

Installing PRESTO Starter Kit Samples

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Version 1.0 dated 2006-09-05.

Abstract

This document walks through the requirements to execute the several samples that constitute the Starter Kit itself and how to install them.

Furthermore, in order to use the security features of the PRESTO Prototype Samples, related certificates must be installed. This document then walks the reader through the steps required to install the X.509 certificates, and examines the steps to use install alternative certificates.

Feedback

Your feedback is important to us. Your participation and feedback through the PRESTO Starter Kit Feedback mailbox (<mailto:prestosk@microsoft.com>) is appreciated to make the PRESTO Starter Kit better.

PRESTO Starter Kit Requirements

System requirements

The PRESTO Starter Kit is designed for Windows XP Service Pack 2 (SP2), Windows Server 2003 Service Pack 1 (SP1) and Windows Vista. You must have the following components installed:

- Microsoft .NET Framework 3.0
- Microsoft Windows Software Development Kit (SDK) for .NET Framework 3.0
- Microsoft Visual Studio 2005 or Microsoft Visual C# 2005 Express Edition with:
 - Microsoft Visual Studio 2005 extensions for .NET Framework 3.0 (Windows Communication Foundation & Windows Presentation Foundation)
 - Microsoft Visual Studio 2005 Tools for the 2007 Microsoft Office System

The Microsoft .NET Framework 3.0 (formerly known as WinFX), is the new managed code programming model for the Windows platform. It combines the power of the .NET Framework 2.0 with new technologies for building applications that have notably seamless communication across technology boundaries, and the ability to support a wide range of business processes. Among these new technologies are the Windows Communication Foundation (WCF) and the Windows Workflow Foundation (WF).

The Windows Communication Foundation (previously codenamed "Indigo") is Microsoft's unified framework for building secure, reliable, transacted, and interoperable distributed applications. It provides among many others thing a full implementation of the WS-* specifications the PRESTO protocol relies on. The related service-oriented programming model is built on the Microsoft .NET Framework and greatly

simplifies development of connected systems as illustrated by the several PRESTO samples available as part of the present PRESTO Starter Kit.

For more information on the WCF technology, please refer to:

- The dedicated MSDN site at <http://msdn2.microsoft.com/en-us/netframework/default.aspx>;
- The community site at <http://www.netfx3.com>;

The Microsoft .NET Framework 3.0 Redistributable Package is available as a free download at the following Internet address: <http://www.microsoft.com/downloads/details.aspx?FamilyId=10CC340B-F857-4A14-83F5-25634C3BF043>.

The Microsoft Windows Software Development Kit (SDK) contains pre-release documentation, samples, and tools designed to help you develop Windows applications and libraries using both Win32 and .NET Framework 3.0 technologies. The Microsoft Windows Software Development Kit for Windows Vista and .NET Framework 3.0 Runtime Components is available as a free download at the following Internet address: <http://www.microsoft.com/downloads/details.aspx?FamilyId=C2B1E300-F358-4523-B479-F53D234CDCCF>.

The Development Tools for .NET Framework 3.0 provides developers with support for building .NET Framework 3.0 applications using the final released version of Visual Studio 2005 or Visual C# 2005 Express Edition. This support includes XAML Intellisense support through schema extensions for the editor, project templates for the Windows Communication Foundation used as the basis for the PRESTO samples, and .NET Framework 3.0 SDK documentation integration.

Visual C# 2005 Express Edition can be freely downloaded at the following Internet address: <http://msdn.microsoft.com/vstudio/express/visualcsharp/download>.

The Microsoft Visual Studio 2005 extensions for .NET Framework 3.0 (WCF & WPF), November 2006 CTP are available as a free download at the following Internet address: <http://www.microsoft.com/downloads/details.aspx?FamilyId=F54F5537-CC86-4BF5-AE44-F5A1E805680D>.

