WOLFVISION
Driving Knowledge Creation

Installation Guide: vSolution Link Pro on IIS

Version 1.9.1

WolfVision GmbH
Oberes Ried 14
A-6833 Klaus / AUSTRIA
Tel. +43-5523-52250
Fax +43-5523-52249
E-Mail: wolfvision@wolfvision.com
www.wolfvision.com

vSolution Link Pro
Installation Guide on IIS

1. About this Guide 3
2. Copyright 3
3. System Requirements Windows Web Services (IIS Internet Information Server) 4
3.1. Custom Email-Provider 4
3.2. SSL certificate – prerequisite for enabling Management Hub 4
3.3. Firewall Rules 5
4. On-Premise or Management Hub 6
4.1. Hosted On-Premise (Local Installation) 6
4.2. Hosted with Management Hub (Cloud Installation) 6
5. Server Installation (Windows IIS) 7
5.1. Download the installation files 7
5.2. Add IIS functionality 7
5.3. Select WebServer (IIS) 9
5.4. Select WebSocket Protocol 12
5.5. Prepare file structure 14
5.6. Start Internet Information Services (IIS) Manager 16
5.7. Setup IIS 17
6. Installing .NET Core Windows Server Hosting 20
6.1. Adopt appsettings.json 20
6.2. Activate Management Hub (optional, depending on setup) 21
7. Start the application 22
7.1. Device Requirements 22
7.2. First Login - Change Password (“admin” at initial start) 23
8. Updating vSolution Link Pro 24
8.1. Important 24
8.1. Complete the update 24
8.2. Updating from version v1.8.0 (or earlier) 24
9. Move from Desktop Installation to IIS Installation 28
10. Index 29

1. About this Guide

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

2. Copyright

Copyright © by WolfVision. All rights reserved.
WolfVision, Wofu Vision and 沃福视讯 are registered trademarks of WolfVision Center GmbH, Austria.

The software is the property of WolfVision and its licensors. Any reproduction in whole or in part is strictly prohibited.

No part of this document may be copied, reproduced, or transmitted by any means, without prior written permission from WolfVision except documentation kept by the purchaser for backup-purposes.

In the interest of continuing product improvement, WolfVision reserves the right to change product specifications without notice.
Information in this document may change without prior notice.

Disclaimer: WolfVision shall not be liable for technical or editorial errors or omissions.

Use of Trademarks, Registered Trademarks, and other Protected Names and Symbols

This manual may make reference to trademarks, registered trademarks, and other protected names and/or symbols of third-party companies not related in any way to WolfVision.
Where they occur these references are for illustrative purposes only and do not represent an endorsement of a product or service by WolfVision, or an endorsement of the product(s) to which this manual applies by the third-party company in question. Regardless of any direct acknowledgement elsewhere in the body of this document, WolfVision hereby acknowledges that all trademarks, registered trademarks, service marks, and other protected names and/or symbols contained in this manual and related documents are the property of their respective holders.

2023-10-27

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*
- Password reset*.

* 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	Type	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	TCP	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	TCP	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	TCP	Inbound / Outbound	This port is used for control purposes. If this port is blocked, no control is possible

4. On-Premise or Management Hub

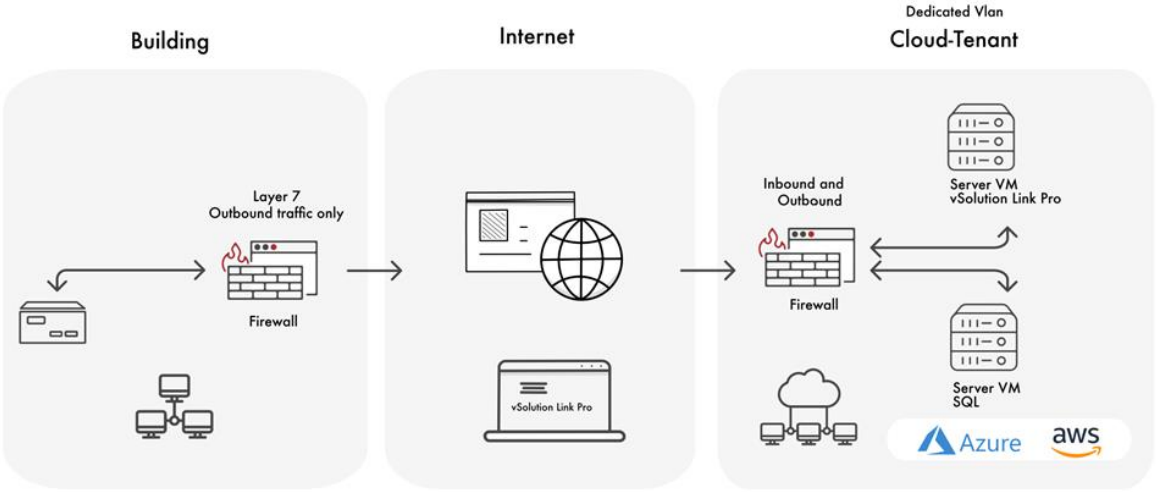
The vSolution Link Pro is a web server application and needs to be installed, preferred on a server to ensure 24/7 availability.

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)

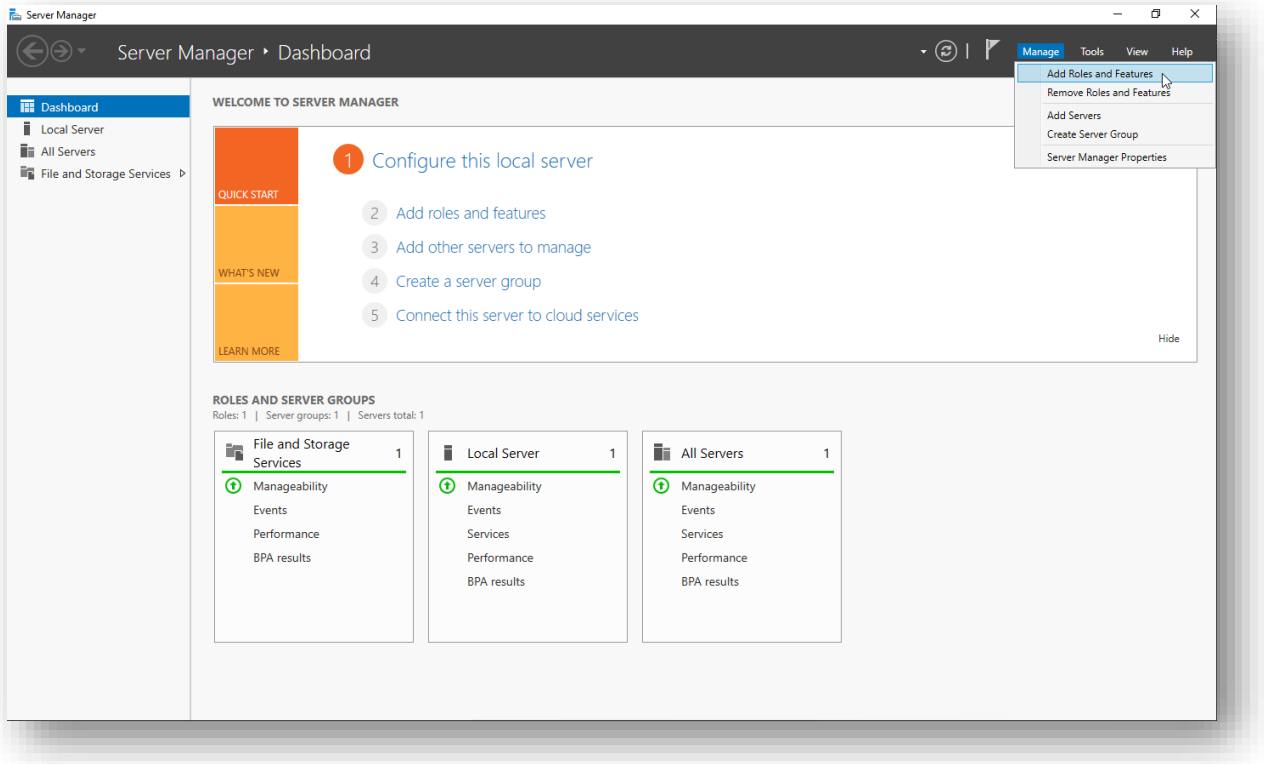
The vSolution Link Pro is a web server application and needs to be installed, preferred on a server to ensure 24/7 availability.
Different versions of IIS may vary slightly, the following steps are describing the installation on a Windows Server 2019 Datacenter (OS build 17763.1131) with .NET Core Hosting 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

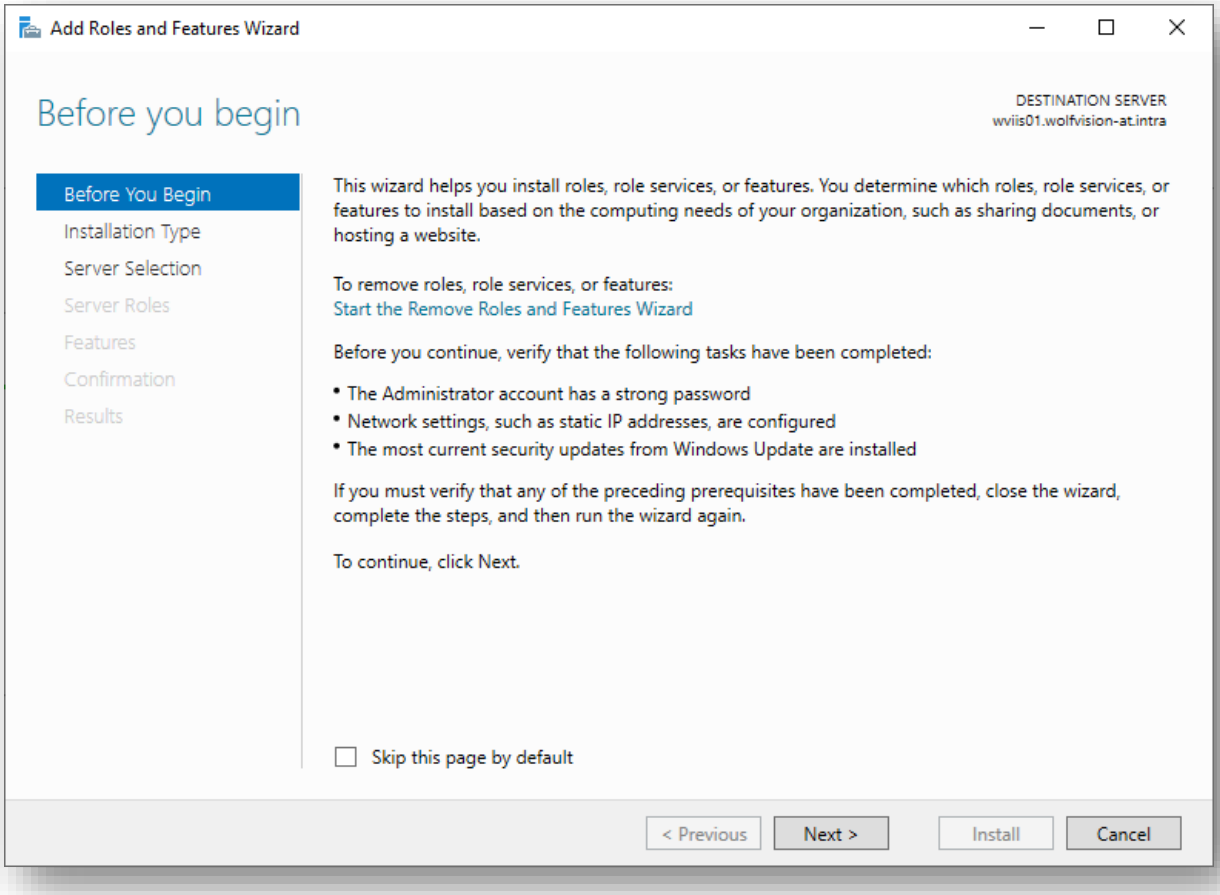
Download the zip archive vSolutionLinkPro_WindowsServer.zip from the WolfVision web page and unpack it.

