

# Installation Guide: vSolution Link Pro on IIS

Version 1.9.1





#### 🕂 Windows Server

#### Internet Information Services





## vSolution Link Pro Installation Guide on IIS

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#### 1. About this Guide

This document explains the setup of vSolution Link Pro application by WolfVision on a Windows IIS server.

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#### 3. System Requirements Windows Web Services (IIS Internet Information Server)

As vSolution Link Pro is a web server application, it can be accessed by any modern fully HTML5 compatible browser of a third-party device in the local network.

To use all features the application provides, it has to be installed as IIS (Internet Information Server). Email credentials, SSL certificate, Internet access and 24/7 server availability are also required.

The software (64bit application) can be installed on following operating systems. The following shows the minimum system requirements, more recommended:

- Windows Server 2019 or newer (all requirements according to Microsoft must be fulfilled)
- CPU minimum 1 Core with 2.60GHz (2 cores, or more recommended)
- 4GB RAM (8GB, or more recommended)
- 100GB minimum free disk space for firmware files (250GB, or more recommended)
- Access to secure port (e.g. 443, https default)
- Server address (IP:port) has to be reachable via secure web socket (wss)
- .NET Core Hosting Bundle, tested with version 7.0.3

#### Please note

Latest updates recommended.

Earlier versions of operating systems are not tested and may not be supported.

Please note the required disk space for the local firmware repository, disk space of at least 20GB is recommended.

To access the devices, they have to be online **and** in the same network to be reachable! Pay attention of correct network settings, especially when running in special network environments.

Cynap systems will disable their LAN ports when powering down by default and can be powered up by using the Wake on LAN functionality. For network infrastructures with blocked Wake on LAN, use power down mode Power Save to keep the LAN port of your Cynap active. When using WolfVision Visualizer devices, use power down modes Normal or ECO to keep the LAN port active. Certain Visualizer models are supporting Wake on LAN (check power down mode of connected Visualizer).

An incorrect system time may cause network connection to fail, the use of a valid timeserver recommended.

#### 3.1. Custom Email-Provider

Valid custom email-provider credentials are required when enabling:

- 2-factor authentication
- Management Hub
- Event log Email notification
- Box Replacement<sup>\*</sup>
- Password reset<sup>\*</sup>.

<sup>\*</sup> If no custom provider is set, the integrated Sendgrid account will be used for sending Emails.

#### 3.2. SSL certificate – prerequisite for enabling Management Hub

A valid SSL certificate is required when restricting the access to https.



#### 3.3. Firewall Rules

Ensure that all necessary ports, services and IP addresses are available and not blocked by your firewall (external and personal).

Acknowledgements ("ACKs") of TCP packets are not considered in the following table in order to be able to illustrate the direction of the data packets. Since acknowledgements are usually sent back via the same TCP port, the other direction shall not be blocked to ensure smooth functioning.

On certain systems, you have to set a rule to allow the application: **WolfVision.MgmtTool.Api.exe** for full functionality.

Function / Application	Port	Туре	Inbound / Outbound	Description
vSolution Link Pro				
Wake On LAN	7/9	UDP	Inbound / Outbound	Wake On LAN – Usually port 7 is used for sending the magic packet
DNS	53	TCP / UDP	Inbound / Outbound	DNS – This port will be used for Domain Name System. If this port is blocked, DNS service are not available
http, Cynap control	80	ТСР	Inbound / Outbound	This is the default port to connect to the web interface (httpd) of vSolution Link Pro. Of this port is blocked, connection cannot be established
https, SSL, e.g. Cloud Service, Cynap control	443	ТСР	Inbound / Outbound	This is the default port to connect to web interface (https) of vSolution Link Pro. If this port is blocked, connection cannot be established.
SMTP	587	SMTP	Outbound	Mail Server – Port for communication with SMTP server.
Discovery Multicast	50000	UDP	Inbound	This port is used for device discovery all available Cynap and Visualizer in the network by vSolution applications (uses Multicast IP address 239.255.255.250). If this port is blocked, device discovery is not possible
Device Discovery	50913	UDP	Inbound	This port is used for device discovery. If this port is blocked, device discovery is not possible.
For control purposes	50915	ТСР	Inbound / Outbound	This port is used for control purposes. If this port is blocked, no control is possible



#### 4. On-Premise or Management Hub

The vSolution Link Pro is a web server application and needs to be installed, preferred on a server to ensure 24/7 availability.

