Tungsten PSIsafe API
Installation Guide

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TUNGSTEN
AUTOMATION

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Preface

This guide provides instructions for administrators who are responsible for deploying the Tungsten PSIsafe API.

System requirements

Software requirements for Tungsten PSIsafe are listed in the Technical Specifications document, which is available from the Tungsten PSIsafe Landing Page on the Tungsten Automation website. The document is updated regularly, and we recommend that you review it carefully before installing your product.

Product documentation

The Tungsten PSIsafe product documentation set consists of guides and help systems to assist you with installing, configuring, and using the product.

Online documentation

The full product documentation set for Tungsten PSIsafe 12.3.0 product family is available online:

https://docshield.tungstenautomation.com/Portal/Products/PSIsafe/12.3.0-9ldsnos17y/PSIsafe.htm

The full set of Tungsten PSIsafe Documentation includes:
- Tungsten PSIsafe Release Notes
- Tungsten PSIsafe Technical Specifications
- Tungsten PSIsafe Installation Guide
- Tungsten PSIsafe User Help
- Tungsten PSIsafe Administrator Help
- Tungsten PSIsafe API Installation Guide
- Tungsten PSIsafe Web Installation Guide
- Tungsten PSIsafe Web User Help

> ⓘ If the security policy for your organization restricts Internet access or the Internet connection is not stable, you can access the documentation in Offline mode while using Tungsten PSIsafe products.

Offline mode

To make the documentation available for use in offline mode, obtain the following file from the Tungsten PSIsafe product package that you downloaded from the Tungsten Automation Fulfillment Site.

- TungstenPSIsafeDocumentation_12.3.0_EN.zip

Copy the .zip file to your computer and extract the contents:

- `Print` folder: Includes the *Tungsten PSIsafe Installation Guide*, *Tungsten PSIsafe API Installation Guide*, and *Tungsten PSIsafe Web Installation Guide*.
- `Help` folder: Includes the *Tungsten PSIsafe Help*, *Tungsten PSIsafe Web Help*, and *Tungsten PSIsafe Administrator Help*.

Training

Tungsten Automation offers both on-demand and instructor-led training to help you make the most of your product. To learn more about training courses and schedules, visit the Tungsten Automation Learning Cloud.

Getting help with Tungsten Automation products

The Tungsten Automation Knowledge Portal repository contains articles that are updated on a regular basis to keep you informed about Tungsten Automation products. We encourage you to use the Knowledge Portal to obtain answers to your product questions.

To access the Tungsten Automation Knowledge Portal, go to https://knowledge.tungstenautomation.com/.

> ⓘ The Tungsten Automation Knowledge Portal is optimized for use with Google Chrome, Mozilla Firefox, or Microsoft Edge.

The Tungsten Automation Knowledge Portal provides:

- Powerful search capabilities to help you quickly locate the information you need.

  Type your search terms or phrase into the **Search** box, and then click the search icon.
- Product information, configuration details and documentation, including release news.

  To locate articles, go to the Knowledge Portal home page and select the applicable Solution Family for your product, or click the View All Products button.

From the Knowledge Portal home page, you can:

- Access the Tungsten Automation Community (for all customers).

  On the Resources menu, click the **Community** link.
- Access the Tungsten Automation Customer Portal (for eligible customers).

Go to the Support Portal Information page and click **Log in to the Customer Portal**.

- Access the Tungsten Automation Partner Portal (for eligible partners).

  Go to the Support Portal Information page and click **Log in to the Partner Portal**.

- Access Tungsten Automation support commitments, lifecycle policies, electronic fulfillment details, and self-service tools.

  Go to the Support Details page and select the appropriate article.

Install PSIsafe API

The Tungsten PSIsafe API and Server work together to ensure that your PSIsafe database can be accessed by PSIsafe Web, PSIsafe Mobile, Tungsten PSIcapture products, as well as custom applications. Additionally, optional features via the Azure API Management Service can be implemented as needed. This approach allows applications with the data inside your PSIsafe database, and also allows programmers to create custom applications to send and receive data suited to your unique business needs. The Tungsten PSIsafe API and Server deployment process is described in the following sections.

Prerequisites

Internet Information Services (IIS) and IIS Manager are required to host Tungsten PSIsafe API in IIS on your server. Note that **Server Roles** are referred to as **Windows Features** in Windows 10 and 11.

