WORKSHARE COMPARE SERVER 8.1
Administrator Guide

February 2017

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Chapter 1. Product Overview

This chapter provides an overview of Workshare Compare Server as well as a list of system requirements. It includes the following sections:

- **What is Workshare Compare Server?**, page 5, introduces Workshare Compare Server and its key functionality.
- **System Requirements**, page 5, describes the system attributes required to run Workshare Compare Server.

What is Workshare Compare Server?

Workshare Compare Server is a web service that performs server-side document comparison and exposes an API (Application Programming Interface) to allow a range of client applications to exploit this functionality. This API enables software developers to write custom software that compares two Microsoft Word, RTF, PDF or HTML documents and produces a Redline document that describes the differences between the two documents. Workshare Compare Server is installed on a server.

Workshare Compare Server exposes a simple API that allows for integration into a range of client applications and server-based solutions. For example, it can be used by custom solutions that run on your internet site, intranet site, internal network or your email system. Clients can be developed in Java, C#, C++, VB.NET and other languages to integrate Workshare Compare Server into your desktop, DMS or document applications.

System Requirements

Workshare Compare Server is designed to run on both entry level and enterprise scale servers. Recommended specifications are given below:

Hardware

CPU	64-bit architecture-based computer with Intel or AMD processor with 4 cores
Memory	4GB RAM – More memory may be needed if you intend multiple users to regularly compare long and complex documents.
Storage	1GB free disk space for installation

Supported Operating Systems

- Comparison engine
  - Microsoft Windows Server 2008 R2 Standard x64 Edition (with SP1)
  - Microsoft Windows Server 2012 R2 x64 Edition

> ***Note**: Workshare Compare Server can be installed on Microsoft Windows 7 SP1 and Windows 8 for demonstration and evaluation purposes only.*

- REST endpoint proxy
  - Microsoft Windows Server 2012 R2 x64 Edition

Chapter 2. Deploying Workshare Compare Server

This chapter describes the installation procedure for Workshare Compare Server. It includes the following sections:

- **Prerequisites**, page 7, describes the software required before installation of Workshare Compare Server.
- **Installing the Comparison Engine**, page 8, describes the step-by-step procedure required to install the Workshare comparison engine on the server.
- **Installing the REST Endpoint Proxy**, page 15, describes the process to install the REST endpoint on the server.
- **Verifying Installation**, page 17, describes how to verify the installation of Workshare Compare Server.
- **Uninstalling**, page 18, provides important information about uninstalling Workshare Compare Server.

Prerequisites

The Workshare Compare Server installation includes two elements that are both installed on the server – the comparison engine and the REST endpoint proxy. The REST endpoint proxy is an HTTP endpoint that allows comparison services to be consumed by a wide range of client applications.

Comparison Engine

The following software must be installed prior to the installation of the comparison engine:

- Windows Server Components – the relevant components must be installed first as described in *Installing Windows Components*.
- Microsoft .NET Framework 4.5 – must be installed after the relevant Windows Server components. The installer will not check for Microsoft .NET Framework 4.5 but will fail if it has not been pre-installed. For Windows Server 2008 environments, .NET Framework 4.5 can be downloaded and installed from the Microsoft website. For Windows Server 2012 environments, .NET Framework 4.5 is included.

Other prerequisites, such as the Microsoft Visual C++ 2012 SP1 Redistributable Package (x64), are included in the Workshare Compare Server installation.

> ***Note**: You need to ensure IIS is installed if you're going to install Workshare Compare Server as a website hosted within IIS.*

REST Endpoint Proxy

The REST endpoint proxy is installed separately and all prerequisites are included in the installation.

Installing the Comparison Engine

The Workshare Compare Server is provided as a standard installation file, with an additional company-specific file for licensing purposes:

WorkshareCompareService.exe	The executable file used to install Workshare Compare Server.
Product.lic	The license file that contains the Workshare Compare Server license.

Note: *Both installation files (the EXE and the LIC file) must be on a local drive of the server machine and not on a mapped network drive or UNC path.*

During install or uninstall of Workshare Compare Server, information and error entries are written to a log file called **WorkshareCompareServiceInstallEventLog.log**. This is a plain text file saved in the current user's temporary folder (for example, C:\Documents and Settings\Admin\Local Settings\Temp).

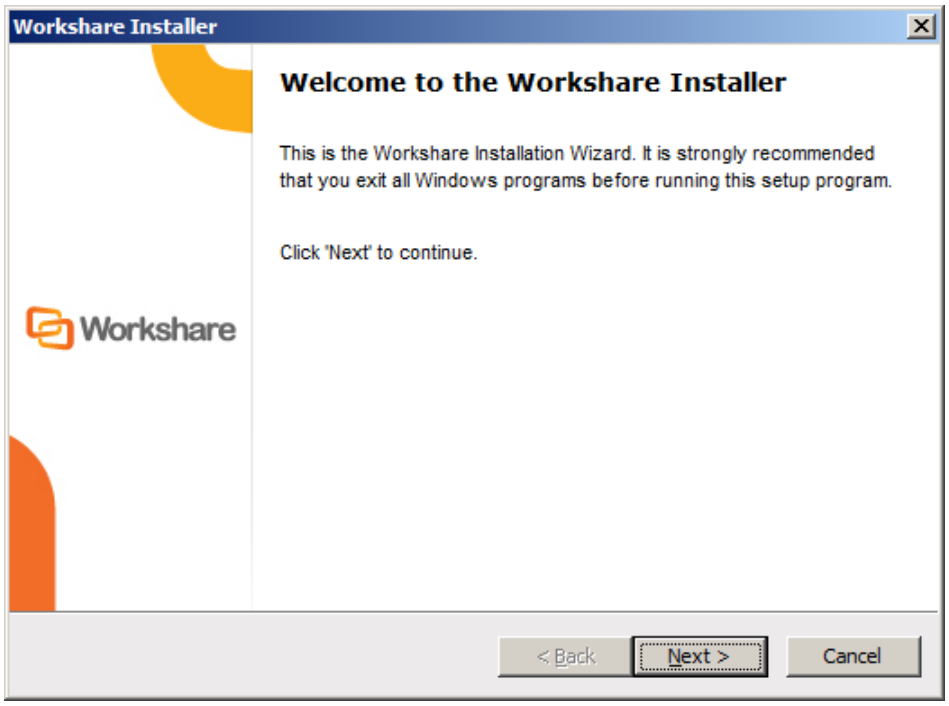
The following procedure explains how to install Workshare Compare Server on your server using the executable installer. Before beginning the installation procedure, make sure that all other programs are closed and disable any anti-virus software.

Note*: For deployments of Workshare Compare Server where domain accounts are to be used to access the web client, verify the server is correctly joined to the domain before starting the installation.*

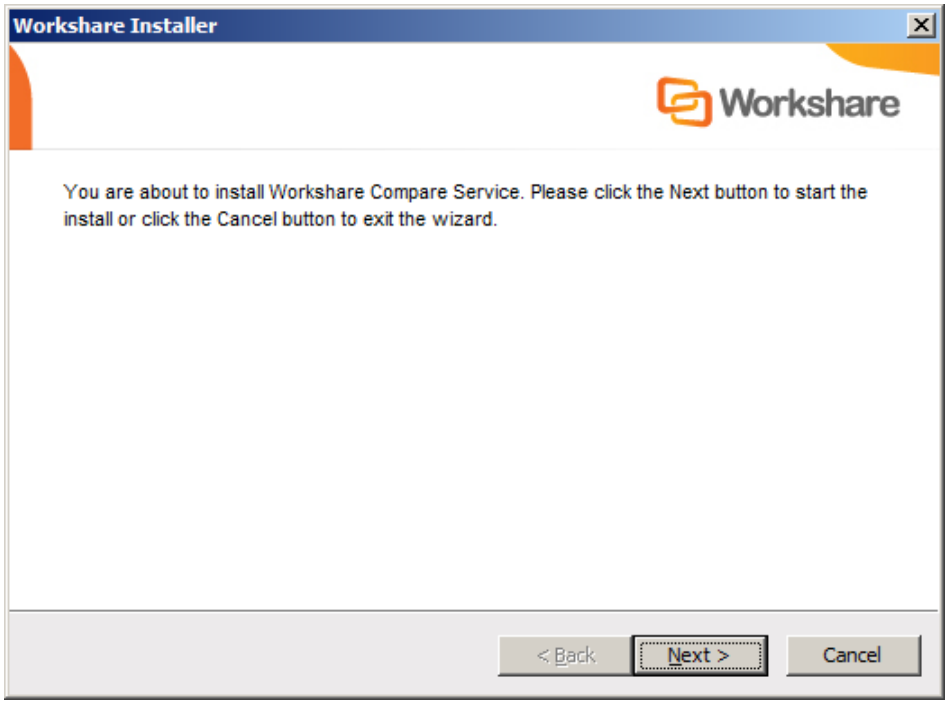
To install Workshare Compare Server:

