

FactoryStudio and IIS

Overview

If IIS is located when you install FactoryStudio, you will not be able to install our embedded web server, TWebServer.exe.

The FactoryStudio software will run without the web server. Most FactoryStudio engineering and runtime tools run without needing to install our TWebServer or doing any IIS configuration. TWebServer.exe is needed for remotely accessing project configurations and serving runtime web pages.

If you want to enable remote engineering access and web clients using IIS, you need to install some FactoryStudio services in IIS. This page explains how to install FactoryStudio services in IIS; the explanation is for IIS 7.x, but other versions should be similar.

IIS is also necessary when you want to run the Runtime as a Windows Service and still be able to provide web pages, iPad clients, and remote engineering.

You are going to install three services inside IIS:

- **TProjectServer** which allows you to remotely access your project configurations.
- **TWebClient/TSmartClient** which allows remote access to runtime displays. The instructions to configure ISS can be found below.
- **iDataPanel** is the service which provides data to iOS devices.

Installation Procedure

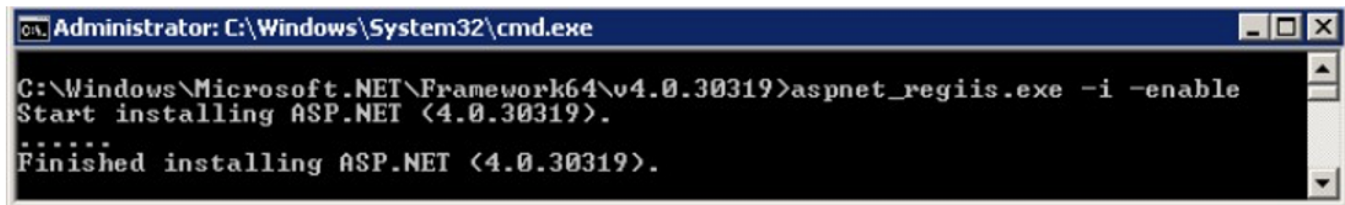
This procedure was executed on Windows 7, x64, with IIS 7.5. With older operating systems and versions of IIS, the procedure may be slightly different, such as defining a "**Virtual Directory**" instead of "**Add Application**".

- Check if IIS is installed and running. For instance, by trying to open HTML
- Enable .NET and .Svc Handlers for the WCF Service

For IIS 7.x:

If IIS was installed after the installation of the .NET Framework, you must run and verify the procedure described on [IIS Hosted Service Fails](#), which is to run the following programs using the command prompt as Administrator:

"aspnet_regiis -i -enable" (from the .NET Framework installation directory*)



```
Administrator: C:\Windows\System32\cmd.exe

C:\Windows\Microsoft.NET\Framework64\v4.0.30319>aspnet_regiis.exe -i -enable
Start installing ASP.NET <4.0.30319>.
.....
Finished installing ASP.NET <4.0.30319>.
```

"ServiceModelReg.exe" -r (from the .NET Framework installation directory*)

```
Administrator: C:\Windows\System32\cmd.exe

C:\Windows\Microsoft.NET\Framework64\v4.0.30319>ServiceModelReg.exe -r
Microsoft (R) WCF/WF registration tool version 4.0.0.0
Copyright (c) Microsoft Corporation. All rights reserved.

Administration utility that manages the installation and uninstallation of
WCF and WF components on a single machine.

[SC] ChangeServiceConfig2 SUCCESS
[SC] ChangeServiceConfig2 SUCCESS
[SC] ChangeServiceConfig2 SUCCESS
[SC] ChangeServiceConfig2 SUCCESS
[SC] ChangeServiceConfig2 SUCCESS
[SC] ChangeServiceConfig2 SUCCESS
[SC] ChangeServiceConfig2 SUCCESS
[SC] ChangeServiceConfig2 SUCCESS
[Warning]The HTTP namespace reservation already exists.

C:\Windows\Microsoft.NET\Framework64\v4.0.30319>_
```



Usually, the .NET Framework installation directory is:

C:\Windows\Microsoft.NET\Framework\v4.0.30319, or

C:\Windows\Microsoft.NET\Framework64\v4.0.30319 (for x64 Windows)

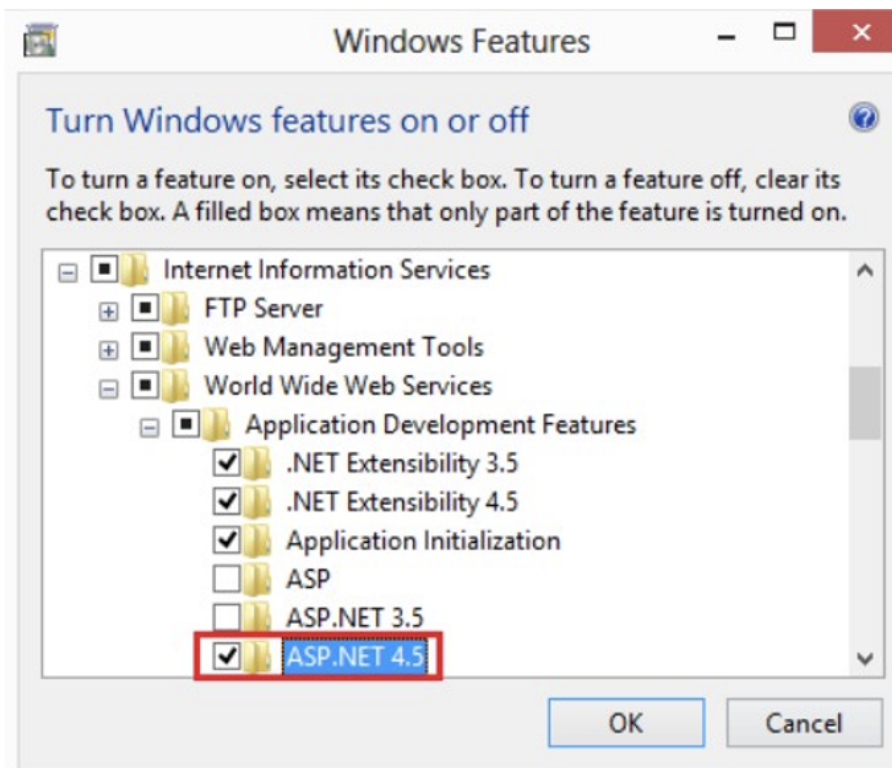
For IIS 8.0:

Go to Program and Features. Choose, "Turn Windows features on or off".

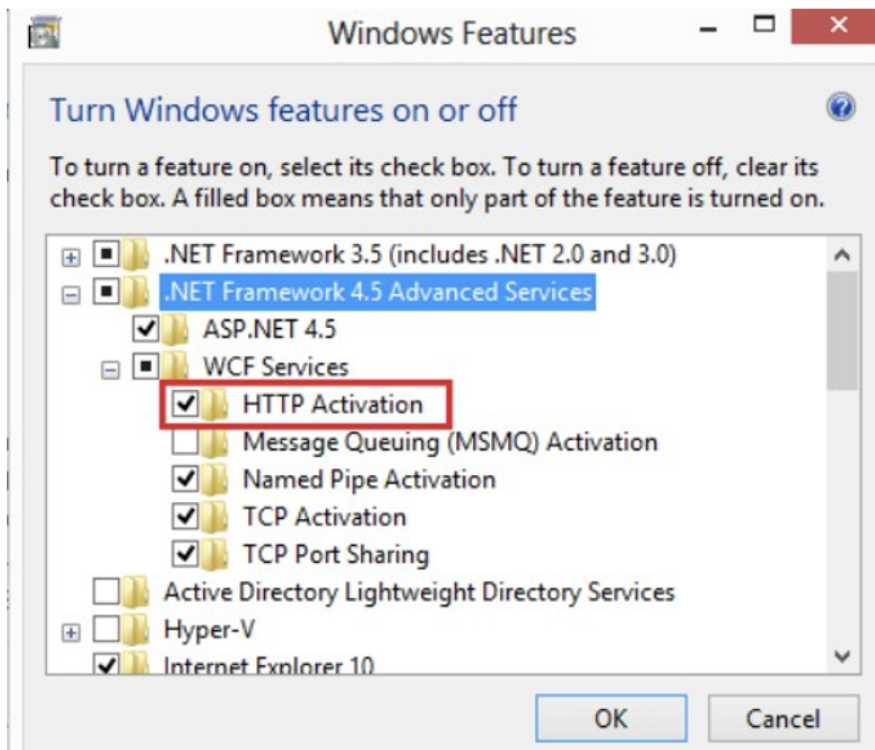


[Turn Windows features on or off](#)

