

Allen Conway's .NET Weblog

Exploring All Things .NET And Beyond...

Wednesday, FEB 8, Applying and Using a SSL Certificate With A Self-Hosted WCF Service

(Please read my 1st post on this topic called [Create A Self-Signed SSL Certificate Using IIS 7](#) if you need to know how to create a self signed SSL certificate)

If you create enough WCF services eventually you are probably going to need to self host your WCF Service as opposed to using IIS. The most common way of doing this is probably a Windows Service which is a great environment to host WCF services as they automatically begin and end with the server and OS being up or down and are always running in the background.

However when using a Windows Service you might find it is not as straight forward to use a SSL certificate with your exposed WCF service. This is true as there is no wizard style interface for applying SSL certificates to Windows Services like IIS provides, however after following the steps outlined here you will see that it is not so bad. Overall the process is easy to repeat for multiple services and ports once you are used to doing it.

The 1st step is to configure your WCF service to use a binding and configuration that supports HTTPS and SSL. For this example, we will use a simple WCF service that uses the 'basicHttpBinding' configuration. As with any WCF configuration, remember the references to the contract Interface and implementing class are *case sensitive* so if you run into any errors check your spelling. The main configuration changes to allow HTTPS on the service are to change the metadata publication binding to 'mexHttpsBinding' and by setting 'httpsGetEnabled' to 'true' on the service behavior. The SSL is handled by transport-level security using certificates. The entire service configuration is below:

```
?
1 <system.serviceModel>
2
3 <!--WCF Services Defined-->
4 <services>
5   <service name="WcfServiceTest.MyWCFService"
6     behaviorConfiguration="MyWCFServiceBehavior">
7     <endpoint address=""
8       binding="basicHttpBinding"
9       bindingConfiguration="BasicHttpSSLBinding"
10      contract="WcfServiceTest.IMyWCFService" />
11     <endpoint address="mex"
12       binding="mexHttpsBinding"
13       contract="IMetadataExchange" />
14   </service>
15 </services>
16 <host>
17   <baseAddresses>
18     <add baseAddress="https://DevMachine1234:8050/WCFServices
19 /MyWCFService" />
20   </baseAddresses>
21 </host>
22 </service>
23 </services>
24 <!--WCF Service Behavior Configurations-->
25 <behaviors>
26   <serviceBehaviors>
27     <behavior name="MyWCFServiceBehavior">
28       <serviceMetadata httpsGetEnabled="true" httpGetEnabled="false" />
29       <serviceDebug includeExceptionDetailInFaults="false" />
30     </behavior>
31   </serviceBehaviors>
32 </behaviors>
33 </system.serviceModel>
```

About Me



Allen Conway

I am a Magenic Senior Consultant that is an advocate of Microsoft .NET technologies and the Microsoft platform both professionally and personally. I enjoy the challenge and creativity behind software engineering, and hope during this process to extract some of my thoughts and ideas in order to give back to others in the community here on this Blog.