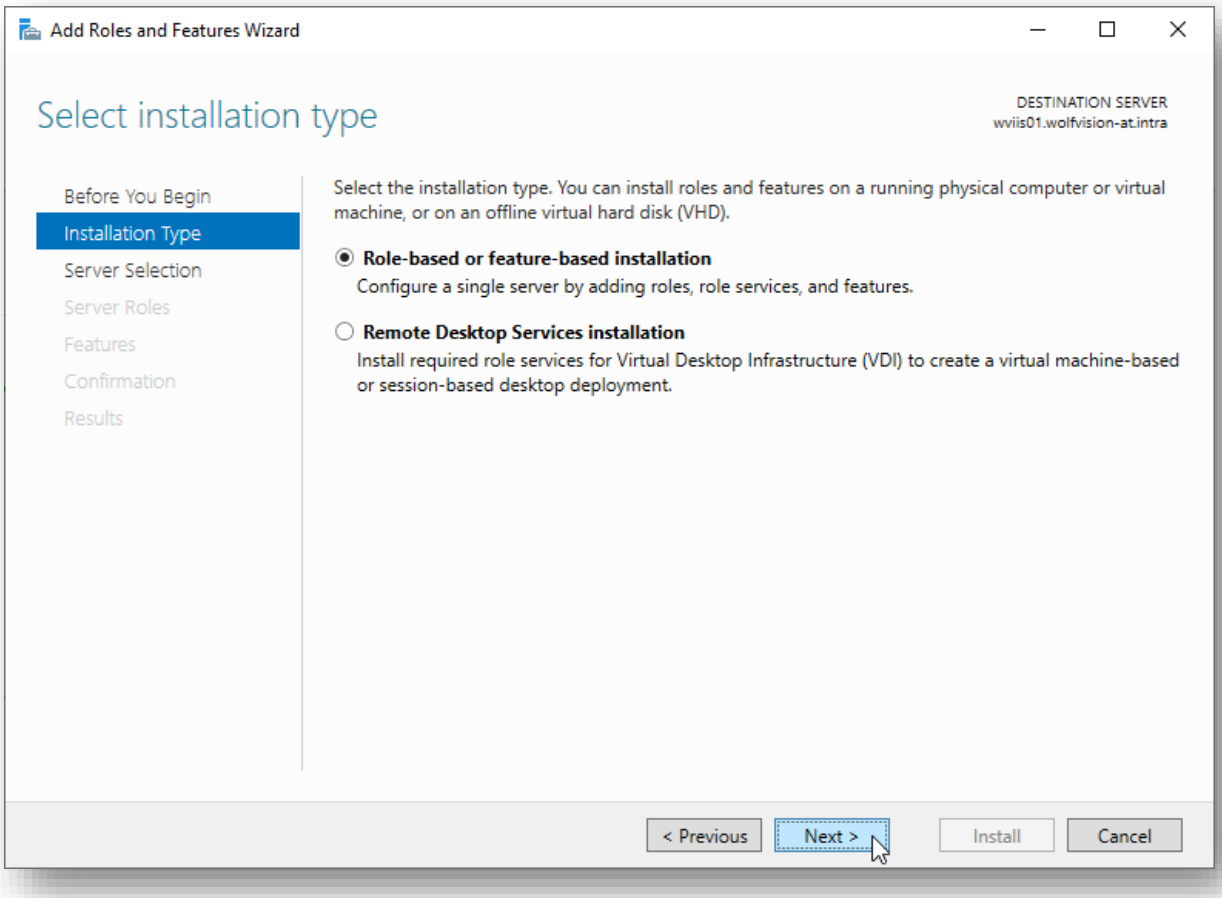
5.2. Add IIS functionality

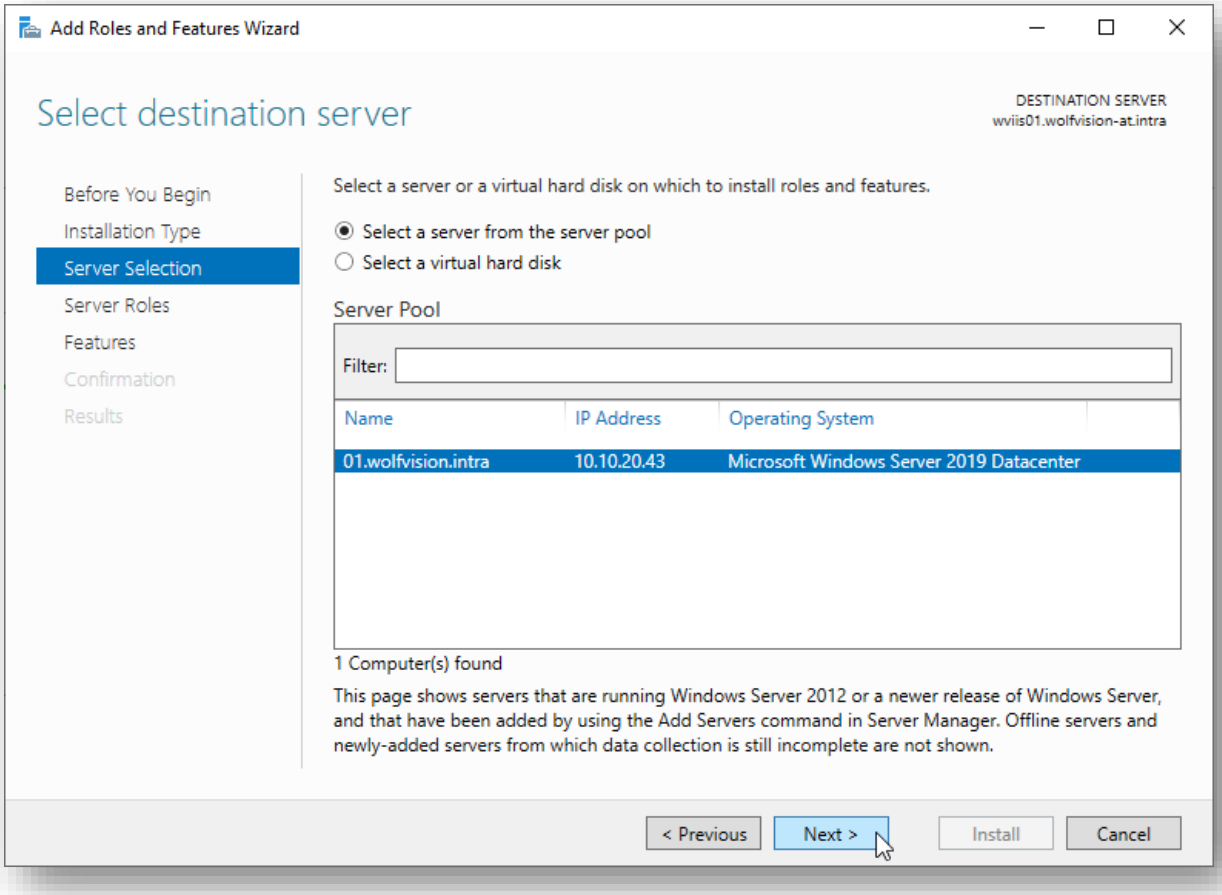
Open the Server Manager Dashboard and Add Roles and Features:

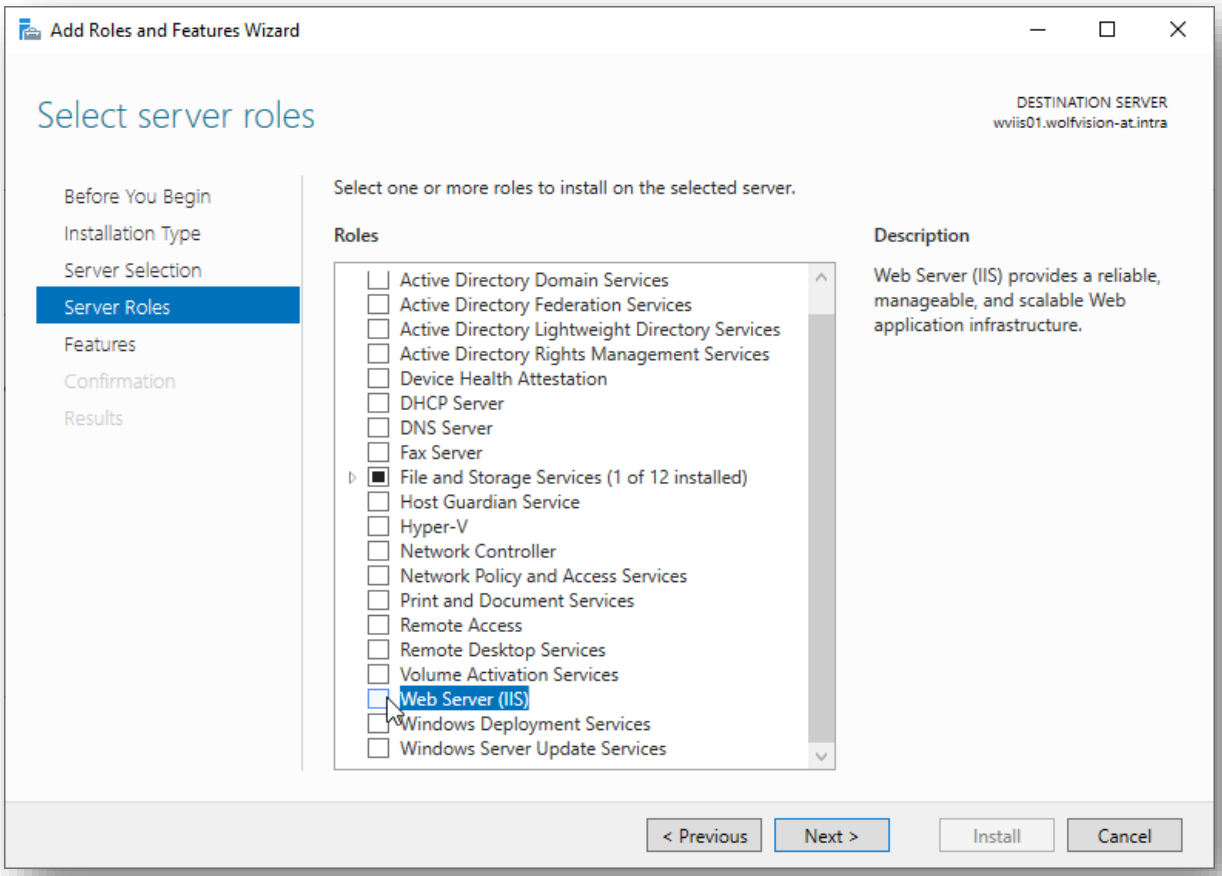


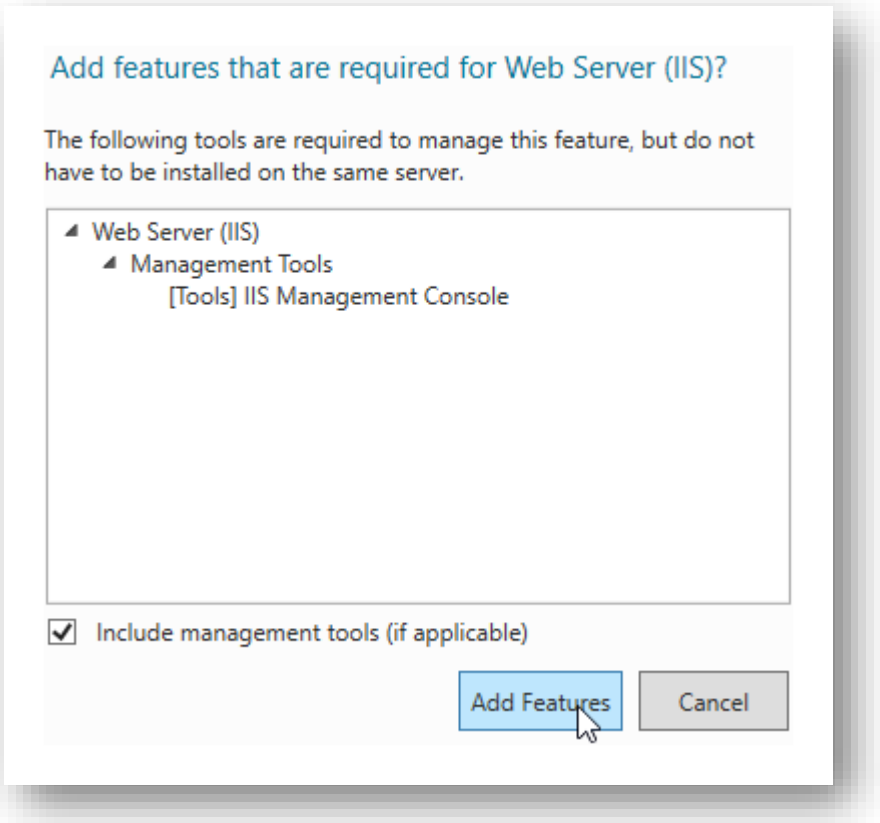
Important
WebDAV role should stay disabled for vSolution Link Pro server for full functionality.

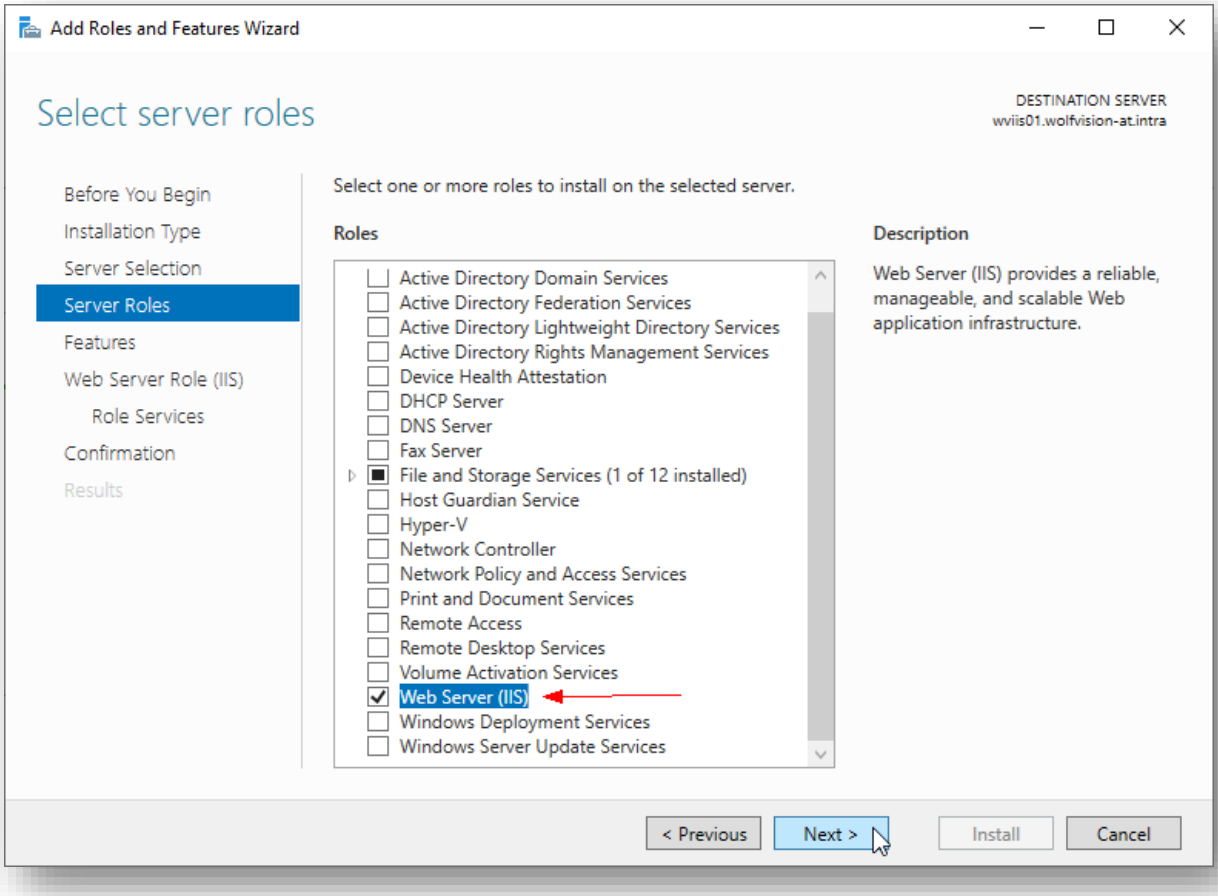

Add Roles and Features Wizard
Before you begin
DESTINATION SERVER
wviis01.wolfvision-at.intra
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results
This wizard helps you install roles, role services, or features. You determine which roles, role services, or features 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.
Skip this page by default
< Previous
Next >
Install
Cancel