Enable the ASP.NET 4.5 option (Internet Information Services > World Wide Web Services > Application Development Features > ASP.NET 4.5:



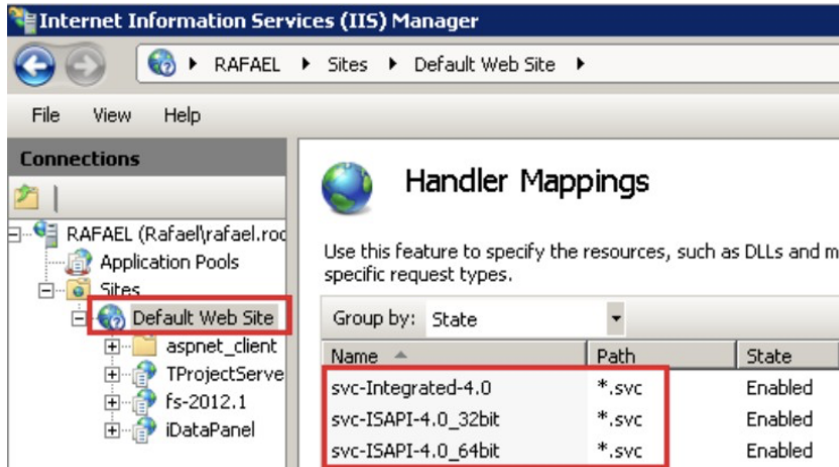
Enable the HTTP Activation option (under .Net Framework 4.5 Advanced Services)





For .NET Framework versions newer than 4.5, the ASP.NET will be different (the same as the Framework version). But the configuration remains the same.

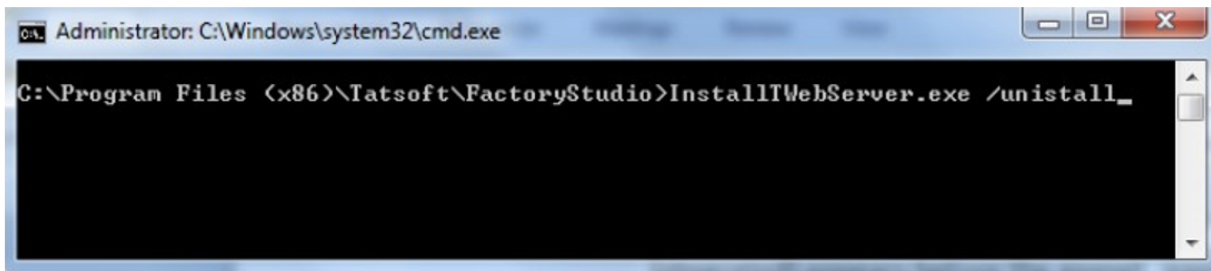
Check if the extension ".svc" is mapped to "aspnet isapi.dll" (The msdn.microsoft website, on the previous link, explains how to verify this for many IIS versions.)



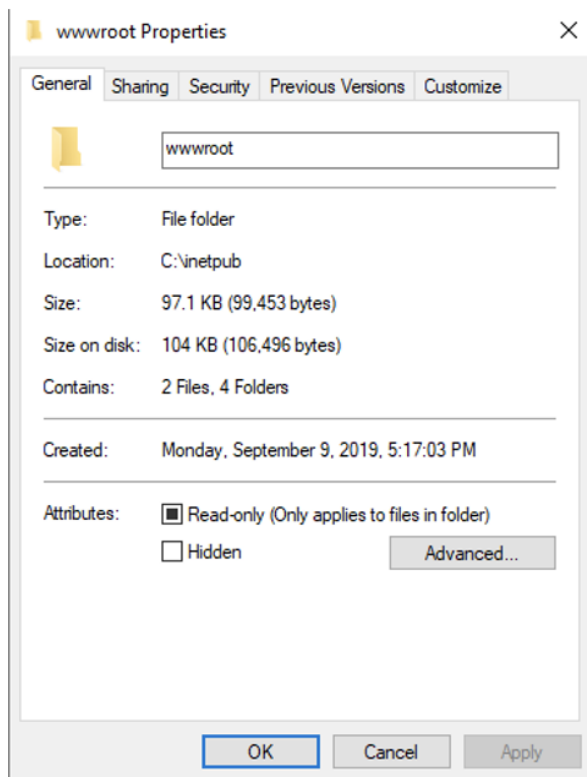
From within the Factory Studio installation folder, run the utility:

```
InstallWebServer.exe /uninstall
```

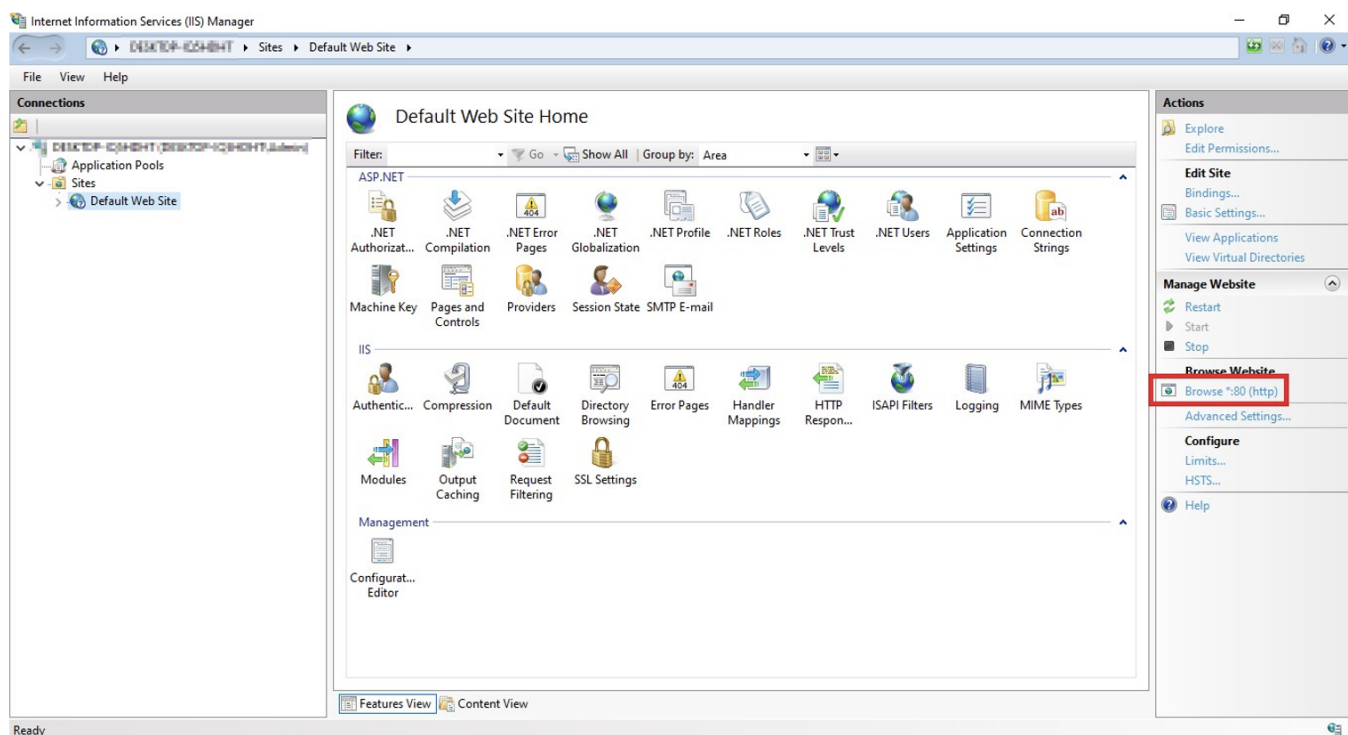
This will remove the default TWebServer installation.