The Microsoft Visual Studio 2005 Tools for the 2007 Microsoft Office System (also known as “Visual Studio 2005 Tools for Office Second Edition” or “VSTO 2005 SE”) is an add-on to Microsoft Visual Studio 2005 that enables building application-level add-ins for the 2007 Microsoft Office system as well as the Microsoft Office 2003 Editions. VSTO enables to support the PRESTO protocol within the 2007 Microsoft Office system. VSTO 2005 SE is available as a free download at the following Internet address: <http://www.microsoft.com/downloads/details.aspx?FamilyID=F5539A90-DC41-4792-8EF8-F4DE62FF1E81>.

Important

VSTO 2005 SE requires Microsoft Visual Studio 2005. You cannot use Microsoft Visual C# 2005 Express Edition.

Microsoft Visual Studio 2005 Team Suite Service Pack 1 can be downloaded at the following Internet address: <http://www.microsoft.com/downloads/details.aspx?familyid=BB4A75AB-E2D4-4C96-B39D-37BAF6B5B1DC>.

 **Important**

This Service Pack is intended only for Microsoft Visual Studio 2005.

 **Important**

If the PRESTO Starter Kit is installed on a Windows Vista machine, you also may want to apply the Visual Studio 2005 Service Pack 1 Update for Windows Vista. This Service Pack can be downloaded at the following Internet address:

<http://www.microsoft.com/downloads/details.aspx?FamilyID=90e2942d-3ad1-4873-a2ee-4acc0aace5b6>.

How to install the system requirements

▶ Following is the install list for setting up a development environment for the Microsoft .NET Framework 3.0:

1. Install the Microsoft .NET Framework 3.0 for Windows XP and Windows Server 2003. This is not required for Windows Vista since it already has the .NET Framework 3.0 but you do need to ensure you are using the RTM release of Windows Vista to get the right build of .NET Framework 3.0.
2. Install the Windows SDK from which you get help documentation and SDK samples. This install isn't truly required for .NET Framework 3.0 development as you can view the SDK documentation and access the SDK samples online: <http://msdn2.microsoft.com/en-us/library/aa388579.aspx> respectively <http://msdn2.microsoft.com/en-us/library/ms751514.aspx>.
3. Install Microsoft Visual Studio 2005 (or Microsoft Visual C# 2005 Express Edition). As stated before, VSTO 2005 SE requires Visual Studio 2005.
4. Install the Microsoft Visual Studio 2005 extensions for .NET Framework 3.0 (WCF & WPF), which includes tools as its name indicates for WCF and WPF.
5. Install the Microsoft Visual Studio 2005 Tools for the 2007 Microsoft Office System.
6. Install the Microsoft Visual Studio 2005 Team Suite Service Pack 1. As stated before, please also note that a Visual Studio Support Update on Windows Vista is available. The Visual Studio 2005 Service Pack 1 Update for Windows Vista isn't a requirement for running the PRESTO Starter Kit on Windows Vista.

Caution

For best results, install on a computer that has not had pre-release versions of the Microsoft .NET Framework 3.0 installed on it. If your computer has a pre-release version on it, please start by reading the associated README (<http://msdn.microsoft.com/windowsvista/support/relnotes/netfx3/default.aspx>) which includes important uninstall instructions for previous builds of the Microsoft .NET Framework 3.0.

You will have to use the Pre-released Microsoft .NET Framework 3.0 Uninstall Tool available as a free download at the following Internet address:

<http://www.microsoft.com/downloads/details.aspx?FamilyId=AAE7FC63-D405-4E13-909F-E85AA9E66146>.

You will have to follow the Uninstall Instructions below to uninstall these pre-release bits before installing the Microsoft .NET Framework 3.0. You must remove them in the correct order to ensure a clean uninstall.

Finally, if you have a pre-release version of MSDN, Visual Studio 2005, you must uninstall them by following VS pre-RTM Uninstall Instructions.

