

PROPRICER EstimatorFLEX Deployment Guide

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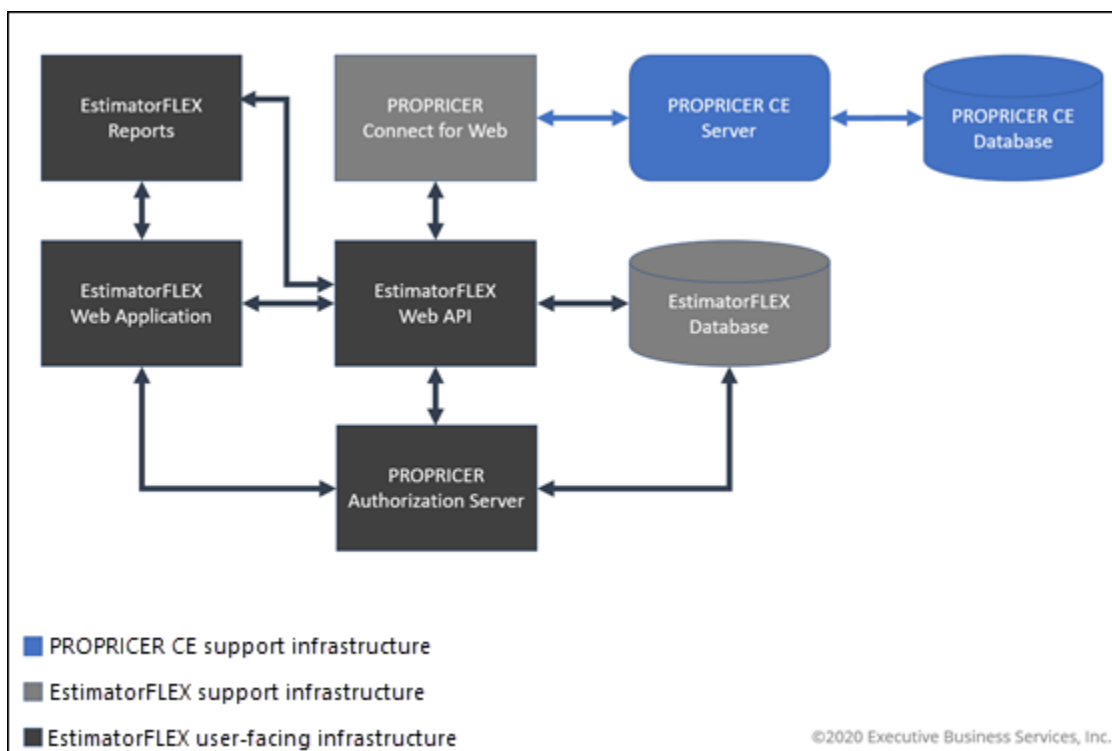
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Introduction

PROPRICER™ EstimatorFLEX, an n-tier web application developed with ASP.NET Core, supports various deployments options. This guide focuses on deployment on Windows Servers using Internet Information Services (IIS). This document is a guide to install EstimatorFLEX on-premise.

Architecture



Minimum requirements

- Microsoft Windows Server 2012 R2
- Internet Information System 8.0
- Microsoft .NET Framework 4.6.1
- Microsoft SQL Server 2012

Recommendations

- An SSL certificate is not required, but it is highly recommended for authentication purposes. If an SSL certificate is not used, you will likely experience installation and performance issues.

Self-contained deployment packages

All components, including the .NET Core libraries and the .NET Core runtime, come with the application and are isolated from other .NET Core applications. Self-contained deployment packages include an executable, such as EBS.PROPRICER.Estimator.WebAPI.exe.

Since the packages are separate self-contained deployments, you can deploy each one in a different server. You can even deploy them in different operating systems (for example, Authorization Server in Windows, and WebApp in Linux).

The zip packages are available in the [PROPRICER Support Portal](#).

Connect for Web

[PROPRICERVersion]_pp_[edition]_connect_for_web.zip

Connect for Web links EstimatorFLEX with your installation of PROPRICER Contractor Edition (CE) or Services Contractor Edition (SCE). This component uses full .NET Framework 4.6.1.

