

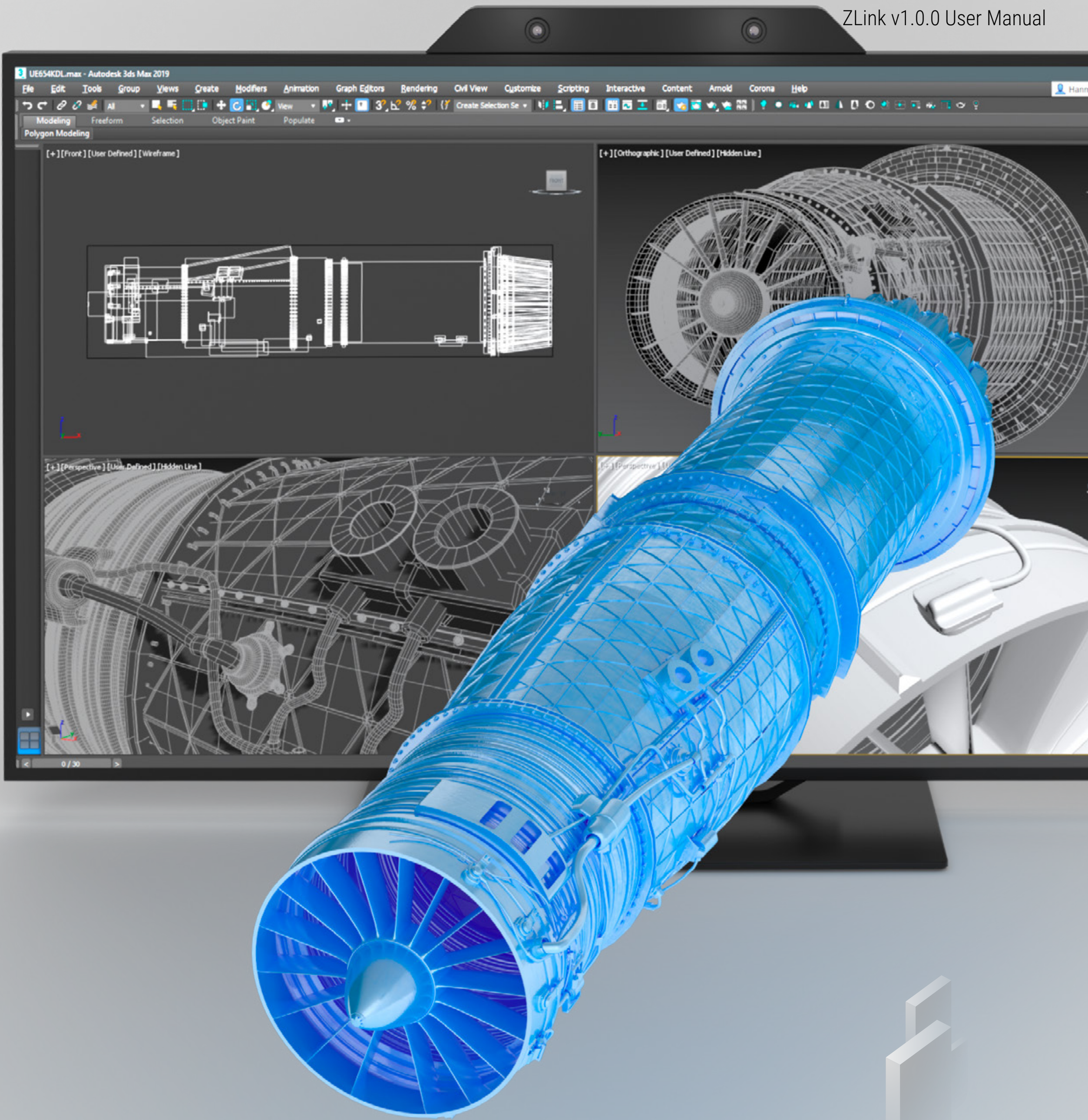


United Screens GmbH
future display technology

USER MANUAL

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INTRODUCTION

Thank you for using ZLink - the universal Simulated/Spatial Reality bridge for CAD and other professional OpenGL based 3D applications.

ZLink bridges your app directly 1:1 onto your eye-tracked auto-stereoscopic 3D display.

True SCALE 3D representation of your models and projects

The ZLink technology has the ability to depict your 3D work true to scale and undistorted in the Z-axis on a connected ZVIEW Display.

Look around effect

Move naturally in front of the display and watch your design from different angles.