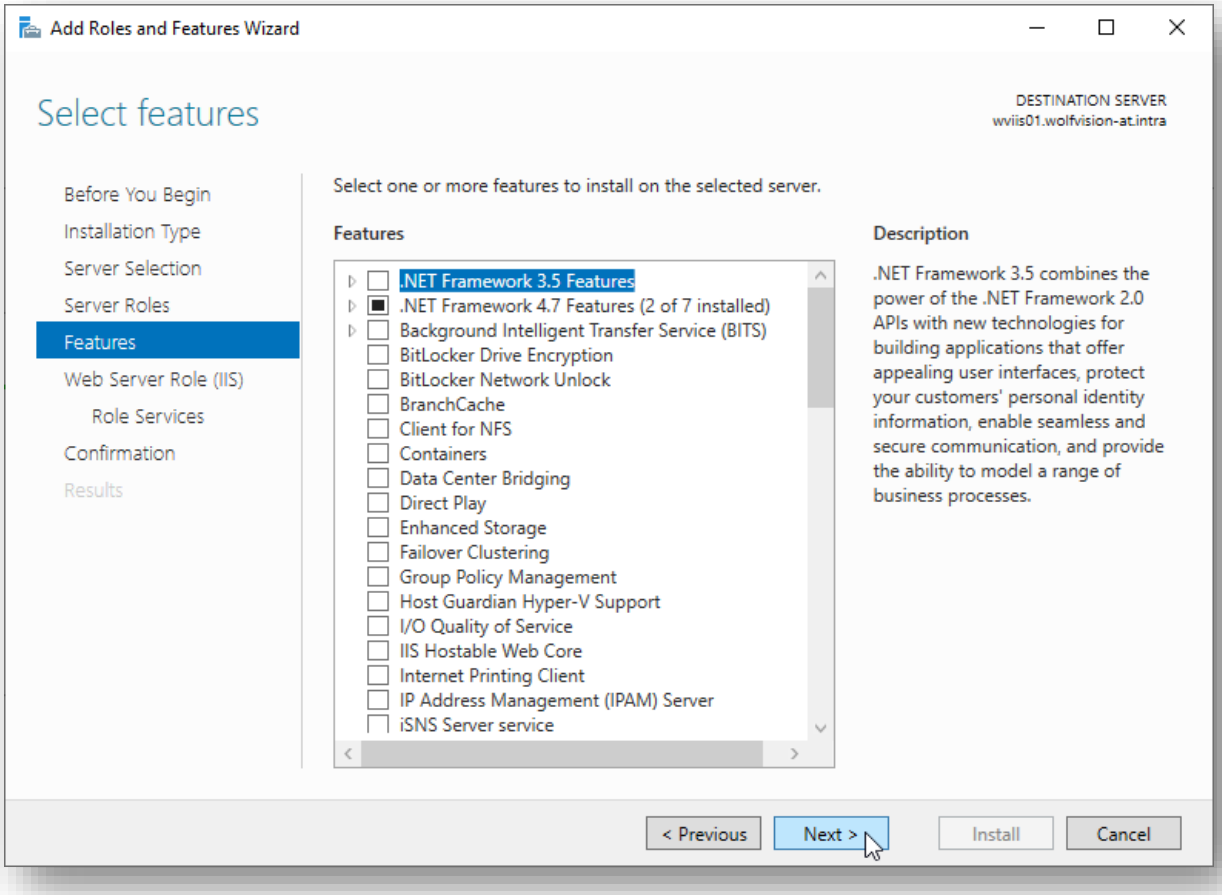

Add Roles and Features Wizard
Select installation type
DESTINATION SERVER
wviis01.wolfvision-at.intra
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results
Select the installation type. You can install roles and features on a running physical computer or virtual machine, or on an offline virtual hard disk (VHD).
Role-based or feature-based installation
Configure a single server by adding roles, role services, and features.
Remote Desktop Services installation
Install required role services for Virtual Desktop Infrastructure (VDI) to create a virtual machine-based or session-based desktop deployment.
< Previous
Next >
Install
Cancel

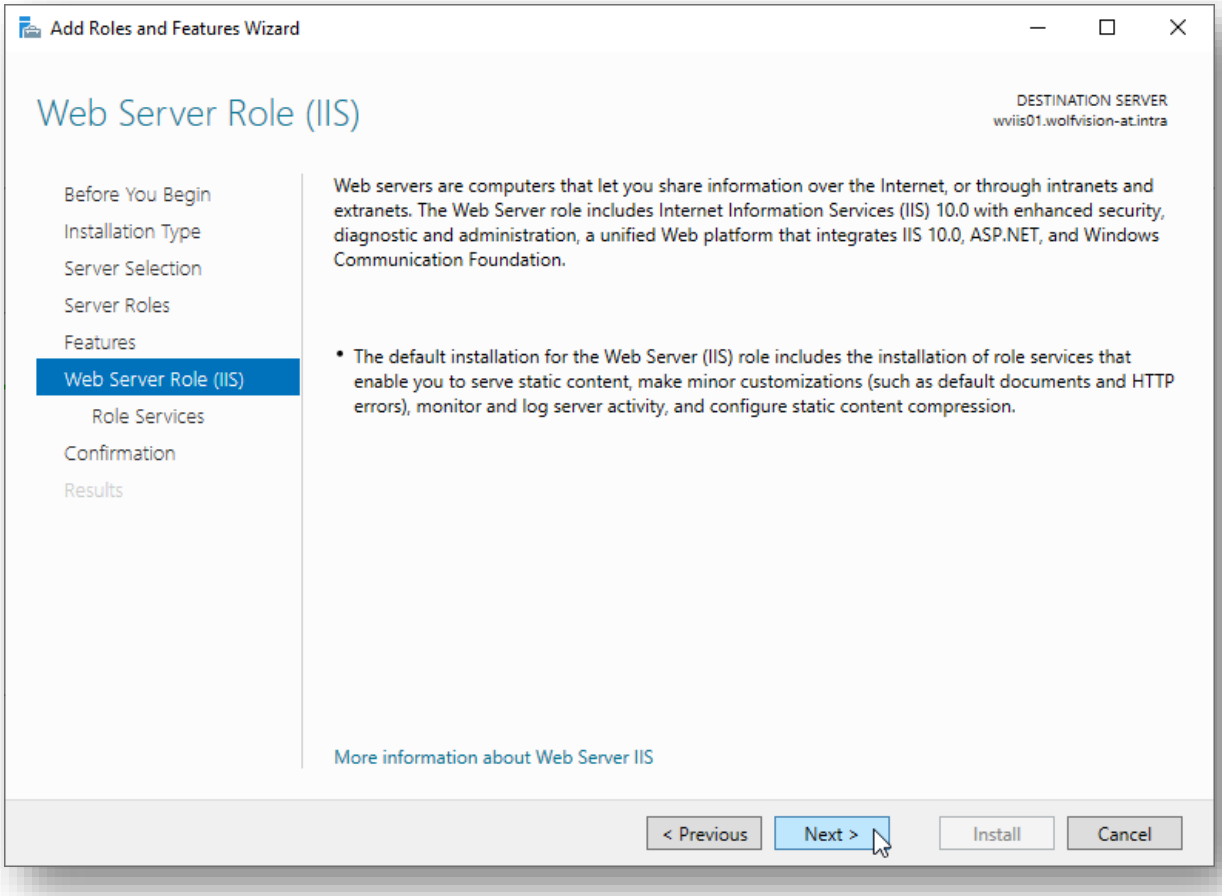

Add Roles and Features Wizard
Select destination server
DESTINATION SERVER
wviis01.wolfvision-at.intra
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results
Select a server or a virtual hard disk on which to install roles and features.
Select a server from the server pool
Select a virtual hard disk
Server Pool
Filter:
Name
IP Address
Operating System
01.wolfvision.intra
10.10.20.43
Microsoft Windows Server 2019 Datacenter
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 Wizard
Select server roles
DESTINATION SERVER
wviis01.wolfvision-at.intra
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results
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
Device Health Attestation
DHCP Server
DNS Server
Fax Server
File and Storage Services (1 of 12 installed)
Host Guardian Service
Hyper-V
Network Controller
Network Policy and Access Services
Print and Document Services
Remote Access
Remote Desktop Services
Volume Activation Services
Web Server (IIS)
Windows Deployment Services
Windows Server Update Services
Description
Web Server (IIS) provides a reliable, manageable, and scalable Web application infrastructure.
< Previous
Next >
Install
Cancel

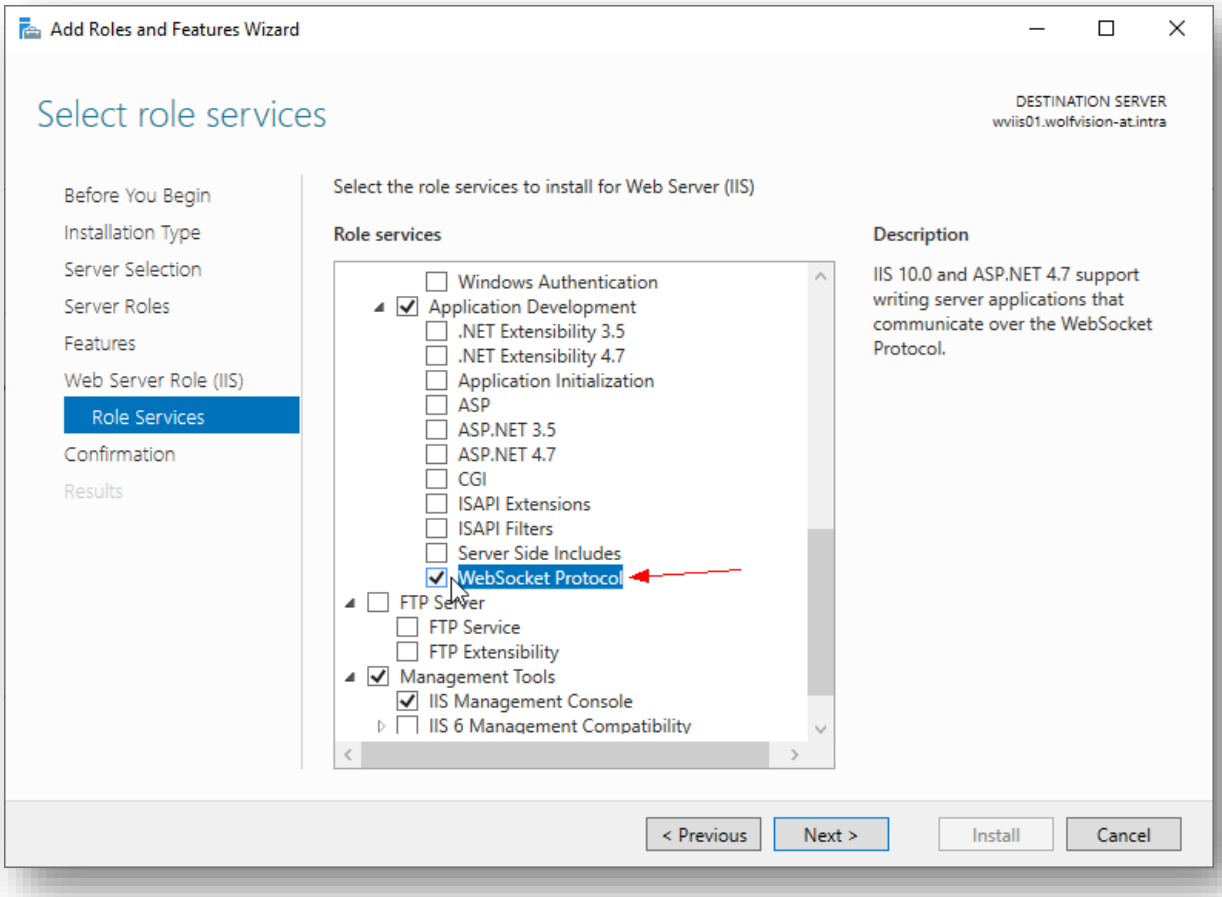

Add features that are required for Web Server (IIS)?
The following tools are required to manage this feature, but do not have to be installed on the same server.
Web Server (IIS)
Management Tools
[Tools] IIS Management Console
Include management tools (if applicable)
Add Features
Cancel