1. Launch Windows Explorer and browse to the Workshare Compare Server download location.

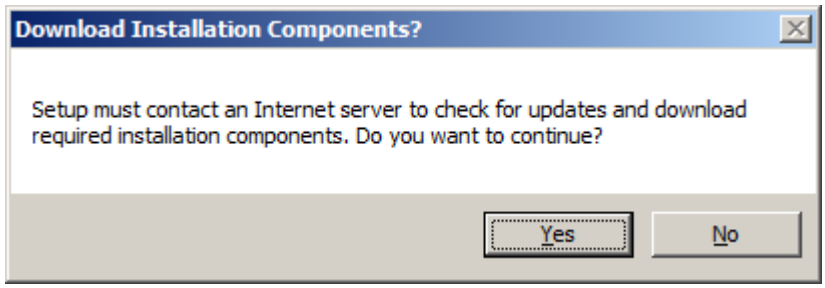
2. Double-click the **WorkshareCompareService-XXX.exe** file. This file verifies that your system has the correct components on the server and then displays the Workshare Installation Wizard.



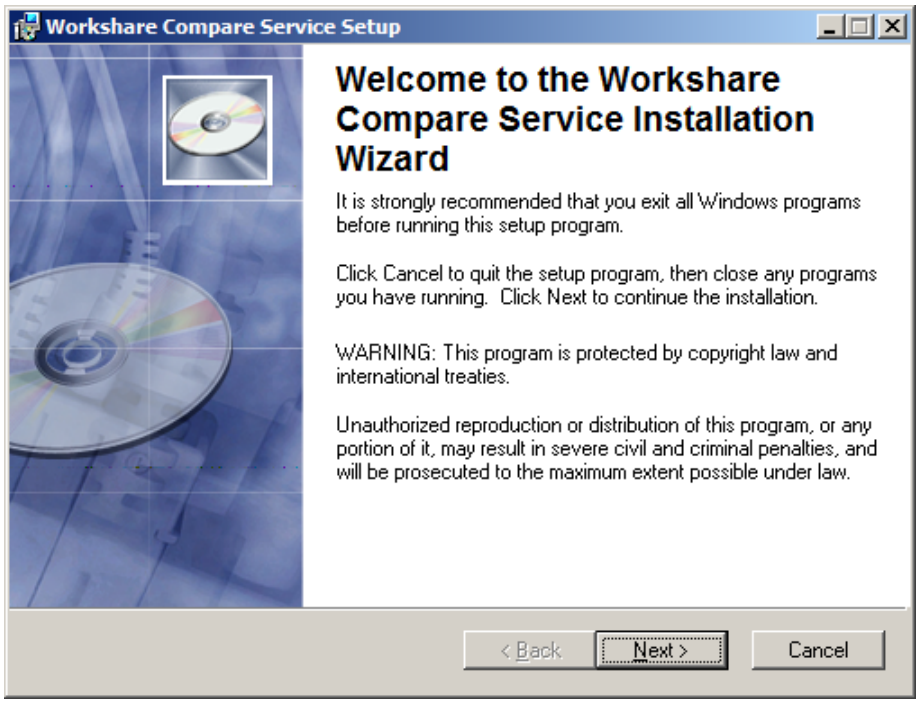
3. Click **Next**. The Ready to Install the Application screen is displayed.



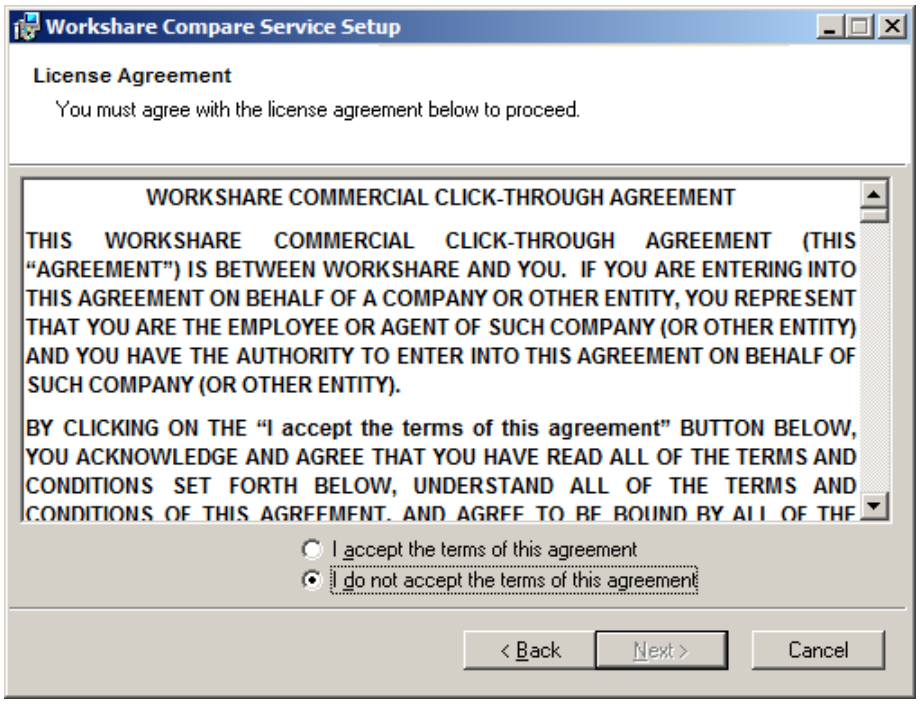
4. Click **Next**. If you do not have the Microsoft Visual C++ 2012 SP1 Redistributable Package (x64) installed, it will be installed now. A message is displayed to confirm installation.



5. Click **Yes**. The required components are downloaded and installed and the Workshare Compare Server Installation Wizard is displayed.

