

Installation Guide
Version 1.12

for

Trimble® 4D Control Web version 4.5



Updated 2016-01-12

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1 Software Compatibility

1.1 Server-side Compatibility

Trimble® 4D Control Web has been tested for compatibility with the following Microsoft operating systems:

Operating System	Service Pack	IIS Version
Server 2008 R2	None or SP1	7.5
Server 2008 x86	SP2	7.0
Server 2008 x64	SP2	7.0
Windows 7 x86	None or SP1	7.5
Windows 7 x64	None or SP1	7.5
Server 2012 R2 x64		8.5
Windows 8.1 x64		8.5

1.2 Database Server Compatibility

Note that Trimble® 4D Control Web only works with instances of SQL Server 2008 or newer.

2 Server Requirements

Before attempting to install **Trimble® 4D Control Web** application on one of the compatible Microsoft platforms described in section 1, please ensure that the following requirements are met:

- Network Connectivity
- Internet Information Services (IIS)
- .NET Framework 3.5 and .NET Framework 4.5

2.1 Network Connectivity

Browsers on other computers will access the **Trimble® 4D Control Web** application via Port 80. It is important to ensure that the firewall configuration on the Web Server (i.e. the computer onto which you are installing the **Trimble® 4D Control Web** application) allows TCP traffic on port 80.

Process	PID	Pr...	Local Address	Local Port	Remote Address	Remote Port	State
w3wp.exe	2148	TCP	192.168.200.120	49173	41.72.145.4	1433	ESTABLISHED
System	4	TCP	192.168.200.120	80	192.168.200.112	58818	ESTABLISHED

Figure 1: Example network connectivity

The **Trimble® 4D Control Web** application makes substantial use of E-mail communication. By default it will send emails via Google Mail. In order to do this, however, the Web Server must be able to send SMTP mail via port 587. On most computers this will already be allowed. After installation, you will also have the option to reconfigure the **Trimble® 4D Control Web** application to send emails via an alternative mail server of your choosing.

2.2 Internet Information Services (IIS)

Internet Information Services (referred to as IIS) must be installed and correctly configured on your Web Server in order to host the Trimble® 4D Control Web application as a web site.

The steps for installing and configuring IIS differ between Windows Server editions (e.g. Windows Server 2012 R2) and Windows Desktop editions (e.g. Windows 8.1).

2.2.1 Server 2012 & 2012 R2

Note: Screenshots displayed in this document are for Windows Server 2012 R2 Data Center. The exact layout of the wizard shown below may differ slightly between different editions. It is however important to configure IIS exactly as shown below.

Also see <http://www.iis.net/learn/install/installing-iis-85/installing-iis-85-on-windows-server-2012-r2>

Depending on your edition of Windows Server 2012 or 2012 R2, IIS may not yet be installed on your server.

- a) To install IIS navigate to the **Control Panel** and click on **Turn Windows features on or off**.

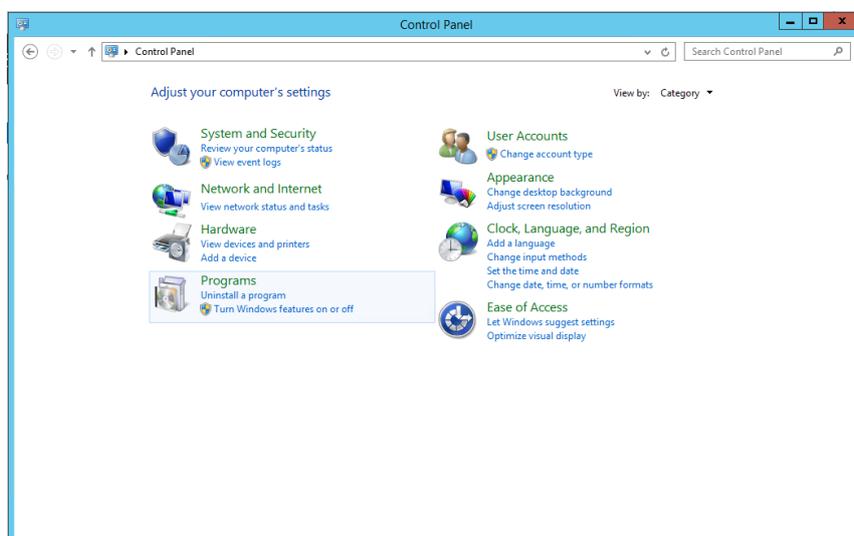


Figure 2: Turn Windows features on or off

b) The **Add Roles and Features** wizard will appear. Click **Next**.

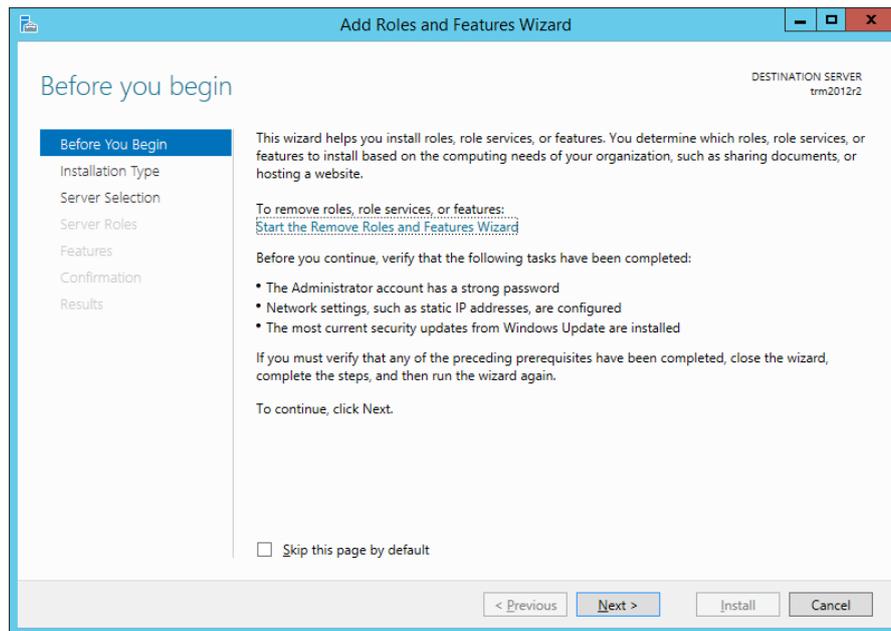


Figure 3: Add Roles and Features Wizard

c) Specify the installation type as a **Role-based or feature-based installation** and click on **Next**.

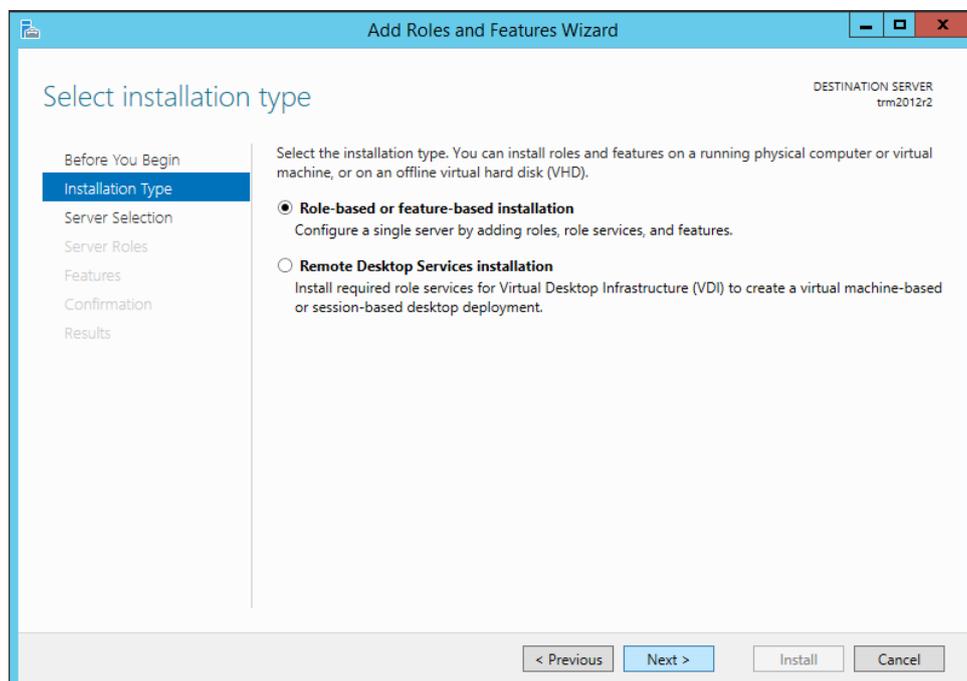


Figure 4: Specify Installation Type

d) Specify the machine on which the role must be enabled. This will typically be the same machine as the one you are logged on to.