PRESTO Starter Kit Setup Batch Files and Scripts

Setup and cleanup batch files under directory location where you installed the PRESTO Starter Kit and scripts underneath in the *Scripts* subdirectory should be run from the SDK command prompt. Several setup and cleanup files perform tasks that require administrative privileges and as such should be launched with administrator privileges.

PRESTO Starter Kit Additional tools

The Service Trace Viewer provided with the .NET 3.0 SDK allows the operation of WCF applications like the PRESTO samples to be examined after the fact.

The Live Service Trace Viewer shows their interaction while it's happening! As such, it can serve as a tool for diagnostics and also to make any PRESTO WCF-based sample demonstration come alive. It can be freely downloaded at the following address: <http://www.cryptmaker.com/livetrace.zip>. The archive ZIP file contains the components, the assembly and the general instructions to compile and use with it any WCF application.

A "traditional" trace utility like the TcpTrace utility can be used alternatively. This utility can be freely downloaded at the following address: <http://www.pocketsoap.com/tcptrace>. General instructions on tracing WCF applications with TcpTrace are available by Aaron Skonnard in its blog: <http://pluralsight.com/blogs/aaron/archive/2006/04/17/21870.aspx>.

PRESTO Starter Kit Certificates

This section deals with the installation of the certificates used by the several WCF samples provided as part of the PRESTO Starter kit.

Quick Installation of the sample certificate

To install the certificates, create the hosts entries all at once, simply run the *install.bat* batch file in content directory. This will run each of the scripts one at a time.

To un-install everything, simply run the *uninstall.bat* batch file in content directory. This will uninstall the scripts and hosts entries. It will not delete any files.

About Certificates

For the several certificates used in the PRESTO Starter Kit samples, and for further reading about certificates please consult the documents available at the following links:

- “WHAT ARE CERTIFICATES?” (<http://technet2.microsoft.com/WindowsServer/en/Library/7b623f77-d57c-4289-baad-4b360aa10b5e1033.mspx>)
- “HOW CERTIFICATES WORK” (<http://technet2.microsoft.com/WindowsServer/en/Library/3f5fdc52-8623-4336-840d-e90b2399c8541033.mspx>)
- “CERTIFICATES TOOLS AND SETTINGS” (<http://technet2.microsoft.com/WindowsServer/en/Library/e1e34058-078c-40dd-900b-3a412d4ac31b1033.mspx>)

For further reading about CA certificates please consult the documents available at the following links:

- “WHAT ARE CA CERTIFICATES?” (<http://technet2.microsoft.com/WindowsServer/en/Library/5e9c3aa9-2623-468f-8139-9865051e232f1033.mspx>)
- “HOW CA CERTIFICATES WORK” (<http://technet2.microsoft.com/WindowsServer/en/library/0e4472ff-fe9b-4fa7-b5b1-9bb6c5a7f76e1033.mspx>)
- “CA CERTIFICATES TOOLS AND SETTINGS” (<http://technet2.microsoft.com/WindowsServer/en/Library/d5c1c4dd-7ee8-4df8-a3b0-5ae40a34e45b1033.mspx>)

The following certificates are in the *Certificates* folder:

```
ca.presto.test.cer
source.presto.test.pfx
sender.presto.test.pfx
receiver.presto.test.pfx
target.presto.test.pfx
```

The following script files are found in the *Scripts* folder:

```
Install-CAPICOM.bat
Install-certificates.vbs
Remove-certificates.vbs
Install-hosts.vbs
Remove-hosts.vbs
```

About these certificates

The certificates presented here are for demonstration purposes only. The root certificate, i.e. *PRESTO Test Root CA*, and the entity certificates are all stored as .pfx (*Personal Information Exchange* - PKCS#12) files. These certificates are used for all the scenarios in the PRESTO Starter kit.

If you wish to use the samples between multiple computers, you will need to install the only client certificates on the client computers.