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```

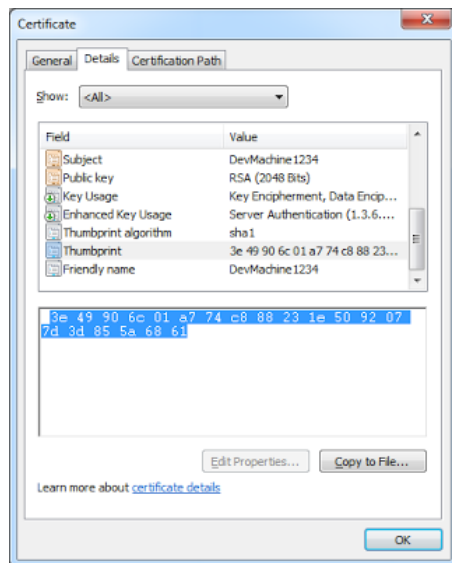
    </serviceBehaviors>
</behaviors>
32
33 <!--WCF Service Binding Configurations-->
34 <bindings>
35   <basicHttpBinding>
36     <binding name="BasicHttpSSLBinding">
37       <security mode="Transport" />
38     </binding>
39   </basicHttpBinding>
40 </bindings>
41
</system.serviceModel>

```

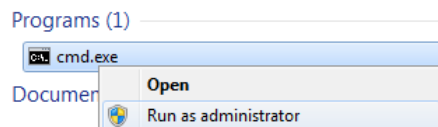
Notice the 'baseAddress' value I used. The most important part here is that the host name of the service **must match** that of the SSL certificate I bind to the port selected. In my instance the machine name is 'DevMachine1234' and so is the name of my SSL certificate. You can actually create a SSL certificate named 'localhost' if you prefer and use that instead. If this is a true production service and you make the service address MyWcfService.com, then you will need to get a SSL cert with a matching name from a provider like Verisign or GoDaddy. Test this all and have a *complete* understanding before spending money on SSL certificates; no use wasting money on a misunderstood process.

Also notice I selected port '8050'. This is arbitrary, but remember there are certain port restrictions, and only 1 SSL certificate can be bound to any single port. We now need to apply the SSL certificate for our service (we are using a self-signed certificate for testing purposes) to the 8050 port before we can test our service.

The 1st thing we need is the **Thumbprint** value from the SSL certificate. We *can* use IIS to look at the installed SSL cert and grab the thumbprint value. Open up IIS, and select 'Server Certificates'. Double-click on the appropriate SSL certificate and go to the details tab. Scroll to the bottom and find the 'thumbprint' value of the certificate. Copy it out from the 1st character to the last into notepad and remove all spaces. Take caution to not copy the 1st space as it will translate into a '?' (question mark) when pasted into the command window to apply the SSL certificate in a later step. Save this for the next step.



Begin by clicking on the 'Start' button in windows and type in 'CMD' in the search box but *do not* press enter yet. Right-click the 'cmd' program and select 'Run as administrator' as shown below. This ensures we add the SSL certificate to the port with proper rights.

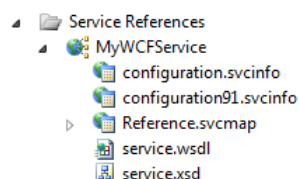


We need to use the 'netsh' tool (replacement in W2K8 and Windows 7 for the old httpcfg.exe tool) to apply the SSL certificate. We need the certificate thumbprint

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The successfully added service will be shown in Solution Explorer with the name you provided.



My recommendation is to get all of this working as I did in a local test environment 1st and understand all of the pieces. For those totally new to WCF it can be a lot to digest and fixing problems can take time and a deeper understanding of WCF so be patient.

For more information on the other commands available to the **netsh.exe** command line tool (like removing SSL certificates from a port), please see the following reference:

[Netsh commands for HTTP](#)

Posted By Allen Conway On 2/08/2012 11:49:00 PM

Labels: [SSL](#), [VS.NET 2010](#), [WCF](#)

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7 Comments:

[Cheap WildCard SSL](#) said...

Thanks for the following reference link Netsh commands for HTTP. That's really helped us for HTTP.

March 23, 2012 At 6:44 AM

[Sarah Whitehead](#) said...

Great guide! I always had a problem with port forwarding in the past. I have yet to come across a guide as comprehensive when setting up my [wildcard ssl cert](#) , keep it up =)

April 4, 2012 At 8:25 AM

[wildcard ssl cert](#) said...

Thankyou, I've been trying to work out the intricacies of this for quite a while now. I've been wondering if I can get my ssl certification to run and become validated on multiple servers at the same time, is this possible?

April 11, 2012 At 4:18 AM

[Khoa Nguyen](#) said...

Awesome ! Many thanks Allen

January 9, 2013 At 6:59 PM

Anonymous said...

Many thanks! Helped me debug webHttp with SSL issues.

April 21, 2013 At 5:00 AM

Felipe Ceotto said...

Hello there! Thanks for the great post, I'm doing exactly the same as you are here but now I am getting an HTTP 403 error when my client calls my basicHttpBinding service that is running with a cert and HTTPS. Any ideas of what could be going wrong?

Thanks!

May 1, 2013 At 6:08 AM

Allen Conway said...

@Felipe - I do not remember coming across a 403 specifically, but it's probably something with configuration. Look into the details of 403 message to see if it offers any help. There are also several posts on Stack Overflow like this one about this issue: <http://stackoverflow.com/questions/8496888/wcf-wsdl-over-https-returns-403-forbidden>

May 9, 2013 At 11:19 AM

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