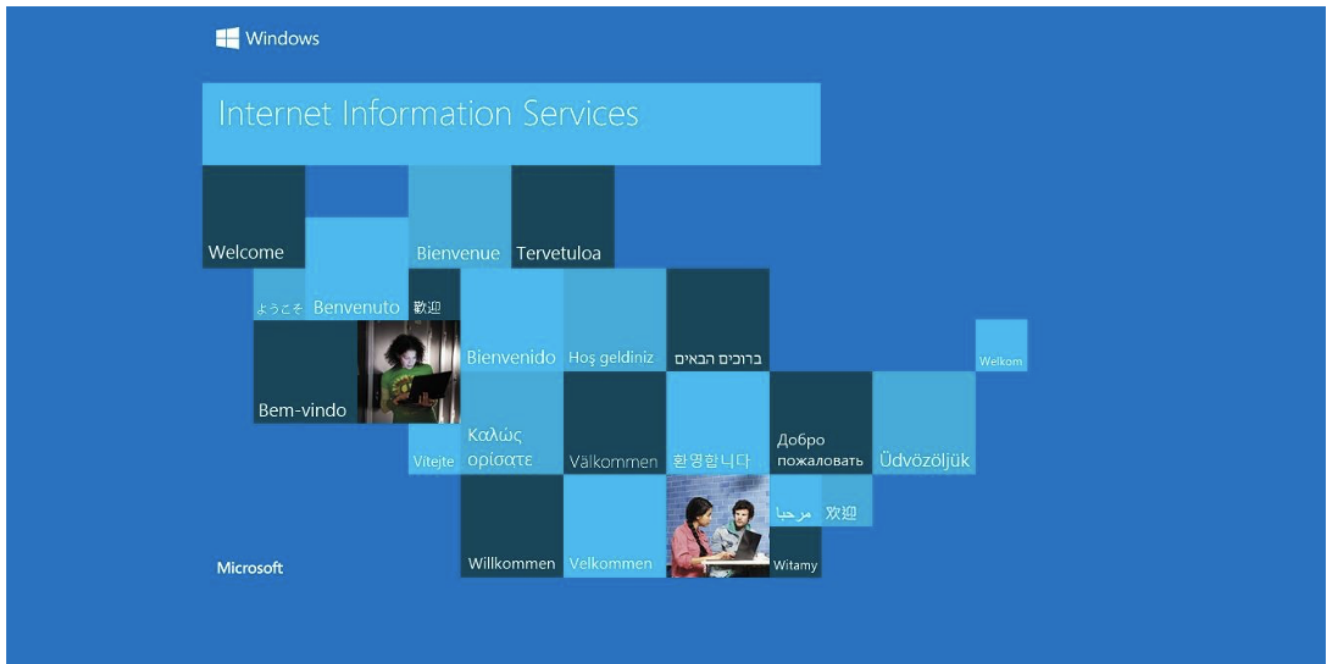
Before configuring any application for IIS, it is recommended to check if IIS is working. To do so, open "Sites/Default Web Site/Edit Permission", and check if it is linked to the wwwroot folder.



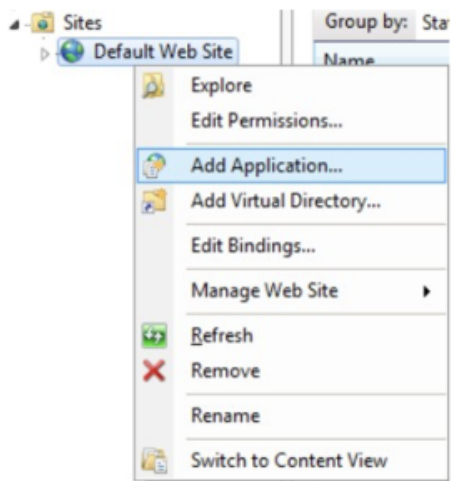
If so, go to the Actions pane and under Browse Web Site, click the link associated with *:80(http).



A default IIS image should open on your browser.



After making sure the IIS is working, open Sites, right click Default Web Site and select "Add Application...", and configure the information for the services:



TProjectServer:

- **Alias:** TProjectServer
- **Physical Path:** C:\Program Files\Tatsoft\FactoryStudio -> (If you've installed FactoryStudio in a non-default folder, use that location.)
- **Application Pool:** Configure any pool based to .NET 0. Example: ASP.NET v4.0.

Add Application


Site name: Default Web Site
Path: /


Alias: TProjectServer Application pool: DefaultAppPool

Example: sales

Physical path: C:\Program Files (x86)\Tatsoft\FactoryStudio

Pass-through authentication

 You should allow "Everyone" access to at least read.

 You must allow the "<ComputerName> IIS IUSRS " user to read and write on the directories of the projects.

Example: For C:\FactoryStudio\Projects\<ComputerName>\IIS_IUSRS, the user must be included in the security permissions for reading and writing (full control) on the "C: FactoryStudio " directory, and you must ensure that all subdirectories (Projects, Settings, etc.) inherit these permissions.

On IE, use the "<http://localhost/tprojectserver/service.svc>" url to verify if the service was correctly installed. This should show a page with information about the service.

TWebClient/TSmartClient:

- **Alias:** fs-2014.1.
- **Physical Path:** C: Program Files Tatsoft FactoryStudio-2014.1 // FactoryStudio installation folder.
- **Application Pool:** Configure any pool based to .NET 0. Example: ASP.NET v4.0.

Edit Application

Site name: Default Web Site
Path: /

Alias: fs-2014.1
Application pool: DefaultAppPool
Example: sales

Physical path: C:\Program Files (x86)\Tatsoft\FactoryStudio\fs-2014.1

Pass-through authentication
Connect as... Test Settings...

☐ Enable Preload

OK Cancel

You should allow "Everyone" access to at least read.

On IE, test the "<http://localhost/fs-2014.1/service.svc>" url to verify the service was correctly installed. This should show a page with information about the service.

Go to **MIME Types**, and create the following MIME Type:

Edit MIME Type

File name extension: .tzip

MIME type: application/x-zip-compressed

OK Cancel

iDataPanel Service

- **Alias:** iDataPanel.
- **Physical Path:** C: Program Files Tatsoft FactoryStudio fs-2014.1 // -> FactoryStudio folder.
- **Application Pool:** Configure any pool based to .NET 0. Example: ASP.NET v4.0.

Edit Application ? x

Site name: Default Web Site
Path: /

Alias: iDataPanel Application pool: DefaultAppPool Select...


Example: sales

Physical path: C:\Program Files (x86)\Tatsoft\FactoryStudio\fs-2014.1 ...

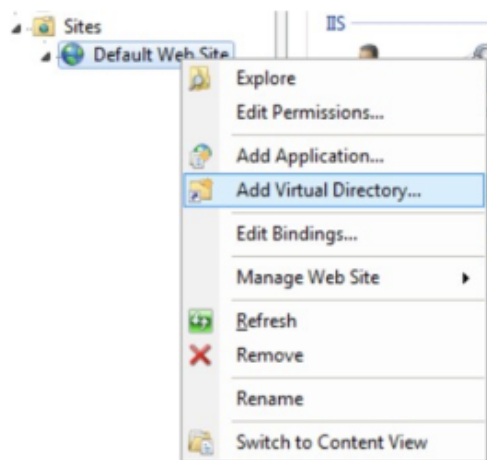
Pass-through authentication
Connect as... Test Settings...