Use **[PROPRICERVersion]_pp_ce_connect_for_web.zip** for Contractor Edition.

Use **[PROPRICERVersion]_pp_sce_connect_for_web.zip** for Services Contractor Edition.

FLEX Authorization Server

PROPRICER_FLEX_Authorization_[version]_win-x64.zip

FLEX Authorization Server provides a centralized login logic. This component uses .NET Core framework (contained in the zip package).

EstimatorFLEX WebAPI

PROPRICER_EstimatorFLEX_WebAPI_[version]_win-x64.zip

Back-end EstimatorFLEX Web API that receives requests from the EstimatorFLEX web application, provides the WebSockets implementation for live collaboration updates, and communicates with the database to persist the information. This component uses .NET Core framework (contained in the zip package).

EstimatorFLEX Reports

PROPRICER_EstimatorFLEX_Reports_[version]_win-x64.zip

EstimatorFLEX report engine. Processes reporting requests from the Web Application and communicates with the WebAPI to retrieve the information. This component uses .NET Core framework (contained in the zip package).

EstimatorFLEX Web Application

PROPRICER_EstimatorFLEX_WebApp_[version]_win-x64.zip

Front-end EstimatorFLEX Web Application. This component uses only static files (JS, HTML, CSS, etc.).

EstimatorFLEX Database Setup

PROPRICER_EstimatorFLEX_DatabaseSetup_[version]_win-x64.zip

Console application that creates and upgrades EstimatorFLEX databases. This component uses .NET Core single .exe deployment (.NET Core contained in the .exe).

Create an EstimatorFLEX database

EstimatorFLEX Database Setup is a command line tool that allows the database administrators to create and upgrade EstimatorFLEX databases.

Usage

```
EstimatorFLEXDatabaseSetup [options] [command]
```

Options

`-v | --version` Show version information.

`-? | -h | --help` Show help information.

Commands

`addsysadmin` Add a system administrator account to an EstimatorFLEX database.

`create` Create a new EstimatorFLEX database.

`upgrade` Upgrade an EstimatorFLEX database to the current version.

create command

Create an EstimatorFLEX database.

Usage

```
EstimatorFLEXDatabaseSetup create [options]
```

Options

`-? | -h | --help` Show help information.

`-f | --scripttofile <fileName>` Output the script to a file.

`-s | --server <servername>` Name of the database server.

- w|--windowsauth Use Windows authentication.
- d|--dbname <dbname> Name of the database. Default value is EstimatorFLEX.
- a|--adminlogin <login> EstimatorFLEX admin user email. Default value is sysadmin@propricer.com.
- ap|--adminpass <password> EstimatorFLEX admin user password. Default value is sysadmin.
- an|--adminname <name> EstimatorFLEX admin username. Default value is System Administrator.
- u|--dbauser <dbalogin> Database user login.
- p|--dbapass <dbapassword> Database user password.

upgrade command

Upgrade an existing EstimatorFLEX database.

Usage

```
EstimatorFLEXDatabaseSetup upgrade [options]
```

Options

- ?|-h|--help Show help information.
- s|--server <servername> Name of the database server.
- w|--windowsauth Use Windows authentication.
- u|--dbauser <dbalogin> Database user login.
- p|--dbapass <dbapassword> Database user password.

-d|--dbname <dbname> Name of the database. Default value is EstimatorFLEX.

-f|--scripttofile <fileName> Output the script to a file.

addsysadmin command

Create an administrator-type user in a previously created EstimatorFLEX database.

Usage

```
EstimatorFLEXDatabaseSetup addsysadmin [options]
```

Options

-?|-h|--help Show help information.

-s|--server <servername> Name of the database server.

-w|--windowsauth Use Windows authentication.

-d|--dbname <dbname> Name of the database. Default value is EstimatorFLEX.

-a|--adminlogin <login> EstimatorFLEX admin user email. Default value is sysadmin@propricer.com.

-ap|--adminpass <password> EstimatorFLEX admin user password. Default value is sysadmin.

-an|--adminname <name> EstimatorFLEX admin username. Default value is System Administrator.

-u|--dbauser <dbalogin> Database user login.