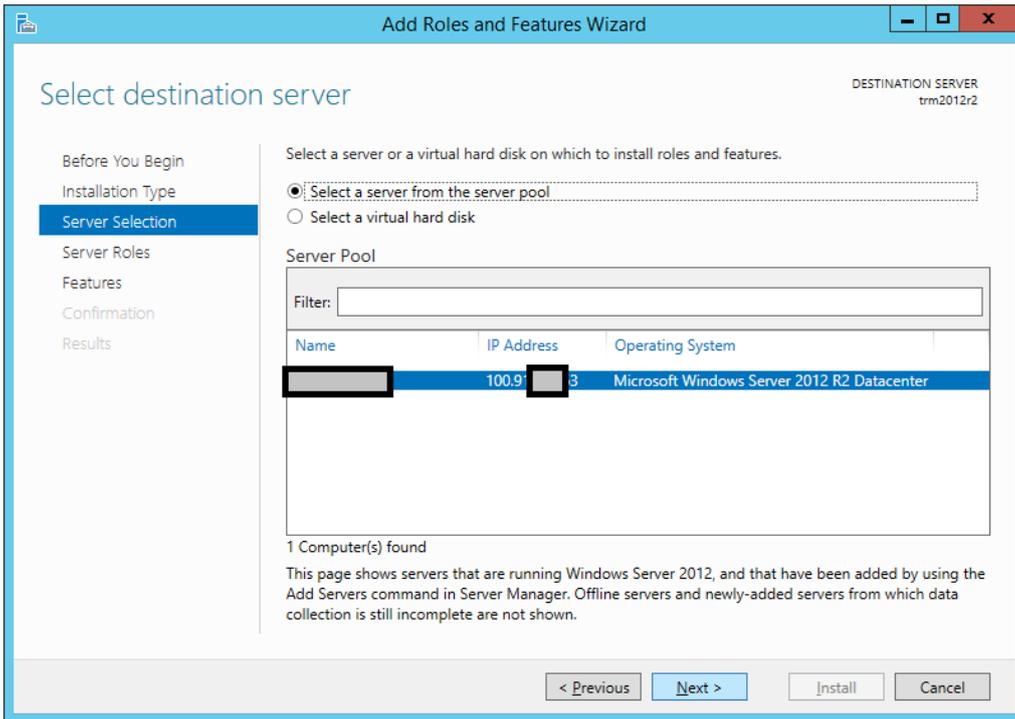


Figure 5: Specify Target Server

e) Select the **Web server (IIS)** role and choose to include management features.

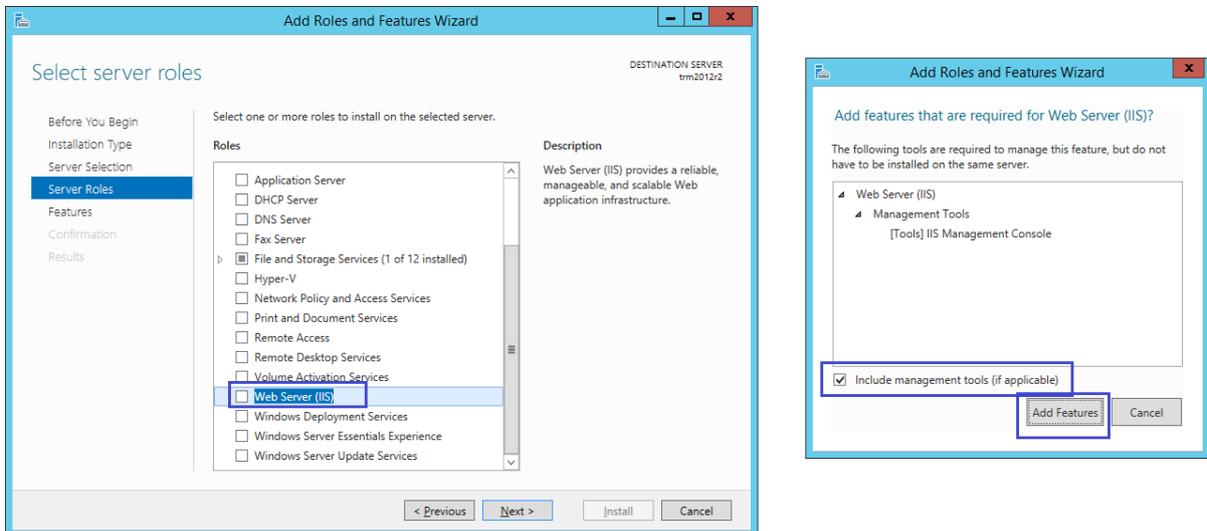


Figure 6: Select the "Web Server (IIS)" role

- f) Ensure that **.NET Framework 3.5 Features** and **.NET Framework 4.5 Features** are selected with the **ASP.NET 4.5** features selected.

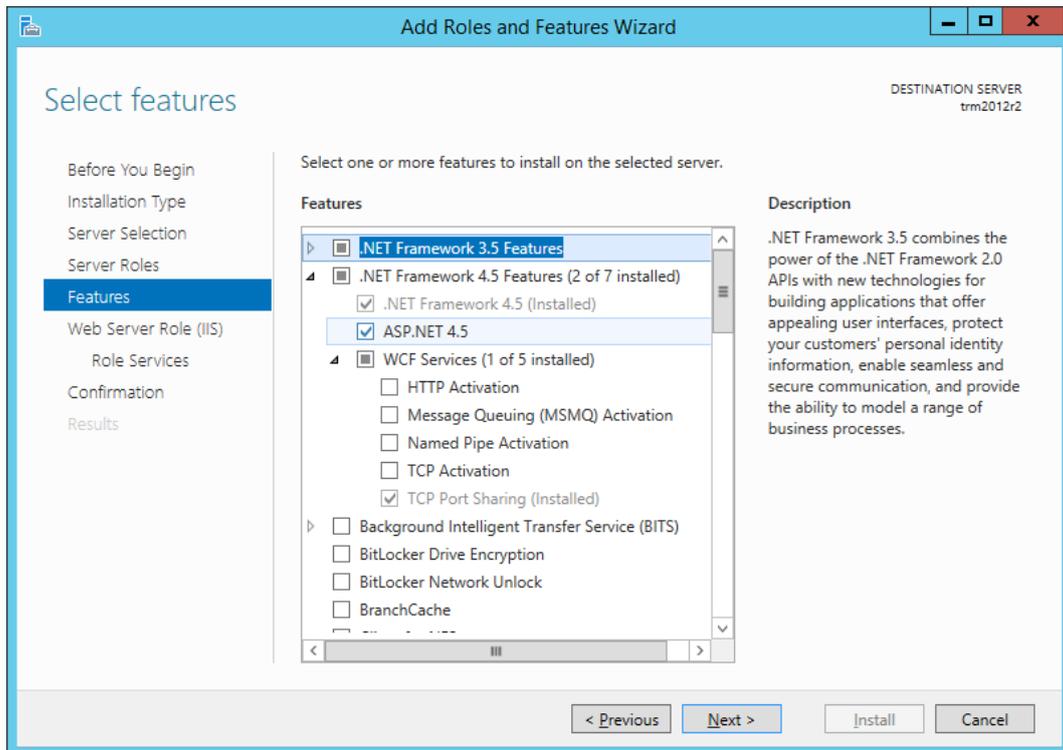


Figure 7: Ensure that .NET framework 3.5 + 4.5 Features and ASP.NET 4.5 is selected

- g) Take note of the message displayed in the next step and click on **Next**.

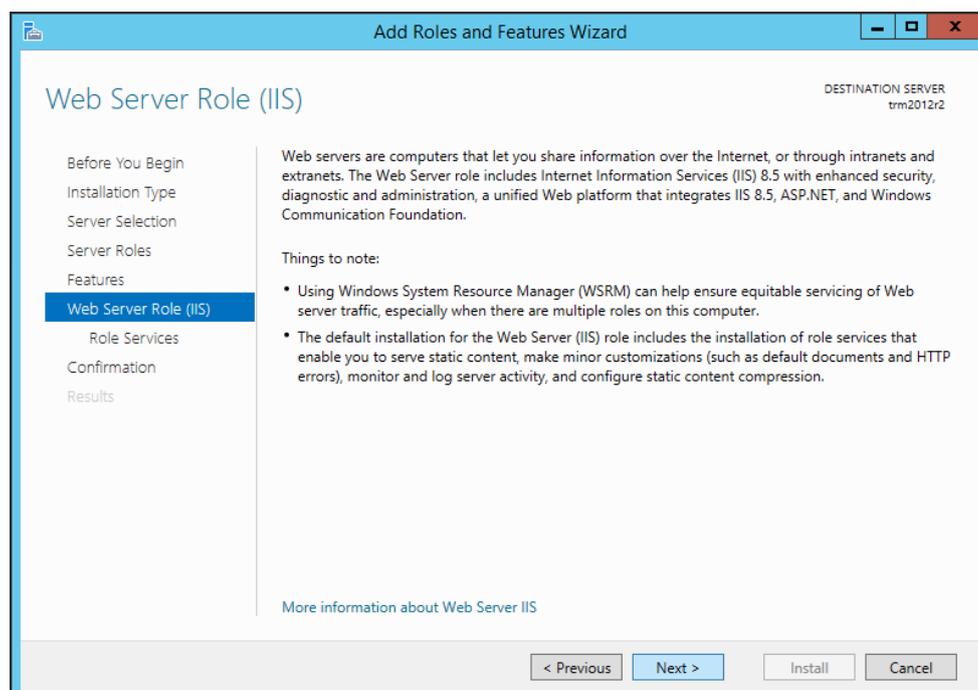


Figure 8: IIS related information

- h) The next step entails selecting the role services to install for IIS. Make sure that all the options selected in the following window are selected. It is especially important to enable **ASP.NET 4.5** under **Application Development**.