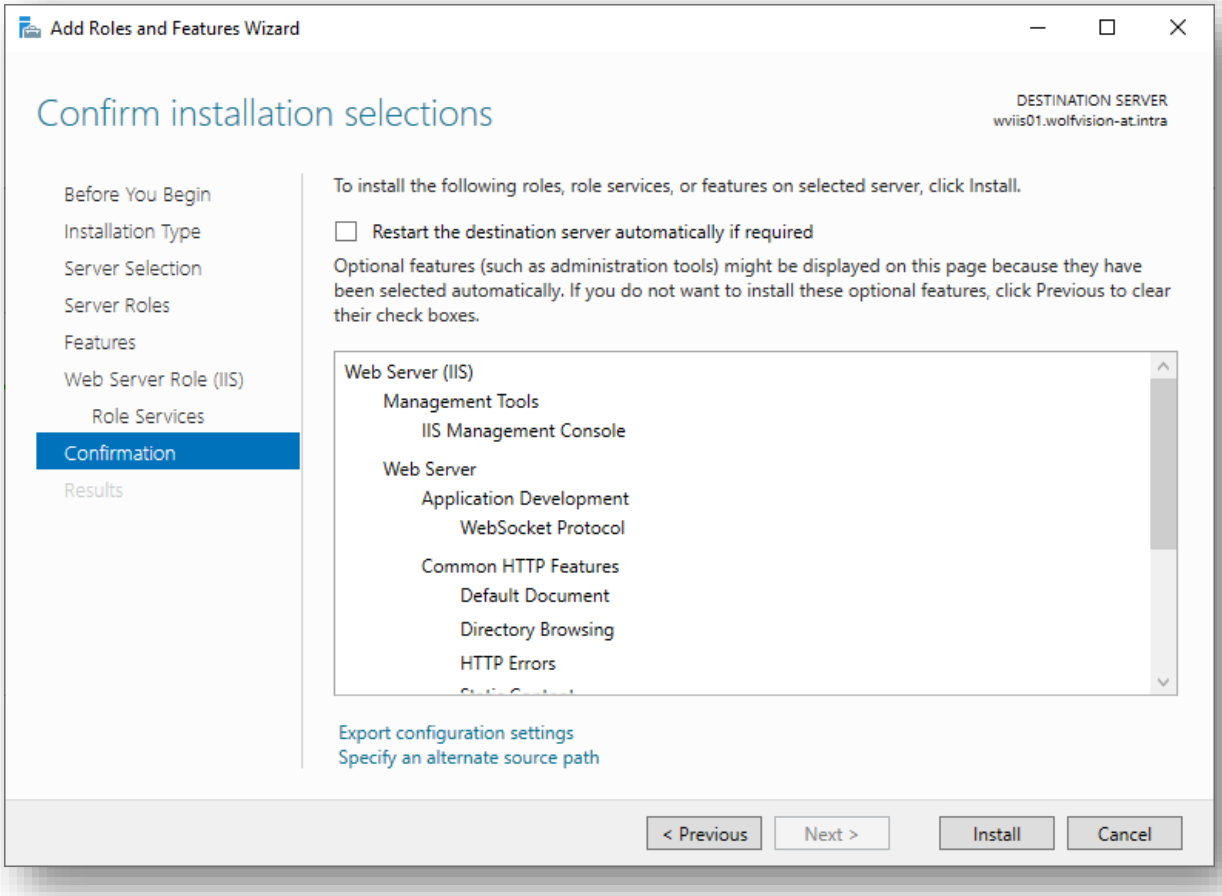

Add Roles and Features Wizard
Select server roles
DESTINATION SERVER
wvils01.wolfvision-at.intra
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Web Server Role (IIS)
Role Services
Confirmation
Results
Select one or more roles to install on the selected server.
Roles
Active Directory Domain Services
Active Directory Federation Services
Active Directory Lightweight Directory Services
Active Directory Rights Management Services
Device Health Attestation
DHCP Server
DNS Server
Fax Server
File and Storage Services (1 of 12 installed)
Host Guardian Service
Hyper-V
Network Controller
Network Policy and Access Services
Print and Document Services
Remote Access
Remote Desktop Services
Volume Activation Services
Web Server (IIS)
Windows Deployment Services
Windows Server Update Services
Description
Web Server (IIS) provides a reliable, manageable, and scalable Web application infrastructure.
< Previous
Next >
Install
Cancel

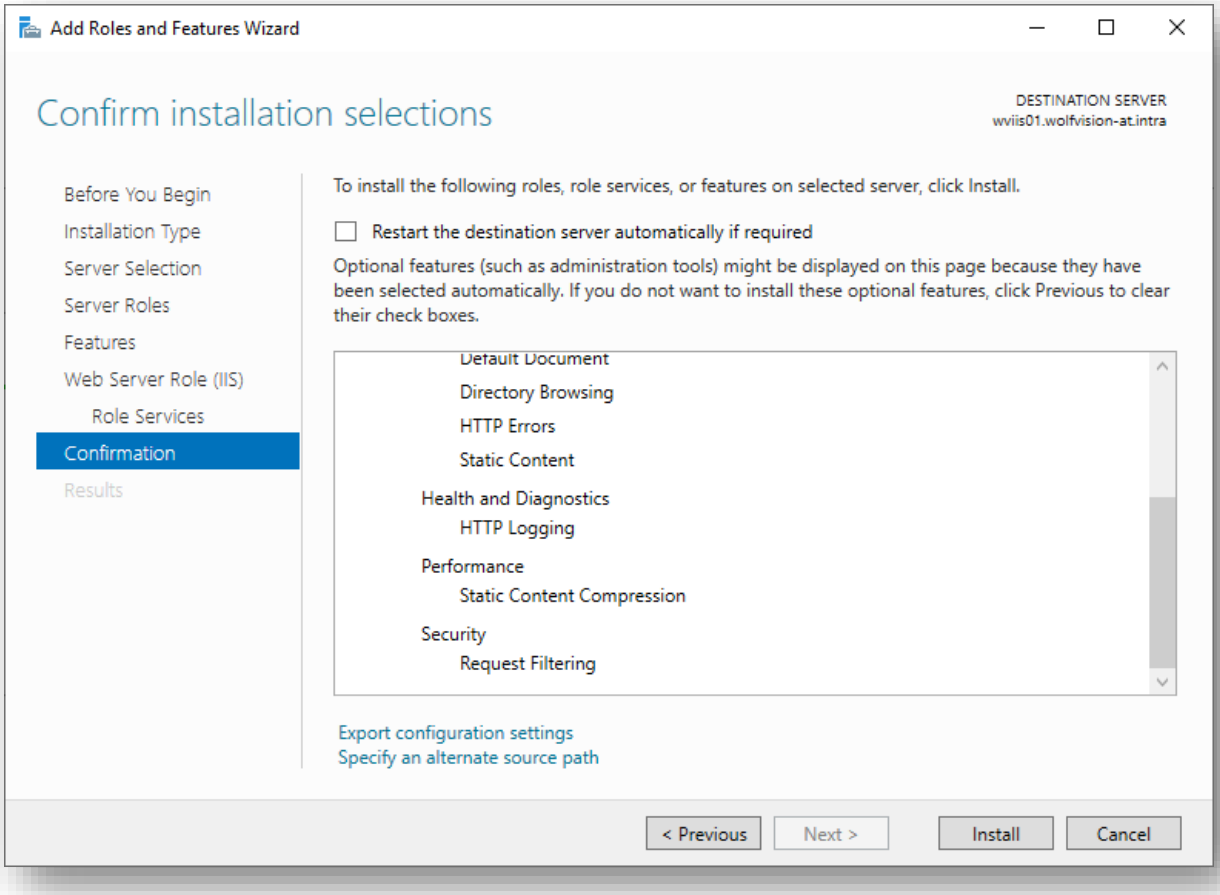

Add Roles and Features Wizard
Select features
DESTINATION SERVER
wviis01.wolfvision-at.intra
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Web Server Role (IIS)
Role Services
Confirmation
Results
Select one or more features to install on the selected server.
Features
.NET Framework 3.5 Features
.NET Framework 4.7 Features (2 of 7 installed)
Background Intelligent Transfer Service (BITS)
BitLocker Drive Encryption
BitLocker Network Unlock
BranchCache
Client for NFS
Containers
Data Center Bridging
Direct Play
Enhanced Storage
Failover Clustering
Group Policy Management
Host Guardian Hyper-V Support
I/O Quality of Service
IIS Hostable Web Core
Internet Printing Client
IP Address Management (IPAM) Server
iSNS Server service
Description
.NET Framework 3.5 combines the power of the .NET Framework 2.0 APIs with new technologies for building applications that offer appealing user interfaces, protect your customers' personal identity information, enable seamless and secure communication, and provide the ability to model a range of business processes.
< Previous
Next >
Install
Cancel

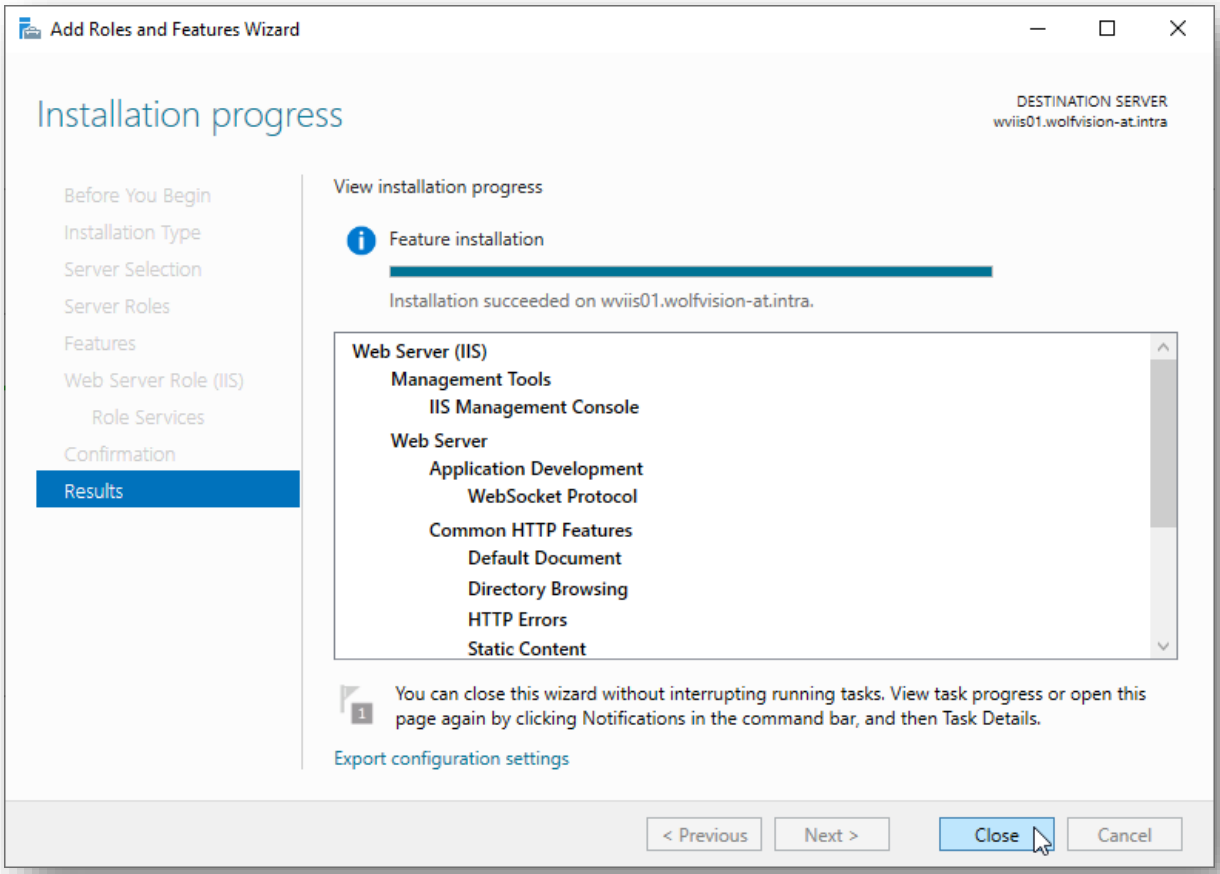

Add Roles and Features Wizard
Web Server Role (IIS)
DESTINATION SERVER
wviis01.wolfvision-at.intra
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Web Server Role (IIS)
Role Services
Confirmation
Results
Web servers are computers that let you share information over the Internet, or through intranets and extranets. The Web Server role includes Internet Information Services (IIS) 10.0 with enhanced security, diagnostic and administration, a unified Web platform that integrates IIS 10.0, ASP.NET, and Windows Communication Foundation.
The default installation for the Web Server (IIS) role includes the installation of role services that enable you to serve static content, make minor customizations (such as default documents and HTTP errors), monitor and log server activity, and configure static content compression.
More information about Web Server IIS
< Previous
Next >
Install
Cancel