-p|--dbapass <dbapassword> Database user password.

Install Connect for Web

Download and unzip the Connect for Web zip package to a folder where you want the site (for example, `C:\inetpub\EstimatorFLEX\PP9ConnectForWeb`).

The zip packages are available in the [PROPRICER Support Portal](#).

Prerequisites

Enable Internet Information Service

1. Open **Windows Features**.
2. In **.NET Framework 4.x Advanced Services**, enable **ASP.NET 4.x**.
3. In **Internet Information Services**, enable the following.
 - a. **IIS Management Console**
 - b. **.NET Extensibility 4.x**
 - c. **ASP.NET 4.x**
 - d. **ISAPI Extensions**
 - e. **ISAPI Filters**
 - f. **HTTP Errors**
 - g. **Static Content**
4. Restart the server, if required.

Installation

1. Open **Internet Information Service (IIS) Manager**.

2. Use the .NET 4.x application pool, or create a new application pool. To create a new pool:
 - a. Right-click **Application Pools**, then select **Add Application Pool**.
 - b. In the **Name** field, enter a valid name like **PP9 Connect for Web App Pool**.
 - c. In the **.NET CLR version** field, select **.NET CLR Version v4.0.30319**.
 - d. In the **Managed pipeline mode** field, select **Integrated**.
 - e. Select **Start application pool immediately**.
 - f. Click **OK** to create the application pool.
 - g. Right-click **PP9 Connect for Web App Pool**, then select **Advanced Settings**.
 - h. Set **Load User Profile** to **True**.
 - i. Click **OK** to save the change.
 - j. Right-click **PP9 Connect for Web App Pool**, then select **Recycle...**
3. Create the PP9 Connect for Web website.
 - a. Right-click the **Sites** folder, then select **Add Website**.
 - b. In the **Site name** field, enter **PP9 Connect for Web**.
 - c. In the **Application pool** field, select the pool created in previous steps.
 - d. In the **Physical path** field, enter or select the path where the PP9 Web API files will be located. For example,
C:\inetpub\EstimatorFLEX\PP9ConnectForWeb.
 - e. In the **Port** field, enter a valid port number. For example, **58092**.

- f. (Highly recommended). In the **Host name** field, enter a domain and SSL certificate.
- g. Click **OK** to create the website.

Configuration

To configure Connect for Web, use the Manager tool, or edit **web.config** in the target folder.

Manager tool

The Manager tool is recommended.

1. Open the **Command Prompt** window.
2. Go to the folder where Connect for Web is installed. For example, **C:\inetpub\EstimatorFLEX\PP9ConnectForWeb**.
3. At the command prompt, enter **ConnectForWebManager.exe config**.
4. Enter the information requested.

Edit web.config

Enter the PROPRICER 9 Server port and your Connect for Web key.

```
<applicationSettings>
  <EBS.PROPRICER.PP9WebAPI.Properties.Settings>
    <setting name="ServerName" serializeAs="String">
      <value>localhost</value>
    </setting>
    <setting name="ServerPort" serializeAs="String">
      <value>8092</value>
    </setting>
    <setting name="Key" serializeAs="String">
```

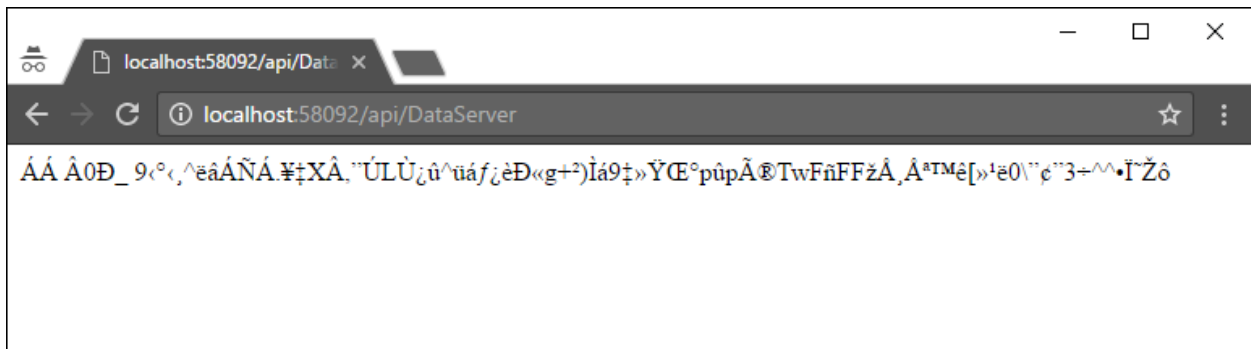
```

    <value>Enter your Connect for Web registration key</value>
  </setting>
</EBS.PROPRICER.PP9WebAPI.Properties.Settings>
</applicationSettings>