Web server IIS - server roles

Common HTTP features:

- Default document
- Static content

Health and diagnostics:

- HTTP logging
- Request monitor

Performance features:

- Static content compression

Security:

- Request filtering
- Windows authentication

Application development features:

- .NET Extensibility 4.8
- ASP.NET Core 8
- ISAPI extensions
- ISAPI filters
- WebSocket protocol

Management tools:

- IIS 6 Management Console or later
- Management Service
- PSIsafe 32-bit Server version 12.3 or later
- PSIsafe Desktop Client and Manager version 12.3 or later
- ASP.NET Core 8.0 Hosting Bundle (installed via installer, manual installation is not necessary)
- IIS URL Rewrite Module (installed via installer, manual installation is not necessary)
    - https://www.iis.net/ and search for URL Rewrite.

⚠️

- The Tungsten PSIsafe API and Server run independently of the PSIsafe Desktop Client and 32-bit Server. However, they are required to set up a PSIsafe Desktop database and to run PSIsafe Management for registration and management.
- To develop an application using the PSIsafe API, you can use one of the following development environments: the .NET Framework 4.8 or later; the .NET Core 2.0 or later; any other programming language.
- Make sure that you install IIS **before** the Hosting Bundle. If not, you will encounter a 500.19 Internal Server error when trying to run the PSIsafe API website. To resolve this issue, reinstall the Hosting Bundle.

API Server and Service deployment (Installer)

Follow the procedure described below to deploy the Tungsten PSIsafe API and Tungsten PSIsafe server via the installation package (installer).

1. Right-click the downloaded installer and select **Properties**.
2. Select the **Unblock** checkbox, if it exists, and click **OK**.
3. Right-click the installer and select **Run as Administrator**.
   If required, input administrator credentials for your environment.
4. Select **Next**, then accept the End User License Agreement (EULA) by selecting the respective radio button and select **Next** again.
5. Select **Next** to use the default installation location, which is `C:\Program Files\Tungsten Automation\PSIsafe\PSIsafeAPI\`.
   To specify another custom path, select **Change** and browse to the appropriate location.
6. On the **PSIsafe Root Path configuration** screen, select the location of the CNGDBlist.XML file, which houses your stored PSIsafe database information, typically in the root directory of the PSIsafe 32-bit Server, which is by default: `C:\Program Files (x86)\CNG\CNGServer`, then select **Next**.
7. On the Internet Information Service configuration screen, select the radio button for Website or Application as required for your configuration.
   Input the **Site name**, **Port**, and **Application Name** into their respective fields as appropriate.
8. Select Install to complete the installation process.

Silent installation

The PSIsafe API installer can accept the following parameters as a part of a silent installation:
- INSTALLDIR=<"C:\Program Files\Tungsten Automation\PSIsafe">
- InstallAsWebApplication=<**0**/1>
  - 0: Install as new website
  - 1: Install as new application in an existing website
- ListSite=<"Default Web Site">
  - The existing site that the new Application installs to if InstallAsWebApplication=1.
- CNGServerPath=<"C:\Program Files (x86)\CNG\CNGServer

> ℹ **Note**: This path can be edited in the configuration file **PSIsafeAPIServer \settingsredirect.xml**.

- WebSiteName=<PSIsafeAPI>
  - The name of the website.
- ApplicationName=<PSIsafeAPI>
  - If this value is specified, the PSIsafe API is installed as a new IIS application in an existing web site. In this case, the WebSiteName must be a name of the existing website in IIS.
- Port=<81>
- PSIsafeAPIURL=<http://localhost:81>
  - The PSIsafe API URL. This value can be updated later by editing appsettings.json.
- PSIsafeWebURL=<http://localhost:83>
  - The PSIsafe Web URL. This value can be updated later by editing appsettings.json.

To install PSIsafe API and server silently, open a command prompt or powershell as an administrator and input a command that is similar to the following, customized for your environment.

For example, to install PSIsafe API to C:\PSIsafe folder in silent mode, with name PSIsafeAPITest, port 543, run this command:

```
MSIEXEC /i TungstenPSIsafeAPI-12.3.0.msi INSTALLDIR="C:\PSIsafe" CNGServerPath="C:
\Program Files (x86)\CNG\CNGServer"  WebSiteName=PSIsafeAPITest Port=543 /q
```

Or, for an installation as a new application in the existing website, run this command:

```
MSIEXEC /i TungstenPSIsafeAPI-12.3.0.msi INSTALLDIR="C:\PSIsafe" CNGServerPath="C:
\Program Files (x86)\CNG\CNGServer"  WebSiteName="Default Web Site" ListSite="Default
 Web Site" ApplicationName="PSIsafeAPITest"  /q
```

> ℹ **Note**: to install PSIsafe API as an IIS application, the values **WebSiteName** and **ListSite** must be set to the existing web site.