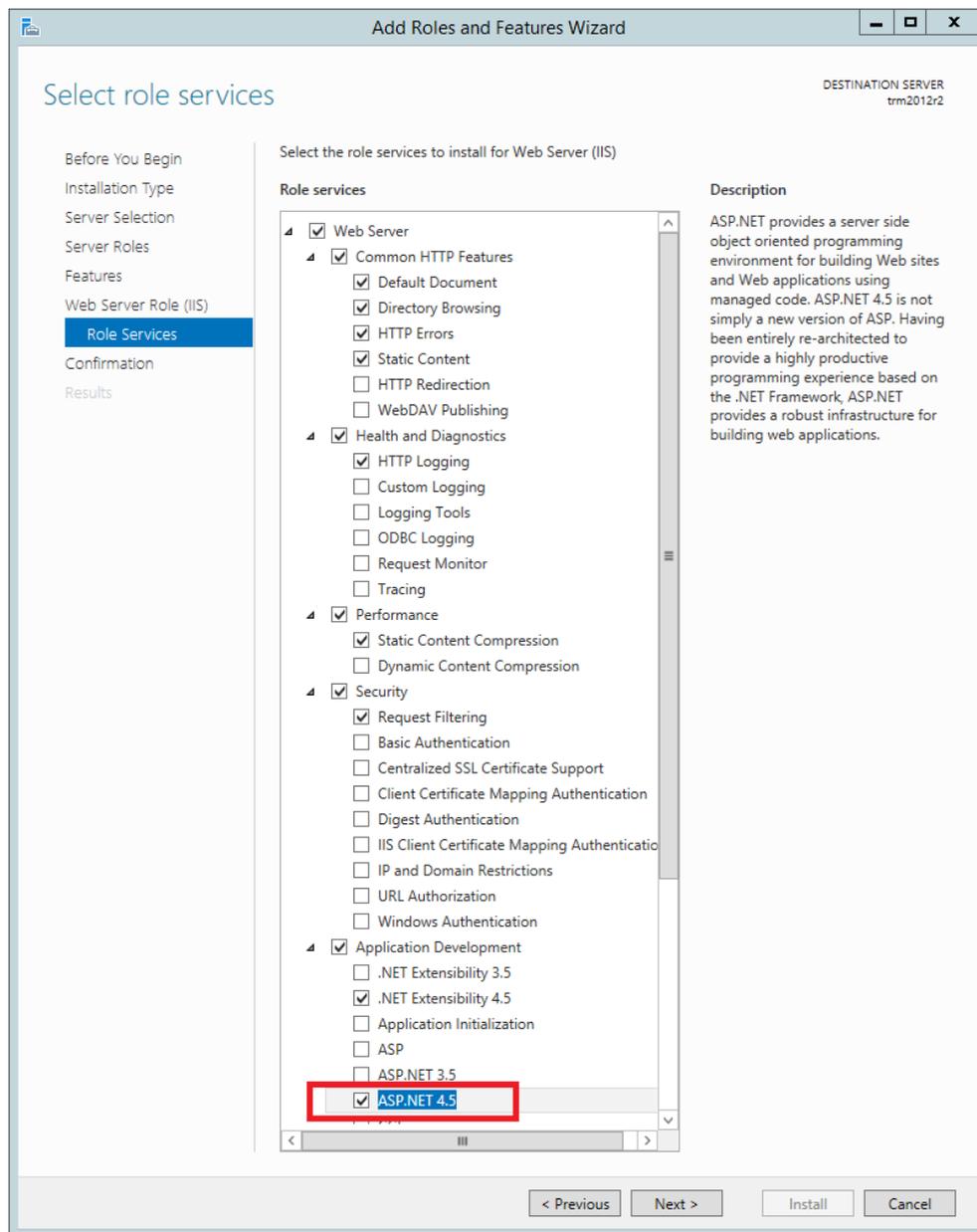


Figure 9: IIS Service Options

i) Finally, review the details on the confirmation page and click on **Install**.

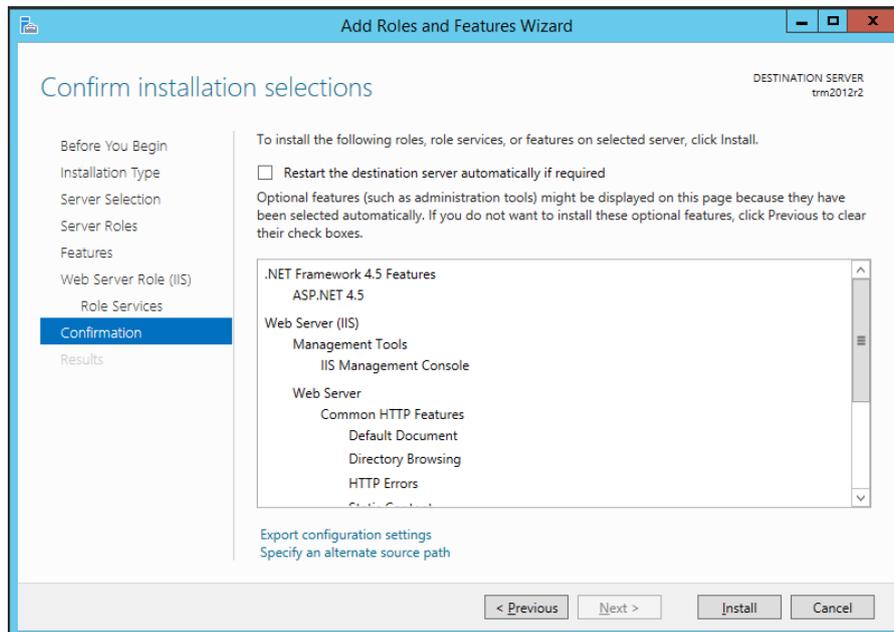


Figure 10: Confirmation Page

2.2.2 Windows 8.1

By default, IIS is not installed on Windows 7. You can install IIS by clicking **Windows Features** in **Advanced Options** under **Programs** in **Control Panel**:

- a) Click **Start** and then click **Control Panel**.
- b) In **Control Panel**, click **Programs** and then click **Turn Windows features on or off**.
- c) In the **Windows Features** dialog box, click **Internet Information Services** and then click **OK**.
- d) Ensure that the **ASP.NET** option is enabled under the **Application Development Features** section of IIS

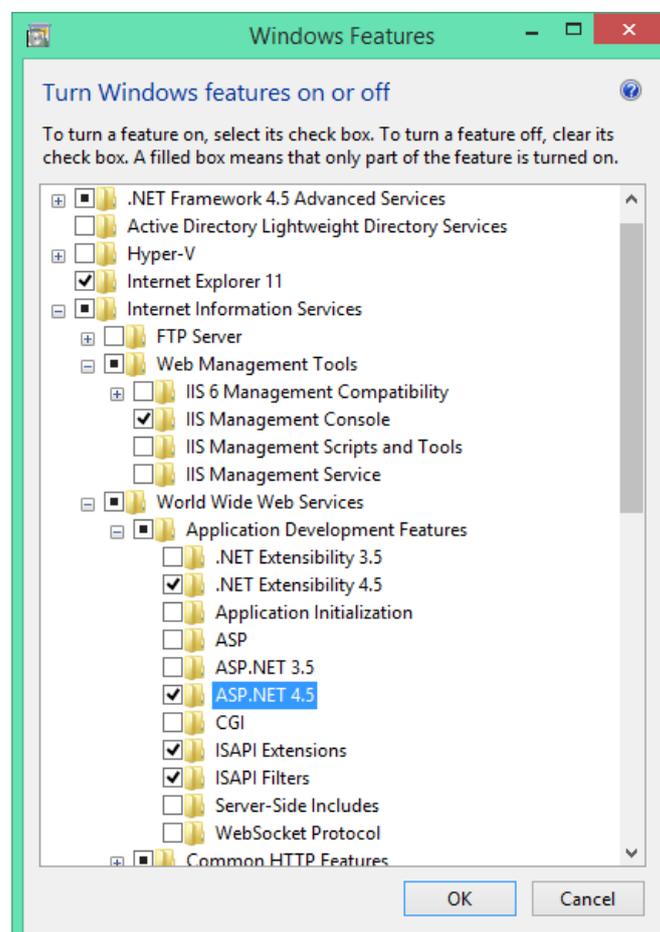


Figure 11: IIS options for Windows 8.1

2.2.3 Server 2008 & 2008 R2

Please refer to version 1.8 of this document for more details on how to enable IIS on Server 2008 and 2008 R2.

<http://setup-guide.web.t4d.trimble.com/version4.2/>

2.2.4 Windows 7

Please refer to version 1.8 of this document for more details on how to enable IIS on Windows 7

<http://setup-guide.web.t4d.trimble.com/version4.2/>

2.3 IIS Verifications

One useful way of verifying that IIS was set up correctly, is to verify that the **IIS_IUSRS** role have been created in Windows and that it has been given the required permissions.

The easiest way to confirm this, is to open the properties window for the **C:\Windows\Temp** folder and to confirm that the **IIS_IUSRS** role has special permissions on this folder.