```

Test

Open your browser and go to <http://localhost:58092/api/DataServer>. You should see some special characters.



Common errors

500.119

User in the application pool cannot read **web.config**. To fix this, assign permissions to the folder where the PP9 Web API files are located (for example, **C:\inetpub\PP9ConnectForWeb**).

500.21

ISAPI modules are not installed properly. Turn off **ASP.NET 4.6**, **ISAPI Extensions**, and **ISAPI Filters**, and then turn them on again.

Logging disabled in web.config

To turn on logging in **web.config**, add `<httpErrors errorMode="Detailed" />` inside `<system.webServer>`.

PROPRICER license activation error

For Windows workstation operating systems (for example, Windows 10), if you receive an error related to activating a PROPRICER license, edit the Website settings to run the site. Click **Connect As**, then select the same user in the application pool.

HTTP Error 404.2 – Not found

“The page you are requesting cannot be served because of the ISAPI and CGI Restriction list settings on the Web server.”

```
Module : IsapiModule ,  
Notification : ExecuteRequestHandler,  
Handler : PageHandlerFactory-ISAPI-4.0_32bit ,  
Error Code : 0x800704ec
```

To fix this:

1. Open **Internet Information Service (IIS) Manager** and select the server name.
2. Under **IIS**, select **ISAPI and CGI Restrictions**.
3. Change **ASP.NET 4.0** from **Not Allowed** to **Allowed**.

<https://stackoverflow.com/questions/7578134/problem-in-running-net-framework-4-0-website-on-iis-7-0/30663312>

HTTP Error 503 – The service is unavailable

The service is unavailable when the application pool of the corresponding web application is stopped, disabled, or paused. It may also be unavailable when the given user identity of the application pool is invalid due to an expired password or is locked.

<https://blogs.msdn.microsoft.com/webtopics/2010/02/17/a-not-so-common-root-cause-for-503-service-unavailable/>

<https://stackoverflow.com/questions/13322937/http-error-503-the-service-is-unavailable>

Bad Request – Request header too long

“HTTP Error 400. The size of the request header is too long.”

While using Windows Authentication, this error may appear instead of the EstimatorFLEX application. It is the result of the user being a member of many Active Directory user groups.

To fix this:

1. Open **Windows Registry Editor** and go to:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\HTTP\Parameters

2. Increase the settings for the MaxFieldLength and the MaxRequestBytes registry entries on the server so that the user's request headers do not exceed these values. For example:

```
"MaxRequestBytes"=dword:01000000
```

```
"MaxFieldLength"=dword:0000ffff
```

<https://docs.microsoft.com/en-us/troubleshoot/iis/http-bad-request-response-kerberos>

<http://www.grouppolicy.biz/2013/06/how-to-configure-iis-to-support-large-ad-token-with-group-policy/>

Firewall

Your firewall must allow inbound connections to the port you selected for the PP9 Connect for Web website (for example, 58092) from the server where the EstimatorFLEX Web API site will be installed.

Install FLEX Authorization Server

Download and unzip the FLEX Authorization self-deployment package. Then move the **AuthorizationServer** folder to the desired site location (for example, **C:\inetpub\EstimatorFLEX\AuthorizationServer**).

The zip packages are available in the [PROPRICER Support Portal](#).