☐ Enable Preload

OK Cancel

 You should allow "Everyone" access to at least read.

iDataPanelImages (Virtual Directory)



- **Alias:** iDataPanelImages
- **Physical Path:** C:\FactoryStudio\Projects\iDataPanelImages

Add Virtual Directory


Site name: Default Web Site
 Path: /

Alias:

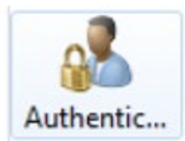
 Example: images

Physical path:
 ...

Pass-through authentication

 You should allow "Everyone" access to at least read.

"Anonymous Authentication" must be enabled for the services.



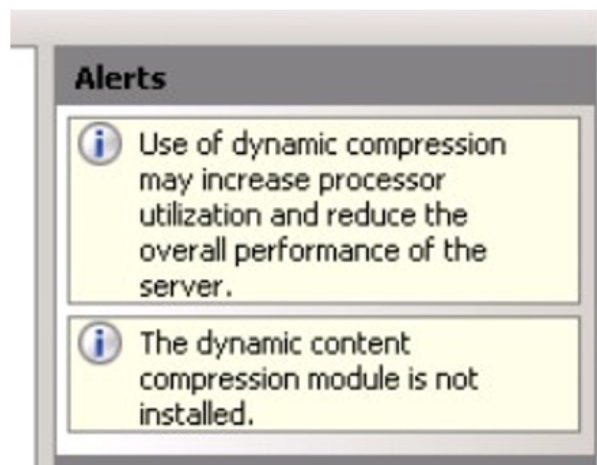
Authentication

Group by: No Grouping			
Name	Status	Response Type	
Anonymous Authentication	Enabled		

Go to the Compression module.



If it is not installed, you may see this yellow alert on the right side.



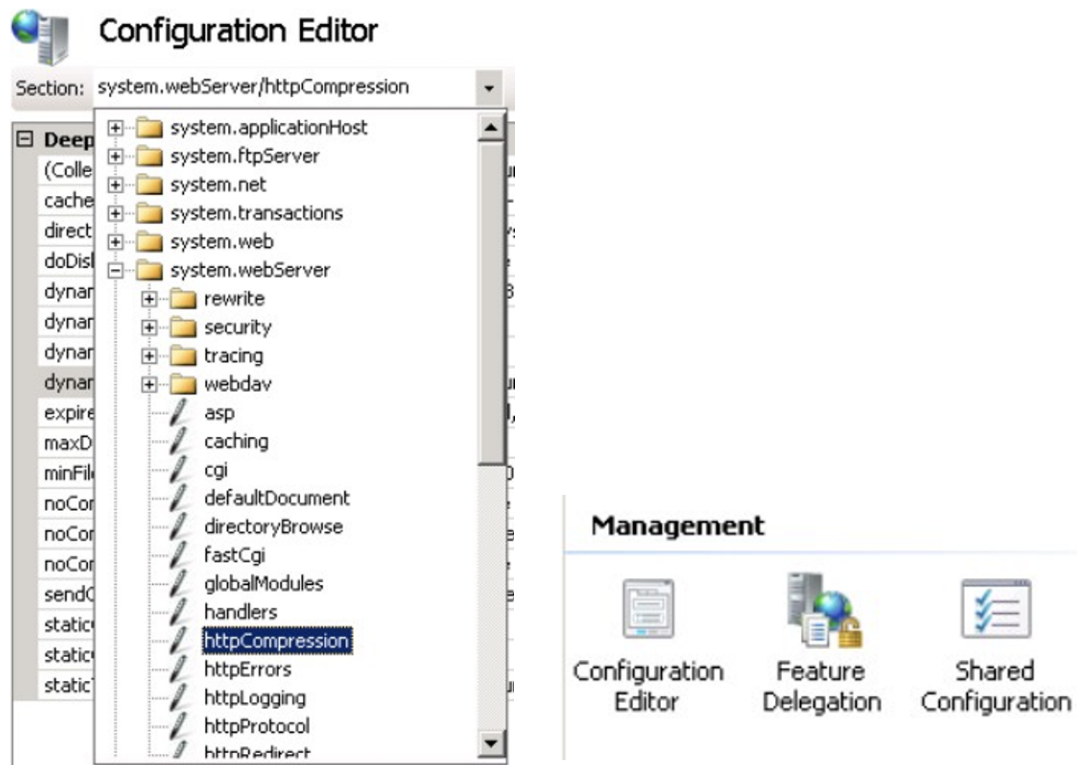
If it is not installed, go to the Server Manager, Roles, Web Server. Under Role Services, check your installed Roles. If Dynamic Compression is not installed, click Add Roles and install it.

	URL Authorization	Not installed
	Request Filtering	Installed
	IP and Domain Restrictions	Not installed
	Performance	Installed
	Static Content Compression	Installed
	Dynamic Content Compression	Installed
	Management Tools	Installed
	IIS Management Console	Installed
	IIS Management Scripts and Tools	Not installed
	Management Service	Not installed

You can go back to the Compression module for your site and ensure Dynamic Compression is checked. At this point, Dynamic Compression should be set up, but you must be specific about what MimeTypes will be compressed.

Back to **IIS Manager**, go to the page for the **SERVER**, not the **SITE**. Click on, "Configuration Editor".

From the dropdown, select **system.webServer/httpCompression**.



Then, click on Dynamic Types. In the list editor, add "application/json."

Collection Editor - system.webServer/httpCompression/dynamicTypes/

Items:		
mimeType	enabled	Entry Path
text/*	True	MACHINE/WEBROOT/APPHOST
message/*	True	MACHINE/WEBROOT/APPHOST
application/x-javascript	True	MACHINE/WEBROOT/APPHOST
application/javascript	True	MACHINE/WEBROOT/APPHOST
/	False	MACHINE/WEBROOT/APPHOST
application/json	True	MACHINE/WEBROOT/APPHOST



IIS must be restarted after configuring the services.

After you have completed all of the above steps, the IIS configuration for HTTP access is completed.

If you want to configure a HTTPS connection as well, follow the next steps.

How to Set Up SSL on IIS

The steps for configuring Secure Sockets Layer (SSL) for a site are the same in IIS 7, IIS 6.0, and the above. The steps include the following:

Get an appropriate certificate. Create an HTTPS binding on a site. Test by making a request to the site. Optionally configure SSL options by making SSL a requirement.

Obtain a Certificate

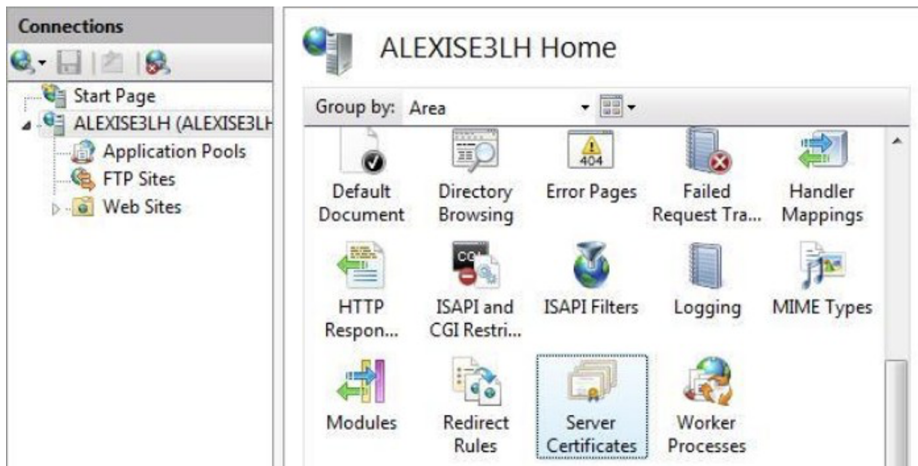
There are two options for the server certificate:

- Acquiring a paid certificate that will ensure your web security;
- Generating a self-signed certificate that will only be used for testing purposes.

