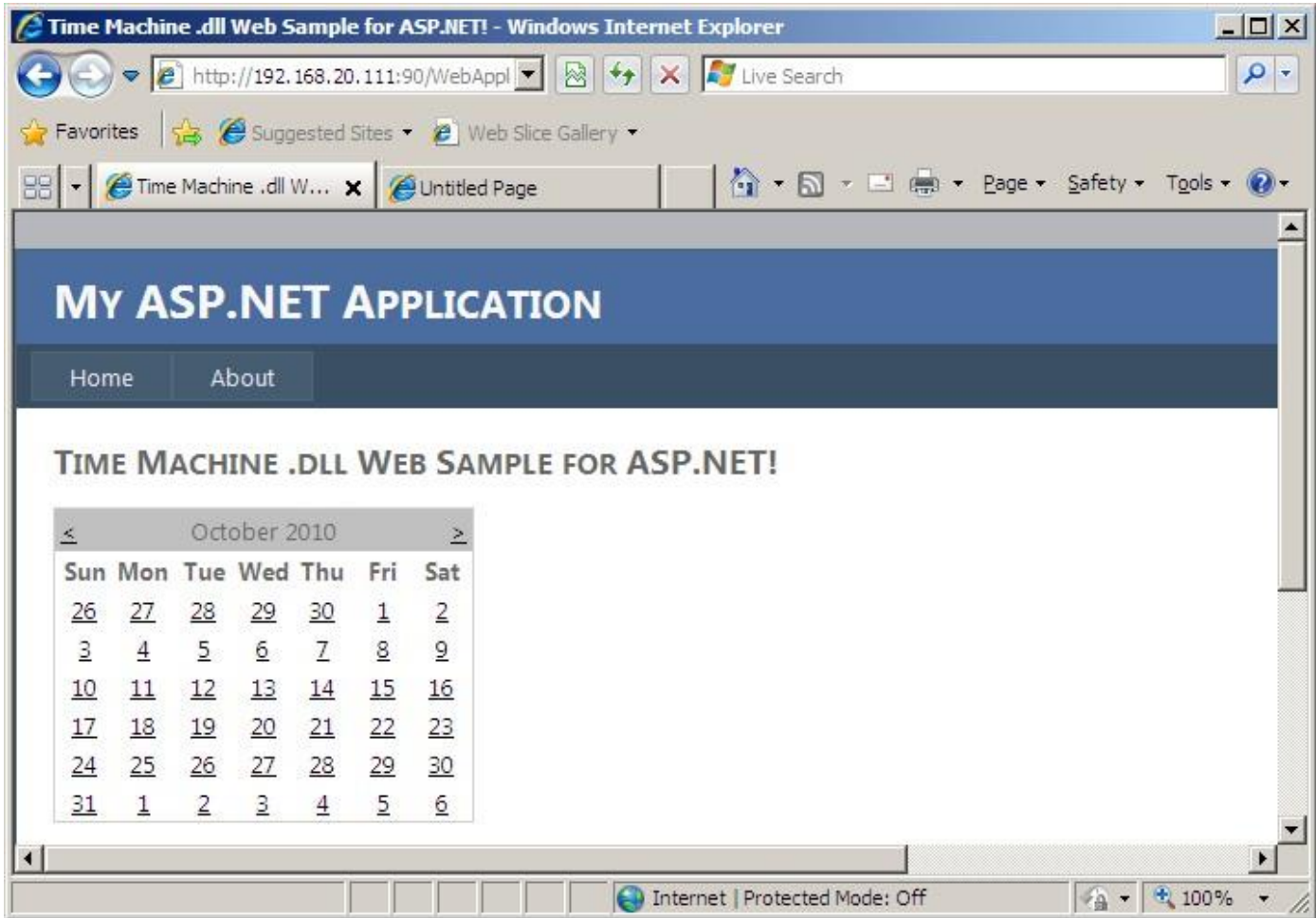
Following the procedures in this guide you can easily set each of your IIS hosted .NET web sites on the same machine to run independently under any time and or date you desire.