If you wish to use the samples between multiple computers, you will need to manually change the `%SystemRoot%\System32\drivers\etc\hosts` file by using notepad to edit the hosts file and to add the following entries (substituting in the appropriate IP address of the server instead of 127.0.0.1)

```
127.0.0.1    source.presto.test presto.test
127.0.0.1    sender.presto.test presto.test
127.0.0.1    receiver.presto.test presto.test
127.0.0.1    target.presto.test presto.test
```

How to install the certificates

The root certificate from our fictitious PRESTO Test Root CA must be installed into the “*Trusted Root Certification Authorities*” location in the local computer store (*localMachine:root*).

The other certificates (source, sender, receiver and target) must be installed into the “*Personal*” location in the local computer store (*localMachine:my*).

The passwords for all the .pfx files are blank. This is only for testing/development purposes. Please note that this doesn’t constitute in any way a best practice.

Execute the script *Install-certificate.vbs* from the *Scripts* folder. The script will install the certificates into the appropriate stores. When the script is run it will prompt before continuing:



The script also supports two optional command line parameters, `DEBUG` and `VERBOSE`, which will provide additional information during execution.

► You may install the certificates manually through the Microsoft Management Console. In order to do so, please perform the following steps:

1. Run Start ⇒ Run.

2. Type in mmc and click OK.
3. Click File then Add/Remove Snap-in.
4. In Add/Remove Snap-in click on Add.
5. In Add standalone Snap-in select Certificates and click Add.
6. Select the Computer account option and click Next.
7. Select the Local computer: (the computer this console is running on) and click Finish.
8. Expand Certificates (Local computer).
9. Right-click Trusted Root Certification authorities and select All Tasks and Import.
10. Click Next.
11. In the File name field, type in the .pfx filename and click Next.
12. Keep the default option and click Next.
13. Click Finish.
14. Click OK.

Modification of the hosts file

The `%SystemRoot%\System32\drivers\etc\hosts` file is modified for the PRESTO Starter Kit samples so that the URLs resolve to the local machine.

Simply execute the script `Install-hosts.vbs` from the `Scripts` folder. The script will create the entries in the hosts file for the samples.

You may create the entries yourself by editing the `%SystemRoot%\System32\drivers\etc\hosts` file, and adding the following lines:

```
127.0.0.1    source.presto.test    presto.test
127.0.0.1    sender.presto.test    presto.test
127.0.0.1    receiver.presto.test  presto.test
127.0.0.1    target.presto.test    presto.test
```

ACLs for Certificate Private Keys

In order for IIS to access the private keys of the certificates, the ACLs must be set for the IIS Service account (ASPNET or Windows XP and Windows Vista, and NETWORK SERVICE on Windows 2003 Server) to have read access to the files. The certificate installation script may handle that. As of writing, this is NOT a requirement for the PRESTO Starter Kit samples.

If you need to set the permission on private keys for other certificates, you can use *findprivatekey.exe* from the Windows SDK and *cacls.exe*; substituting in the thumbprint of the other certificate:

```
[c:\]\findprivatekey.exe my localmachine -t "d47de657fa4902555902cb7f0edd2ba9b05debb8" -a
C:\ProgramData\Microsoft\Crypto\RSA\MachineKeys\6799c8288a6ee49d3fc35f2424524993_4872db96-95c8-43fa-8498-
b2d31edcc120cacls
[c:\]cacls C:\ProgramData\Microsoft\Crypto\RSA\MachineKeys\6799c8288a6ee49d3fc35f2424524993_4872db96-95c8-43fa-8498-
b2d31edcc120 /G ASPNET:R
Are you sure (Y/N)?y
processed file: C:\ProgramData\Microsoft\Crypto\RSA\MachineKeys\6799c8288a6ee49d3fc35f2424524993_4872db96-95c8-43fa-
8498-b2d31edcc120
```

How to uninstall the certificates

To uninstall the sample certificates, and hosts entries, you can run the following scripts:

```
Remove-certificates.vbs
Remove-hosts.vbs
```

All the registration of the certificates, hosts will be removed. **The files will not be deleted from the install directory.**

Troubleshooting

Internet Explorer Proxy Settings: In order that the samples work properly you may have to add the following to your Internet Explorer settings to bypass the proxy:

```
source.presto.test;sender.presto.test;receiver.presto.test;target.presto.test
```

If you use an automatically discovered proxy, you may need to turn off automatic discovery, and manually enter the proxy information. Ask your system administrator for details about your proxy configuration.