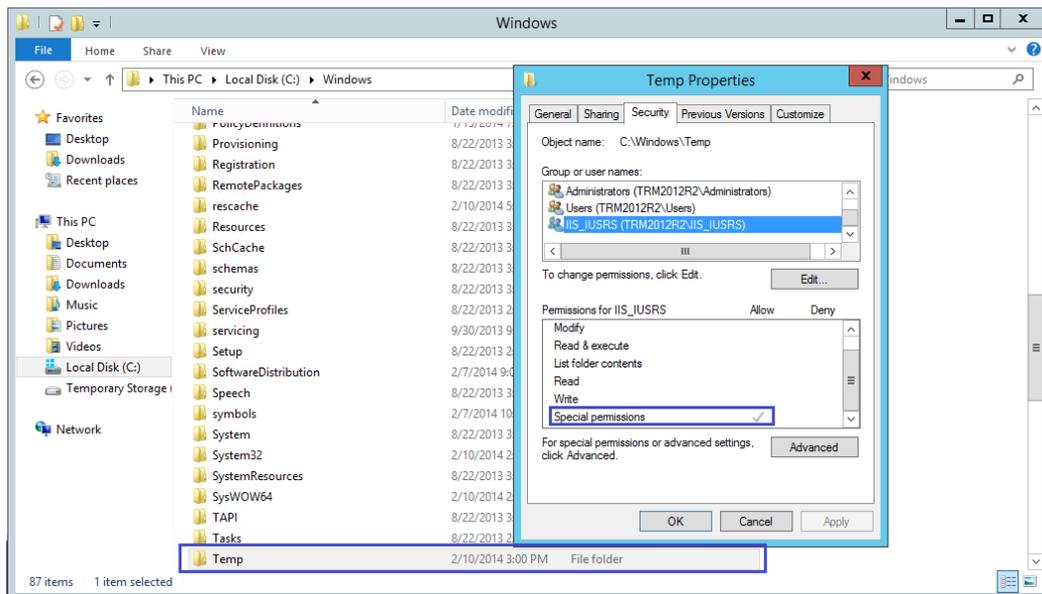


Figure 12: Verify that the **IIS_IUSRS** role exists in Windows and that it has sufficient permissions.

3 Installation Instructions

Once all system prerequisites have been met as per section 2, please continue with the installation of **Trimble® 4D Control Web** on the server computer:

3.1 Installation Instructions

- a. Execute the **Trimble® 4D Control Web** setup.exe file (or launch it from the Suite Installation). If you are asked whether or not the program may be allowed to make changes to your computer then click on “Yes”. Thereafter you should see the installation wizard appear with a “Welcome” message and instructions on how to download this document.



Figure 13: Installation Welcome Step

- b. Accept the **license terms** and enter a **User Name** and **Organization**.

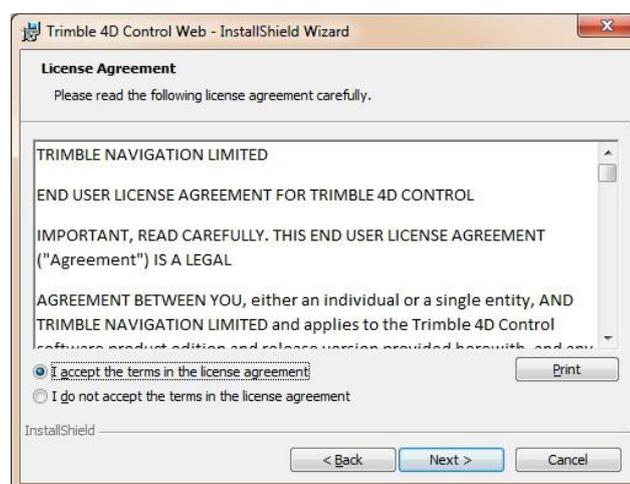


Figure 14: License Agreement

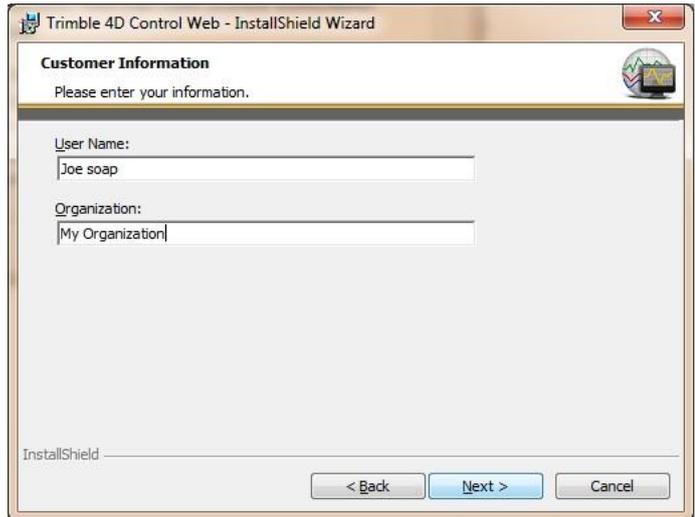


Figure 15: User and Organizational information

- c. In the next step, you will be prompted to specify database connection details to the Monitoring database which should be used by the **Trimble® 4D Control Web** application. If your Database Server and Web Server is running on the same machine and if you used the default settings to install the Monitoring Database earlier on during the **Trimble® 4D Control Suite Installation** then you can simply click on the “Next” button. Otherwise you will have to specify the address of the SQL server, credentials and database manually.

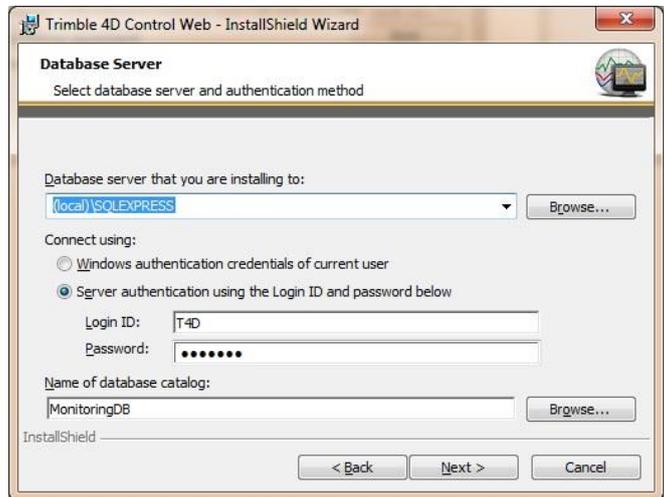


Figure 16: SQL Connection Details

- d. In the next step, simply ensure that the **Complete** setup type is selected and click on the “Next” button.



Figure 17: Select Complete Installation

- e. The installation now has enough information to continue and install the **Trimble® 4D Control Web** application. Simply click on the **Install** button and wait until the installation finished.

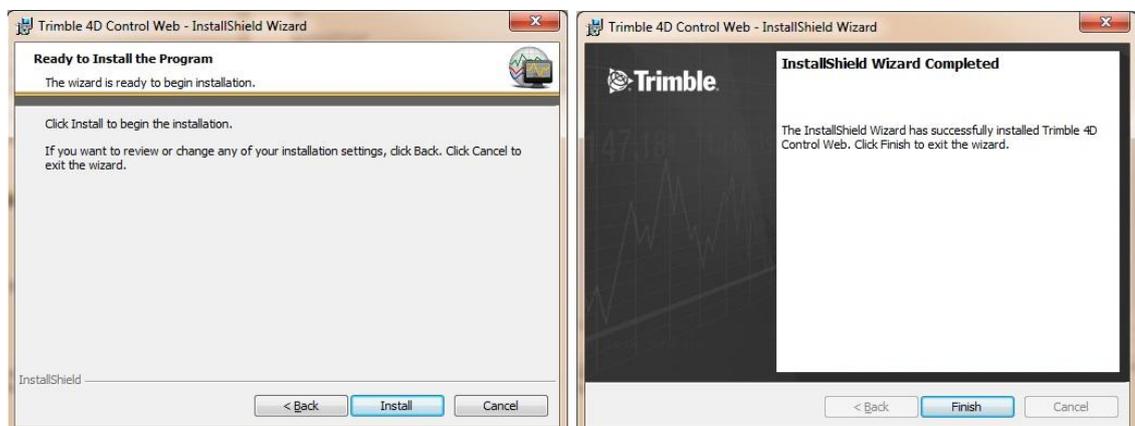


Figure 18: Click "Install" and wait for the installation to complete.

3.2 Installation Verifications

After completing the software installation, you perform the following checks to confirm that the **Trimble® 4D Control Web** application has been installed correctly.