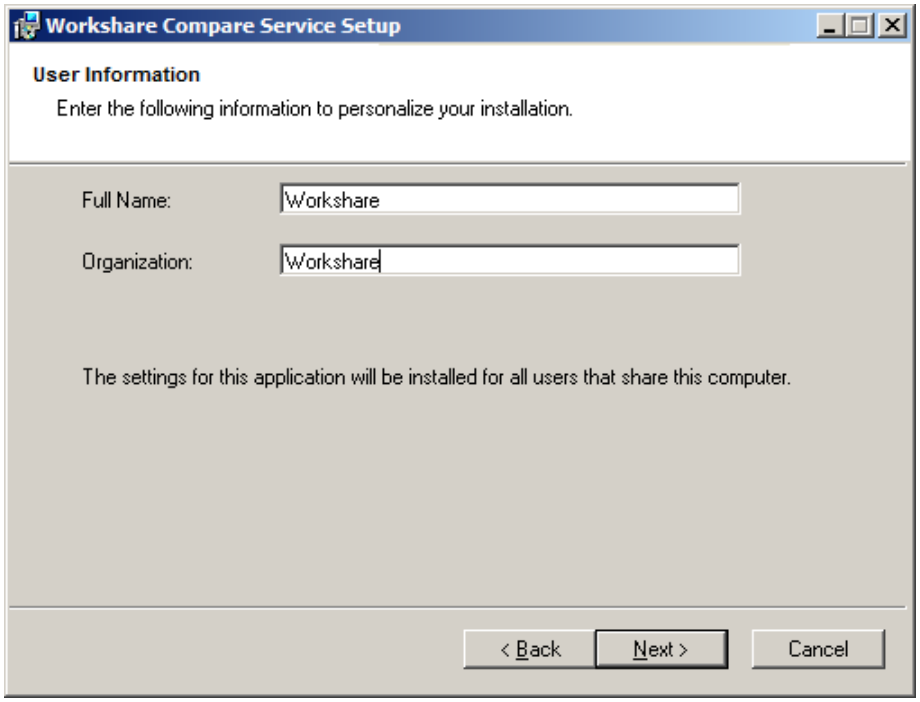


6. Click **Next**. The License Agreement screen is displayed.

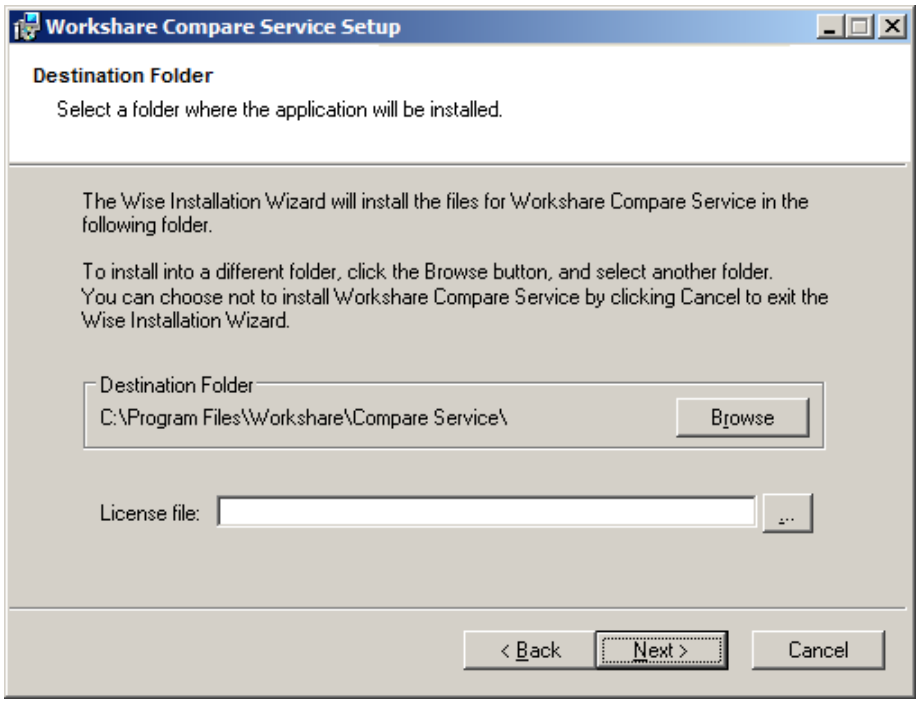


7. Read the agreement and select the **I accept the license agreement** radio button.

8. Click **Next**. The User Information screen is displayed.



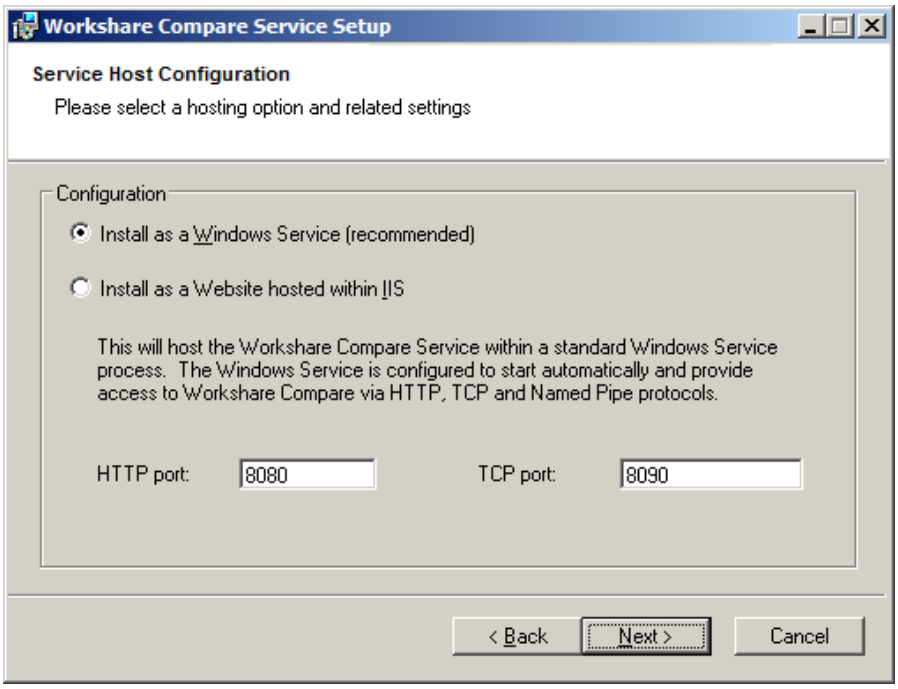
9. Enter user details as required and click **Next**. The Destination Folder screen is displayed.



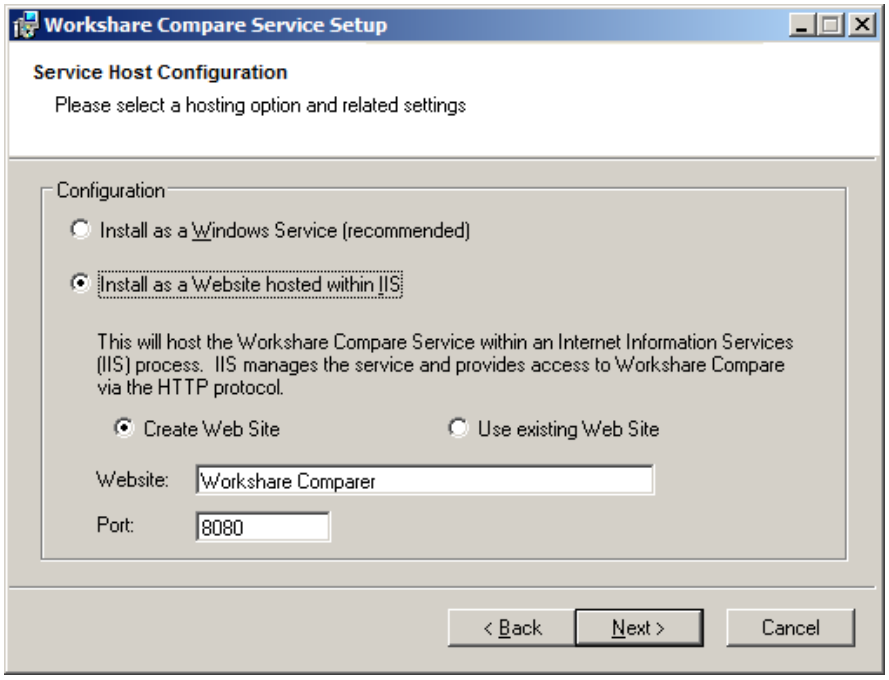
10. By default the Workshare Compare Server destination folder is set to **C:\Program Files\Workshare\Compare Service**. To change this location, click **Browse** and select an alternative location.

11. In the **License file** field, browse to the location of the product license (.lic) file. This location MUST be on the local machine.