Configure PSIsafe API in IIS Management

After installing the Tungsten PSIsafe API server and service using the installer, you can further customize your Tungsten PSIsafe API installation in IIS Management to comply with specific requirements of your business. For example, you can switch to the HTTPS protocol for improved security.

> ⚠ Make sure the Tungsten PSIsafe API website is using an HTTPS type binding, by default on port 443. Your organization must purchase and register an SSL Certificate to use an HTTPS binding.

Add Write permissions to applog folder in API

> ℹ These steps are performed automatically at the time of installation, and are only necessary in restricted environments where the installer could not perform the permission association because the installer was not run with adequately privileged administrator credentials.

1. Open **IIS Manager**.
2. Locate the `applog` folder for Tungsten PSIsafe API.
3. Right-click and select **Edit Permissions**.

   Open the **Security** tab, select **Edit**, and click **Add**.
4. Key in "iis apppool\psisafeapi" (where psisafeapi is the name of the app pool used for Tungsten PSIsafe API).
5. Click **Check Names**, and then click **OK**.

Test your server and API deployment

Use this procedure to test your Tungsten PSIsafe API server and service deployment.

1. In **IIS Manager** under **Default Web Site**, select your PSIsafeAPI Web Site (Production) or PSIsafeAPI Application.
2. On the right side of **IIS Manager**, select **Browse**.
3. Append **/API** to the URL in the browser.

   Example with SSL certificate: `https://localhost:443/api`

   Example without SSL certificate: `http://localhost:81/api`
4. Verify that the API name and version is returned on the page.
   - Administrators may wish to name the site PSIsafeAPI.
5. Test that the API can connect to your PSIsafe Database by appending the following to the URL: `/databases?customercode=default`

   A screen should display a list of PSIsafe Desktop databases visible to the Tungsten PSIsafe API. If not, confirm that you successfully completed the step for copying CNGDBList.XML, as described in API Server and Service deployment (Manual).

Test the PSIsafe API and Server communication

Use IIS Manager to confirm successful configuration and deployment.

1. Open **IIS Manager**.
2. Select your PSIsafe API website (or application under Default Web Site).
3. In **IIS Manager**, select **Browse** in the **Actions** panel.

   > ⓘ Your configuration may be different, based on where you deployed the PSIsafe API and whether you have a certificate configured.

4. Add **/API** to the URL in the web browser and test the link to confirm the PSIsafe API version number.

   Example with SSL certificate: `https://localhost:443/api`

   Example without SSL certificate: `http://localhost:81/api`

   To confirm that the API can connect to your PSIsafe SQL database, append the following to the URL:

   ```
   /databases?customercode=default
   ```

   The URL will connect to the PSIsafe SQL database and return one or more database names (as configured in PSIsafe Management).

PSIsafe Web SignalR service deployment (Installer)

Use this procedure to deploy the Tungsten PSIsafe API server and service via the installation package (installer).

1. Right-click the downloaded installer and select **Properties**.
2. Select the **Unblock** checkbox, if it exists, and click **OK**.
3. Right-click the installer and select **Run as Administrator**.

   If required, input administrator credentials for your environment.
4. Select **Next**, then accept the End User License Agreement (EULA) by selecting the respective radio button and select **Next** again.
5. Select **Next** to use the default installation location, which is `C:\Program Files\Tungsten Automation\PSIsafe\PSIsafeSignalR\`.

   To specify another custom path, select **Change** and browse to the appropriate location.
6. On the Internet Information Service configuration screen, select the radio button for Website or Application as required for your configuration.

   Input the **Site name**, **Port**, and **Application Name** into their respective fields as appropriate.
7. On the **PSIsafe API SignalR configuration** screen, specify the **PSIsafe API URL** and **PSIsafe Web URL** respectively, then select **Next**.

   > ⓘ The PSIsafe SignalR installer does not automatically detect if there is an old version of SignalR installed.

8. Select Install to complete the installation process.

Silent Installation

The PSIsafe API SignalR installer can accept the following parameters as a part of a silent installation:

- INSTALLDIR=<"C:\Program Files\Tungsten Automation\PSIsafe">
- InstallAsWebApplication=<**0**/1>
  - 0: Install as new website
  - 1: Install as new application in an existing website
- ListSite=<"Default Web Site">
  - The existing site that the new Application installs to if InstallAsWebApplication=1.
- WebSiteName=<PSIsafeAPISignalR>
  - The name of the website or web application based on the InstallAsWebApplication setting.
- ApplicationName=<PSIsafeAPISignalR>
- PSIsafeAPIURL=<http://localhost:81>
  - The PSIsafe API URL. This value can be updated later by editing appsettings.json.
- PSIsafeWebURL=<http://localhost:83>
  - The PSIsafe Web URL. This value can be updated later by editing appsettings.json.