Work, Present, Collaborate

ZLink clones the viewport of your 3D application onto a connected ZVIEW display into full-screen with independent camera control, while maintaining a LINK to your 3D application so that any changes you do to your 3D model are instantaneous updated on the ZVIEW display. This works locally on one PC but also through your local area network (LAN) to multiple client PCs running the ZLink client, thus enabling you to collaborate on a project with one project leader (host application PC) and multiple viewers (client PCs).

SYSTEM REQUIREMENTS

ZLink has the same system requirements as the original application that's to be bridged onto a connected ZVIEW display. ZLink works by copying the graphic commands of the actual application (e.g. Plant Simulation, Catia, NX,...).

Our basic recommendation:

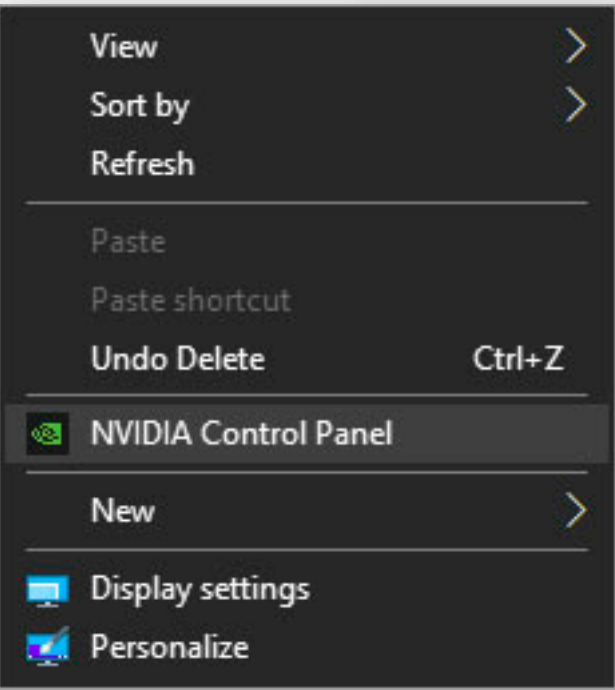
Component	Recommended Specs	Minimum Specs
Processor	Intel® Core™ i7-10700 (eight-core 2.90 GHz, up to 4.8 GHz)	Intel® Core i5-7300HQ (quad-core 2.5 GHz, up to 3.5 GHz)
GPU	NVIDIA Quadro P4000 / RTX 2070 / Radeon pro WX 7100 or greater	NVIDIA GTX 1070 / AMD Radeon RX 580 or greater
Memory	32GB RAM or more	16GB RAM or more
Video Output	DisplayPort 1.2 or newer	DVI-D / HDMI 1.4b
USB Port	3x USB 3.0 ports, plus 1x USB 2.0	2x USB 3.0 ports
Operating System	Windows 10	Windows 10

This page shows the configuration for Nvidia Quadro Cards. Failure to follow the Guide will result in:

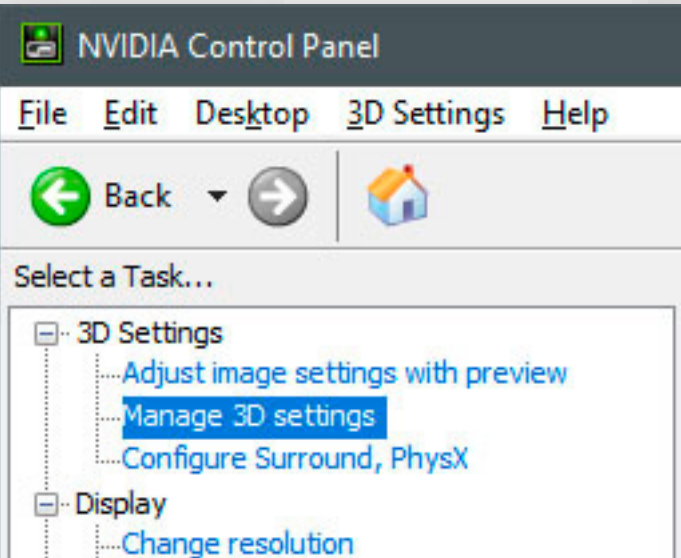
- * No Tracking
- * Distorted Image
- * No Direct-Data Link between your app and the 3D Display

Basically, the 3D image will stand still if the configuration is not applied.