5.4. Select WebSocket Protocol (Application Development, sub item of IIS Web Server)



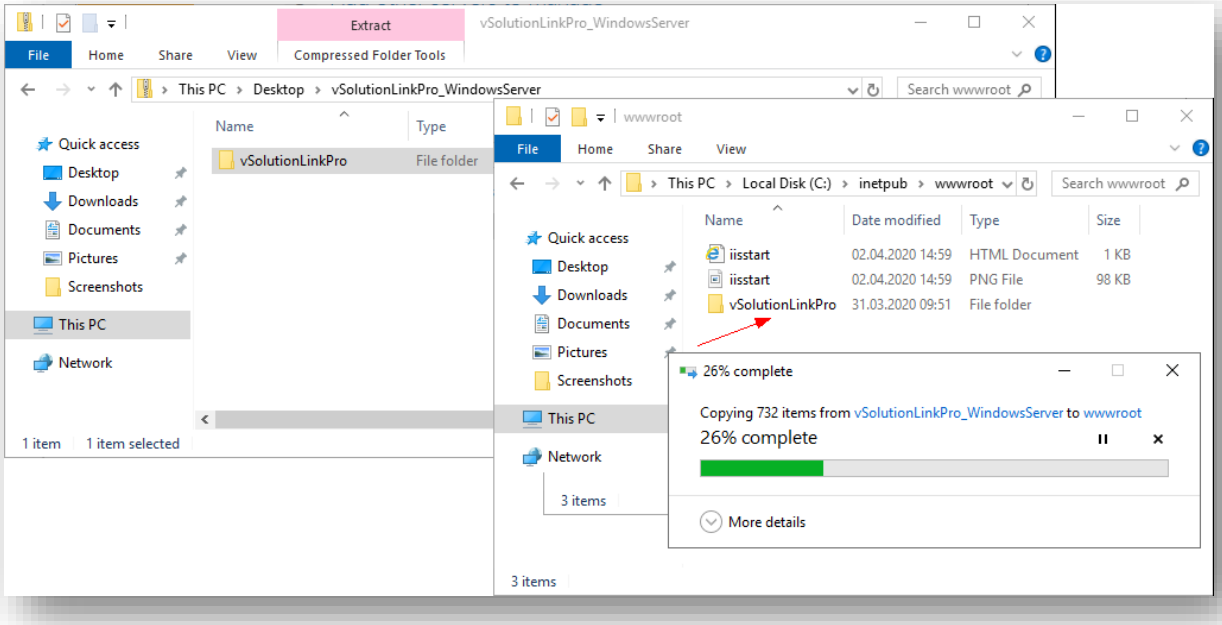



Add Roles and Features Wizard
Confirm installation selections
DESTINATION SERVER
wviis01.wolfvision-at.intra
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Web Server Role (IIS)
Role Services
Confirmation
Results
To install the following roles, role services, or features on selected server, click Install.
Restart the destination server automatically if required
Optional features (such as administration tools) might be displayed on this page because they have been selected automatically. If you do not want to install these optional features, click Previous to clear their check boxes.
Default Document
Directory Browsing
HTTP Errors
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

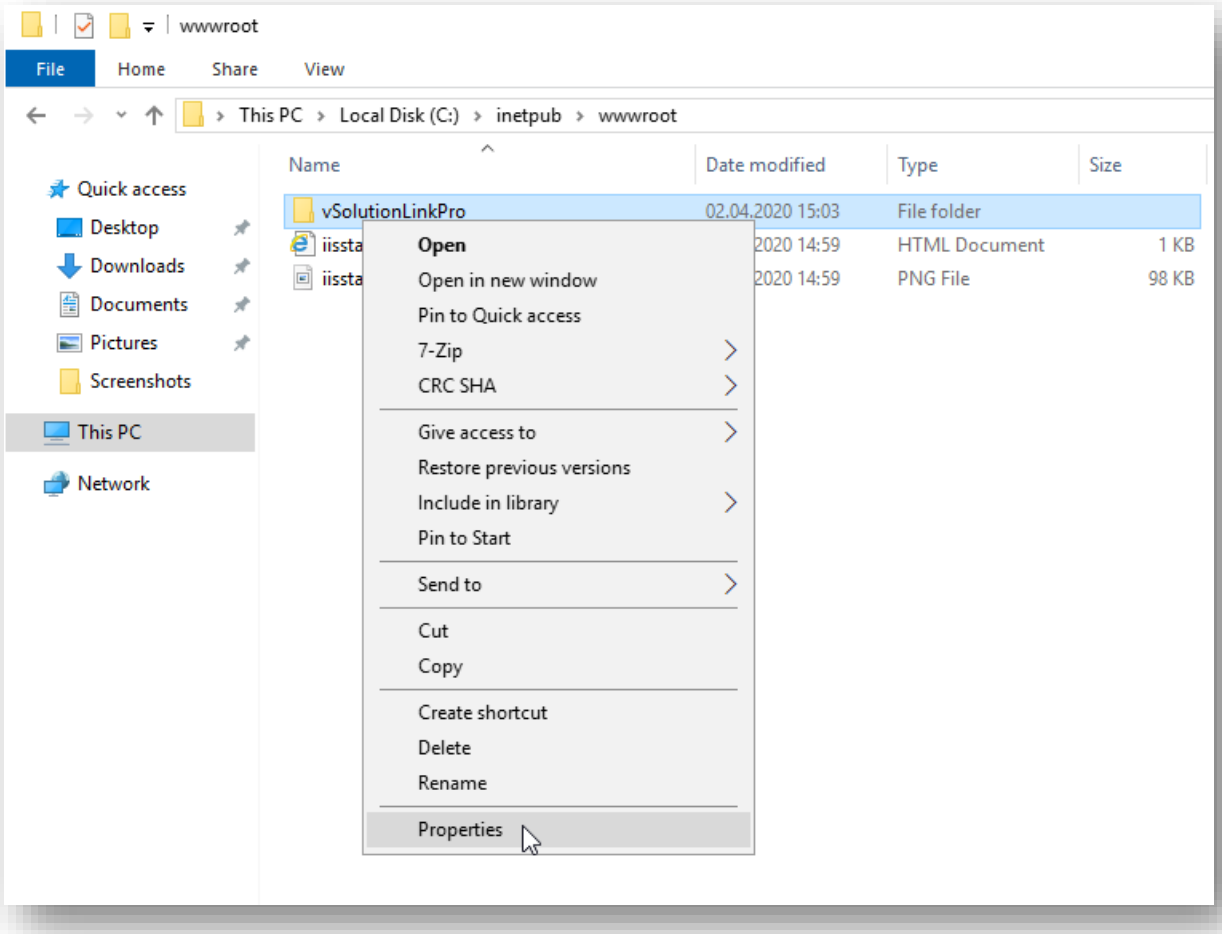

Add Roles and Features Wizard
Installation progress
DESTINATION SERVER
wviis01.wolfvision-at.intra
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Web Server Role (IIS)
Role Services
Confirmation
Results
View installation progress
Feature installation
Installation succeeded on wviis01.wolfvision-at.intra.
Web Server (IIS)
Management Tools
IIS Management Console
Web Server
Application Development
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 page again by clicking Notifications in the command bar, and then Task Details.
Export configuration settings
< Previous
Next >
Close
Cancel

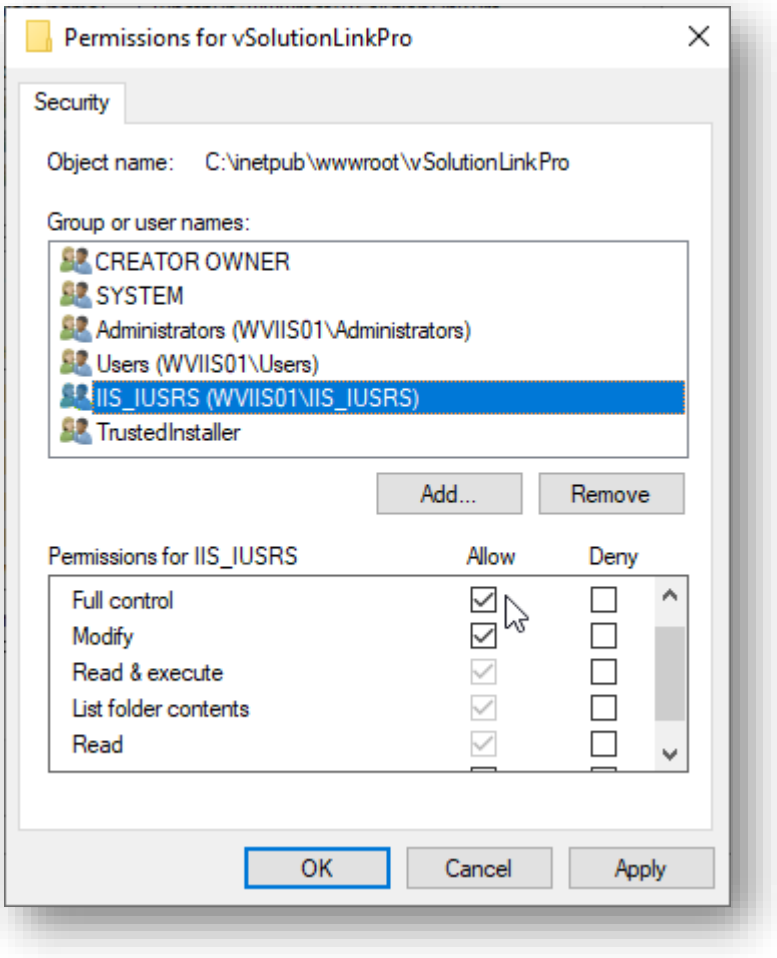
5.5. Prepare file structure

Copy the unzipped folder vSolutionLinkPro_WindowsServer to c:\inetpub\wwwroot

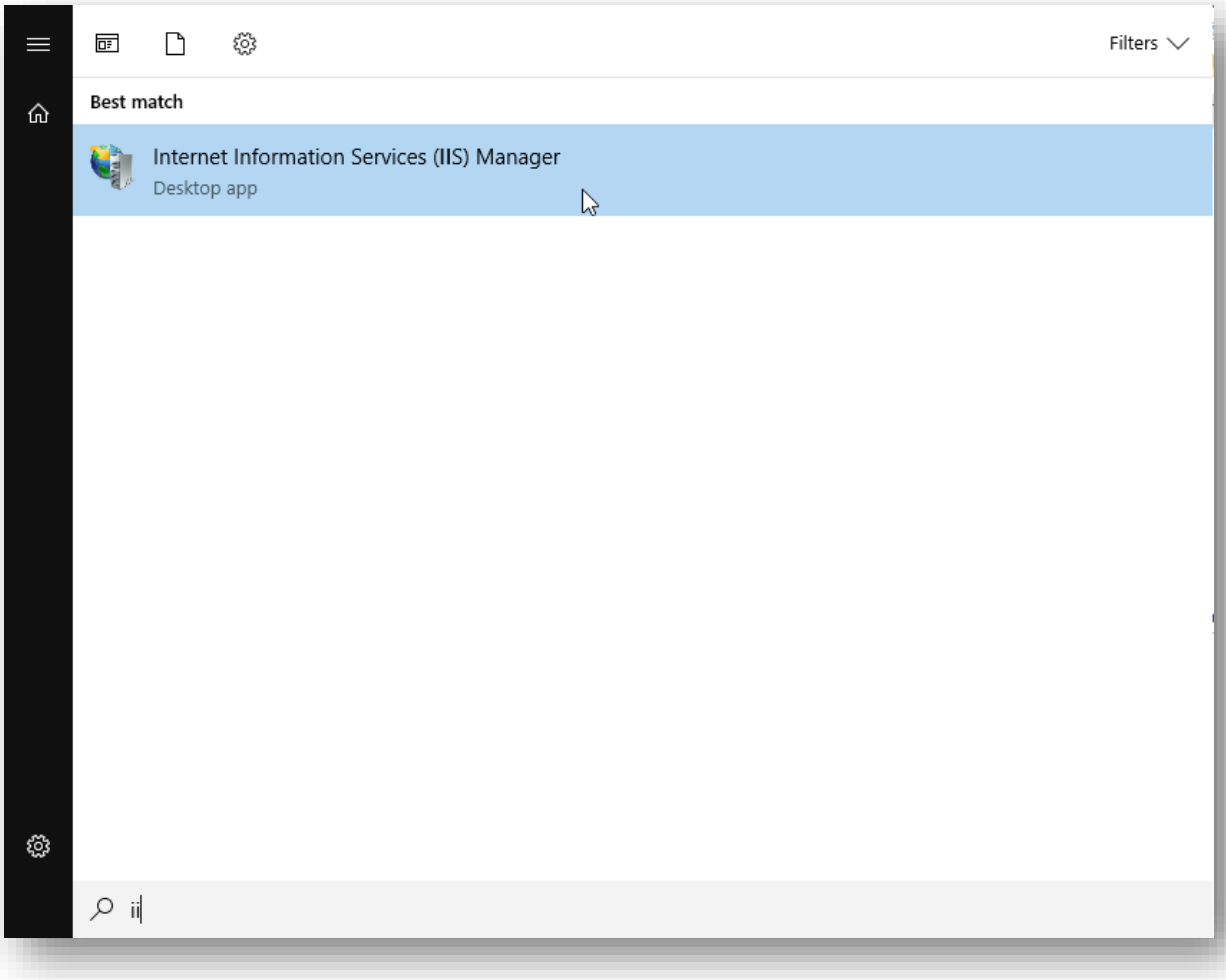


Change properties to manage permissions of the IIS to allow full control



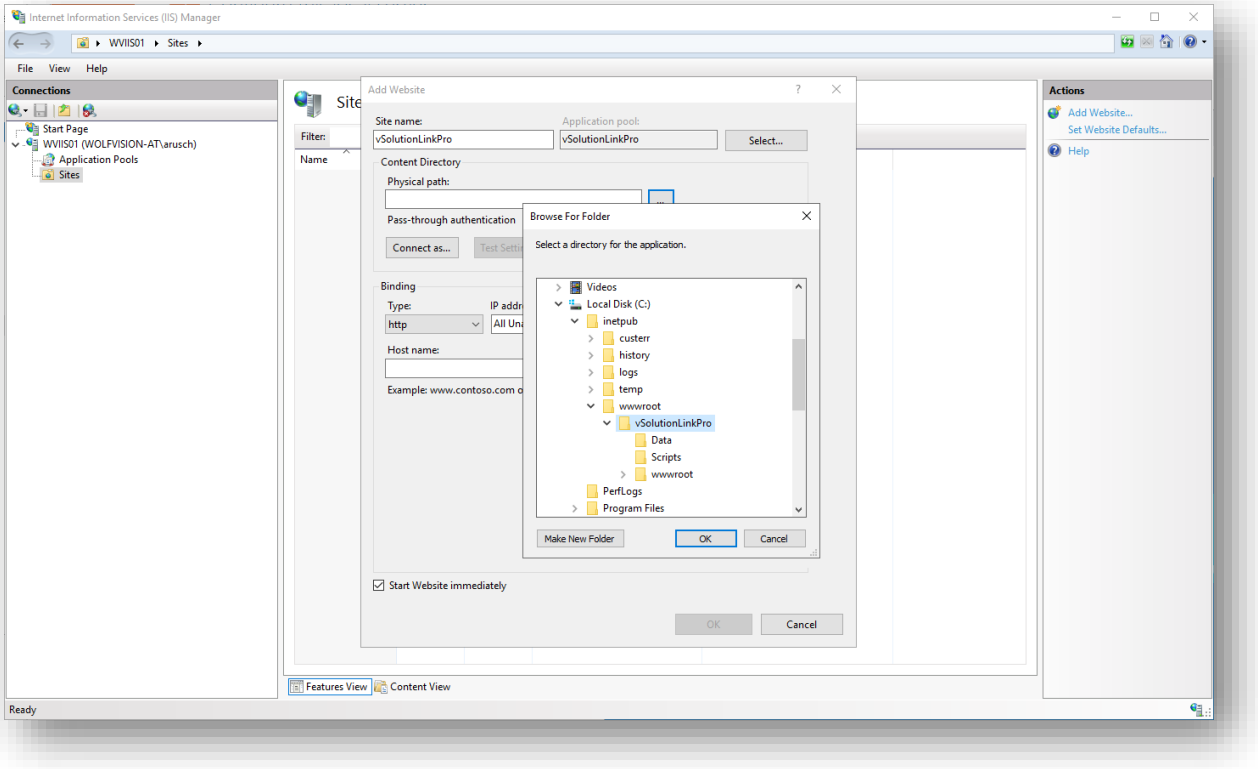

Permissions for vSolutionLinkPro
Security
Object name: C:\inetpub\wwwroot\vSolutionLinkPro
Group or user names:
CREATOR OWNER
SYSTEM
Administrators (WVIIS01\Administrators)
Users (WVIIS01\Users)
IIS_IUSRS (WVIIS01\IIS_IUSRS)
TrustedInstaller
Add...
Remove
Permissions for IIS_IUSRS
Allow
Deny
Full control
Modify
Read & execute
List folder contents
Read
OK
Cancel
Apply