#### 4.1. Hosted On-Premise (Local Installation)

When the application is hosted on-premise, this server, all Cynap and Visualizer systems and also the third party devices (desktops, workstations, tablets) have to be in the same Ethernet network.

#### 4.2. Hosted with Management Hub (Cloud Installation)

When the application is hosted with enabled Management Hub feature, Cloud supported devices can be managed additionally.



Supported WolfVision Cynap systems in Management Hub:

- Cynap
- Cynap Pro
- Cynap Core
- Cynap Core Pro
- Cynap Pure
- Cynap Pure Pro
- Cynap Pure Receiver
- Cynap Pure SDM

For full compatibility, keep installed firmware version of all your devices up to date.



#### 5. Server Installation (Windows IIS)

The vSolution Link Pro is a web server application and needs to be installed, preferred on a server to ensure 24/7 availability.

Different versions of IIS may vary slightly, the following steps are describing the installation on a Windows Server 2019 Datacenter (OS build 17763.1131) with .NET Core Hosting Bundle version 7.0.3. The installation on other versions may vary.

vSolution Link Pro is delivered with a standard web.config, which can be adopted, depending on your needs.

Note additional settings for using Management Hub (cloud access) feature.

#### 5.1. Download the installation files

Download the zip archive vSolutionLinkPro\_WindowsServer.zip from the WolfVision web page and unpack it.

#### 5.2. Add IIS functionality

Open the Server Manager Dashboard and Add Roles and Features:



#### Important

WebDAV role should stay disabled for vSolution Link Pro server for full functionality.



Add Roles and Features Wizard	- 0	×
Before you begin	DESTINATION SERVI wviis01.wolfvision-at.int	ER
Before You Begin Installation Type Server Selection Server Roles Features Confirmation Results	This wizard helps you install roles, role services, or features. You determine which roles, role services, features to install based on the computing needs of your organization, such as sharing documents, or hosting a website. To remove roles, role services, or features: Start the Remove Roles and Features Wizard Before you continue, verify that the following tasks have been completed: • The Administrator account has a strong password • Network settings, such as static IP addresses, are configured • The most current security updates from Windows Update are installed If you must verify that any of the preceding prerequisites have been completed, close the wizard, complete the steps, and then run the wizard again. To continue, click Next.	or r
	Skip this page by default  Previous Next > Install Cancel  Cancel	
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Results	Name IP Address Operating System
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	1 Computer(s) found This page shows servers that are running Windows Server 2012 or a newer release of Windows Server, and that have been added by using the Add Servers command in Server Manager. Offline servers and newly-added servers from which data collection is still incomplete are not shown.
	< Previous Next > Install Cancel
Add Roles and Features Wiza	rd – 🗆 X
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Add Roles and Features Wiza Select server rol Before You Begin Installation Type Server Selection Server Roles Features Confirmation Results	es DESTINATION SERVER wviis01.wolfvision-at.intra Select one or more roles to install on the selected server. Roles Active Directory Domain Services Active Directory Federation Services Active Directory Lightweight Directory Services Active Directory Rights Management Services Active Directory Rights Management Services Device Health Attestation DHCP Server Since Server Fax Server Fax Server File and Storage Services (1 of 12 installed) Head Guardiag Services File and Storage Servi
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Add Roles and Features Wiza Select server rol Before You Begin Installation Type Server Selection Server Roles Features Confirmation Results	Ind       –       –       ×         CS       DESTINATION SERVER wiis01.wolfvision-at.intra         Select one or more roles to install on the selected server.       Description         Roles       Description         Active Directory Domain Services       Active Directory Federation Services         Active Directory Rights Management Services       Methods and scalable Web application infrastructure.         DHCP Server       DNS Server         Fas Server       File and Storage Services (1 of 12 installed)         Host Guardian Services       Hyper-V         Network Controller       Network Policy and Access Services         Print and Document Services       Find Access Services
Add Roles and Features Wiza Select server rol Before You Begin Installation Type Server Selection Server Roles Features Confirmation Results	es Description
Add Roles and Features Wiza Select server rol Before You Begin Installation Type Server Selection Server Roles Features Confirmation Results	ard       -       -       ×         DESTINATION SERVER wviis01.wolfvision-at intra         Select one or more roles to install on the selected server.         Roles       Description
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Add Roles and Features Wiza Select server rol Before You Begin Installation Type Server Selection Server Roles Features Confirmation Results	Ind      X         DESTINATION SERVER wiis01.wolfvision-at.intra         Select one or more roles to install on the selected server.         Roles       Description        Active Directory Domain Services      Adive Directory Federation Services        Active Directory Pomain Services      Adive Directory Fightweight Directory Services        Active Directory Rights Management Services      Adive Directory Rights Management Services        DNC Server      Asserver        DNS Server      Fax Server        Fax Server      Fit and Storage Services (1 of 12 installed)        Host Guardian Services