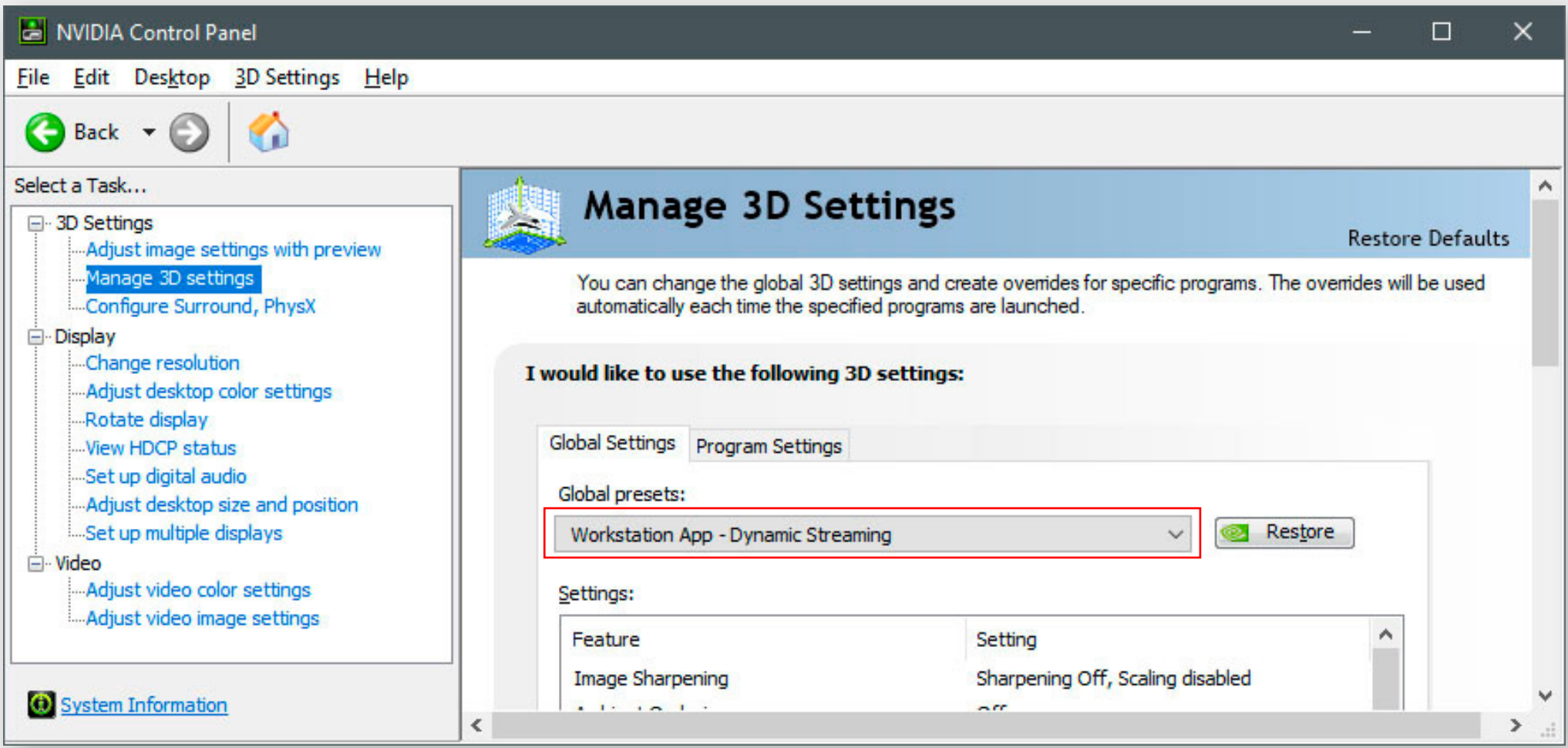
1) Right click on your desktop and select **Nvidia Control Panel**



2) In the left hand list select **Manage 3D Settings**



3) In the Global Settings Tab select the **Global presets** dropdown and set it to **Workstation App - Dynamic Streaming**.



4) Click **Apply** and restart your computer.

INITIAL SETUP

ZLink Launcher

After installation you will find the ZLink Launcher Icon on your desktop:



Double click to start the ZLink Launcher. Upon first start you will be presented with two setup questions. Select whether or not you are using a Quadro Card:

Does your computer have multiple GPUs or an Nvidia Quadro?

YesNo

Select which ZVIEW Display and controller device you are using:

What type of screen are you using?

☐ ZView 28"

☐ ZView 65"

What kind of device are you using for input?