5.6. Start Internet Information Services (IIS) Manager

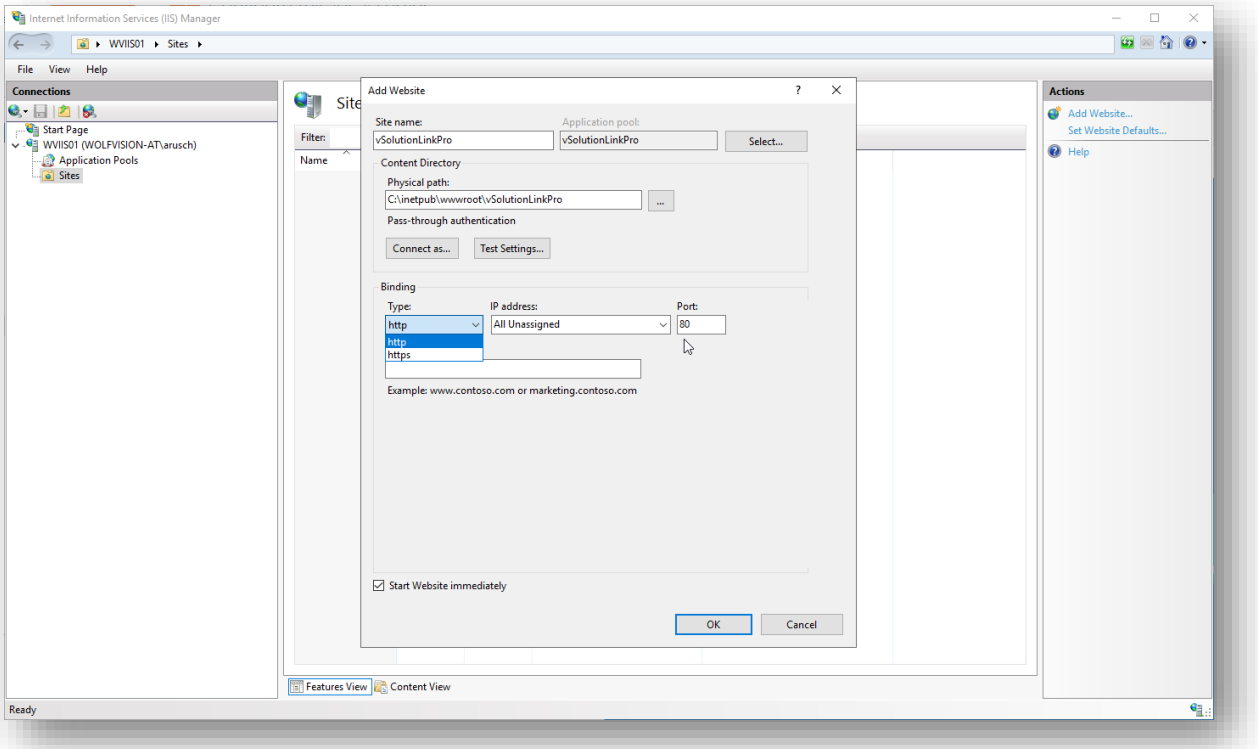


5.7. Setup IIS

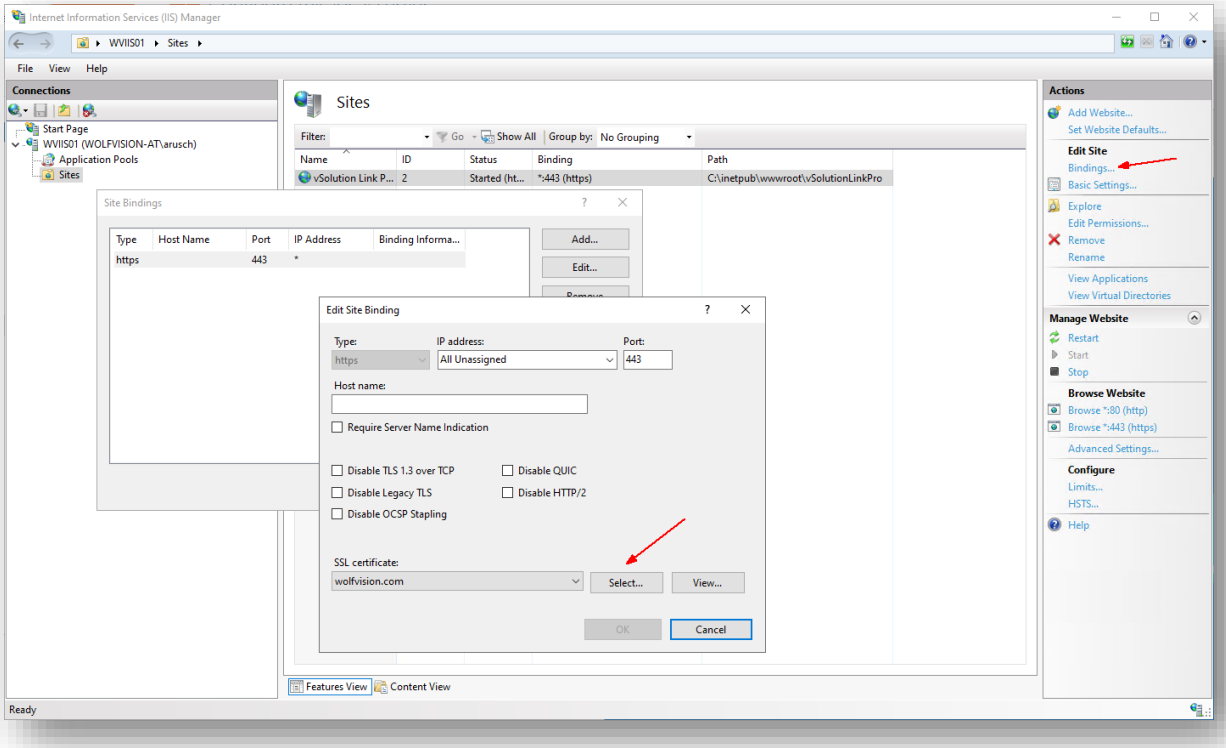
Manage sites of IIS and add the physical path



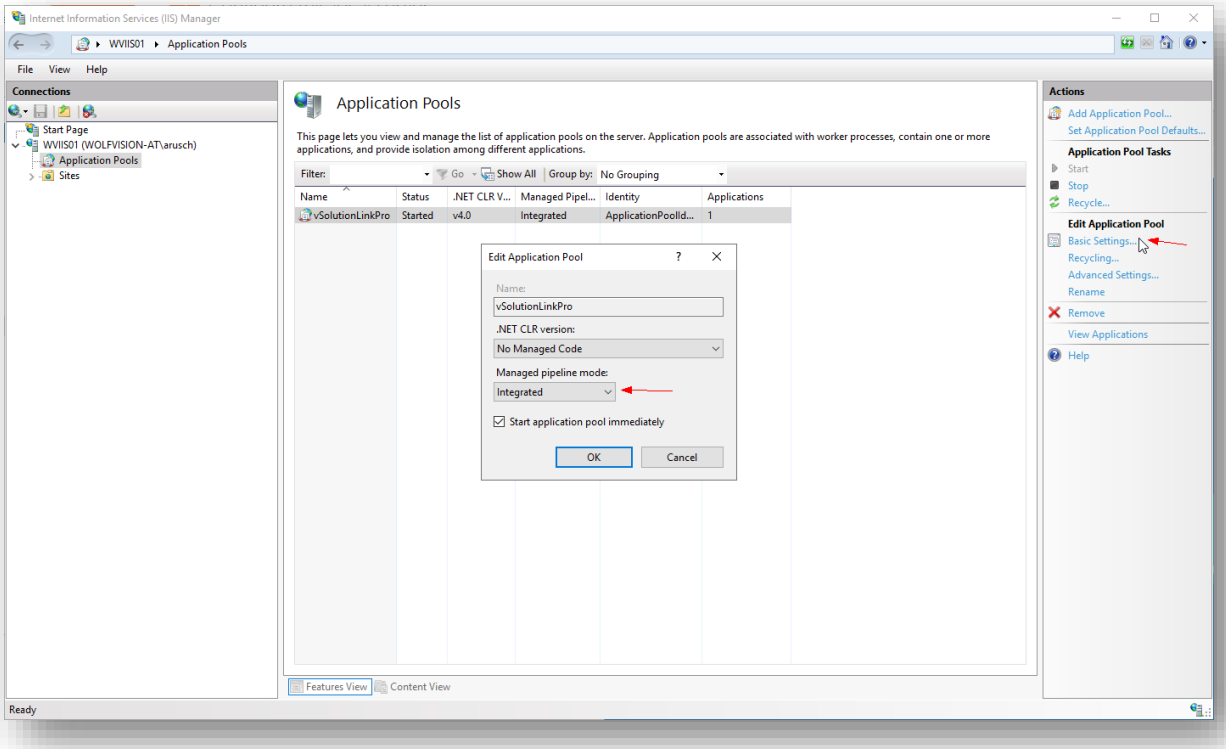
Restrict access to https and check the used port.
This setting is required prior activating Management Hub feature.



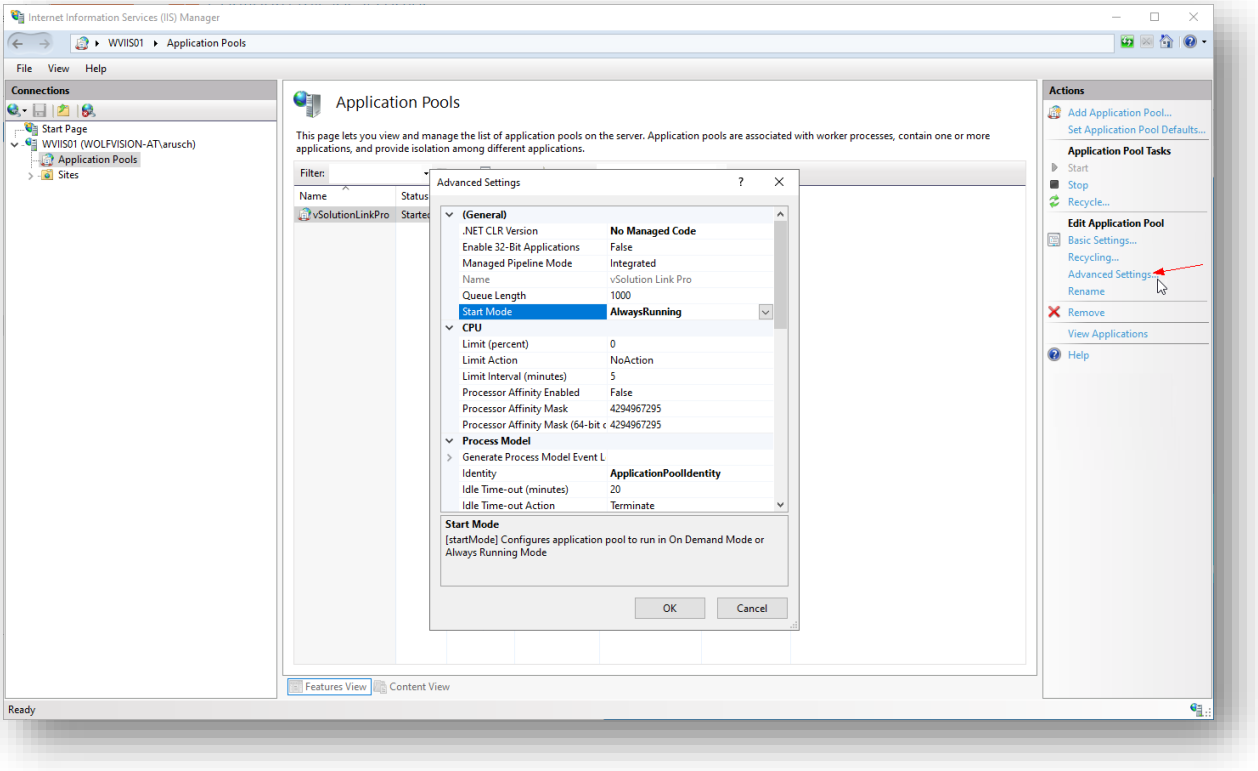
Define your valid SSL certificate for proper https connection.
This setting is required prior activating Management Hub feature.