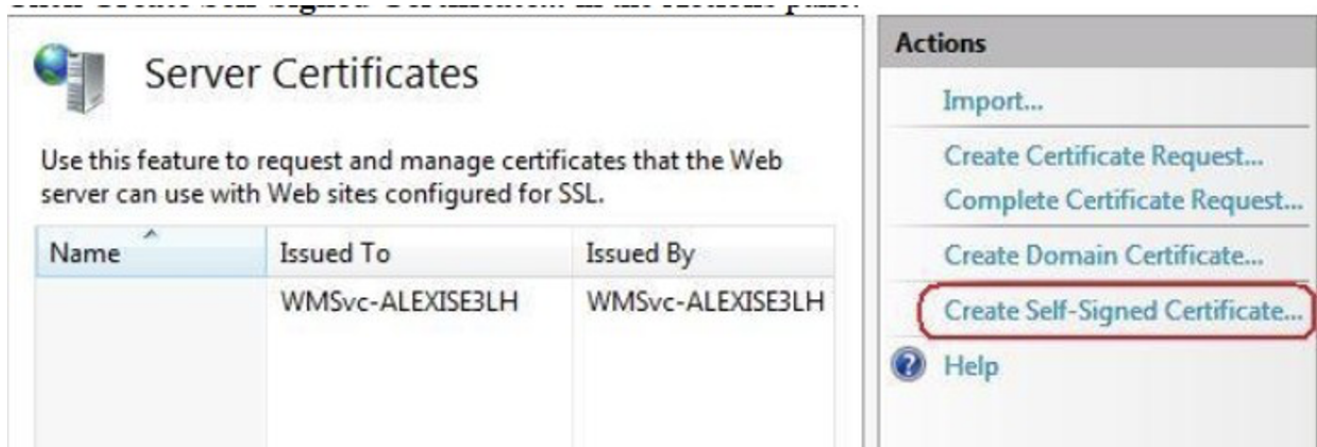
We do not recommend using a self-signed certificate in final project deployment.

If you choose to use the self-signed certificate, follow the next steps.

Select the server node in the tree view, and double-click the Server Certificates feature in the list view:



Click Create Self-Signed Certificate... in the Actions pane.

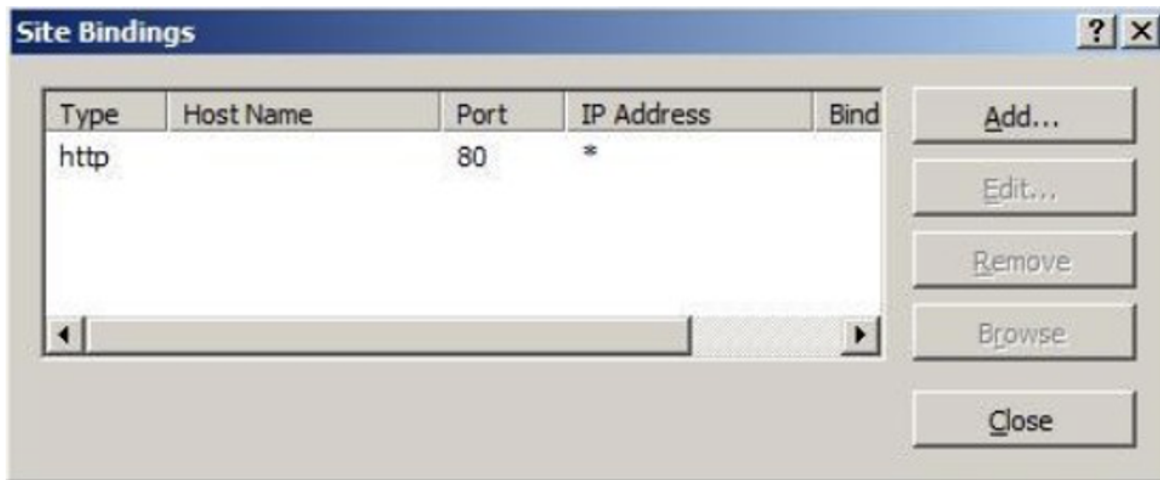


Enter a friendly name for the new certificate, and click OK.

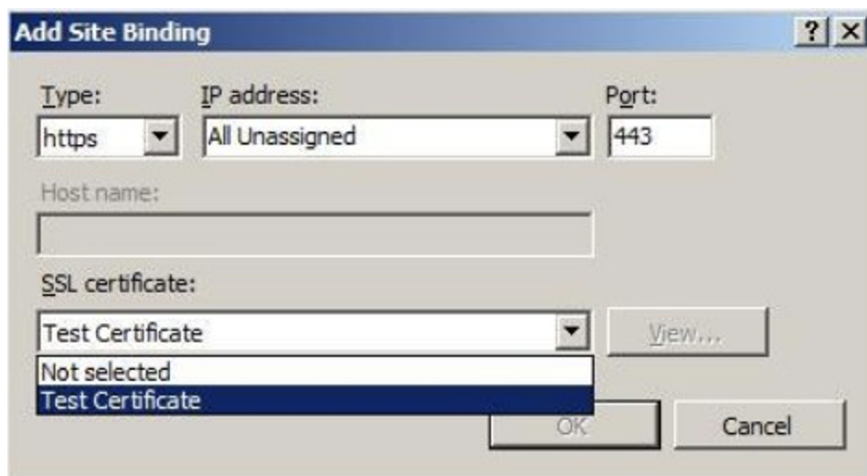
Now, you have a self-signed certificate. The certificate is marked for "Server Authentication" use, which means it uses a server-side certificate for HTTP SSL encryption and for authenticating the identity of the server.

Create an SSL Binding

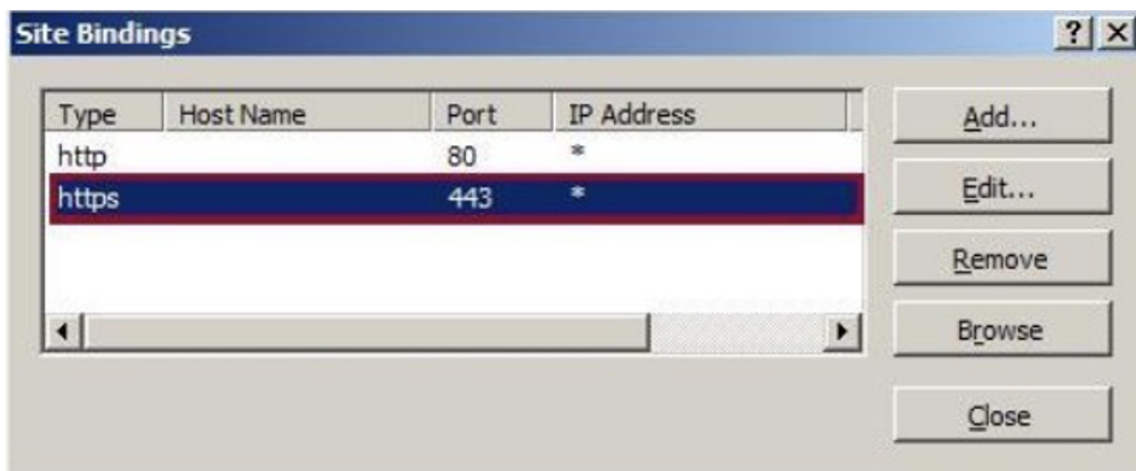
Select a site in the tree view and click Bindings... in the Actions pane. This brings up the Bindings Editor that lets you create, edit, and delete bindings for your Web site. Click Add... to add your new SSL binding to the site.