- a. Verify that the **IIS Application Pool (T4DWebAppPool)** has been successfully created by navigating through the **Start Menu, Administrative Tools** and clicking on **Internet Information Services (IIS) Manager**:

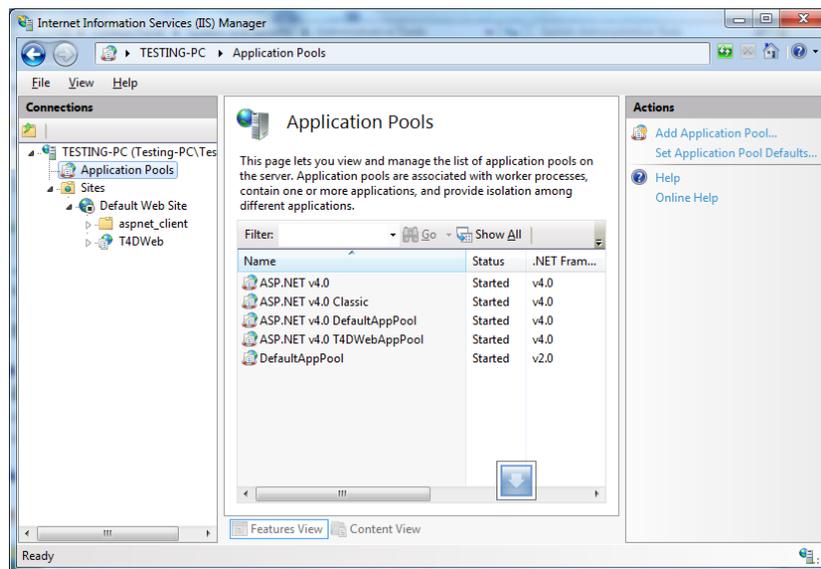


Figure 19: Verify that T4DWebAppPool has been created in IIS

- b. Verify that the **Trimble® 4D Control Alarm Client** has been successfully installed by navigating through the **Start Menu, Administrative Tools** and clicking on **Services**. The **Trimble® 4D Control Web Alarm Client** service status should be shown as **Started** and the service should be configured with **Startup Type** set to **Automatic** and with **Log On As** set to **Local System**:

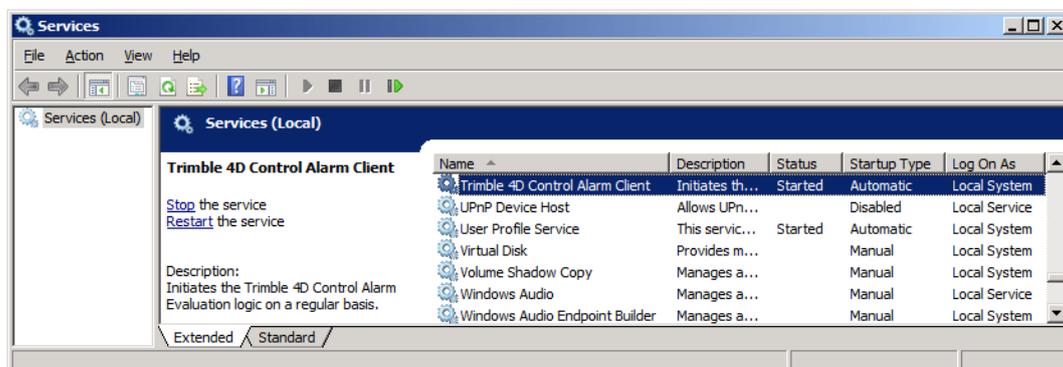


Figure 20: Verify that the T4D Control Alarm Client has been installed.

4 HTTPS setup instructions

After completing the installation verification, you may want to access **Trimble® 4D Control Web** via the HTTPS protocol. In order to do this, you need to install a SSL certificate in IIS and enable HTTPS access.

You can also configure **Trimble® 4D Control Web** to only allow access via the HTTPS protocol.

4.1 SSL certificate and HTTPS access setup in IIS

You can acquire a trusted SSL certificate from a certificate authority such as **digicert** or **GlobalSign**. The particular certificate authority will provide you with the steps to follow to request and install their trusted SSL certification on IIS. After installing your trusted certificate follow step (c) below to enable HTTPS access on IIS.

Alternatively you can create your own self-signed certificate by following these steps:

- a. In IIS manager, click the machine name node and In Features View, double-click **Server Certificates**.

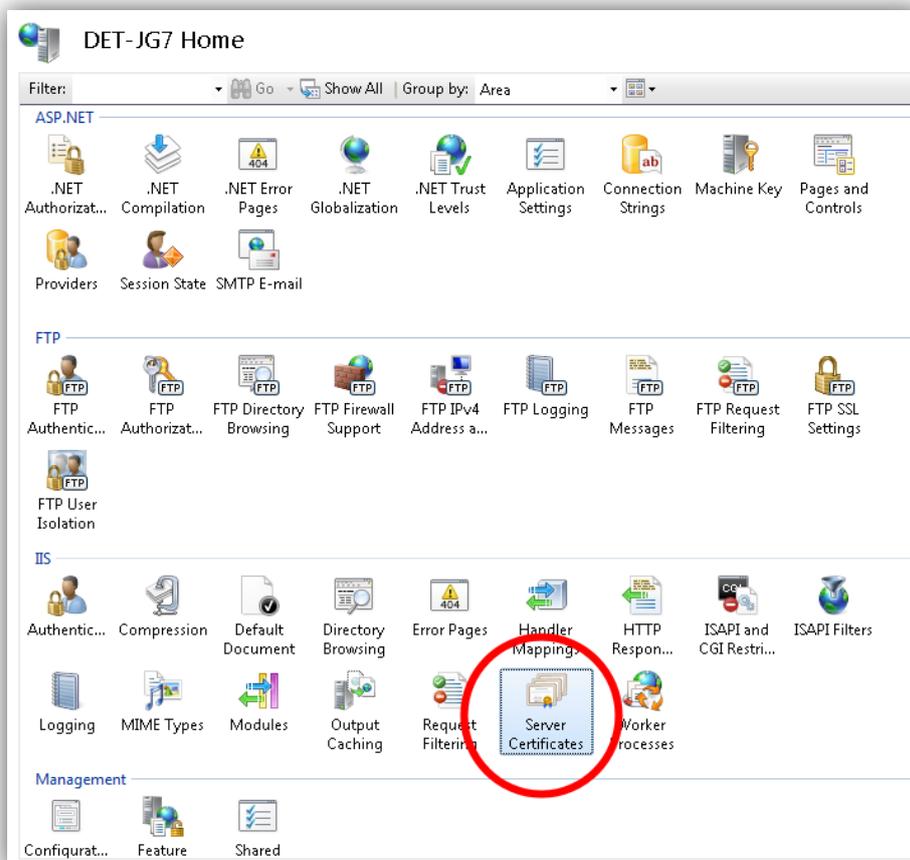


Figure 21: SSL : Select server certificates

- b. On the Server Certificates View click on the action **Create Self-Signed Certificate**. A certificate should be created and appear in the list on the left pane.

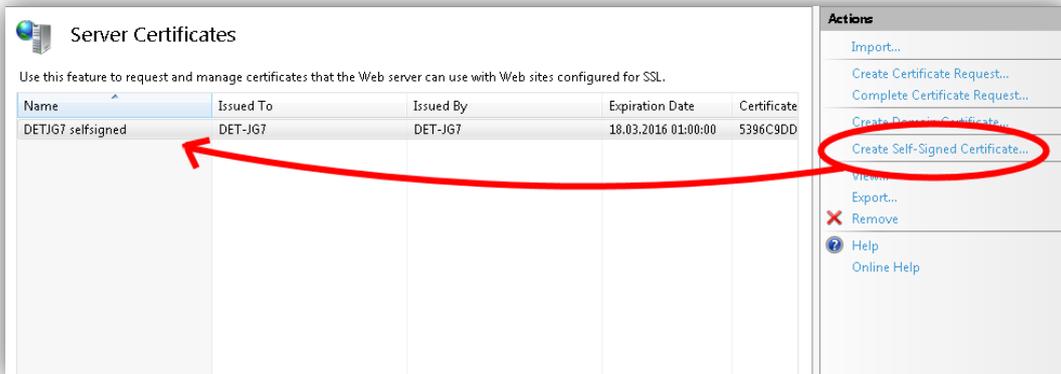


Figure 22: SSL : Create Self-Signed certificate

- c. In IIS manager
- (1) click on the **Default Web Site** node and
 - (2) click on the action **Bindings...**
 - (3) A dialog will appear showing the current Site Bindings.
 - (4) Click on the Add button. Select the certificate you installed (either Self-Signed or Trusted) and then click OK. A site binding for port 443 should appear on the Site Bindings dialog. Close the dialog.

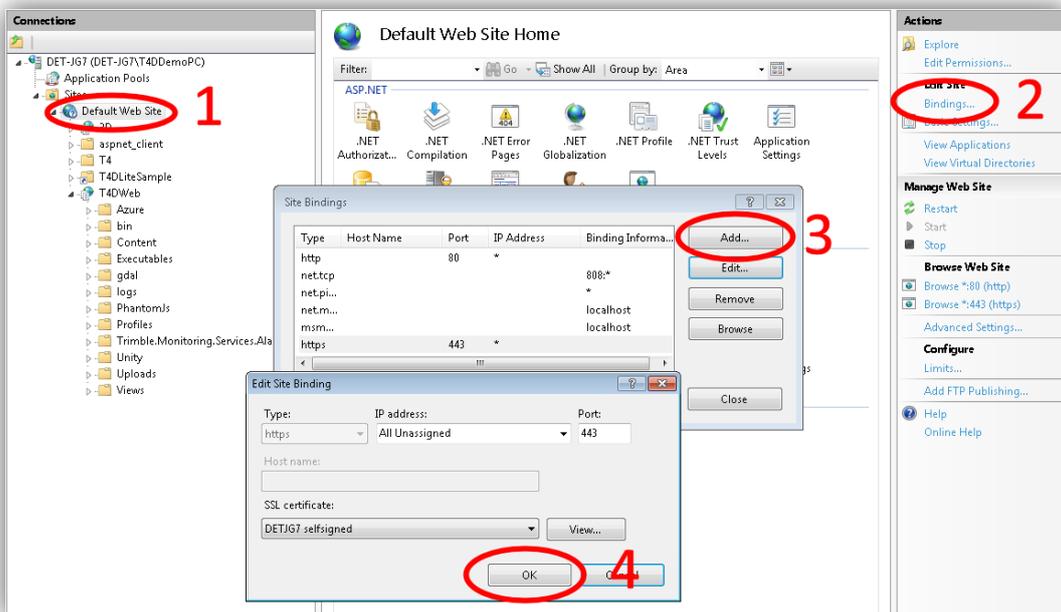


Figure 23: HTTPS : Add HTTPS binding to Default Web Site in IIS

- d. You can now browse **Trimble® 4D Control Web** from your web browser using HTTPS: e.g. <https://localhost/T4DWeb>.