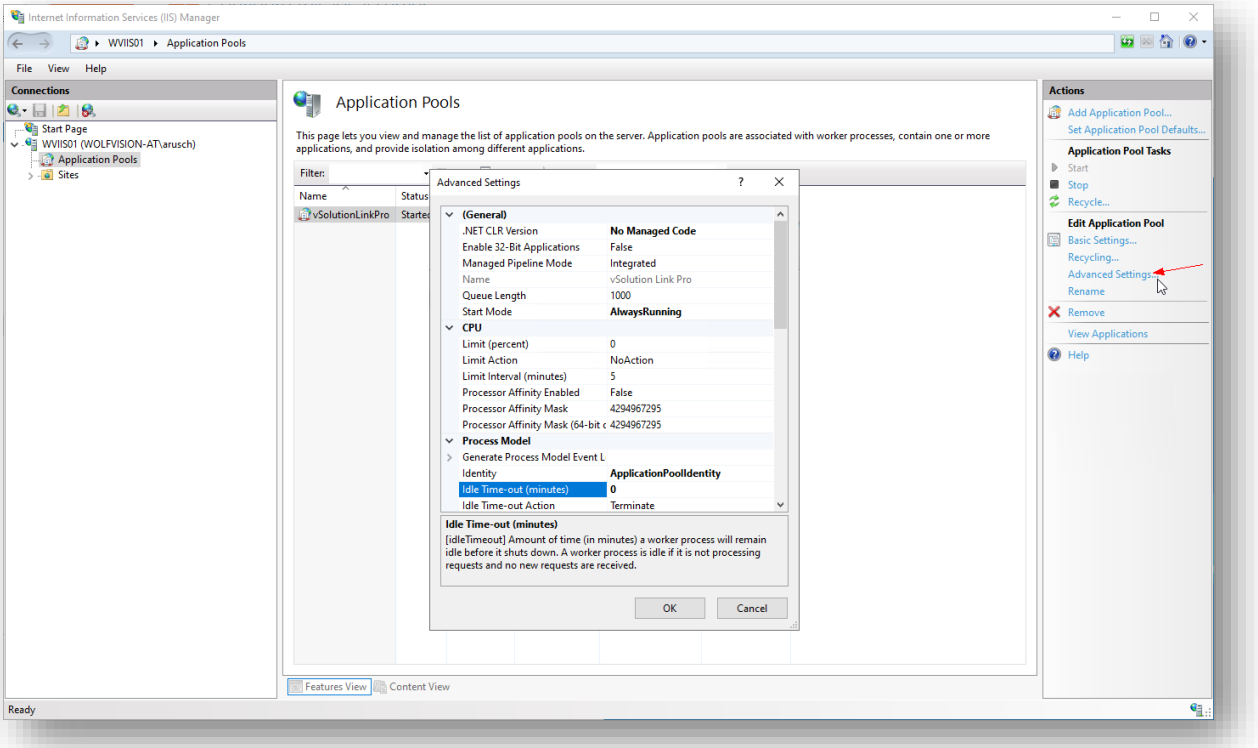
Change .NET CLR version in Basic Settings to "No Managed Code"
Change Managed pipeline mode to “Integrated”.



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



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



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:
https://dotnet.microsoft.com/en-us/download/dotnet/thank-you/runtime-aspnetcore-7.0.3-windows-hosting-bundle-installer

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

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

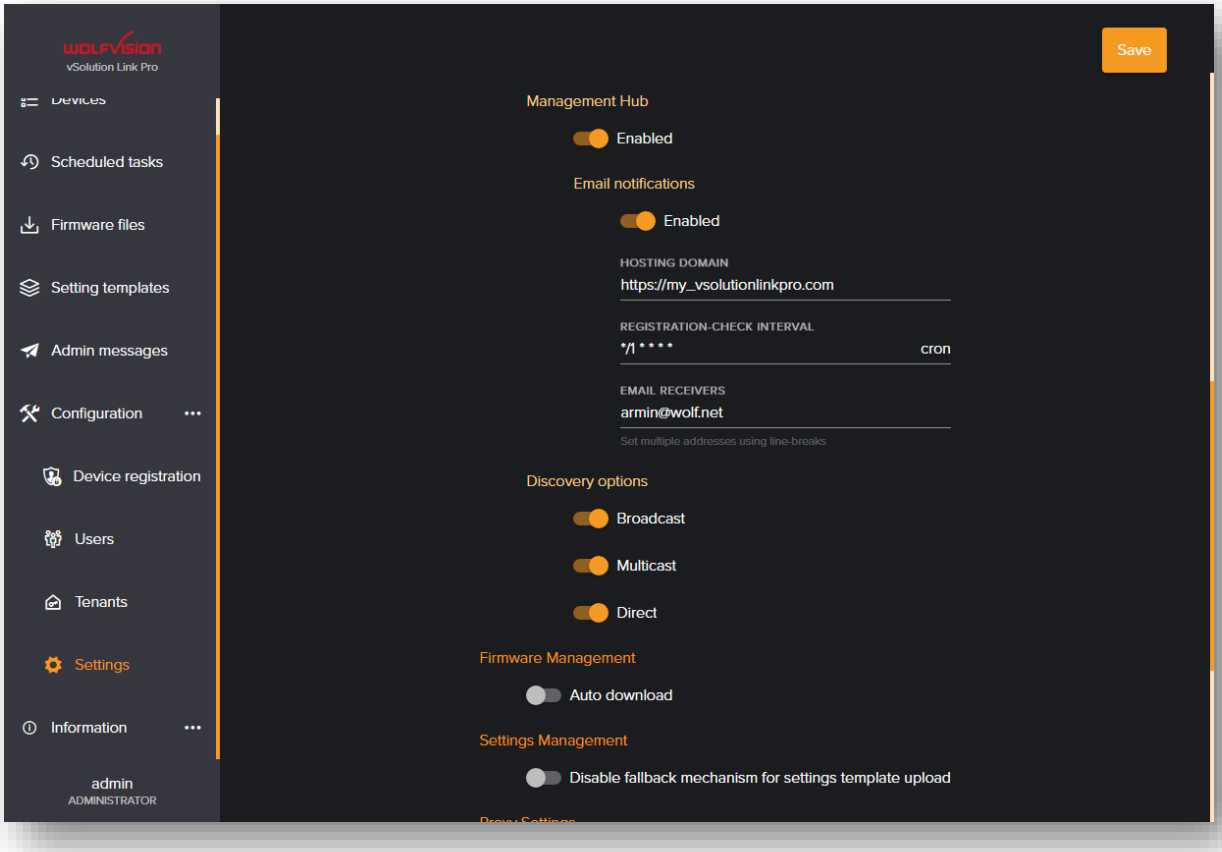
6.1. Adopt appsettings.json

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).

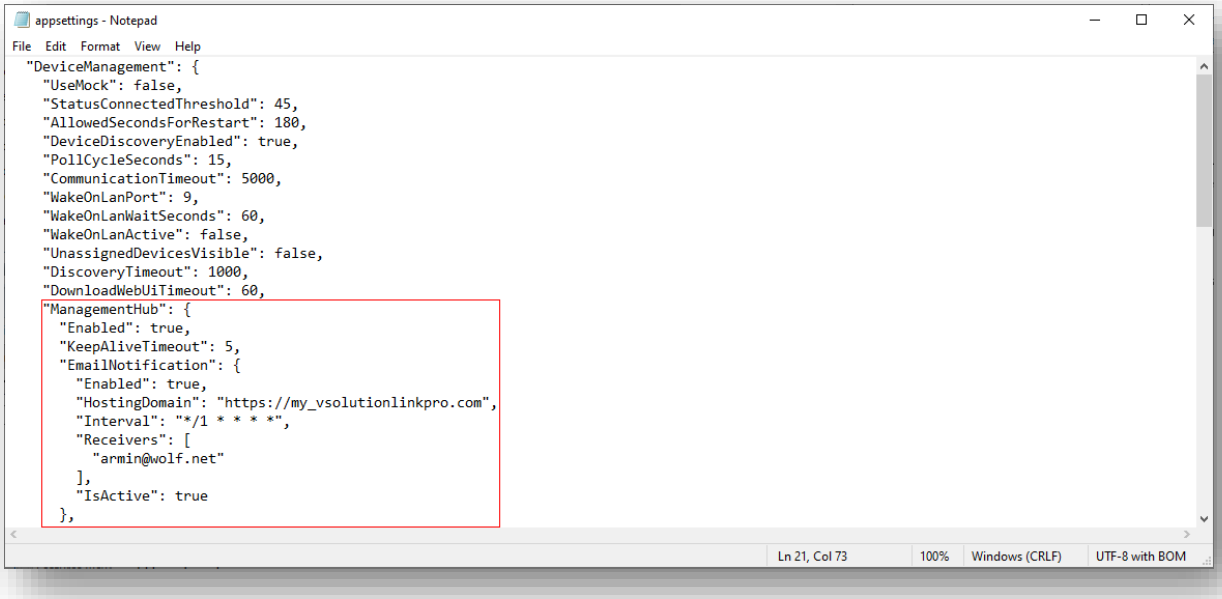
Using Management Hub (Cloud)
"UseHttps" in section "Hosting" has to be set to "true".

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:



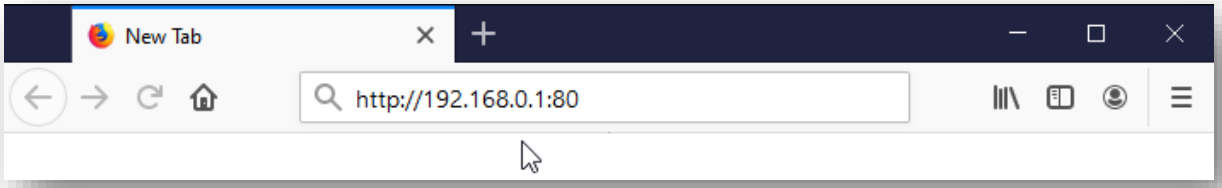
Alternative, activate the Management Hub in the file appsettings.json and adopt all settings according your needs manually:



(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**



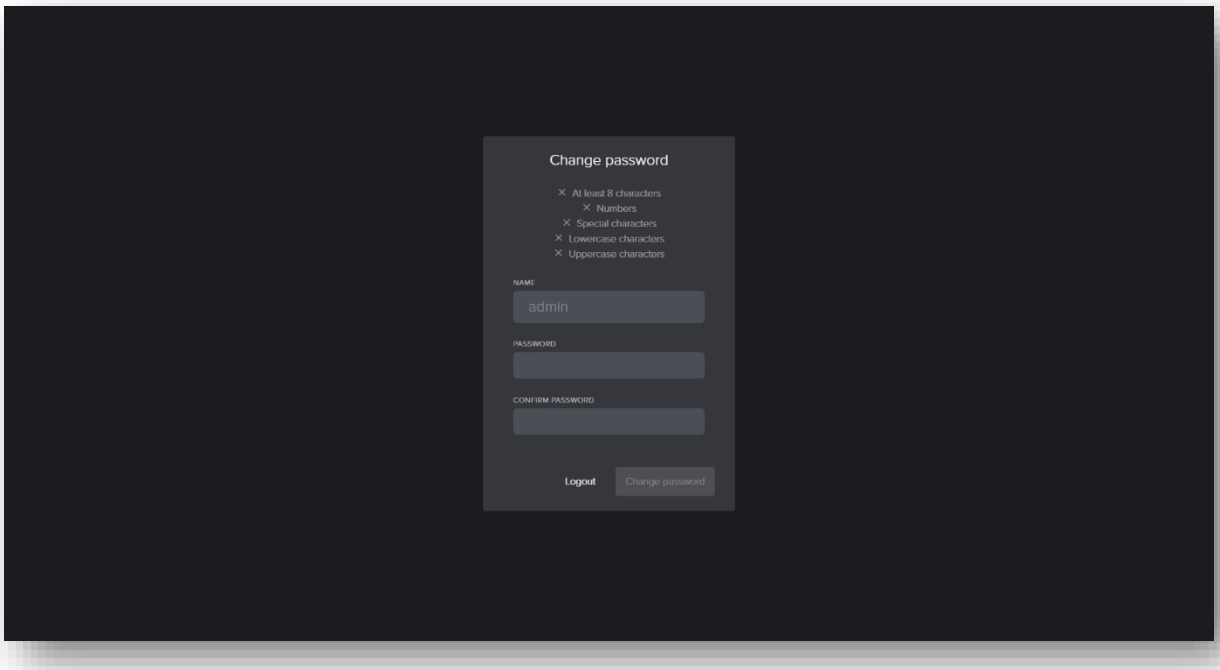
For security reasons, the default password has to be changed at first login.
Please note, after inactivity of 30 minutes, you will be logged out automatically.

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:



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).