The default settings for a new binding are set to HTTP on Port 80. Select https in the Type dropdown list. Select the self-signed certificate you created in the previous section from the SSL Certificate drop-down list, and click OK.

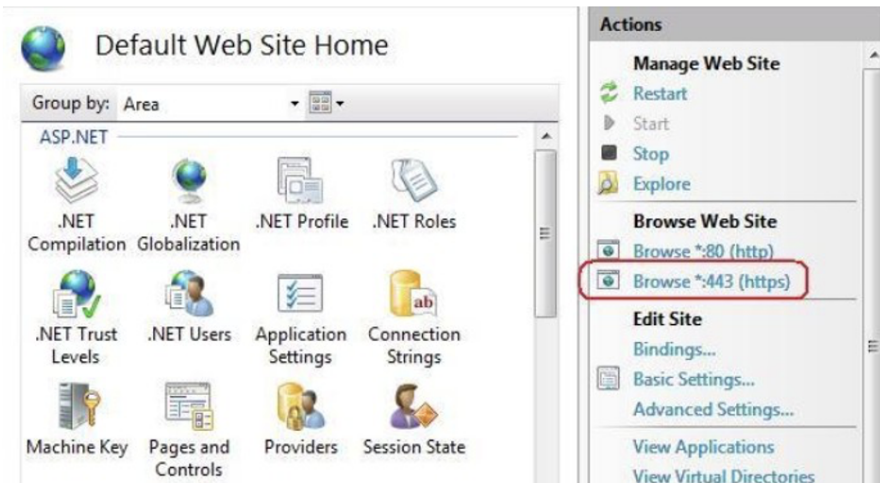



Now, you have a new SSL binding on your site and all that remains is to check if it works.



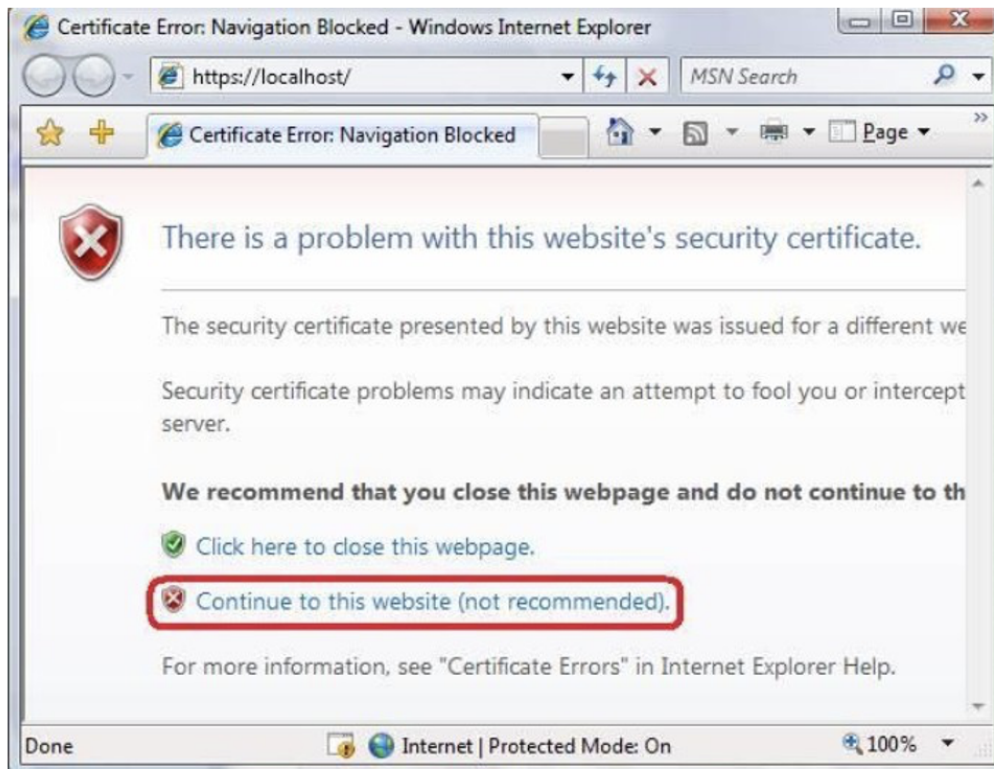
Verify the SSL Binding

In the Actions pane, under Browse Web Site, click the link associated with the binding you just created.



 Internet Explorer 7 and above will display an error page because the self-signed certificate was issued by your computer, not by a trusted Certificate Authority (CA). Internet Explorer 7 and above will trust the certificate if you add it to the list of Trusted Root Certification Authorities in the certificates store on the local computer or in Group Policy for the domain.

Click Continue to this website (not recommended).

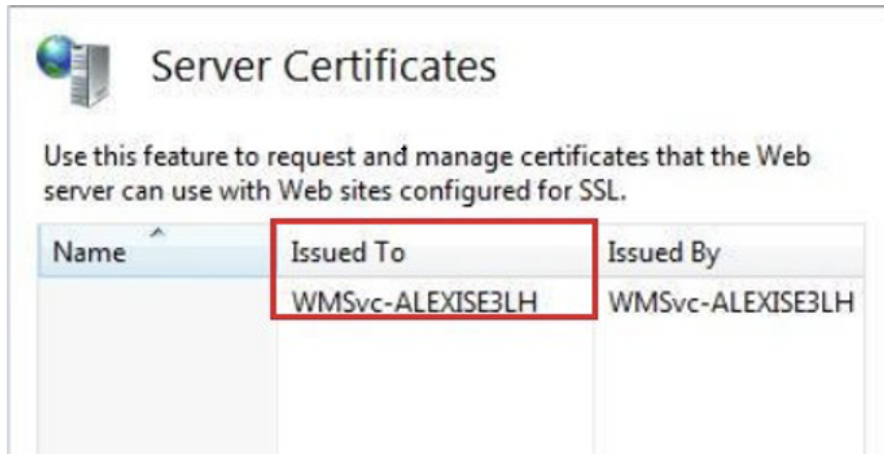


***IMPORTANT: The self-signed certificate should only be used for local development. Microsoft Internet Explorer does not trust self-signed certificates by default for security reasons.**

However, for testing propose, you need to follow the steps below:

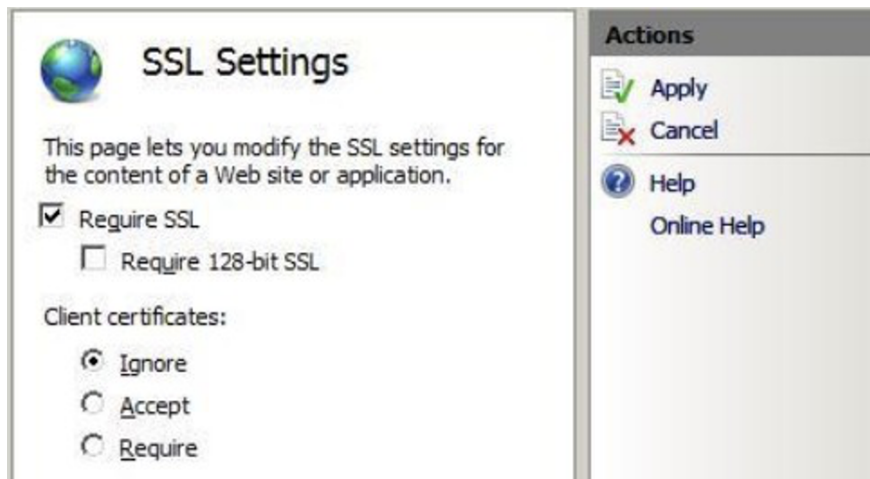
1. Browse to your page (e.g. <https://localhost:443>) in Internet Explorer, which should use your self-signed SSL certificate. You should be greeted by an error message saying your certificate is not trustworthy.
2. Click "Continue to this website".
3. Click on "Certificate error" in the address bar, and click "View certificates".