Creating your own certificates

As stated before, X.509 certificates are issued by the Certificate Authority like Certificate Services available as part as the Windows Server 2003 SP1/R2 platform. However, in order to mimic the usage of certificates issued from a real PKI infrastructure while avoiding to setting it for the PRESTO Starter Kit samples, the above X.509 certificates have all been created with the Certificate Creation tool *Makecert.exe*.

This tool is part of the Microsoft Windows Software Development Kit and is installed as part of the requirements.

This tool generates X.509 certificates for development/testing purposes only. It allows generating both a trusted root certificate and a certificate signed by that trusted root certificate for encryption

and/or signature purposes. In this way, you can create a testing/development certificate as required by your PRESTO-enabled applications. Please note that, since X.509 certificates built with *Makecert.exe* do not have a CDP (*CRL Distribution Point*) extension, revocation checking has to be turned off, otherwise such certificates will be considered expired.

The following simple steps have been followed to create the above certificates.

All X.509 certificates used by the PRESTO Starter Kit samples are linked to the same “Root” certificate, i.e. the PRESTO Test Root CA certificate. This certificate has to be created first.

Step 1 - Creating the PRESTO “Root” certificate



Makecert.exe must be used instead to issue both the PRESTO Test Root CA certificate and the appropriate signing and encryption certificates underneath in the chain hierarchy on the computer(s) that will be hosting the several PRESTO Starter Kit components.

▶ At a command-line, run the following command as a single line to create the “Root” certificate and the corresponding key material: `makecert -pe -n "cn=PRESTO Test Root CA" -ss root -sr localMachine -a sha1 -sky signature -r C:\ca.presto.test.cer`

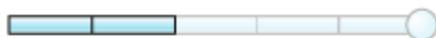
In the command line, PRESTO Test Root is just a sample-name of a fictitious Root CA name. At this stage, you have created the “Root” certificate for PRESTO Test Root CA and its private key. The “Root” certificate was added to the computer personal certificate store and is available separately as file (*ca.presto.test.cer*).

The several command line arguments are explained at the following Internet address:

<http://msdn2.microsoft.com/en-us/library/bfskty3.aspx> .

Makecert.exe includes basic and extended options. Basic options are those most commonly used to create a certificate. Extended options provide more flexibility.

Step 2 - Exporting the PRESTO “Root” certificate



▶ To export the “root” as a .pfx file, perform the following steps:

1. Run Start ⇒ Run.
2. Type in mmc and click OK.
3. Click File then Add/Remove Snap-in.
4. In Add/Remove Snap-in click on Add.
5. In Add standalone Snap-in select Certificates and click Add.

6. Select the Computer account option and click Next.
7. Select the Local computer: (the computer this console is running on) and click Finish.
8. Expand Certificates (Local computer).
9. Expand Trusted Root Certification Authorities and Certificates underneath.
10. On the right side, right-click the *PRESTO Test Root CA* certificate and select All Tasks and then Export.
11. Click Next.
12. In the Export Private Key page, select Yes, export the private key and click Next.
13. In the Export File Format page, keep the default settings and click Next.
14. Leave blank the Password and Confirm password fields and click Next. This is only for testing/development purposes. Please note that this doesn't constitute in any way a best practice.
15. In the File name field, type in `C:\ca.presto.test.pfx` and click Next.
16. Click Finish.
17. Click OK.