Web Server (I Managem [Tools]	S) ent Tools IIS Management Cons	sole	
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#### 5.4. Select WebSocket Protocol (Application Development, sub item of IIS Web Server)





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📥 Add Roles and Features Wizard

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#### DESTINATION SERVER Confirm installation selections wviis01.wolfvision-at.intra To install the following roles, role services, or features on selected server, click Install. Before You Begin Installation Type Restart the destination server automatically if required Optional features (such as administration tools) might be displayed on this page because they have Server Selection been selected automatically. If you do not want to install these optional features, click Previous to clear Server Roles their check boxes. Features Default Document Web Server Role (IIS) **Directory Browsing** Role Services HTTP Errors Confirmation Static Content Health and Diagnostics HTTP Logging Performance Static Content Compression Security **Request Filtering** Export configuration settings Specify an alternate source path < Previous Next > Install Cancel 📥 Add Roles and Features Wizard $\times$ DESTINATION SERVER Installation progress wviis01.wolfvision-at.intra View installation progress Feature installation Installation succeeded on wviis01.wolfvision-at.intra. Web Server (IIS) Management Tools IIS Management Console Web Server Application Development Results WebSocket Protocol **Common HTTP Features** Default Document **Directory Browsing HTTP Errors** Static Content You can close this wizard without interrupting running tasks. View task progress or open this 1 page again by clicking Notifications in the command bar, and then Task Details. Export configuration settings < Previous Next > Close | Cancel



#### 5.5. Prepare file structure

Copy the unzipped folder vSolutionLinkPro\_WindowsServer to c:\inetpub\wwwroot

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File Home Share	View Compressed Folder Tools	× ()	
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	Name Type	File       Home       Share       View         ← → ~ ↑       → This PC → Local Disk (C:) → inetpub → wwwroot ~ ♥         ↓ Quick access       Date modified       Type         ↓ Quick access       Date modified       Type         ↓ Downloads       iisstart       02.04.2020 14:59       HTML Documer         ↓ Downloads       iisstart       02.04.2020 14:59       PNG File         ↓ Downloads       ↓ vSolutionLinkPro       31.03.2020 09:51       File folder         ↓ Screenshots       ↓ 26% complete       Copying 732 items from vSolutionLinkPro_WindowsServe         26% complete       Copying 732 items from vSolutionLinkPro_WindowsServe	- C × V Search wwwroot P Size ent 1 KB 98 KB - C × er to wwwroot II ×
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Change properties to manage permissions of the IIS to allow full control

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💻 This PC			Give access to	>		
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Permissions for vSolutionLin	kPro	×
Security		
Object name: C:\inetpub\www	oot\vSolutionLink	Pro
Group or user names:		
SCREATOR OWNER		
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R TrustedInstaller	0110)	
	A 1 1	<b>D</b>
	Add	Remove
Permissions for IIS_IUSRS	Allow	Deny
Full control		□ ^
Modify		
Read & execute		
List folder contents		
Read	$\sim$	<u> </u>
OK	Canaal	Analy
OK	Cancer	Арріу



#### 5.6. Start Internet Information Services (IIS) Manager

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	<b>)</b>	<b>Interne</b> Desktop	et Information Services (IIS) Manager	
ŝ				
	, Рii			



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#### 5.7. Setup IIS

Manage sites of IIS and add the physical path

Add Website Add Website Add Website Application paol Add Website Add Website Application paol Add Website Application paol Add Website Add Website Application paol Add Website Add We	File View Help		-			
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Restrict access to https and check the used port. This setting is required prior activating Management Hub feature.