4. Click "Install Certificate".
5. Click "Place all certificates in the following store", and click "Browse". Do not rely on the preselected option to automatically select the certificate store as this will not work!
6. Inside the dialog box, click "Trusted Root Certification Authorities", and click "OK".
7. Finish the dialog.
8. When you get a security warning, click "Yes" to trust the certificate.
9. Reload your page, and the certificate should be working fine now. If the error persist, replace "localhost" in the url with the UserName the certificate was Issued To. E.g.: <https://WMSvc-ALEXISE3LH:443>.



Configure SSL Settings

Configure SSL settings if you want your site to require SSL or to interact in a specific way with client certificates. Click the site node in the tree view to go back to the site's home page. Double-click the SSL Settings feature in the middle pane.



Enable Web Client to use SSL Settings

SmartClients Only

- Open the "Web.config" file in Windows. The files are located in:

C:\ProgramFiles (x86)\Tatsoft\FactoryStudio
C:\ProgramFiles (x86)\Tatsoft\FactoryStudio\fs-2014.1

- You will find some comments regarding what command lines are used for HTTP. So, you will need to comment out the HTTP lines and uncomment the HTTPS ones.

Example

```
<!-- If using HTTP then Security Mode is None by default -->
<security mode="None" />
<!-- If using HTTP then Security Mode can use Windows Authentication -->
<!--
<security mode="Transport">
<transport clientCredentialType="Windows"/>
</security>
-->
<!-- If using HTTPS then Security Mode is Transport -->
<!--
<security mode="Transport">
<transport clientCredentialType="None"/>
</security>
-->
```

Replace with:

```
<!-- If using HTTP then Security Mode is None by default
<security mode="None" />
-->
<!-- If using HTTP then Security Mode can use Windows Authentication -->
<!--
<security mode="Transport">
<transport clientCredentialType="Windows"/>
</security>
-->
<!-- If using HTTPS then Security Mode is Transport -->

<security mode="Transport">
<transport clientCredentialType="None"/>
</security>
```

Repeat this procedure throughout the xml file.

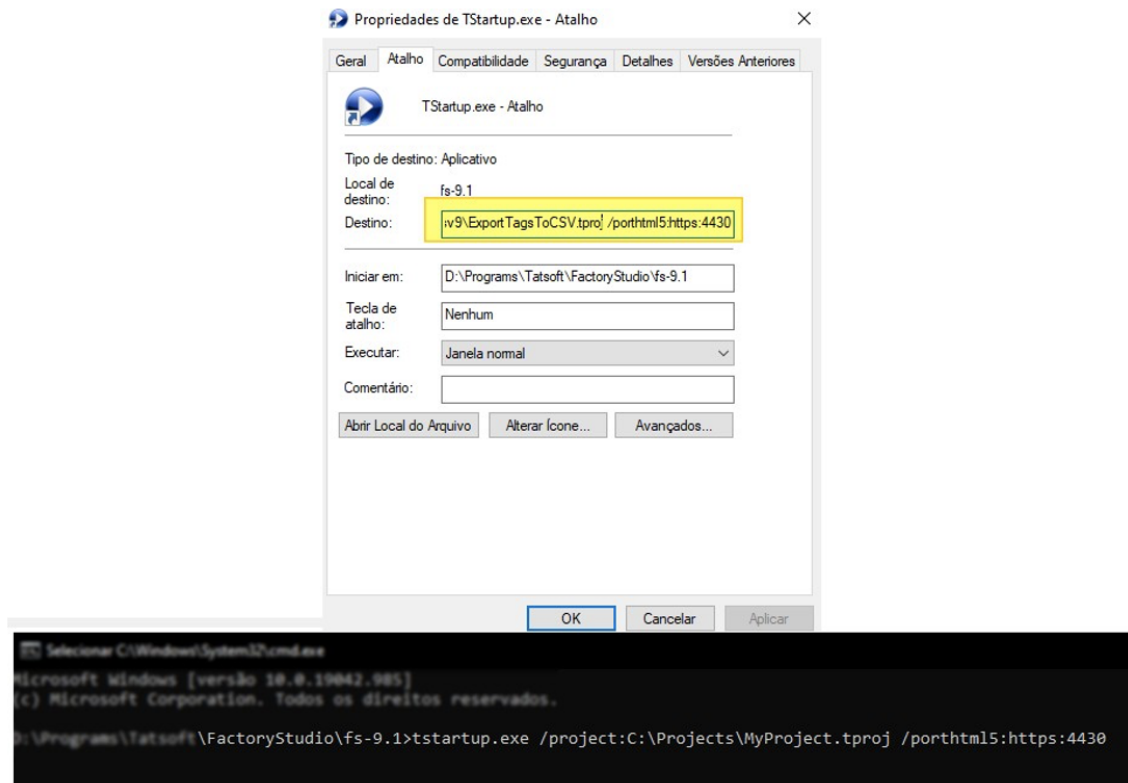


[How to Set Up SSL on IIS 7](#)

WebClients (HTML5) Only

If using https to access a WebClient (HTML5), you must inform the application of the correct port number for this connection.

To do so, create a shortcut of the *TStartup.exe* application, or launch the command prompt from the installation folder (fs-xx.x). Add the project and html5port parameters as indicated in the image.



Common Errors

Internet Explorer Security Settings

Startup URI: http://127.0.0.1/fs-2014.1/TWebClient.Xbap

Application Identity: http://vtatsoft/fs-2014.1/TWebClient.Xbap#TWebClient.xbap, Version=2014.1.71.1, Culture=neutral, PublicKeyToken=9b8998b96c4acbe9, processorArchitecture=msil/TWebClient.exe, Version=2014.1.71.1, Culture=neutral, PublicKeyToken=9b8998b96c4acbe9, processorArchitecture=msil, type=win32

This application type has been disabled.