12. Click **Next**. The Service Host Configuration screen is displayed.



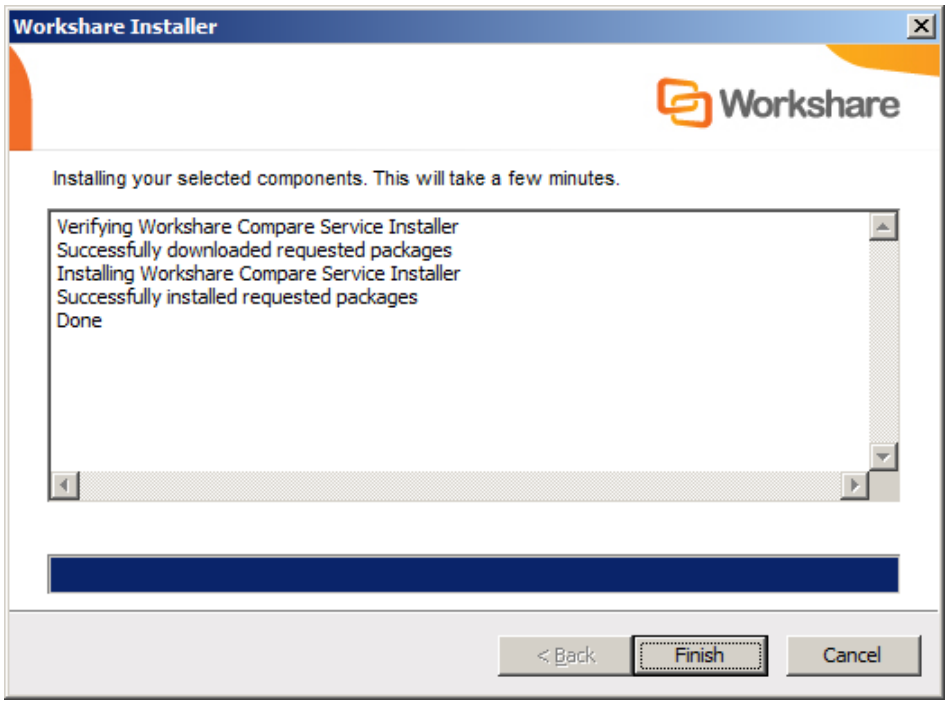
13. Select the configuration for Workshare Compare Server:
    - **Install as a Windows Service**: This provides access to Workshare Compare via the HTTP, TCP and Named Pipe protocols.
    - **Install as a Website hosted within IIS**: This provides access to Workshare Compare via the HTTP and HTTPS protocols. If you want to configure the website further, use IIS Manager.



14. When selecting to install as a Windows service, specify the HTTP and TCP ports and when selecting to install as a website, specify the website and port, or you can leave the default settings.

> ***Note**: Do not use port 80 as this will conflict with the installation of the REST endpoint proxy.*

15. Click **Next**. Workshare Compare Server is ready to install.
16. Click **Next**. Workshare Compare Server is installed. The installation process may take a few minutes. A progress bar indicates the progress of the installation.
17. Click **Finish**.



18. Click **Finish** in the Workshare Installer.

> ***Note:** If you want to compare PDFs, you must reboot the server after installation has completed or expand the tree in DCOM Config (Administrative Tools/Component Services/Computers/My Computer). This will update DCOM permissions.*

Installing the REST Endpoint Proxy

The REST endpoint proxy is deployed using a PowerShell script. A small number of configuration parameters in a configuration file can be modified to cater for most deployment scenarios.

Installation Process

Deployment should begin with a clean but fully up-to-date install of Windows Server 2012 R2, ideally with all service packs and updates installed.

Step 1: Obtain and unpack the **CompareProxyForCompareServer-<VersionNumber>.zip** file

This can be unpacked to any location on the target system. Once unpacked you will find the **SetupServer.ps1** PowerShell script among the unpacked files – this is the installation script. Additionally you will find a PowerShell script called **Configuration.ps1** – this contains all the configuration variables that may need to be changed to customize the installation.

Step 2: Edit the **Configuration.ps1** file

Make appropriate changes in the configuration file – see options and their definitions in the *Script Configuration Options* section.

Step 3: Run the **SetupServer.ps1** file

Right-click the **SetupServer.ps1** file and select **Run with PowerShell**. As the installation requires administrative permissions, you may be shown a User Account Control prompt, which you must allow.

When running the script for the first time, you may be prompted with the following message:

> Execution Policy Change
> The execution policy helps protect you from scripts that you do not trust. Changing the execution policy might expose you to the security risks described in the about_ Execution_Policies help topic at http://go.microsoft.com/fwlink/?LinkID=135170.
> Do you want to change the execution policy? [Y] Yes [N] No [S] Suspend [?] Help (default is "Y")

You must answer **Y** to this prompt to allow the installation script to run.

Script Configuration; Options

All of these configuration variables can be found and altered in the **Configuration.ps1** file.

Website Configuration	
`$WebSiteName`	The name of the website to create or use in IIS
`$AppPoolName`	The name of the application pool to create or use
`$WebSiteInstallPath`	The location on disk to install the Workshare Hybrid Storage website executable files

In most scenarios these variables can be left at their default values.

Application Pool Configuration	
`$AppPoolUserName`	The username of the windows login to be used to run the website
`$AppPoolPassword`	The password of the windows login to be used to run the website

If the `$AppPoolUserName` configuration option is left blank then the default identity will be used to run the website (**IIS AppPool\$AppPoolName**). The application pool user may need to be changed from the default under the following circumstances:

- Accessing SQL databases on a different machine using *integrated* authentication.
- Accessing a file content storage folder on a network share.

HTTPS Configuration	
`$CertificateFilePath`	The full file path to the HTTPS certificate (PFX) file to be used
`$CertificatePassword`	The password used to secure the PFX certificate file

The configuration options above need to be set for all installations (except in the case where incoming HTTPS requests will be handled at a separate reverse-proxy server which will forward the requests over HTTP to the Workshare Hybrid Storage server).

> ***Note:*** *You will only be able to configure Workshare Hybrid Storage as a storage location in Workshare if the HTTPS configuration is correct and complete.*

Compare Service Endpoint Configuration	
`$compareService URL`	The URL of the compare service

If you installed Compare Server as a windows service on the local computer, you don't need to modify this setting. By default, it will be http://localhost:8080/Comparer/compare5.

If you installed Compare Server as an IIS install, you will need to modify this setting. A default IIS install should have the value http://localhost:8080/CompareWebService.svc/compare5.

If you've customized the Compare Server install or if you're running it on another machine, you'll need to modify this setting accordingly.

Login Credential Configuration	
`$compareServiceUserName`	The user name the REST endpoint proxy uses to communicate with the Compare Server
`$compareServiceUserDomain`	The user domain the REST endpoint proxy uses to communicate with the Compare Server
`$compareServiceUserPassword`	The user password the REST endpoint proxy uses to communicate with the Compare Server

Note: *It's not normally necessary to set these values because Compare Server 8 doesn't require authentication when it's installed with the default configuration.*

Enable HTTP Basic Auth on Calls to the Endpoint	
`$AuthUserName`	The user name for HTTP Basic Auth on calls to the /api/compare endpoint
`$AuthPassword`	The password for HTTP Basic Auth on calls to the /api/compare endpoint

If these values are left blank, no authentication is required to call the /api/compare endpoint.

Note: *You should not rely on the security of these unless you have also configured HTTPS and only communicate with the server over HTTPS.*

Verifying Installation

Once installation is complete, you can verify the installation as follows:

- When installed as a website hosted within IIS, go to IIS Manager, expand the Sites node and verify the Workshare Compare Server web service is there. By default, it's called **Workshare Comparer**.
- When installed as a Windows service, verify that Workshare Compare Service is included in the Services list. Its **Status** should be **Started** and its **Startup Type** should be **Automatic**.
- Next, test the configuration is correct (when installed as a website hosted within IIS **or** as a Windows service):

1. Go to http://[your server name]/swagger.

   ***Note**: If you're running the browser on the same machine that you've installed the REST endpoint proxy on, you can use http://localhost/swagger.*

2. Click **Compare** to show the options to perform comparisons via GET and POST.
3. Click **GET** to show the parameters available to the comparison request. Leave all the parameters at their default
4. Scroll down and click the **Try It Out** button.

   If the configuration is correct and the Workshare Compare Server is running, you should see the response to the request appear after a few seconds (look for a 200 in the **Response Code** box to indicate that the comparison completed successfully).

You can now build your own compare application or download a sample application from https://github.com/workshare/compare-service.samples. Refer to the *Workshare Compare Server Developers Guide* for more information.

Uninstalling

Upgrades from previous versions of Workshare Compare Server are not supported – the installer of Workshare Compare Server 8.1 will detect earlier versions of Workshare Compare Server and stop the installation. It's necessary to manually uninstall previous versions of Workshare Compare Server before installing Workshare Compare Server 8.1.

When uninstalling Workshare Compare Server, the MSI file that is placed in the MsiCache folder is not removed from the machine even after completely uninstalling the product. If you want this MSI file removed, you must do so manually.

Chapter 3. Configuration

This chapter describes how to configure Workshare Compare Server. It includes the following sections:

- **Overview**, page 20, provides an overview of the configuration of Workshare Compare Server.
- **Licensing**, page 20, describes how to license Workshare Compare Server.
- **Event Logging**, page 20, describes the server-side logging performed by Workshare Compare Server that can be helpful to diagnose runtime issues.