4.2 Allow only HTTPS access

You can configure **Trimble® 4D Control Web** to automatically redirect HTTP access to HTTPS. This will force users to only use **Trimble® 4D Control Web** via the HTTPS protocol.

Following these configuration steps to automatically redirect HTTP to HTTPS:

- a. In IIS manager, click the machine name node and in the Features View, double-click **Application Settings**.

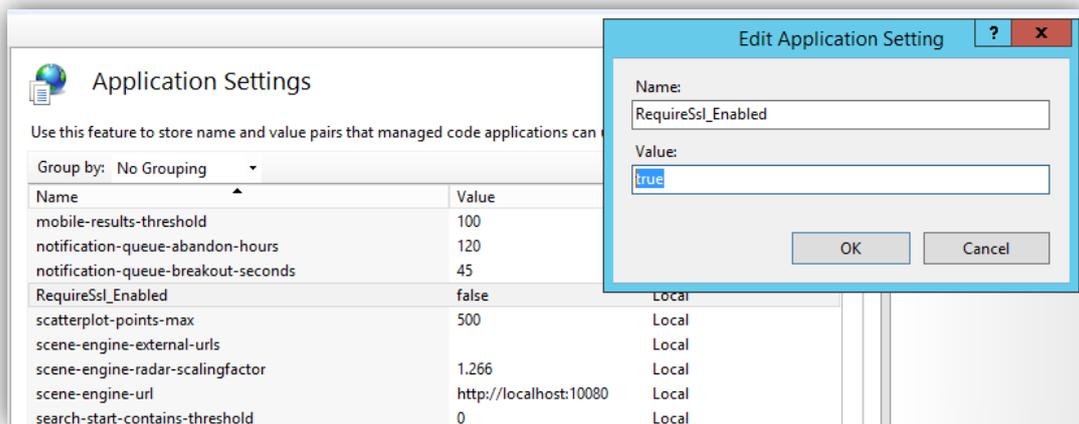


Figure 24: SSL : Create Self-Signed certificate

- b. On the Application Settings View, locate the setting named **RequireSsl_Enabled** and change its value to **true**. If you do not find this setting in the list, then you may add the setting to the list of application settings. The default value for this setting is false.
- c. Now, if you access e.g. **http://localhost/T4DWeb**, it will automatically be changed to **https://localhost/T4DWeb**

4.3 Change Alarm Client to work with HTTPS access

If you have configured **Trimble® 4D Control Web** to only allow HTTPS access you are required to update the **Trimble® 4D Control Alarm Client** to use HTTPS.

Following these configuration steps to configure **Trimble® 4D Control Alarm Client** to use HTTPS:

- a. Edit the Alarm Client configuration file located at:
C:\Program Files (x86)\Trimble\Trimble 4D Control Web\Trimble.Monitoring.Services.AlarmClient\Trimble.Monitoring.Services.AlarmClient.exe.config
- b. In the settings file, locate the setting with the key "base-url" and change the value from HTTP to HTTPS, e.g. **http://localhost/T4DWeb** to **https://localhost/T4DWeb**. Remember to *Save* the settings file.

```
1 <?xml version="1.0"?>
2 <configuration>
3   <configSections>
4     <section name="log4net" type="log4net.Config.Log4NetConfigurationSectionHandler, log4net"/>
5   </configSections>
6
7   <appSettings>
8     <add key="base-url" value="http://localhost/T4DWeb/" />
9     <!-- Timeout -->
10    <add key="timeout-seconds" value="120"/>
11    <!--Interval definition-->
12    <add key="interval" value="0.00:01:00"/>
13    <add key="base-time" value="00:00:00"/>
14    <!-- The maximum number of Scheduled reports to generate and send per "interval" above -->
15    <add key="scheduled-reports-batch-size" value="10"/>
16
17    <add key="ClientSettingsProvider.ServiceUri" value="" />
18  </appSettings>
```

Figure 25: Alarm Client configuration file

- c. Restart the **Trimble® 4D Control Web Alarm Client** service for the new settings to be applied: navigating through the **Start Menu, Administrative Tools** and click on **Services**. Locate the **Trimble® 4D Control Web Alarm Client** service in the list and *Right-Click* and select *Restart*. Alternatively you can restart the server.

5 First Steps in using the Trimble® 4D Control Web application

You are now ready to start using the **Trimble® 4D Control Web** application. Open a browser and navigate to “http://[Your Web Server IP or Address]/T4DWeb”. (In the preceding address, the “[Your Web Server IP or Address]” must be replaced with the actual IP address for your Web Server.

You should be presented with the following page:

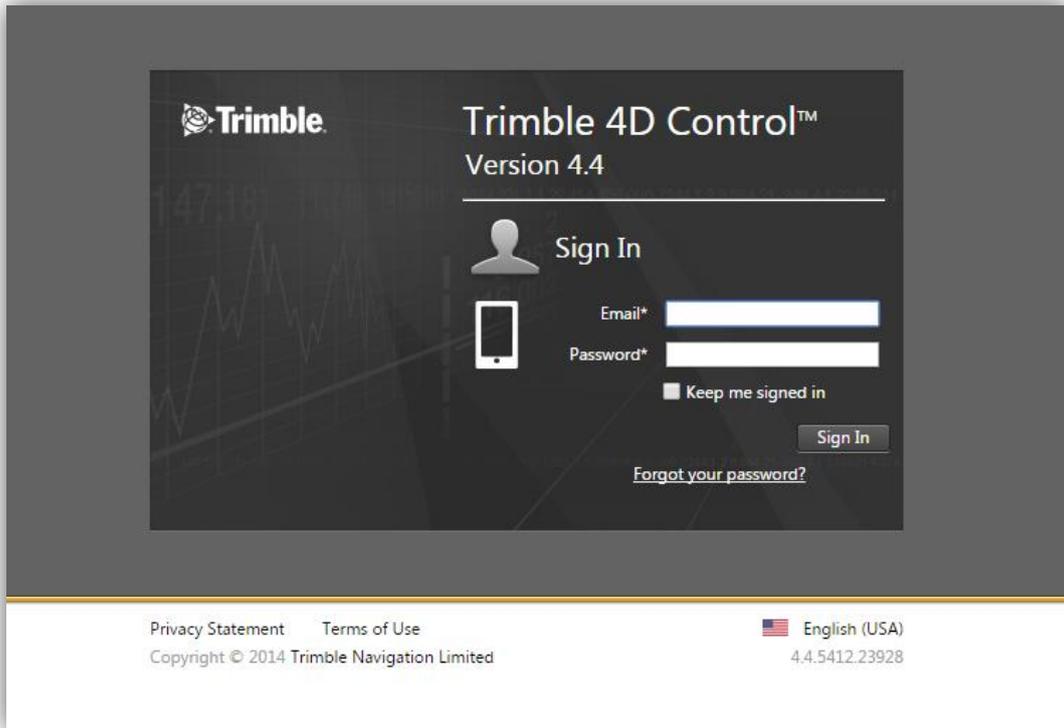


Figure 26: T4D Control Web login page

5.1 First Time Login

By default, the **Trimble® 4D Control Web** application is created with only one user, with the username "Admin" and password "Admin" (case sensitive).



Figure 27: Log in with "Admin" and "Admin".

Hint: Normal users actually use their Email address as the username, but this default user simply logs in with “Admin”.

5.2 Change Admin user Password

It is highly recommended that you change the password of the “Admin” user immediately after your first login.

To do this, click on “Account Settings”, “My Account” and click on the “Change Password” icon.

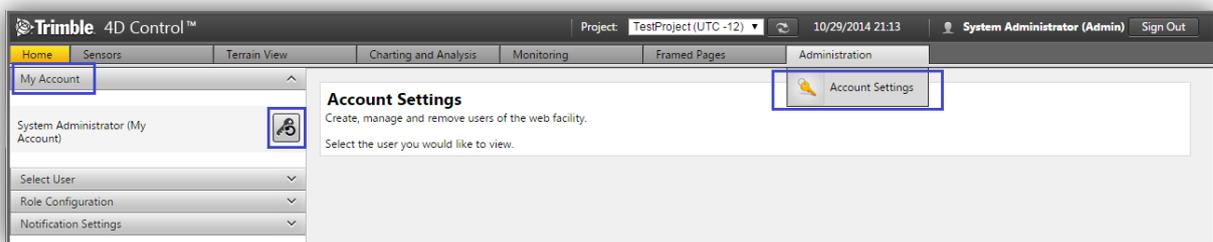


Figure 28: Change Password

The “Change Password” page will appear. Re-enter the current password (“Admin”) and then specify and confirm your new password for the Admin user.