Prerequisites

Enable Internet Information Service

1. Open **Windows Features**.
2. In **.NET Framework 4.x Advanced Services**, enable **ASP.NET 4.x**.
3. In **Internet Information Services**, enable the following.
 - a. **IIS Management Console**
 - b. **.NET Extensibility 4.x**
 - c. **ASP.NET 4.x**
 - d. **ISAPI Extensions**
 - e. **ISAPI Filters**
 - f. **WebSocket Protocol**
 - g. **HTTP Errors**
 - h. **Static Content**

Configure and enable Windows authentication in EstimatorFLEX

FLEX Authorization allows Windows authentication as a login option.

1. Ensure that FLEX Authorization is hosted in a reverse proxy configuration with IIS on Windows Server 2012 R2 or later, or on Nano Server.
2. Configure IIS.
 - a. Enable the **Web Server (IIS)** server role.
 - b. Enable the **Windows Authentication** role service for **Web Server (IIS)**.
 - c. For more information, see the [References](#) at the end of this section of the guide.

Install the .NET Core Windows Server Hosting bundle

Install the .NET Core Hosting Bundle on the hosting system. The bundle installs the .NET Core Runtime, .NET Core Library, and the ASP.NET Core Module. The module allows ASP.NET Core apps to run behind IIS.

1. Go to the [Download .NET Core 3.1](#) page.
2. In the **Run apps - Runtime** column, find the row of the latest .NET Core runtime version desired. Download the installer using the **Hosting Bundle** link.
3. Run the installer on the server.
4. Restart the system or execute the following commands in a command shell:

```
net stop was /y
net start w3svc
```

Installation

1. Open **Internet Information Service (IIS) Manager**.
2. Create the FLEX Authorization application pool. To create a new pool:
 - a. Right-click **Application Pools**, then select **Add Application Pool**.
 - b. In the **Name** field, enter a valid name like **FLEX Auth App Pool**.

- c. In the **.NET CLR version** field, select **No Managed Code**.
 - d. In the **Managed pipeline mode** field, select **Integrated**.
 - e. Select **Start application pool immediately**.
 - f. Click **OK** to create the application pool.
 - g. Verify that the process model identity has the proper permissions. If the default identity of the application pool (**Process Model > Identity**) was changed from **ApplicationPoolIdentity** to something else, then the new identity needs permission to access the application's folder, database (when using Trusted Connection for the database connection string), and other required resources. For example, the pool needs Read and Write access to folders where the application reads and writes files.
3. Create the FLEX Authorization website.
- a. Right-click the **Sites** folder, then select **Add Website**.
 - b. In the **Site name** field, enter **FLEX Authorization**.
 - c. In the **Application Pool** field, select the application pool created in previous steps.
 - d. In the **Physical path** field, select the path to the **AuthorizationServer** folder. For example, **C:\inetpub\EstimatorFLEX\AuthorizationServer**.
 - e. In the **Port** field, enter a valid port number.
 - f. (Optional but recommended). In the **Host name** field, enter a domain and SSL certificate.
 - g. Click **OK** to create the website.
4. (Optional) Configure Windows authentication.
- a. Open the **Authentication** menu for the site.

- b. Disable **Anonymous Authentication**, and enable **Windows Authentication**.
- c. Right-click **Windows Authentication**, then click **Providers**. Verify that the enabled providers work on your network. By default, they are **Negotiate** and **NTLM**.

Configuration

To configure FLEX Authorization Server, use the Manager tool, or edit `appsettings.json` in the `AuthorizationServer` folder.

The Manager tool is recommended.

1. Open the **Command Prompt** window.
2. Go to the folder where FLEX Authorization Server is installed.
3. At the command prompt, enter **PROPRICERAuthorizationServerManager.exe config**.
4. Enter the information requested.

References

- Learn more about Windows authentication and installing it for IIS.
<https://docs.microsoft.com/en-us/iis/configuration/system.webServer/security/authentication/windowsAuthentication/>
- Configure Windows authentication in an ASP.NET Core app.
<https://docs.microsoft.com/en-us/aspnet/core/security/authentication/windowsauth?tabs=visual-studio&view=aspnetcore-3.1>

- Host ASP.NET Core on Windows with IIS. <https://docs.microsoft.com/en-us/aspnet/core/host-and-deploy/iis/?view=aspnetcore-3.1>

Install EstimatorFLEX Reports Server

Download and unzip the EstimatorFLEX Reports Server self-deployment package. Then move the **Reports** folder to the desired site location (for example, **C:\inetpub\EstimatorFLEX\Reports**).