Step 3 - Creating the PRESTO application and proxy certificates



Once you have created the “Root” certificate properly, you can create the certificate and the corresponding key-material for the PRESTO applications and proxies.

Creating the PRESTO source application certificate

The PRESTO-enabled source application uses a signing and encryption certificate to:

- Digitally sign part(s) of the one-way or request message to be sent that have to in accordance to the PRESTO protocol specification. The certificate requires the Code Signing EKU (*Enhanced Key Usage*): `1.3.6.1.5.5.7.3.3`.
- Communicate securely with its remote counterpart, i.e. a PRESTO receiver proxy or the PRESTO target application if it natively supports the PRESTO protocol. This certificate requires the Client Authentication EKU (*Enhanced Key Usage*): `1.3.6.1.5.5.7.3.2`.

▶ Run the following command as a single line: `makecert -pe -n "CN=PRESTO Source Application" -ss my -sr localMachine -a sha1 -sky exchange -eku 1.3.6.1.5.5.7.3.3,1.3.6.1.5.5.7.3.2 -in "PRESTO Test Root CA" -is ROOT -ir LocalMachine -sp "Microsoft RSA SChannel Cryptographic Provider" -sy 12 C:\source.presto.test.cer`

Creating the PRESTO sender proxy certificate

Likewise, since a PRESTO sender proxy acts on behalf a non PRESTO-enabled source application, it not surprisingly uses a signing and encryption certificate to both digitally sign part(s) of the message to be sent that have to and communicate securely with its remote counterpart. As stated above, this client signing and encryption certificate requires the Code Signing and Client Authentication EKUs (*Enhanced Key Usage*), which are respectively 1.3.6.1.5.5.7.3.3 and 1.3.6.1.5.5.7.3.2.

▶ Run the following command as a single line: `makecert -pe -n "CN=PRESTO Sender Proxy" -ss my -sr localMachine -a sha1 -sky exchange -eku 1.3.6.1.5.5.7.3.3,1.3.6.1.5.5.7.3.2 -in "PRESTO Test Root CA" -is ROOT -ir LocalMachine -sp "Microsoft RSA SChannel Cryptographic Provider" -sy 12 C:\sender.presto.test.cer`

Note

This certificate is currently not used by any of the PRESTO Starter Kit samples. The command to create the certificate and the certificate itself is provided for your own convenience in case of.

Creating the PRESTO receiver proxy certificate

Conversely, a PRESTO receiver proxy acts on behalf a non PRESTO-enabled target application. It uses a signing and encryption certificate to both digitally sign part(s) of the response message to be sent that have to and communicate securely with its client initiator counterpart. This server signing and encryption certificate requires the Code Signing and Server Authentication EKUs (*Enhanced Key Usage*), which are respectively 1.3.6.1.5.5.7.3.3 and 1.3.6.1.5.5.7.3.1.

▶ Run the following command as a single line: `makecert -pe -n "CN=PRESTO Receiver Proxy" -ss my -sr localMachine -a sha1 -sky exchange -eku 1.3.6.1.5.5.7.3.3,1.3.6.1.5.5.7.3.1 -in "PRESTO Test Root CA" -is ROOT -ir LocalMachine -sp "Microsoft RSA SChannel Cryptographic Provider" -sy 12 C:\receiver.presto.test.cer`

Note

This certificate is currently not used by any of the PRESTO Starter Kit samples. The command to create the certificate and the certificate itself is provided for your own convenience in case of.