Overview

This chapter outlines the various configuration changes that can be applied to Workshare Compare Server. As an API, Workshare Compare Server is a highly customizable tool and it is not the purpose of this chapter to describe the full potential of this API. However, this chapter does describe how to configure the Workshare-specific functionality.

> ***Note:*** *Workshare Support is available to assist you with any queries directly related to the Workshare Compare Server API. However, we do not provide support on issues related to third-party applications or customized add-ins.*

Licensing

Licensing for the Compare Service is based on a service expiry date. The **product.lic** file, specified at the time of install, determines how the service license is configured and when the license expires. The **product.lic** file is automatically copied into the service installation folder during setup and is required at runtime in order to authorize each comparison. The Compare Service references this file via a path variable stored within the **web.config** file (where Compare Service is hosted in IIS) or within the **Workshare.CompareService.ServiceHost.Exe.config** file (where Compare Service is hosted as a Windows service). If you experience licensing errors, please check that the **product.lic** file is correctly installed in the Compare service's web folder on the server and that the **web.config** or **Workshare.CompareService.ServiceHost.Exe.config** have a **LicenseFileName** key that correctly specifies the full path to the file.

For example:

```
<appSettings>
 <add key="LicenseFileName" value="C:\Program Files\Workshare\Compare Service\bin\product.lic" />
</appSettings>
```

Event Logging

On installation of Workshare Compare Server, the following three log files are created:

- **compare_service_audit.log**: This log file contains information about the comparison requests sent to Workshare Compare Server, such as the size of the original and modified files, time taken to perform the comparison and so on.
- **compare_service_host.log**: This log file contains information such as when Workshare Compare Server started, when it was shut down, what protocols are available and so on.
- **compare_service_system.log**: This log records everything happening in Workshare Compare Server and includes information and error log entries.

If you have downloaded the **Configuration Page Sample** sample application, the information from all log files can be accessed through the Administration Dashboard. For example, the information in the compare_service_audit.log file is used by the Administration Dashboard to report statistics about comparisons performed by Workshare Compare Server.

Administration Dashboards

The Workshare Compare Server Administration Dashboards are sample applications that can be downloaded and installed. They are NOT included in the Workshare Compare installation.

There are two sample administration web-based dashboards available – the **Configuration Page Sample** and the **Compare Service Web Admin**. You can download sample applications and documentation from https://github.com/workshare/compare-service.samples.

***Note**: The administration dashboards will only be fully functional when Workshare Compare Server is installed as a Windows service. This is because they are only samples and they have been designed for the recommended installation configuration.*

Chapter 4. Troubleshooting

This chapter describes how to troubleshoot Workshare Compare Server. It includes the following sections:

- **General Checks**, page 23, describes some general checks to perform when troubleshooting Workshare Compare Server.
- **Swagger Troubleshooting,** page 24, describes some general checks to perform if you are unable to access Swagger.
- **Comparing Large Files**, page 24, describes how to deal with issues that might arise when comparing large files.

General Checks

This section describes some basic checks to carry out in some general situations.

The installer fails:

- Is IIS, ASP.NET installed?
- Ensure any previous Workshare Compare Server installs are uninstalled.
- Is IIS started?
- Check the install log (WorkshareCompareServiceInstallEventLog.log) in the current user's Temp folder, for example, C:\Documents and Settings\Administrator\Local Settings\Temp.

The Compare Service page (http://localhost/wcs/comparewebservice.svc) does not display:

- Is IIS started?
- Is the default website started? If the default website will not start, try changing the TCP Port. If this is successful there is a port conflict with another server.

The C# sample does not work:

- Check that the service address is correct and (for C#) is appended with **/compare5**.
- If **Test Connection** returns an error, the issue may be security related.
  - Does the Java sample work? (The basic HTTP endpoint does not use client credentials.)
  - Are the user credentials valid on the server machine? You can test this by setting up a new, temporary user account and using those credentials.
  - Is there a firewall enabled on the server?
- If **Test Connection** works but **Compare** returns an error, the issue may be document related.
  - Do the default documents shipped in the **samples\data** folder compare correctly?
  - Are the compared documents very large? (try smaller)
- In all instances check the Event Logs (all keys) for error info.

Swagger Troubleshooting

This section describes some checks if you are unable to access Swagger.

- Ensure that Javascript is enabled in your web browser.
- Use Chrome, or Firefox.
- Do not use Internet Explorer.

> ***Note:*** *Swagger corrupts downloads from POST requests when the result is binary (ie for all formats except RTF). This is a bug in the Swagger front end, not in the REST endpoint proxy or Compare Server.*

Comparing Large Files

Client-side Issues

The default maximum message size quota, generated by the Visual Studio Service Reference Wizard, is 64KB. This means that, although the server is configured to allow for large files, failures may occur if the **web.config** file of the REST endpoint proxy (located in C:\CompareProxy by default) is not updated.

When the client-side buffers are too small, the transport channel may throw one of the following exceptions:

`System.ServiceModel.CommunicationException` - “The maximum message size quota for incoming messages has been exceeded.”

`System.ServiceModel.FaultException` - “The maximum string content length quota has been exceeded.”

`System.ServiceModel.FaultException` - “The maximum array length quota has been exceeded.”

To resolve this issue you should edit the **web.config** file for the REST endpoint proxy and increase the binding’s `maxReceivedMessageSize`, `maxStringContentLength` and `maxArrayLength` values.

Server-side Issues

Timeout Due to Document Size/Complexity

When comparing large documents or documents that are complex in nature over TCP/HTTP protocol, it can take longer than five minutes (default timeout window in WCF bindings). It is recommended to host your website/service on the same server on which Workshare Compare service is running and use the NamedPipe protocol when sending compare requests. This will reduce the amount of memory consumed by WCF binding when transferring documents across this protocol, which in turn will speed up the start of processing in the Compare service.

Maximum File Size

When comparing large documents it is possible to exceed the maximum file upload size supported by ASP.NET on the server. (The default maximum size is 4096KB).

If the upload limit is exceeded, the Compare Service will not receive the transaction and a `System.ServiceModel.CommunicationException` will be thrown on the client-side.

A WCF (Windows Communication Foundation) trace file is also generated, within the Compare Service virtual directory, containing details of the exception and the exact cause of the communication failure.

For example,

```
<Exception>
   <ExceptionType>System.ServiceModel.CommunicationException, …
      <Message>Maximum request length exceeded.</Message>
```

To increase the maximum file upload size, edit **web.config** file for the REST endpoint proxy and increase the size of the `httpRuntime maxRequestLength` value.

For example,

```
<system.web>
    <httpRuntime maxRequestLength="40690"/>
  </system.web>
```

Note: *Even though an individual file may be smaller than the supported maximum, the total packaged transaction (original file + modified file + message details) may exceed this limit.*

Session Time Out (Client and Server Side)

Sometimes large files may fail to compare because the session has timed out. To extend the session, perform the following configuration:

1. Update the bindings section in the **web.config** file (where Compare Service is hosted in IIS) or in the **Workshare.CompareService.ServiceHost.Exe.config** file (where Compare Service is hosted as a Windows service) with the following.

> **Note**: The important part is the addition of **receiveTimeout** to "00:10:00" to both bindings.

```
    <bindings>
      <basicHttpBinding>
        <binding name="UnsecureBinding" closeTimeout="00:10:00"
openTimeout="00:10:00" sendTimeout="00:10:00" maxBufferSize="67000000"
maxBufferPoolSize="67000000" maxReceivedMessageSize="67000000"
messageEncoding="Text" transferMode="Buffered">
          <readerQuotas maxStringContentLength="67000000"
maxArrayLength="67000000" maxBytesPerRead="67000000" />
        </binding>
      </basicHttpBinding>
      <wsHttpBinding>
        <binding name="SecureBinding" closeTimeout="00:10:00"
openTimeout=
"00:10:00" sendTimeout="00:10:00" receiveTimeout="00:10:00"
maxBufferPoolSize="67000000" maxReceivedMessageSize="67000000"
messageEncoding="Mtom">
          <readerQuotas maxDepth="67000000" maxStringContentLength=
"67000000" maxArrayLength="67000000" maxBytesPerRead="67000000"
maxNameTableCharCount="67000000" />
          <reliableSession ordered="true" enabled="true" />
        </binding>
      </wsHttpBinding>
    </bindings>
```

2. Update the host section inside the **web.config** or **Workshare.CompareService.ServiceHost.Exe.config** file and increase the timeouts.

```
        <host>
          <timeouts closeTimeout="00:10:00" openTimeout="00:10:00" />
        </host>
```

3. Change the request execution in the IIS Configuration.
   - In IIS go to the ASP.Net Tab and select **Edit Configuration**.
   - Select the Application tab.
   - Change the **Request execution timeout(seconds)** to 600.