The zip packages are available in the [PROPRICER Support Portal](#).

Prerequisites

Enable Internet Information Service

1. Open **Windows Features**.
2. In **.NET Framework 4.x Advanced Services**, enable **ASP.NET 4.x**.
3. In **Internet Information Services**, enable the following.
 - a. **IIS Management Console**
 - b. **.NET Extensibility 4.x**
 - c. **ASP.NET 4.x**
 - d. **ISAPI Extensions**
 - e. **ISAPI Filters**
 - f. **WebSocket Protocol**
 - g. **HTTP Errors**
 - h. **Static Content**

Install the .NET Core Windows Server Hosting bundle

Install the .NET Core Hosting Bundle on the hosting system. The bundle installs the .NET Core Runtime, .NET Core Library, and the ASP.NET Core Module. The module allows ASP.NET Core apps to run behind IIS.

1. Go to the [Download .NET Core 3.1](#) page.
2. In the **Run apps - Runtime** column, find the row of the latest .NET Core runtime version desired. Download the installer using the **Hosting Bundle** link.
3. Run the installer on the server.
4. Restart the system or execute the following commands in a command shell:

```
net stop was /y  
net start w3svc
```

Installation

1. Open **Internet Information Service (IIS) Manager**.
2. Create a new application pool. To create a new pool:
 - a. Right-click **Application Pools**, then select **Add Application Pool**.
 - b. In the **Name** field, enter **FLEX Reports App Pool**.
 - c. In the **.NET CLR version** field, select **No Managed Code**.
 - d. In the **Managed pipeline mode** field, select **Integrated**.
 - e. Select **Start application pool immediately**.
 - f. Click **OK** to create the application pool.
3. Create the FLEX Reports website.
 - a. Right-click the **Sites** folder, then select **Add Website**.

- b. In the **Site name** field, enter **FLEX Reports**.
- c. In the **Application pool** field, select the pool created in previous steps.
- d. In the **Physical path** field, enter or select the path where the files will be located. For example, **C:\inetpub\EstimatorFLEX\Reports**.
- e. In the **Port** field, enter a valid port number.
- f. (Optional but recommended). In the **Host name** field, enter a domain and SSL certificate.
- g. Click **OK** to create the website.

Configuration

To configure FLEX Reports, use the Manager tool, or edit **appsettings.json** in the **Reports** folder.

The Manager tool is recommended.

1. Open the **Command Prompt** window.
2. Go to the folder where FLEX Reports is installed.
3. At the command prompt, enter **EstimatorFLEXReportsManager.exe config**.

Install EstimatorFLEX WebAPI Server

Download and unzip the EstimatorFLEX WebAPI self-deployment package. Then move the **WebAPI** folder to the desired site location (for example, **C:\inetpub\EstimatorFLEX\WebAPI**).

The zip packages are available in the [PROPRICER Support Portal](#).

Prerequisites

Enable Internet Information Service

1. Open **Windows Features**.
2. In **.NET Framework 4.x Advanced Services**, enable **ASP.NET 4.x**.
3. In **Internet Information Services**, enable the following.
 - a. **IIS Management Console**
 - b. **.NET Extensibility 4.x**
 - c. **ASP.NET 4.x**
 - d. **ISAPI Extensions**
 - e. **ISAPI Filters**
 - f. **WebSocket Protocol**
 - g. **HTTP Errors**
 - h. **Static Content**

Install the .NET Core Windows Server Hosting bundle

Install the .NET Core Hosting Bundle on the hosting system. The bundle installs the .NET Core Runtime, .NET Core Library, and the ASP.NET Core Module. The module allows ASP.NET Core apps to run behind IIS.