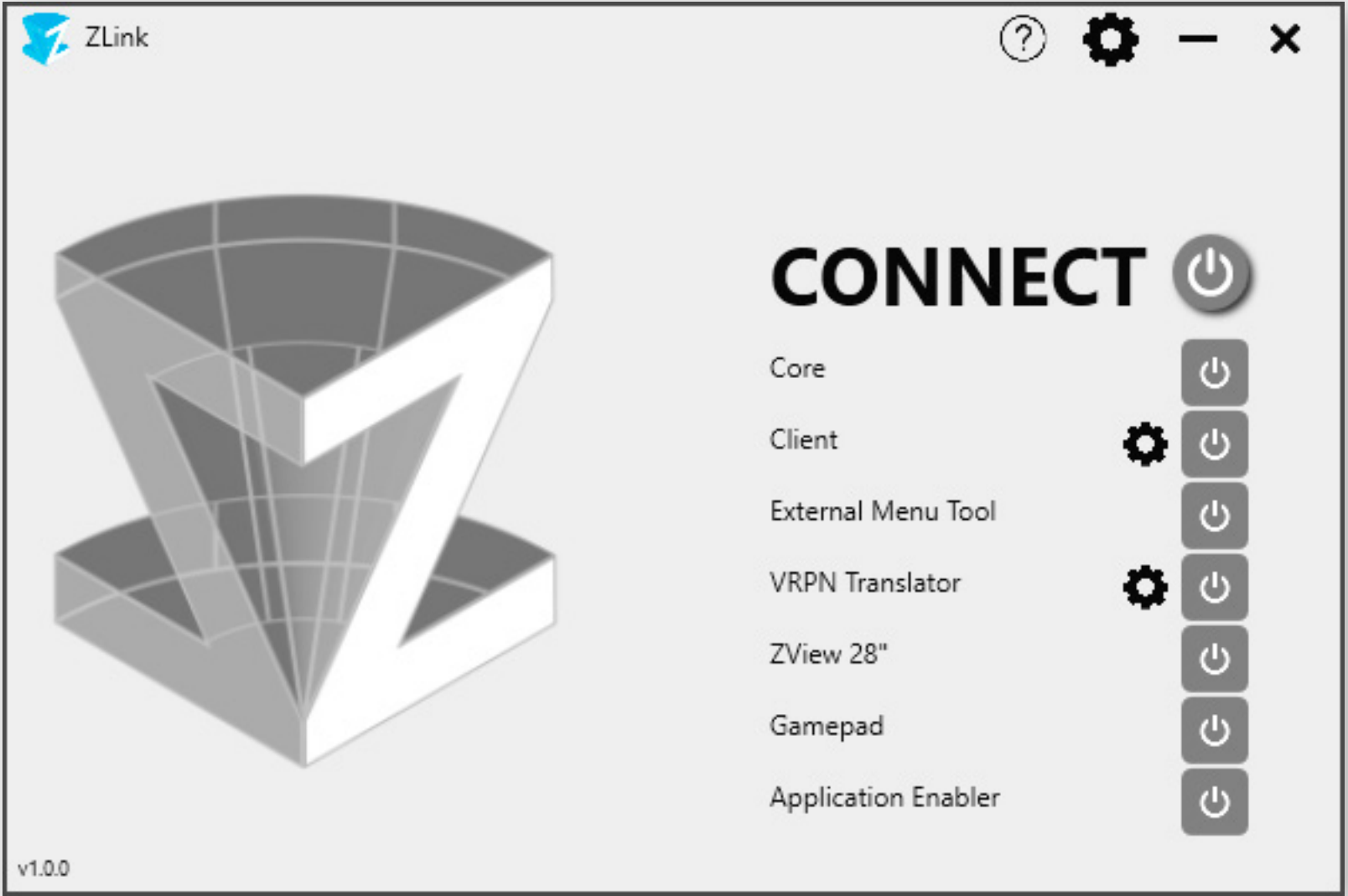
☐ Spacemouse

☐ Gamepad

Continue

NOTE: you must have one of the controller devices connected to your PC, otherwise you won't be able to effectively use ZLINK.

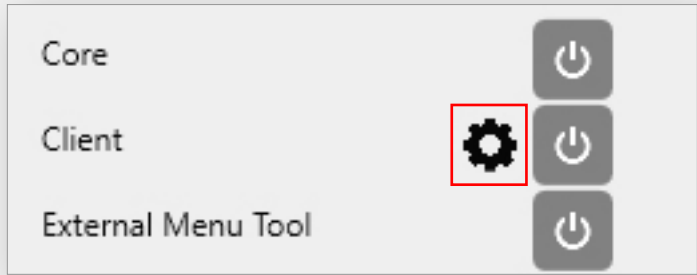
You are now presented with the ZLINK Launcher interface:



NOTE: By clicking on the big settings wheel at the top you can always bring back the display and controller device setup screen.