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nnections	Add Website	? ×	Actions
le View Help nnections Start Page WillSOf (WOLFVISION-AT\anusch) Application Pools Stres	Add Website         Fitter:         Name         StochtionLinkPro         Physical path:         Content Directory         Physical path:         Cinterpulvew/conclus0bioinLinkPro         Past-through authentication         Connect as         Test Settings         Binding         Type:       IP address:         Port:         http://http://linkpro.orm.ormarketing.contoso.com         Kample: www.contoso.com or marketing.contoso.com         Start Website immediately	? X	Actions Construction Set Website P Help
	🔚 Features View 💽 Content View		



Define your valid SSL certificate for proper https connection. This setting is required prior activating Management Hub feature.

ctions	P		Actions		
Sites					
Start Page			Set Website Defaults		
WVIIS01 (WO	LFVISION-AT\arusch)	Hitter: • 9 00 • • Show All Group by: No Grouping •	Edit Site		
Application Sites	on Pools	Name ID Status Binding Path	Bindings		
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	https 443	•	Rename		
		Edit	View Applications		
		Demous 2 V	View Virtual Directories		
		Eait Site binding	Manage Website		
		Type: IP address: Port:	💝 Restart		
		https V All Unassigned V 443	Start		
		Host name:	Browne Website		
			Browse *:80 (http)		
		Require Server Name Indication	Browse *:443 (https)		
			Advanced Settings		
		Disable TLS 1.3 over TCP Disable QUIC	Configure		
		Disable Legacy TLS Disable HTTP/2	Limits		
		Disable OCSP Stapling	HSIS		
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		SSL certificate:			
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Change .NET CLR version in Basic Settings to "No Managed Code" Change Managed pipeline mode to "Integrated".

and the second			Antines
Application Pools	s you view and man and provide isolatio Status AtinkPro Statted	Is ge the list of application pools on the server. Application pools are associated with worker processes, contain one or more annong different applications.	Actions Add Application Pool Deals. Set Application Pool Tasks Start Stop Recycle Edit Application Pool Recycling Advanced Settings Recycling Recycling Advanced Settings Recycling Recycling Advanced Settings Recycling Recycling Advanced Settings Recycling Recycling Advanced Settings Recycling Advanced Settings Recycling Advanced Settings Advanced Settings Recycling Advanced Settings Recycling Advanced Settings Recycling Advanced Settings Advanced Settings Advanced Settings Advanced Settings Recycling Advanced Settings Advanced Settings



Change Start Mode in Advanced settings to "AlwaysRunning" to allow 24/7 operation



Change Idle Time-out (minutes) in Advanced settings to "0"

ile View Help						
ile View Help nnections Start Page Start Page Sta	Applicati This page lets you view applications, and provi Filter Name OvSolutionLinkPro	on Po v and ma de isolat Status Starter	DOIS nage the list of application pools or ion among different applications. Advanced Settings VIET CLR Version Enable 32-Bit Applications Managed Pipeline Mode Name Queue Length Start Mode V CPU	the server. Application pools are assoc ? No Managed Code False Integrated VSolution Link Pro 1000 AlwaysRunning	liated with worker processes, contain one or more	Actions Add Application Pool Defaults Application Pool Defaults Application Pool Tasks Start Stop Recycle Edit Application Pool Basic Settings Recycling Advanced Settings Remove Remove
			CPU     Limit (percent)     Limit Action     Limit Action     Limit Interval (minutes)     Processor Affinity Enabled     Processor Affinity Mask     Processor Affinity Mask (64-b     Concess Model     Generate Process Model Even     Identity     Idle Time-out (minutes)     Idle Time-out Action	0 NACtion 5 False 4294967295 tc 4294967295		View Applications    Help
			Idle Time-out (minutes) (idle Time-out) Amount of time (in idle before it shuts down. Awk requests and no new requests are	minutes) a worker process will remain process is idle if it is not processing received.		