Figure 29: Specify and Confirm New Password

Hint: Be sure to remember your new password, otherwise you may not be able to log into the system again.

5.3 Mail Server Configuration

5.3.1 Default Configuration

The **Trimble® 4D Control Web** application makes substantial use of Emails; users are invited to the system via email and Alarms in the system can be configured to notify specific users via Email. Scheduled reports can also be configured to be sent via email.

The **Trimble® 4D Control Web** application ships with a default email configuration that will work “out of the box”, provided that your firewall allows outgoing traffic through port 587.

NB: We recommend that you change the default email configuration to a custom configuration that sends emails via another mail server.

The email account used by the default configuration is shared with other installations and throughput or capacity issues may arise.

Before you can continue to invite the first user to the system you need to ensure that the system emails are working.

5.3.2 Custom Configuration

NB: Only edit the Email Server configuration if you do not wish to use the default mail server settings.

To view or edit the Mail server configuration, go to “Account Setting” > “Notification Settings” and click on the edit icon for “Email Server Configuration”.

Figure 19 highlights the fields that have to be edited when configuring a different mail server. The values shows or for illustrative purposes only and should be replaced with settings obtained from your network administrator.

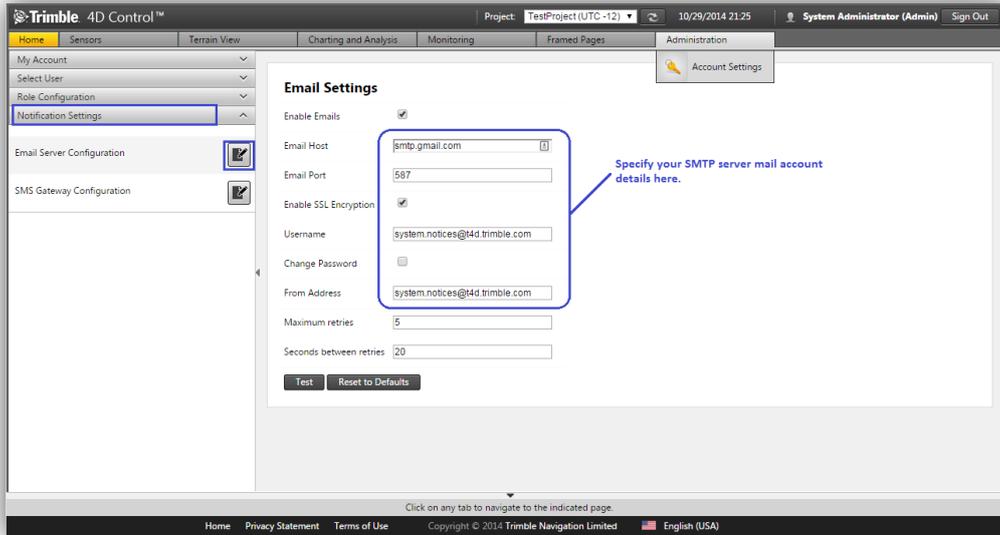


Figure 30: Changing the Mail Server Configuration

Once you have saved this setting, you can move on to test whether or not the email configuration is correct.

5.3.3 Test Email

You can verify that system emails are working, by going to “Account Settings” > “Notification Settings”, “Email Server Configuration” and by click on the “Test” button.

Note that the test will be performed using the last “Saved” settings.

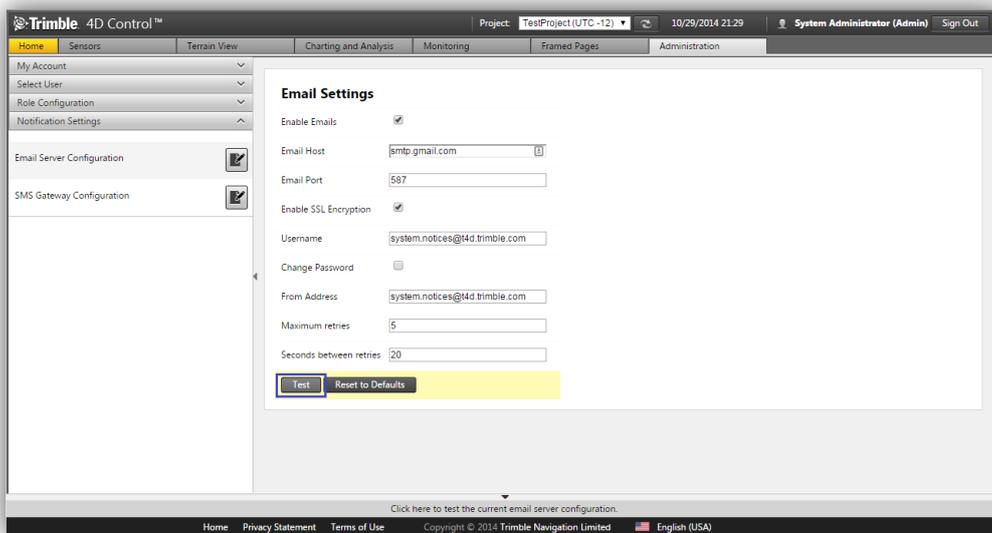
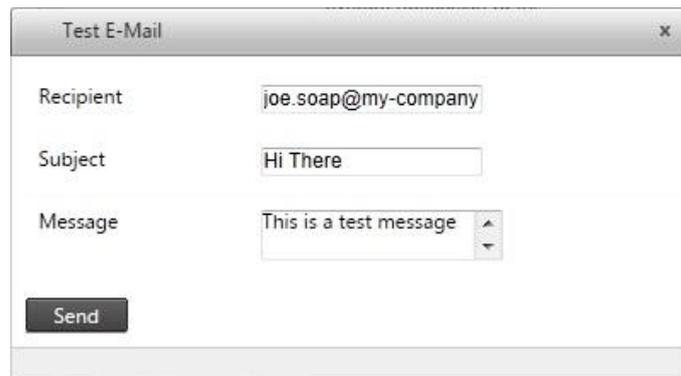


Figure 31: Test Email Server Configuration

Enter a **valid** Email address, a subject and an email body.



The image shows a window titled "Test E-Mail" with a close button (x) in the top right corner. It contains three input fields: "Recipient" with the text "joe.soap@my-company", "Subject" with the text "Hi There", and "Message" with the text "This is a test message". Below these fields is a "Send" button.

Figure 32: Example of a test email.

If you see the following message then it either means that your Email settings are not configured correctly or that the specified mail server cannot be reached.



Figure 33: Test Email Failed

Ensure that your email settings are correct and that the Firewall settings on the Web Server will allow traffic through the specified port and try again until your test mail was sent successfully.

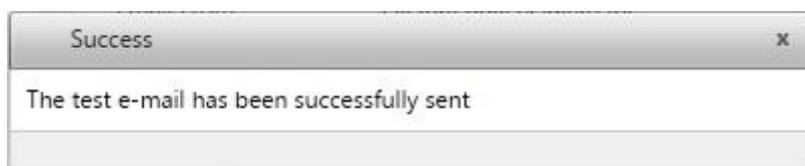


Figure 34: Test Email Succeeded

5.4 Invite new User

You are now ready to start inviting new users to access your newly installed **Trimble® 4D Control Web** application. To do this, navigate to “Account Settings”, “Select User” and click on “New User”.

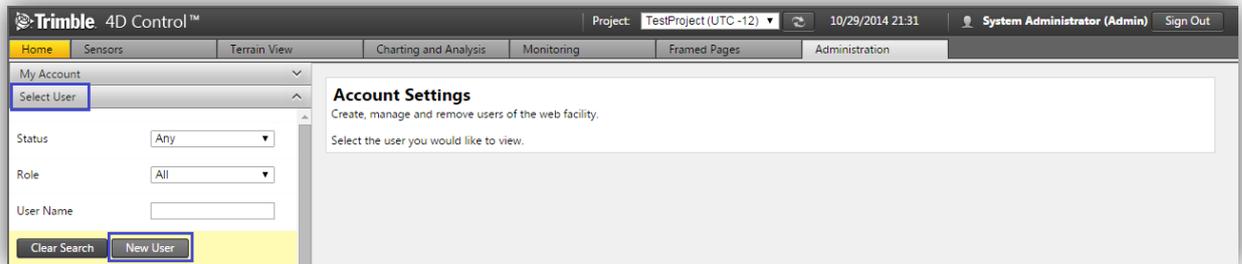


Figure 35: Invite New User

Note: If you see the following message, then you are probably accessing the **Trimble® 4D Control Web** application on a local Web Server and using “localhost” as its address. Since other users will access the **Trimble® 4D Control Web** application from their own computers, the address you are currently using cannot be used to generate a valid link which they can follow to the web application. To avoid seeing this message, simply ensure that you are connecting to the Web Server via the same address that other user will use to access it.



Figure 36: Warning with using "localhost"

Continue to enter the details for the new user. It is very important to enter a valid Email address to which an invitation can be sent. Once you have completed all the details for the user, click on the “Register” button.