To install PSIsafe API SignalR silently, open a command prompt or powershell as an administrator and input something similar to the following, customized for your environment.

For example, to install PSIsafe API to C:\PSIsafe folder in silent mode, with name PSIsafeAPISignalRTest, port 543, as a new website, run this command:

```
MSIEXEC /i TungstenPSIsafeAPISignalR-12.3.0.msi INSTALLDIR="C:\PSIsafe"
 WebSiteName=PSIsafeAPISignalRTest Port=543 /q
```

Or, to install as new application in an existing website, run this command:

```
MSIEXEC /i TungstenPSIsafeAPISignalR-12.3.0.msi INSTALLDIR="C:
\PSIsafe" InstallAsWebApplication=1 ListSite="Default Web Site"
 WebSiteName=PSIsafeAPISignalRTest /q
```

Test the PSIsafe SignalR service

1. In the address bar of your web browser, type the PSIsafeSignalR website address with **/signalr** appended to the end.

   For example: `http://localhost:82/signalr`

   You can also select **Browse** within IIS under the PSIsafeSignalR website and append **/signalr** manually.

2. Verify that when the installation is completed successfully, the webpage displays the PSIsafe SignalR version, such as "Tungsten PSIsafe SignalR x.x.x."

Upgrade existing PSIsafe API installation (Installer)

This topic describes the process of upgrading an existing PSIsafe API installation, assuming that the API resides on the same server as the PSIsafe Desktop database in some cases.

1. Download the updated PSIsafe API installer.
2. Right-click the downloaded .zip file and select **Properties**.
3. Select the **Unblock** check box.
4. Click **OK**.
5. Run the PSIsafe API with administrator privileges.

   The installer detects existing installations and performs an upgrade accordingly.

Upgrade an existing SignalR service

The PSIsafe SignalR service ensures that user licenses are released in cases where a user closes the browser without logging out. When upgrading an older PSIsafe SignalR service, you must delete the old SignalR website and use the SignalR installer to install a new SignalR website. When performing the new installation, input your existing PSIsafe API and PSIsafe Web URLs as a part of the standard installation process. The existing values are stored in the **appsettings.json** file.

Verify that API update is successful

1. Open IIS, select the PSIsafe API website from the list, and select **Browse**. Then, append **/api** to the address within the address bar.
2. Alternatively, from the Start Menu, open a browser and in the address bar enter one of the following:

   Example with SSL certificate: `https://localhost:443/api`

   Example without SSL certificate: `http://localhost:81/api`
3. Verify that the webpage displays the installed PSIsafe API version, such as "Tungsten PSIsafe API x.x.x."

Test the PSIsafe SignalR service

1. Open IIS, select the PSIsafe SignalR website from the list, and select **Browse**. Then, append **/signalr** to the address within the address bar.
2. In the address bar of your web browser, enter the following:

   Default configuration: `http://localhost:82/signalr`
3. Verify that the webpage displays the installed PSIsafe SignalR version, such as "Tungsten PSIsafe SignalR x.x.x."

PSIsafe Web and API Installation Troubleshooting

This section includes solutions for issues that may occur during the installation of PSIsafe Web or PSIsafe API.

Failed to load ASP.NET Core runtime

When testing the PSIsafe API at example address: `http://localhost:81/api`

You may encounter an error like this:

Error: "HTTP Error 500.31 - Failed to load ASP.NET Core runtime"

Problem:

ASP.NET Core Hosting Bundle dependency is not installed.

Solution:

Install the ASP.NET Core 8.0 Hosting Bundle or later from the following link:

```
https://dotnet.microsoft.com/en-us/download/dotnet/thank-you/runtime-aspnetcore-8.0.7-
windows-hosting-bundle-installer
```

No IPEndpoints were found for host localhost

An error occurs when testing if the PSIsafe API can access PSIsafe DB using a path similar to this:

```
http://localhost:81/api/databases?customercode=default
```

You may encounter an error:

Error: "Error: No IPEndpoints were found for host localhost. For more details on error provide log ID to your Administrator.Log ID: 0" and in some cases "{"statusCode":500,"details":"No IPEndpoints were found for host localhost"

Problem:

PSIsafe Server Service is not running.

Solution:

This error indicates that your PSIsafe API Server Service (named **PSIGEN Affinity Server** in the Windows Services dialog) is not running.