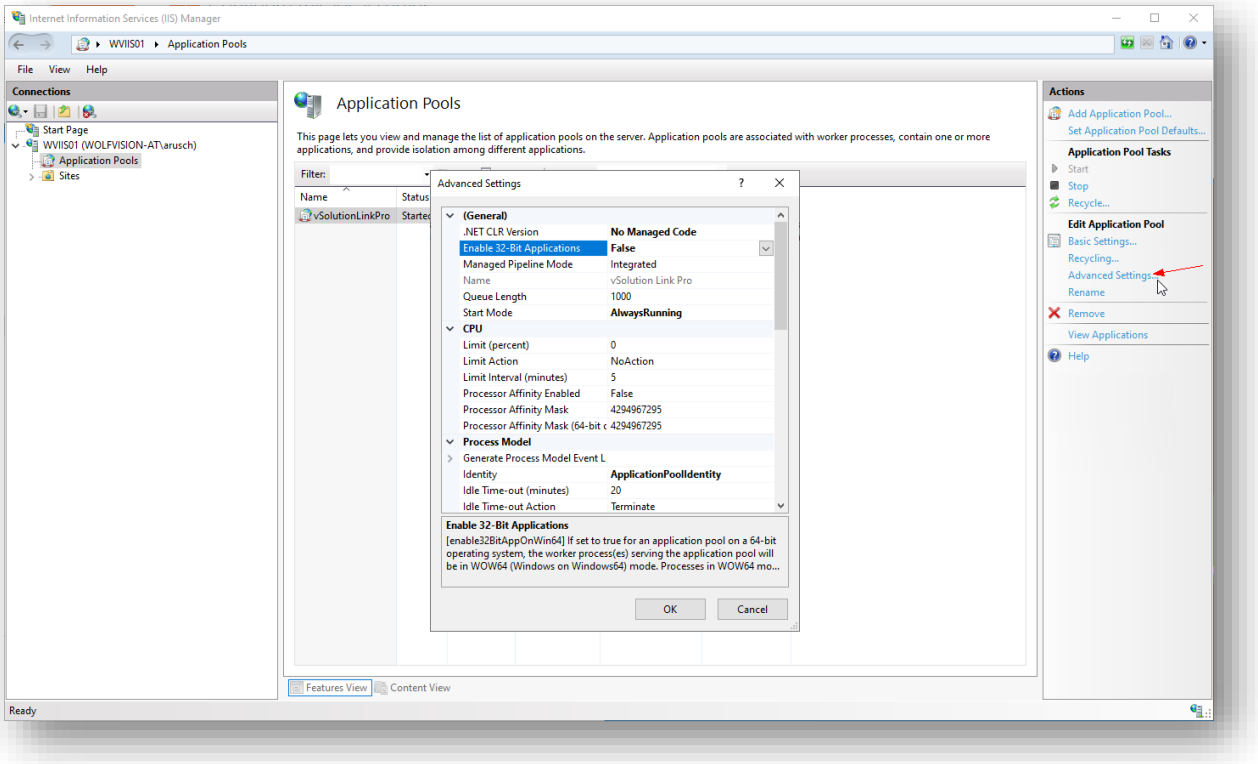
8.1. Complete the update

Start the vSolution Link Pro at the IIS Manager.

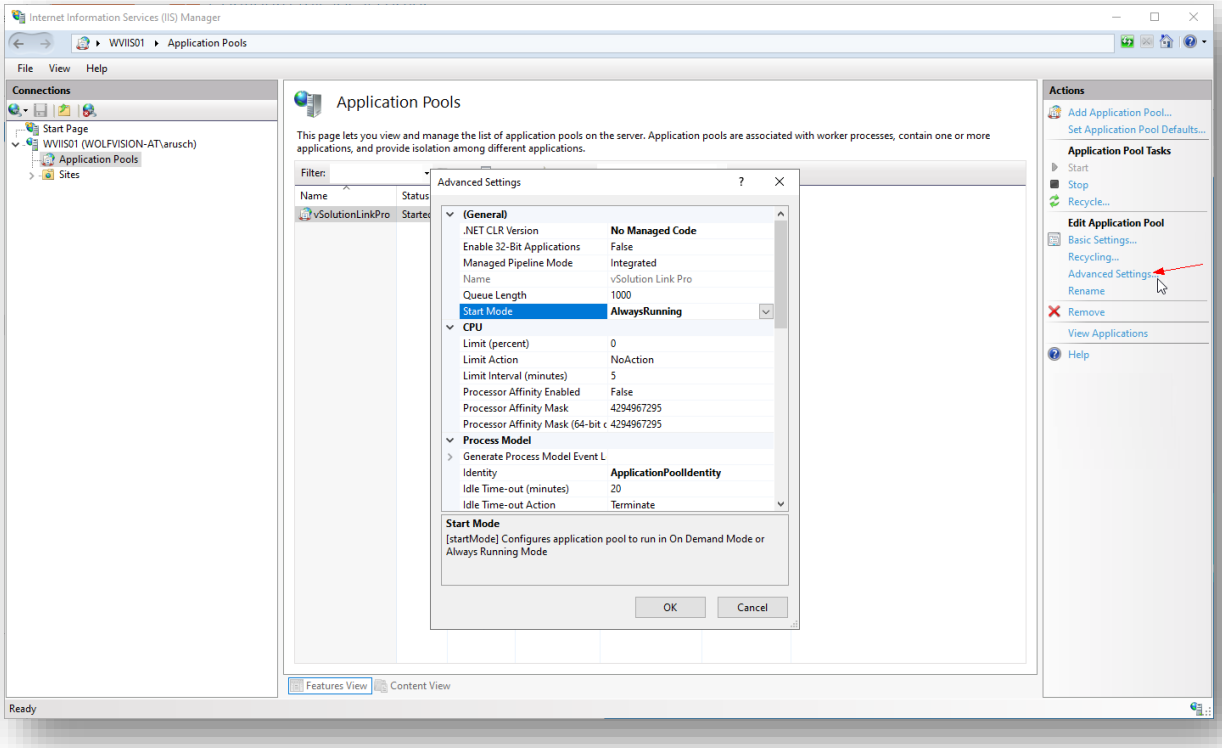
8.2. Updating from version v1.8.0 (or earlier)

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

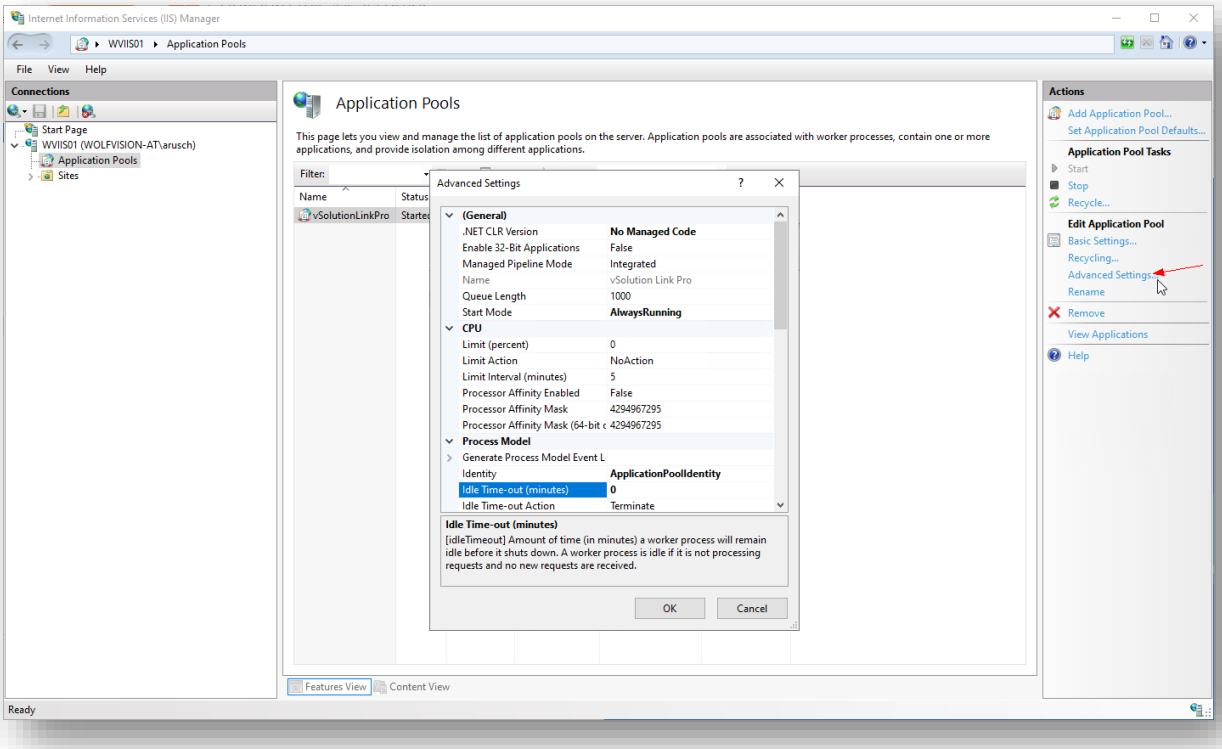
Set Enable 32-Bit Applications to "False"



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



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



Please note

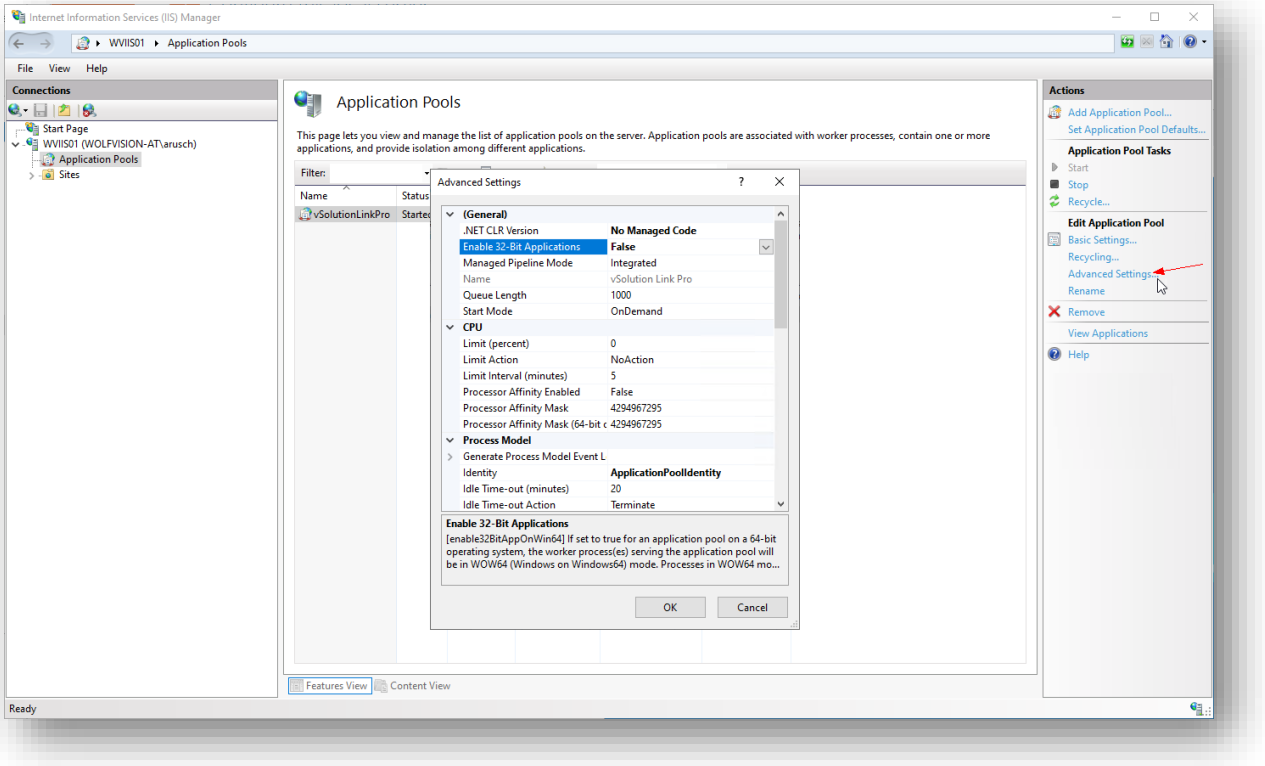
When the IIS is running OnDemand, it stops when:

- 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

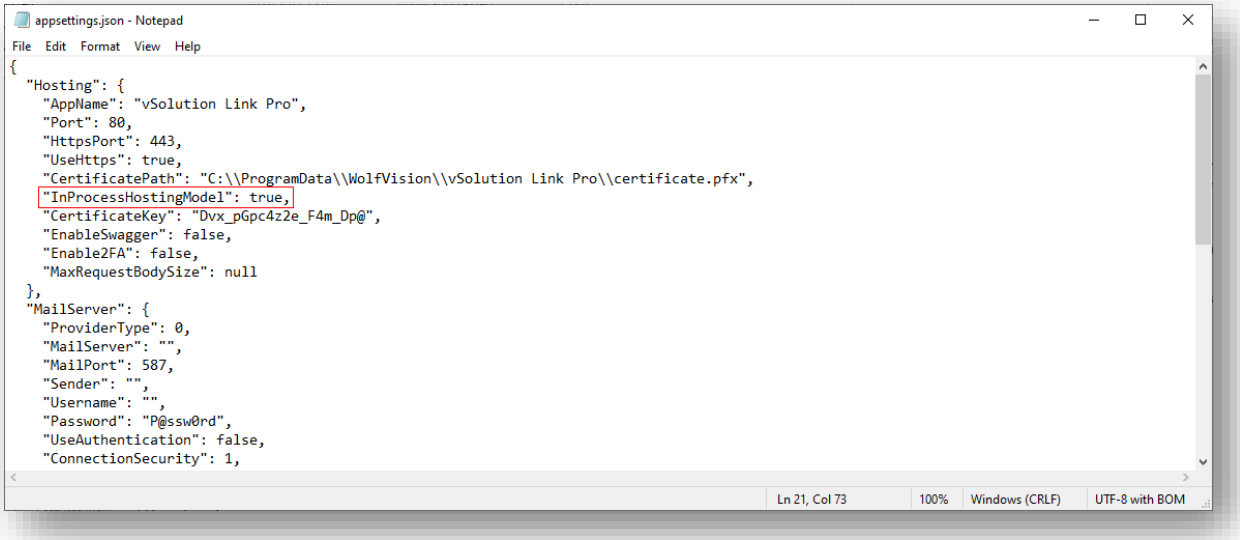
Verify web.config (will be found in the root folder of the IIS), hostingmodel has to

Set Enable 32-Bit Applications to "False"



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.
3. 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.
6. 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.
The version numbering 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