Log Files on the REST Endpoint Proxy

By default, the REST endpoint proxy log files are as follows:

Location	Purpose
C:\inetpub\logs\LogFiles\W3SVC1	Includes all requests coming into the REST endpoint
C:\Compareproxy\App_Data\logs	Includes some requests and all errors

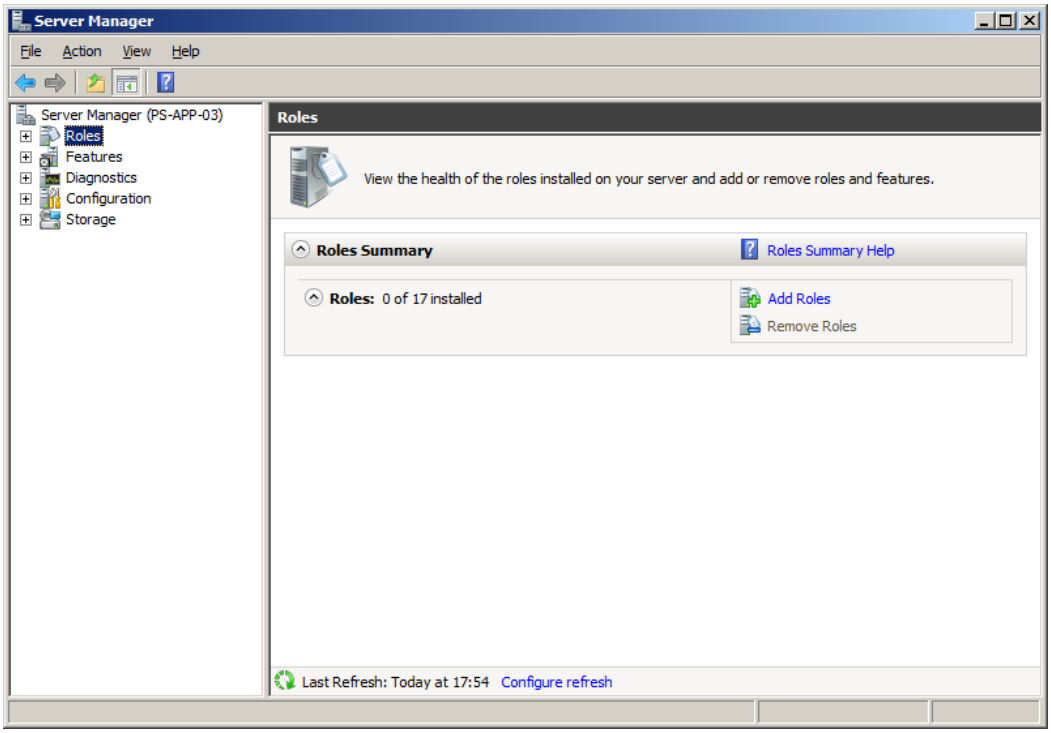
Appendix A. Installing Windows Components

Installing Windows Components

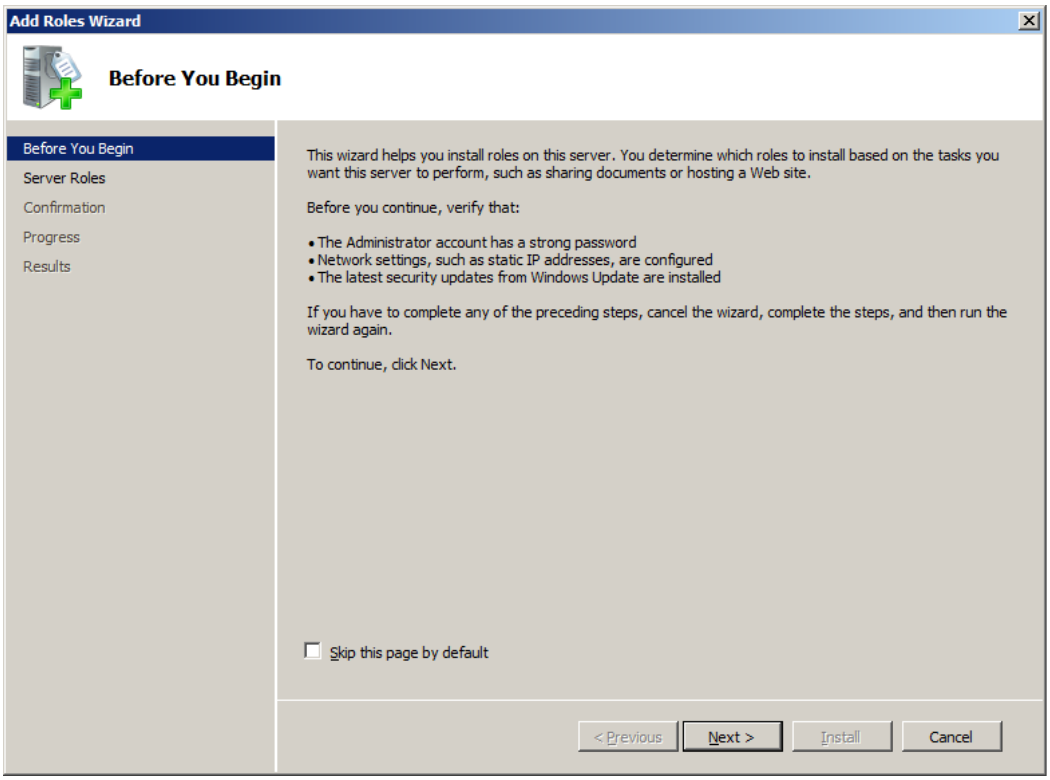
The following procedure describes how to install the required Windows components on Microsoft Windows 2008 Server.

To install Windows components:

1. Open the Server Manager application.

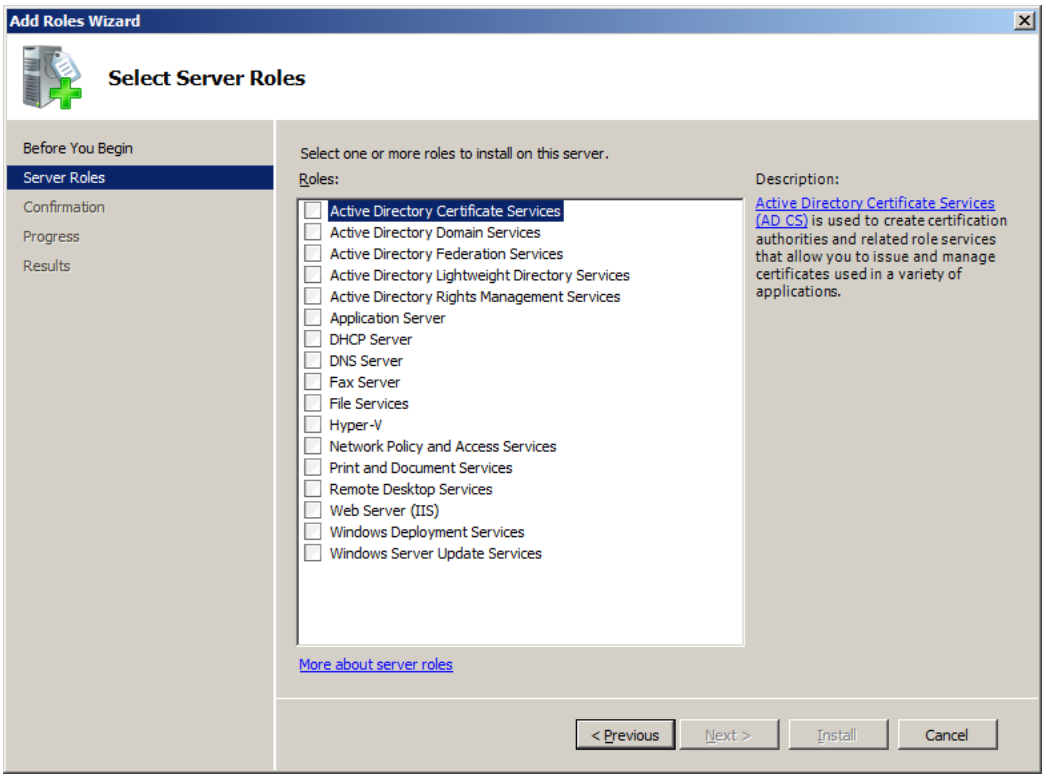


2. Click **Add Roles**. The Add Roles Wizard is displayed.

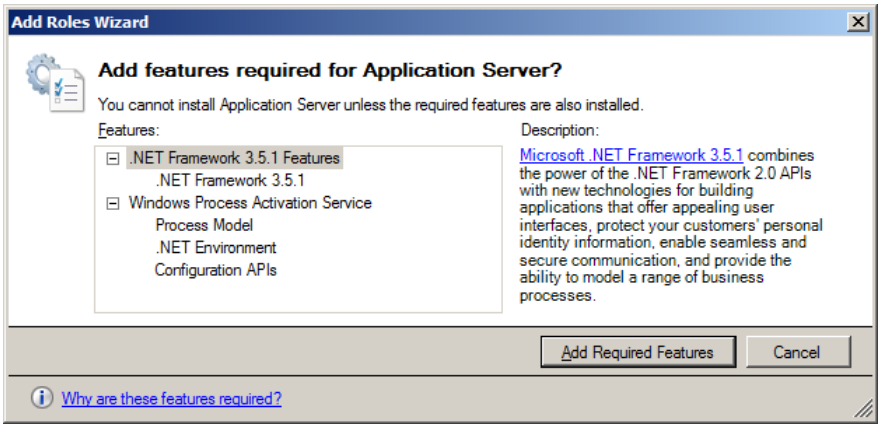


The first page of the wizard is a summary of what you need before you begin.

3. Click **Next** to select the available server roles.



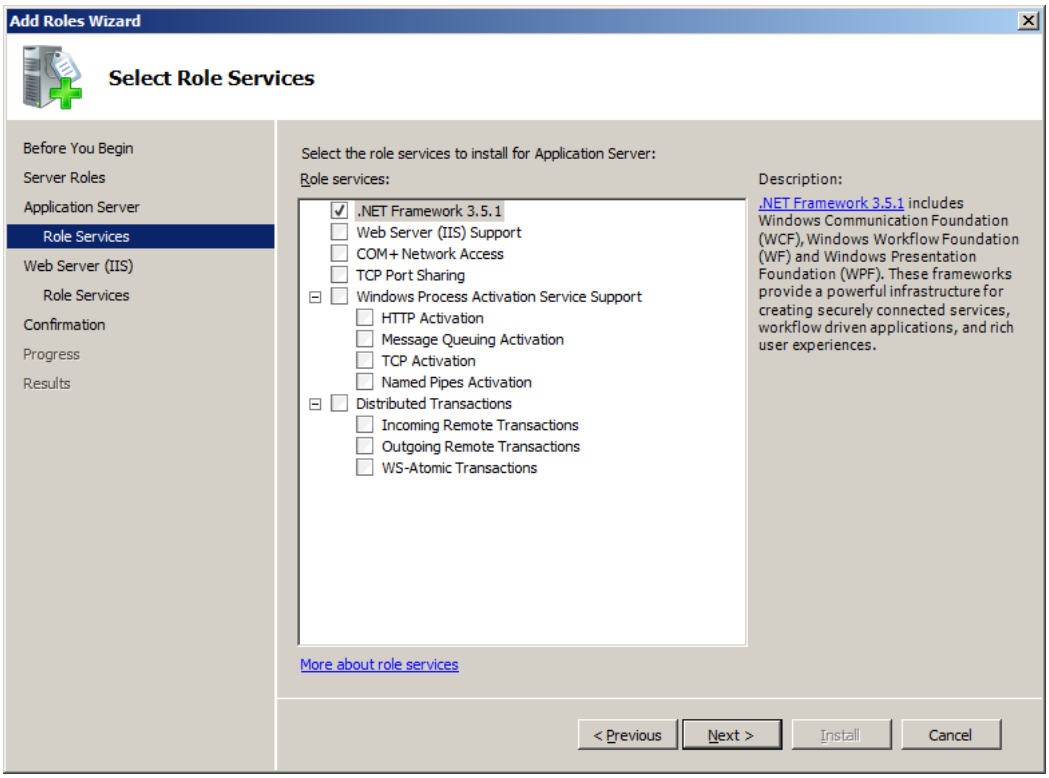
4. Select **Application Server** and the wizard will automatically ask whether to install required features, including .NET Framework 3.5.1 Features.



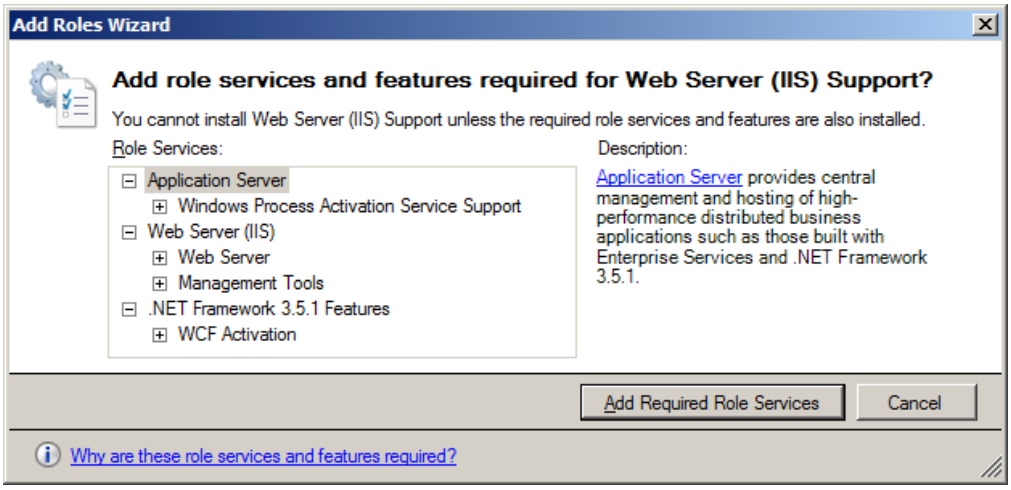
5. Click **Add Required Features**.

6. In the Select Server Roles page of the wizard, select **Web Server (IIS)**. You will not be asked to install any additional roles.

7. Click **Next** and then click **Next** again. The Select Role Services (for the Application Server) page is displayed.

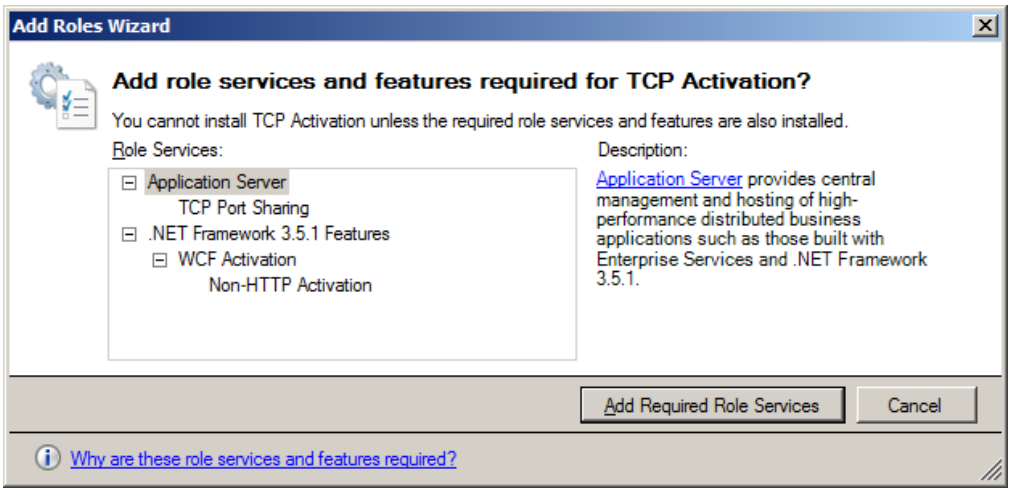


8. Select **Web Server (IIS) Support** and the wizard will automatically ask whether to install required role services and features.