#### Please note

When the IIS is running OnDemand, it stops when:

- No vSolution Link Pro window is open in a browser window at any client
- No Management Hub connection is open
- No device uses calling home.



#### 6. Installing .NET Core Windows Server Hosting

Install the .NET Core Hosting Bundle. The application was tested with .NET version 7.0.3: <u>https://dotnet.microsoft.com/en-us/download/dotnet/thank-you/runtime-aspnetcore-7.0.3-</u> <u>windows-hosting-bundle-installer</u>

For further details about IIS, please visit: <u>https://docs.microsoft.com/en-us/aspnet/core/host-and-deploy/iis/?view=aspnetcore-7.0</u>

Stop and restart the service at Application Pool Tasks at IIS Manager.

#### 6.1. Adopt appsettings.json

The file appsettings.json allows modifying all settings offline by using a common text editor. The most important settings are accessible at the graphical user interface (Configuration -Settings).

#### Using Management Hub (Cloud)

"UseHttps" in section "Hosting" has to be set to "true".

appsettings.json - Notepad  $\times$ File Edit Format View Help "Hosting": { "AppName": "vSolution Link Pro", "AppHame": "vSolution Link Pro", "Port": 80, "HttpsPort": 443, "UseHttps": true,] "CertificatePath": "C:\\ProgramData\\WolfVision\\vSolution Link Pro\\certificate.pfx", "CertificateKey": "Dvx\_p6pc4z2e\_F4m\_Dp@", "EnableSwagger": false, "Enable2FA": false, "MaxRequestBodySize": null }, "MailServer": { "ProviderType": 0, "MailServer": "MailPort": 587, "Sender": "", "Sender": "", "Username": "", "Password": "P@ssw0rd" "UseAuthentication": false, "ConnectionSecurity": 1, Ln 21, Col 73 100% Windows (CRLF) UTF-8 with BOM



#### 6.2. Activate Management Hub (optional, depending on setup)

The Management Hub for Cloud support needs to be enabled in the setting at initial start:

WOLF VISION vSolution Link Pro	Save
	Management Hub
	Enabled
Scheduled tasks	Email notifications
J Firmware files	Enabled
Sotting tomplator	HOSTING DOMAIN https://mv. vsolutionlinkpro.com
🛃 Admin messages	REGISTRATION-CHECK INTERVAL */I **** cron
🛠 Configuration 🛛 🚥	armin@wolf.net
	Set multiple addresses using line-breaks
Device registration	Discovery options
<b>9-9</b>	e Broadcast
(හී) Users	Multicast
A Tonants	
	Direct
🔅 Settings	Firmware Management
	Auto download
Information     ···	Settings Management
	Disable fallback mechanism for settings template upload
	Draver Cattingo

Alternative, activate the Management Hub in the file appsettings.json and adopt all settings according your needs manually:



(example)



#### 7. Start the application

To start vSolution Link Pro, open the browser of the workstation and enter the IP address of the server.

Example URL http://192.168.0.1:80

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	2	

For security reasons, the default password has to be changed at first login.

Please note, after inactivity of 30 minutes, you will be logged out automatically.

#### 7.1. Device Requirements

To access the devices, they have to be online **and** reachable!

Cloud-connected devices (Management Hub) are keeping a secure websocket connection (WSS) open to allow managing.

E.g. Cynap devices will disable their LAN ports when powering down by default and can be powered up by using the Wake on LAN functionality. For network infrastructures with blocked Wake on LAN, use power down mode Power Save to keep the LAN port of your Cynap system active.

Depending on network infrastructure and due to multiple network ports, IP routing has to be specified to route the network traffic.

When using WolfVision Visualizer devices, use power down modes Normal or ECO to keep the LAN port active.