1. Open the Windows Services Dialog.
2. Confirm that the PSIsafe Desktop Server service is running.

We lost connection to the server

An error occurs when testing the PSIsafe API at the example address:

```
http://localhost:81/api
```

When logging in to PSIsafe Web. A message is displayed at the top of the login page saying: "We lost connection to the server. Refresh browser to retry."

The error is displayed at the top of the screen:

Error: "We lost connection to the server. Refresh browser to retry."

Problem:

PSIsafe Web cannot reach the PSIsafe API endpoint. Typically, this can be caused by:

1. The PSIsafe API Web Site is not running.
2. The PSIsafeAPIURL is not set to the correct path in the file **appsettings.Production.json.**

Solution:

1. Start the PSIsafe API web site in IIS.
2. Check the PSIsafeAPIURL configuration in appsettings.Production.json:

```
[PSIsafeWebInstallationFolder]/wwwroot/appsettings.production.json
```

Make sure that path does NOT end with **/api**. That path is used only to retrieve API version during testing.

Internal Server Error with Error Code: 0x8007000d

When trying to access PSIsafe Web. The browser displays an error:

Error: "HTTP Error 500.19 - Internal Server Error" and error code "0x8007000d"

Problem:

The pre-requisite **IIS URL Rewrite Module** is not installed.

Solution:

1. Install the IIS Rewrite Module from the following link:
   ```
   https://www.iis.net/downloads/microsoft/url-rewrite
   ```
2. Restart IIS.

An unhandled error has occurred. Reload X

When trying to access PSIsafe Web, the browser displays the following error:

Error: "An unhandled error has occurred. Reload X"

Problem:

PSIsafe Web was deployed as sub-application under another web site (such as Default Web Site). This is currently not supported (as of version 12.2.0.1.0.358).

Solution:

Create a separate website in IIS for deployment of PSIsafe Web.

Object reference not set to instance of object

When trying to log into PSIsafe Web, the browser displays an error:

Error: "Object reference not set to instance of object"

Problem:

PSIsafe Web cannot connect to its SQL Database.

Solution:

1. Check that you have a **CNGDBList.xml** in the root folder where PSIsafe Server was installed. For a new deployment this file is copied from the PSIsafe 32-bit server after DB registration. Check that the file contains information for the databases you will be using.

2. If you are on a load balanced system with multiple PSIsafe Desktop Server instances, open **ServerAppSettings.xml** in the Config folder of the PSIsafe Desktop Server. The shared path to the file is defined with key ServerXMLFiles:

   ```
   <add key="ServerXMLFiles" value="\\[PathToTheSharedLocation]
   ```

Invalid object name 'FileDownloadSession'

When testing the PSIsafe Web downloads, you may encounter an error that reads:

Error: "Invalid object name 'FileDownloadSession".

Problem:

The SQL table **FileDownloadSession** is missing. The required **PSIsafeDatabaseUpdates.SQL** script required for PSIsafe API and PSIsafe Web has not been executed on the database.

Solution:

Execute the PSIsafe API script on the PSIsafe Database in SSMS. The script is including in your installation package.

Error. Not Found.

When testing the PSIsafe Web imports/uploads, you may encounter an error that reads:

Error: "Error. Not Found For more details on error provide your Log ID to your Administrator."

Problem:

The **PSIsafeAPIURL** in **appsettings.Production.json** file contains "/" (front slash) at the end of API URL.

Solution:

1: Start the PSIsafe API web site in IIS.

2: Check the **PSIsafeAPIURL** configuration in **appsettings.Production.json**, for example:

```
[PSIsafeWebInstallationFolder]/wwwroot/appsettings.production.json
```

Make sure that path does NOT end with a slash**/**.

'blazorInterop.DownloadFile'

When testing the PSIsafe Web downloads, you may encounter an error that reads:

Error: "blazorInterop.DownloadFile: Could not get the requested file on the API".

Problem:

This can happen on deployments where the API is load balanced using multiple servers. If load balanced, then the **AffinityTempFilesLocation** needs to be set to a shared location that all API server instances share. See **appsettings.json** where API is installed.

Solution:

In the **appsettings.json** for the PSIsafe API. Make sure that **AffinityTempFilesLocation** is pointing to a share that all PSIsafe API instances write to.

Arg_NullReferenceException

When testing the PSIsafe Web imports/uploads, you may encounter an error that reads:

Error: "Arg_NullReferenceException".

Problem:

The SQL table **FileUploadSessions** and/or **FileUploadParts** are missing. The required **PSIsafeDatabaseUpdates.SQL** script required for PSIsafe API and PSIsafe Web has not been executed on the database.

Solution:

Execute the PSIsafe API script on the PSIsafe Database in SSMS. The script is including in your installation package.