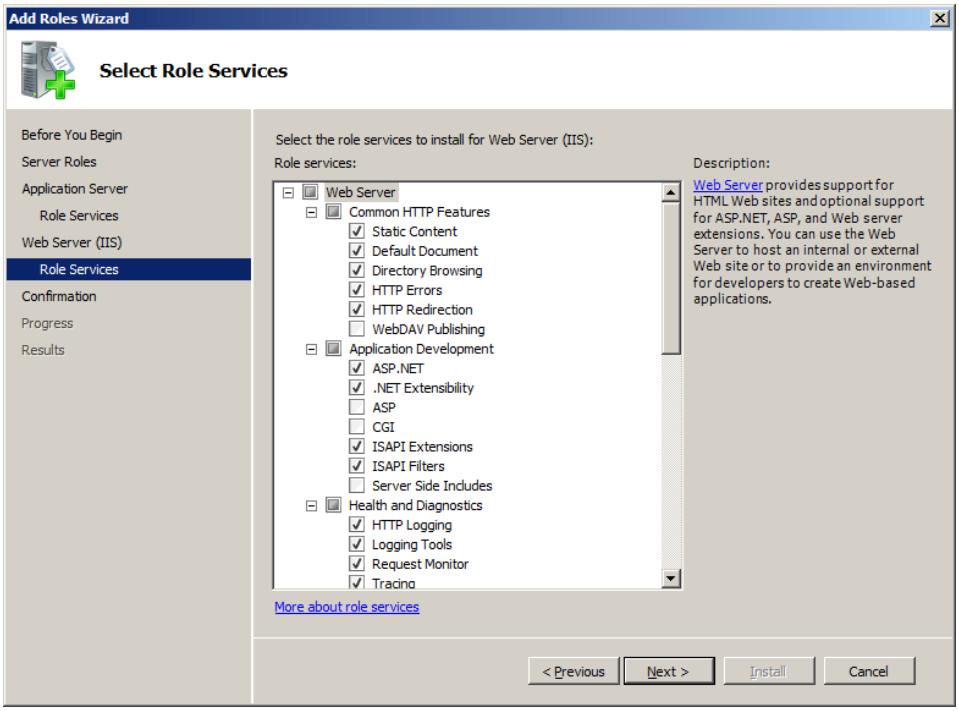
9. Click **Add Required Role Services**.

10. In the Select Role Services page of the wizard, select **TCP Activation** and the wizard will automatically ask whether to install required role services.

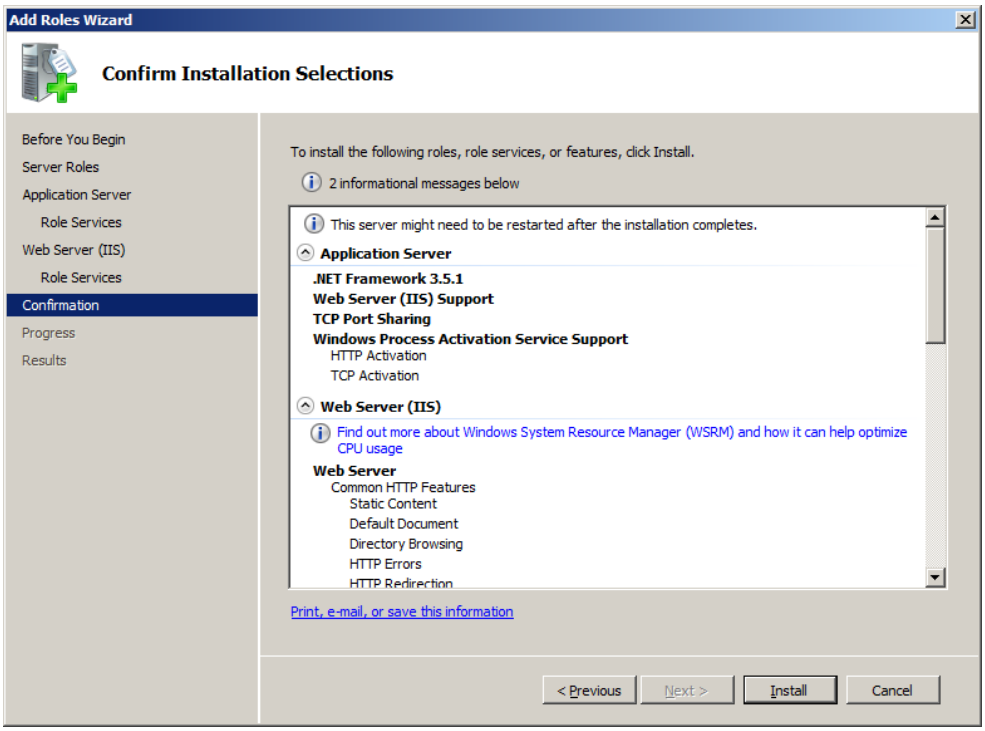


11. Click **Add Required Role Services**.

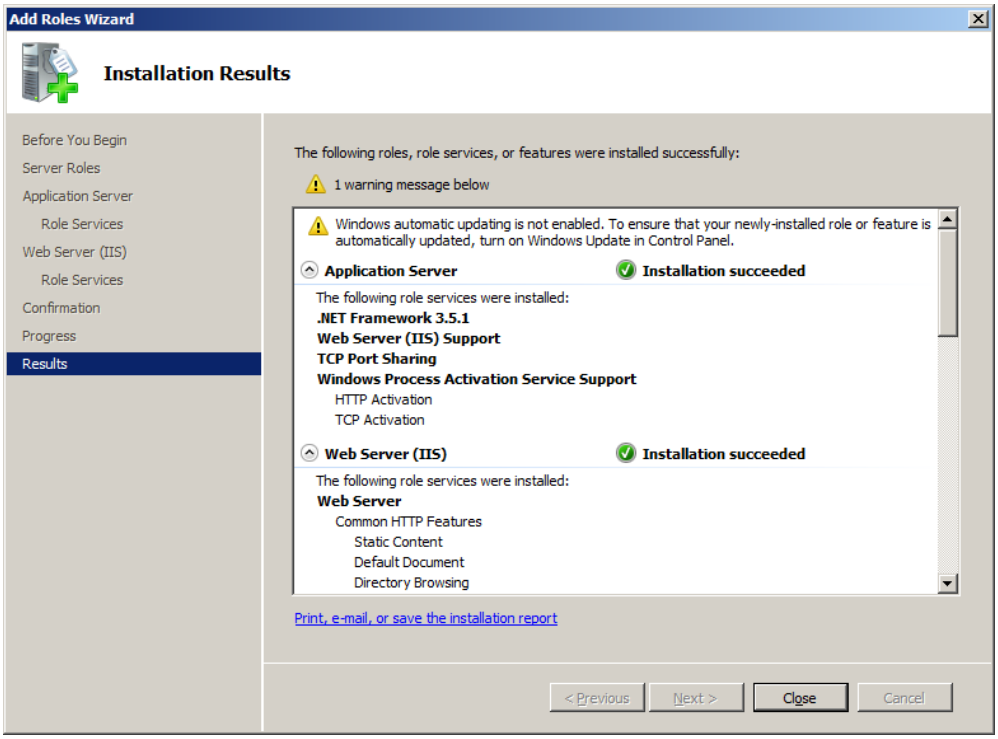
12. Click **Next** and then click **Next** again. The Select Role Services (for the Web Server IIS) page is displayed.



13. Click **Next**. The Confirm Installation Selections page is displayed.



14. Click **Install** to install all the required server roles.



15. Click **Close**.

Appendix B. Using HTTPS Secured Transport

If you're using HTTPS secured transport, you'll need to install an SSL certificate. You can find instructions here: https://www.digicert.com/ssl-certificate-installation-microsoft-iis-8.htm

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