New User

Email*

First Name*

Last Name*

Gender

Notification Preference

Mobile Phone*

Work Phone

Home Phone

Department

Role

- Admin
- Analyst
- Guest

Culture

Figure 37: Specify details for the New User

An email will be sent to the newly invited user. This mail will contain instructions on how to access the **Trimble® 4D Control Web** application as well as a Temporary password. The user will be given the opportunity to specify a new password upon first login.



Figure 38: Email received by a new user

Your **Trimble® 4D Control Web** installation is now ready for use. For more details on how to use the system you can click on the help icon in the Your **Trimble® 4D Control Web** application itself.

6 Further reading

For information on how to use Trimble 4D Control please refer to our user manual at: http://help.web.t4d.trimble.com/version4.4/T4D_4.4_Web_Manual.pdf

For information about Monitoring infrastructure please refer to the Trimble website at: <http://www.trimble.com/infrastructure/monitoring.aspx>

7 Troubleshooting

7.1.1 “HTTP Error 500.19 - Internal server error” message is displayed with error details “xxx’ cannot be read because it is missing a section declaration” when trying to access Trimble® 4D Control Web from the server computer.

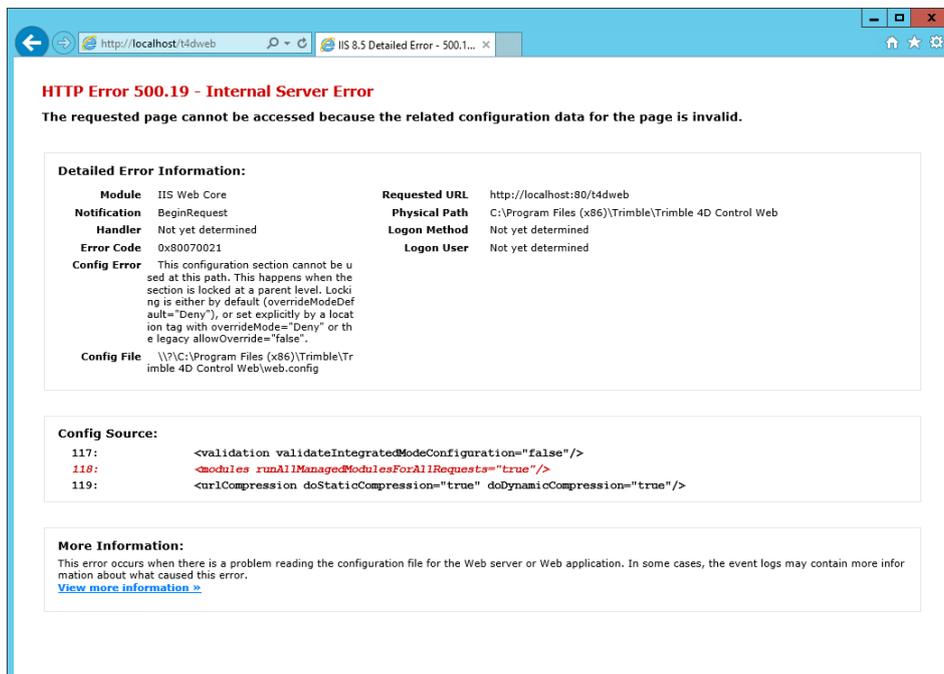


Figure 39: Http Error 500.19

This typically happens on Windows Server 2012 R2 if the **ASP.NET 4.5** features are not installed. Please refer to section 2.2 in this document and verify that your IIS is configured correctly.

7.1.2 "Could not load type 'System.ServiceModel.Activation.HttpModule'" message is displayed when trying to access Trimble® 4D Control Web from the server computer.

Server Error in '/T4DWeb' Application.

Could not load type 'System.ServiceModel.Activation.HttpModule' from assembly 'System.ServiceModel, Version=3.0.0.0, Culture=neutral, PublicKeyToken=b77a5c561934e089'.

Description: An unhandled exception occurred during the execution of the current web request. Please review the stack trace for more information about the error and where it originated in the code.

Exception Details: System.TypeLoadException: Could not load type 'System.ServiceModel.Activation.HttpModule' from assembly 'System.ServiceModel, Version=3.0.0.0, Culture=neutral, PublicKeyToken=b77a5c561934e089'.

Source Error:

An unhandled exception was generated during the execution of the current web request. Information regarding the origin and location of the exception can be identified using the exception stack trace below.

Stack Trace:

```
[TypeLoadException: Could not load type 'System.ServiceModel.Activation.HttpModule' from assembly 'System.ServiceModel, Version=3.0.0.0, Culture=neutral, PublicKeyToken=b77a5c561934e089'.]  
System.RuntimeTypeHandle.GetTypeByName(String name, Boolean throwOnError, Boolean ignoreCase, Boolean reflectionOnly, StackCrawlMarkHandle stackMark, IntPtr pPrivHostBinder, Boolean loadTypeFromPartialName, ObjectHandleOnStack type) +0  
System.RuntimeTypeHandle.GetTypeByName(String name, Boolean throwOnError, Boolean ignoreCase, Boolean reflectionOnly, StackCrawlMark& stackMark, IntPtr pPrivHostBinder, Boolean loadTypeFromPartialName) +70  
System.RuntimeType.GetType(String typeName, Boolean throwOnError, Boolean ignoreCase, Boolean reflectionOnly, StackCrawlMark& stackMark) +39  
System.Type.GetType(String typeName, Boolean throwOnError, Boolean ignoreCase) +37  
System.Web.Compilation.BuildManager.GetType(String typeName, Boolean throwOnError, Boolean ignoreCase) +65
```

Figure 40: Http Error 500.19

This is a known issue with IIS.

All NET 4.5 websites running on IIS will display this error message under the following situations:

1. On **Windows Server 2008**, it could happen when you install .NET 3.x framework or IIS 7.5 with Activation features after .NET framework 4.x is installed
2. On **Windows Server 2012**, it always happens when you install .NET framework 3.x with Activation features.

We prescribe the **following** solution for each case:

1. For **Windows Server 2008** Microsoft officially announced the solution (<http://support.microsoft.com/kb/2015129>):
Run **aspnet_regiis.exe /iru** where the **aspnet_regiis.exe** file can be found in one of the following locations:
%windir%\Microsoft.NET\Framework\v4.0.30319
%windir%\Microsoft.NET\Framework64\v4.0.30319 (on a 64-bit computer)

2. For **Windows Server 2012** the command `aspnet_regiis.exe` is not supported, instead follow these steps:

- a. In **IIS manager**, click the machine name node.
- b. In **Features View**, double-click **Modules**.
- c. Find **ServiceModel** and remove it:

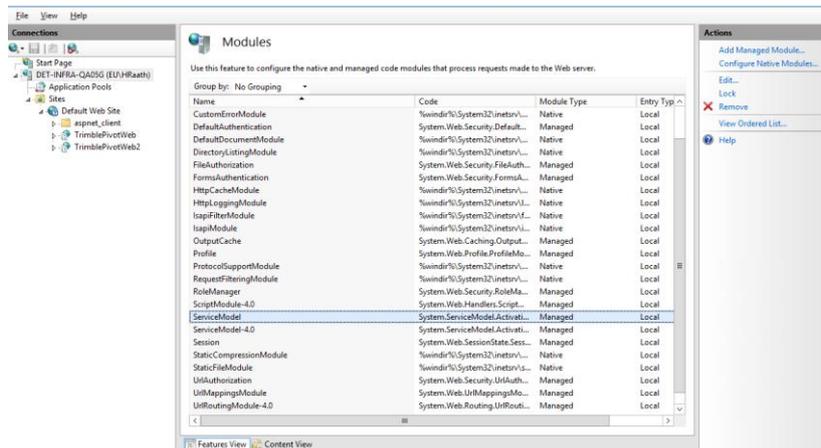


Figure 41: Remove ServiceModel from IIS Modules on Windows Server 2012

- d. Go back to the **Features View** and double-click **Handler Mappings**.
- e. Find **svc-Integrated** and remove it:

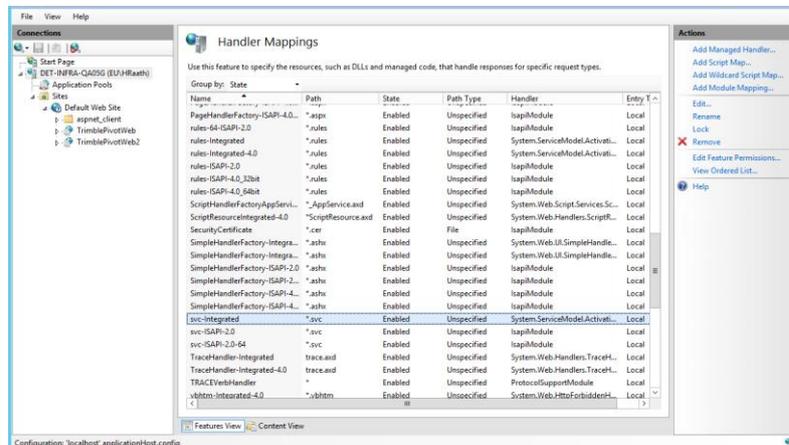


Figure 42: Browse to the ISAPI Restrictions of your Web Server in IIS

- f. Restart IIS and the problem will be resolved.