Creating the PRESTO target application certificate

▶ Similarly, run the following command as a single line: `makecert -pe -n "CN=PRESTO Target Application" -ss my -sr localMachine -a sha1 -sky exchange -eku 1.3.6.1.5.5.7.3.3,1.3.6.1.5.5.7.3.1 -in "PRESTO Test Root CA" -is ROOT -ir LocalMachine -sp "Microsoft RSA SChannel Cryptographic Provider" -sy 12 C:\target.presto.test.cer`

Step 4 - Exporting the PRESTO application and proxy certificates



▶ To export the “root” as an .SST (*Microsoft Serialized Certificate Store*) file, perform the following steps:

1. Run Start ⇒ Run.
2. Type in mmc and click OK.
3. Click File then Add/Remove Snap-in.
4. In Add/Remove Snap-in click on Add.
5. In Add standalone Snap-in select Certificates and click Add.
6. Select the Computer account option and click Next.
7. Select the Local computer: (the computer this console is running on) and click Finish.
8. Expand Certificates (Local computer).
9. Expand Personal and Certificates underneath.
10. On the right side, right-click the *source.presto.test* certificate and select All Tasks and then Export.
11. Click Next.
12. In the Export Private Key page, select Yes, export the private key and click Next.
13. In the Export File Format page, keep the default settings and click Next.
14. Leave blank the Password and Confirm password fields and click Next. This is only for testing/development purposes. Please note that this doesn't constitute in any way a best practice.
15. In the File name field, type in *C:\source.presto.test.pfx* and click Next.
16. Click Finish.
17. Click OK.
18. Repeat all the steps above for the *sender.presto.test*, *receiver.presto.test*, and *target.presto.test* certificates. The export filenames are respectively in these cases *sender.presto.test.pfx*, *receiver.presto.test.pfx* and *target.presto.test.pfx*.

Step 5 - Troubleshooting Tips



This PRESTO Prototype Samples makes use of the above X.509 certificates. These certificates are accessed from both the Service and Client sides. As already mentioned, if you want to, you can substitute your own certificates.

Please note that such a substitution can impact in some ways the default configuration of the PRESTO Prototype samples. Following are some tips to fix the most probable issues.

The thumbprint of your certificates must be, of course, reflected in the App.config file of the samples:

```
<?xml version="1.0" encoding="utf-8" ?>
<configuration>
  <appSettings>
    ...
    <!-- The Service Certificate for the Identity of the IPresto endpoints -->
    <add key="serviceCertificateThumbprint" value="DC07A1A56E0E6F4E0809999149ACC98C8A6E7479" />
    <!-- The Client Certificate -->
    <add key="clientCertificateThumbprint" value="F31416E1D645367AC2DB89E31B8EF89A4E77CF21" />
  </appSettings>
  ...
</configuration>
```

Furthermore, when sending a message from whether the PRESTO-enabled Source Application or the PRESTO add-in for Office system 2007, you may be faced with an error such as *"Identity check failed for outgoing message. The expected DNS identity of the remote endpoint was 'xxx' but the remote endpoint provided DNS claim 'yyy'"*.

To fix this, you will need to explicitly specify the DNS identity of the PRESTO-enabled Target Application as the Identity property of *EndpointAddress* when creating channel proxy:

```
ChannelFactory<IPresto>factory = null;
EndpointAddress endPointAddress = null;

// Set the Service endpoint address with its Identity in case of XMLDSIG support
if (config.UseDigitalSignature)
{
  EndpointIdentity endpointIdentity = EndpointIdentity.CreateDnsIdentity(config.ServiceIdentity);
  AddressHeader[] aAH = new AddressHeader[] { };
  endPointAddress = new EndpointAddress(new Uri(config.ServiceEndpointUri + "/" + EndpointUri.oneWayRelativeAddress),
    endpointIdentity, aAH);
}
}
```

The *ServiceIdentity* property is based on the following *identity* setting in the App.config file of the samples:

```
<?xml version="1.0" encoding="utf-8" ?>
<configuration>
  <appSettings>
    ...
    <!-- The Service Identity of the IPresto endpoints -->
    <add key="identity" value="PRESTO Target Application" />
    ...
  </appSettings>
  ...
</Configuration>
```

This corresponds to the subject name value of the Service X.509 certificate.