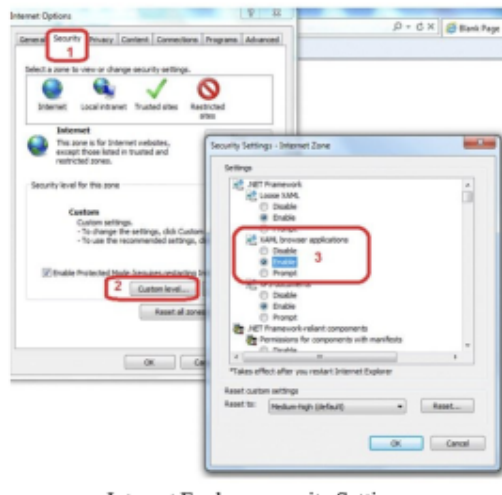
PresentationHost.exe v4.0.41210.0 built by: Main - C:\Windows\SysWOW64\PresentationHost.exe
ntdll.dll v6.1.7600.16385 (win7_rtm.090713-1255) - C:\Windows\SysWOW64\ntdll.dll
kernel32.dll v6.1.7601.18015 (win7sp1_gdr.121129-1432) - C:\Windows\syswow64\kernel32.dll
KERNELBASE.dll v6.1.7601.18015 (win7sp1_gdr.121129-1432) - C:\Windows\syswow64\KERNELBASE.dll
ADVAPI32.dll v6.1.7600.16385 (win7_rtm.090713-1255) - C:\Windows\syswow64\ADVAPI32.dll
msvcrt.dll v7.0.7601.17744 (win7sp1_gdr.111215-1535) - C:\Windows\syswow64\msvcrt.dll
sechost.dll v6.1.7600.16385 (win7_rtm.090713-1255) - C:\Windows\SysWOW64\sechost.dll
RPCRT4.dll v6.1.7600.16385 (win7_rtm.090713-1255) - C:\Windows\syswow64\RPCRT4.dll
SspiCli.dll v6.1.7601.18526 (win7sp1_gdr.140706-1506) - C:\Windows\syswow64\SspiCli.dll
CRYPTBASE.dll v6.1.7600.16385 (win7_rtm.090713-1255) - C:\Windows\syswow64\CRYPTBASE.dll
USER32.dll v6.1.7601.17514 (win7sp1_rtm.101119-1850) - C:\Windows\syswow64\USER32.dll
GDI32.dll v6.1.7601.18577 (win7sp1_gdr.140822-1508) - C:\Windows\syswow64\GDI32.dll
LPK.dll v6.1.7601.18177 (win7sp1_gdr.130605-1534) - C:\Windows\syswow64\LPK.dll
USP10.dll v1.0626.7601.18454 (win7sp1_gdr.140424-1533) - C:\Windows\syswow64\USP10.dll
ole32.dll v6.1.7600.16385 (win7_rtm.090713-1255) - C:\Windows\syswow64\ole32.dll
OLEAUT32.dll v6.1.7601.17676 - C:\Windows\syswow64\OLEAUT32.dll
mscorlib.dll v4.0.40305.0 (Main.040305-0000) - C:\Windows\SysWOW64\mscorlib.dll
SHLWAPI.dll v6.1.7600.16385 (win7_rtm.090713-1255) - C:\Windows\syswow64\SHLWAPI.dll
WININET.dll v11.00.9600.16428 (winblue_gdr.131013-1700) - C:\Windows\syswow64\WININET.dll
api-ms-win-downlevel-user32-11-1-0.dll v6.2.9200.16492 (win8_gdr_oobssr.130113-0015) - C:\Windows\syswow64\api-ms-win-downlevel-user32-11-1-0.dll
api-ms-win-downlevel-shlwapi-11-1-0.dll v6.2.9200.16492 (win8_gdr_oobssr.130113-0015) - C:\Windows\syswow64\api-ms-win-downlevel-shlwapi-11-1-0.dll
api-ms-win-downlevel-version-11-1-0.dll v6.2.9200.16492 (win8_gdr_oobssr.130113-0015) - C:\Windows\syswow64\api-ms-win-downlevel-version-11-1-0.dll
version.DLL v6.1.7600.16385 (win7_rtm.090713-1255) - C:\Windows\SysWOW64\version.DLL
api-ms-win-downlevel-normaliz-11-1-0.dll v6.2.9200.16492 (win8_gdr_oobssr.130113-0015) - C:\Windows\syswow64\api-ms-win-downlevel-normaliz-11-1-0.dll
normaliz.DLL v6.1.7600.16385 (win7_rtm.090713-1255) - C:\Windows\syswow64\normaliz.DLL
iertutil.dll v11.00.9600.17280 (winblue_r2.140818-1155) - C:\Windows\syswow64\iertutil.dll
api-ms-win-downlevel-advapi32-11-1-0.dll v6.2.9200.16492 (win8_gdr_oobssr.130113-0015) - C:\Windows\syswow64\api-ms-win-downlevel-advapi32-11-1-0.dll
USERENV.dll v6.1.7600.16385 (win7_rtm.090713-1255) - C:\Windows\syswow64\USERENV.dll
profapi.dll v6.1.7600.16385 (win7_rtm.090713-1255) - C:\Windows\syswow64\profapi.dll
urlmon.dll v11.00.9600.17280 (winblue_r2.140818-1155) - C:\Windows\syswow64?urlmon.dll
api-ms-win-downlevel-ole32-11-1-0.dll v6.2.9200.16492 (win8_gdr_oobssr.130113-0015) - C:\Windows\syswow64\api-ms-win-downlevel-ole32-11-1-0.dll
GDI32.dll v6.1.7600.16385 (win7_rtm.090713-1255) - C:\Windows\SysWOW64\GDI32.dll

Error message related to Browser security

If you get an error message like the image above, it might be related to your Browser security settings. Microsoft's automatic updates of Internet Explorer may change some defaults on .NET support, which may cause your browser to have disabled XAML browser based applications.

In order to check if it works, open the "Internet Options" of Internet Explorer, and navigate as shown in the image below.

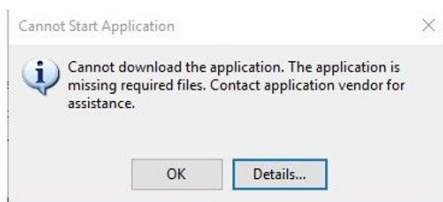
Make sure that on the .NET Framework section, the XAML browser based applications is set to Enable.



Missing File

If the error message you get is something like the following image, the problem might be related to some files being missing from the installation folder. To check for this, go to your products installation folder and search for that file.

If you do not find it, you should uninstall the product, and install it again.



ERROR SUMMARY

Below is a summary of the errors, details of these errors are listed later in the log.

- * Activation of <http://192.168.70.39/pv-2016.2/TSmartClient.application> resulted in exception. Following failure messages were detected:
 - + Downloading <http://192.168.70.39/pv-2016.2/TSmartClientOEMFiles.tzip> did not succeed.
 - + The remote server returned an error: (404) Not Found.

Binaries Modified

If the error message you get is something like the image, the problem might be related to some files being missing from the installation folder. To check for this, go to your products installation folder and search for that file.

If you do not find it, you should uninstall the product, and install it again.

```
PLATFORM VERSION INFO
  Windows : 6.3.9600.0 (Win32NT)
  Common Language Runtime : 4.0.30319.42000
  System.Deployment.dll : 4.7.2053.0 built by: NET47REL1
  clr.dll : 4.7.2114.0 built by: NET47REL1LAST
  dfdll.dll : 4.7.2053.0 built by: NET47REL1
  dfshim.dll : 6.3.9600.16384 (winblue_rtm.130821-1623)

SOURCES
  Deployment url : http://127.0.0.1/fs-8.1/TSmartClient.application
                  Server : Microsoft-HTTPAPI/2.0
  Application url : http://127.0.0.1/fs-8.1/TSmartClient.exe.manifest
                  Server : Microsoft-HTTPAPI/2.0

IDENTITIES
  Deployment Identity : TSmartClient.application, Version=2016.2.38.1, Culture=neutral, PublicKeyToken=2c011ec3ffa25081, processorArchitecture=msil
  Application Identity : TSmartClient.exe, Version=2016.2.38.1, Culture=neutral, PublicKeyToken=2c011ec3ffa25081, processorArchitecture=msil, type=win32

APPLICATION SUMMARY
  * Activation of http://192.168.70.39/pv-2016.2/TSmartClient.application resulted in exception. Following failure messages were detected:
```

Error message related to product binaries being modified.

Firewall blocking

It is quite common for a firewall to prevent remote access to the application. So, before accessing remotely, try to open a local copy of the browser locally on the server.

Run the server and the client on the same computer before trying to remotely access the application.

```
http://localhost/fs-2014.2/TWebClient.Xbap or http://127.0.0.1/fs-2014.2/TWebClient.Xbap
```

Or, run the server and the client with another Port number. For example, 1234.

```
http://localhost/fs-2014.2:1234/TWebClient.Xbap or http://127.0.0.1:1234/fs-2014.2/TWebClient
```

Insufficient User Permissions

If you are unable to launch the client and the error message is different from the ones above, the user currently logged into the system might not have the necessary permissions to access the files through an HTTP or HTTPS connection.

To overcome this, launch the Command Prompt as an Administrator and execute the following commands:

```
For port used in HTTP (in this example 80)

netsh http add urlacl url=http://+:80/thtml5/+ sddl=D:(A;GX;;;IU) For port used in HTTPS (in this example 4430)
netsh http add urlacl url=https://+:4430/thtml5/+ sddl=D:(A;GX;;;IU)
```