**7.2. First Login - Change Password ("admin" at initial start)** When you login the first time, the password must be set:

Change password   ** Note & Change has the function   ** Note & Change has the function   ** Note & Change has the function   ** Depressed standards   ** Depressed standards   ** Depressed standards		
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couries resswore Logost Charge password	admin	
Logout Chunge password	CONFIRM PASSWORD	
	Logout Change password	

When the blank Windows server IIS page should be opened, check the used ports and restart the server.



#### 8. Updating vSolution Link Pro

Stop vSolution Link Pro at IIS Manager.

Backup the `Data` folder from your current installation folder.

Unpack the zip archive of the new version and copy the full content to the installation folder. Copy the content from your previously saved content of `Data` to the current `Data` folder.

#### 8.1. Important

When the installation folder "vSolutionLinkPro" was exchanged, the permission has to be renewed (see chapter 5.5 Prepare file structure).

#### 8.1. Complete the update

Start the vSolution Link Pro at the IIS Manager.

#### 8.2. Updating from version v1.8.0 (or earlier)

When vSolution Link Pro version 1.8.0, or earlier was installed previously, the application pool has to be modified.

#### Set Enable 32-Bit Applications to "False"

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Change Start Mode in Advanced settings to "AlwaysRunning" to allow 24/7 operation



Change Idle Time-out (minutes) in Advanced settings to "0"

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#### Please note

When the IIS is running OnDemand, it stops when:

- No vSolution Link Pro window is open in a browser window at any client
- No Management Hub connection is open
- No device uses calling home.



### Check the settings files web.config and appsettings.json

Verify web.config (will be found in the root folder of the IIS), hostingmodel has to

Set Enable 32-Bit Applications to "False"

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		l					



Verify web.config (will be found in the root folder of the IIS), hostingmodel has to be set to "inprocess".



The setting "InProcessHostingModel" in the file appsettings.json is obsolete since vSolution Link Pro v1.9 and later.

This setting is ignored and has no effect anymore.





#### 9. Move from Desktop Installation to IIS Installation

To move all data from a former desktop installation to a server installation, ensure that vSolution Link Pro is properly installed on the IIS server.

#### 9.1. Important

A fresh installation of vSolution Link Pro on the server with identical version number than the former desktop installation is strongly recommended.

By continuing with the following steps, all the data of the vSolution Link Pro installation on the server get lost.

- 1. Stop the vSolution Link Pro server at the IIS Manager.
- 2. Delete all files and subfolders of the `Data` folder on your IIS installation.
- Default path:
   C:\inetpub\wwwroot\vSolutionLinkPro\
- 4. Copy the entire contents of the `Data` folder from your desktop installation. Default path:

Windows desktop installation (hidden folder) C:\ProgramData\WolfVision\vSolution Link Pro\

MacOS desktop installation /Library/Application Support/WolfVision/vSolution Link Pro/

- 5. Paste the files into the `Data` folder of your IIS installation.
- Default path:
   C:\inetpub\wwwroot\vSolutionLinkPro\

#### 9.2. Important

Check all listed paths in the appsettings.json file and correct it accordingly. Default path on IIS: C:\\inetpub\\wwwroot\\vSolutionLinkPro\\Data\\

Start the vSolution Link Pro at the IIS Manager.

All settings and data of the former Desktop installation are transferred to the server, including login credentials.



#### 10. Index

Version	Date	Changes
1.9.1	2023-10-27	Update to vSolution Link Pro version 1.9.1
		Added section "Move from Desktop Installation to IIS Installation".
1.9.0	2023-07-25	Update to vSolution Link Pro version 1.9.0
		Added rules for updating the application.
	ne version num	bering has been adapted to the versioning of the application.
1.5	2023-05-17	Added Management Hub activation (Cloud)
1.4	2023-04-25	Update to vSolution Link Pro version 1.8.0
1.3	2022-06-21	.NET Core Update to version 5.0.17
1.2	2022-05-23	Added WebDAV note
1.1	2021-07-07	Updated Firewall rules
1.0	2021-03-09	Created