1. Go to the [Download .NET Core 3.1](#) page.
2. In the **Run apps - Runtime** column, find the row of the latest .NET Core runtime version desired. Download the installer using the **Hosting Bundle** link.
3. Run the installer on the server.
4. Restart the system or execute the following commands in a command shell:

```
net stop was /y  
net start w3svc
```

Installation

1. Open **Internet Information Service (IIS) Manager**.
2. Create a new application pool. To create a new pool:
 - a. Right-click **Application Pools**, then select **Add Application Pool**.
 - b. In the **Name** field, enter **FLEX WebAPI App Pool**.
 - c. In the **.NET CLR version** field, select **No Managed Code**.
 - d. In the **Managed pipeline mode** field, select **Integrated**.
 - e. Select **Start application pool immediately**.
 - f. Click **OK** to create the application pool.
 - g. Verify that the process model identity has the proper permissions. If the default identity of the application pool (**Process Model > Identity**) was changed from **ApplicationPoolIdentity** to something else, then the new

identity needs permission to access the application's folder, database (when using Trusted Connection for the database connection string), and other required resources. For example, the pool needs Read and Write access to folders where the application reads and writes files.

3. Create the FLEX WebAPI website.
 - h. Right-click the **Sites** folder, then select **Add Website**.
 - i. In the **Site name** field, enter **FLEX WebAPI**.
 - j. In the **Application pool** field, select the pool created in previous steps.
 - k. In the **Physical path** field, enter or select the path where the files will be located. For example, **C:\inetpub\EstimatorFLEX\WebAPI**.
 - l. In the **Port** field, enter a valid port number.
 - m. (Optional but recommended). In the **Host name** field, enter a domain and SSL certificate.
 - n. Click **OK** to create the website.

Configuration

To configure EstimatorFLEX WebAPI, use the Manager tool, or edit **appsettings.json** in the target folder.

The Manager tool is recommended.

1. Open the **Command Prompt** window.
2. Go to the folder where EstimatorFLEX WebAPI is installed.
3. At the command prompt, enter **EstimatorFLEXWebAPIManager.exe config**.

Install EstimatorFLEX Web Application site

Download and unzip the EstimatorFLEX Web Application package. Then move the **WebApp** folder to the desired site location (for example, **C:\inetpub\EstimatorFLEX\WebApp**).

The zip packages are available in the [PROPRICER Support Portal](#).

Prerequisites

Enable Internet Information Service

1. Open **Windows Features**.
2. In **.NET Framework 4.x Advanced Services**, enable **ASP.NET 4.x**.
3. In **Internet Information Services**, enable the following.
 - a. **IIS Management Console**
 - b. **.NET Extensibility 4.x**
 - c. **ASP.NET 4.x**
 - d. **ISAPI Extensions**
 - e. **ISAPI Filters**
 - f. **HTTP Errors**
 - g. **Static Content**

Install the URL rewrite 2.1 IIS extension

Go to <https://www.iis.net/downloads/microsoft/url-rewrite> to download the extension.

Installation

1. Open **Internet Information Service (IIS) Manager**.
2. (Optional) Use the .NET 4.x application pool, or create a new application pool. To create a new pool:
 - a. Right-click **Application Pools**, then select **Add Application Pool**.
 - b. In the **Name** field, enter **FLEX App Pool**.
 - c. In the **.NET CLR version** field, select **No Managed Code**.
 - d. In the **Managed pipeline mode** field, select **Integrated**.
 - e. Select **Start application pool immediately**.
 - f. Click **OK** to create the application pool.
3. Create the FLEX App website.
 - a. Right-click the **Sites** folder, then select **Add Website**.
 - b. In the **Site name** field, enter **FLEX App**.
 - c. In the **Application pool** field, select the pool created in previous steps.
 - d. In the **Physical path** field, enter or select the path where the files will be located. For example, **C:\inetpub\EstimatorFLEX\WebApp**.
 - e. In the **Port** field, enter a valid port number.
 - f. (Optional but recommended). In the **Host name** field, enter a domain and SSL certificate.
 - g. Click **OK** to create the website.

Configuration

To configure EstimatorFLEX Web Application, use the Manager tool, or edit `config.js` in the target folder.

The Manager tool is recommended.

1. Open the **Command Prompt** window.
2. Go to the folder where EstimatorFLEX Web Application is installed.
3. At the command prompt, enter **EstimatorFLEXWebAppManager.exe config**.