Client Settings

Next, open the Client Settings window by clicking on the setup wheel.



Client Settings

Monitor

Identify

3

Resolution

3840x2160

AntiAliasing

1x

Offset

X

0

Y

0

Sub Width & Height

Data Port Base (1-5)

8700

VRPN Port

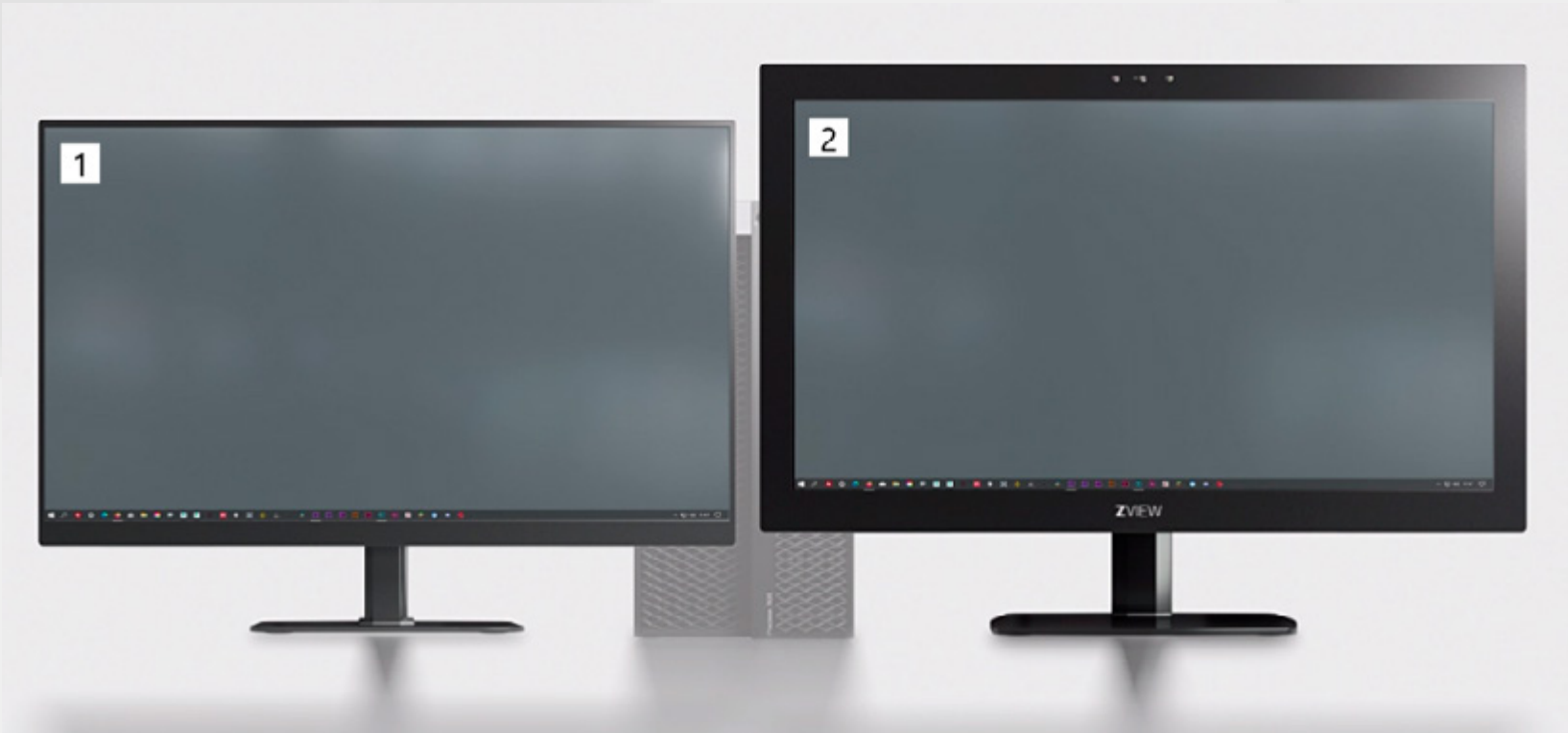
8800

Save

Close

INITIAL SETUP

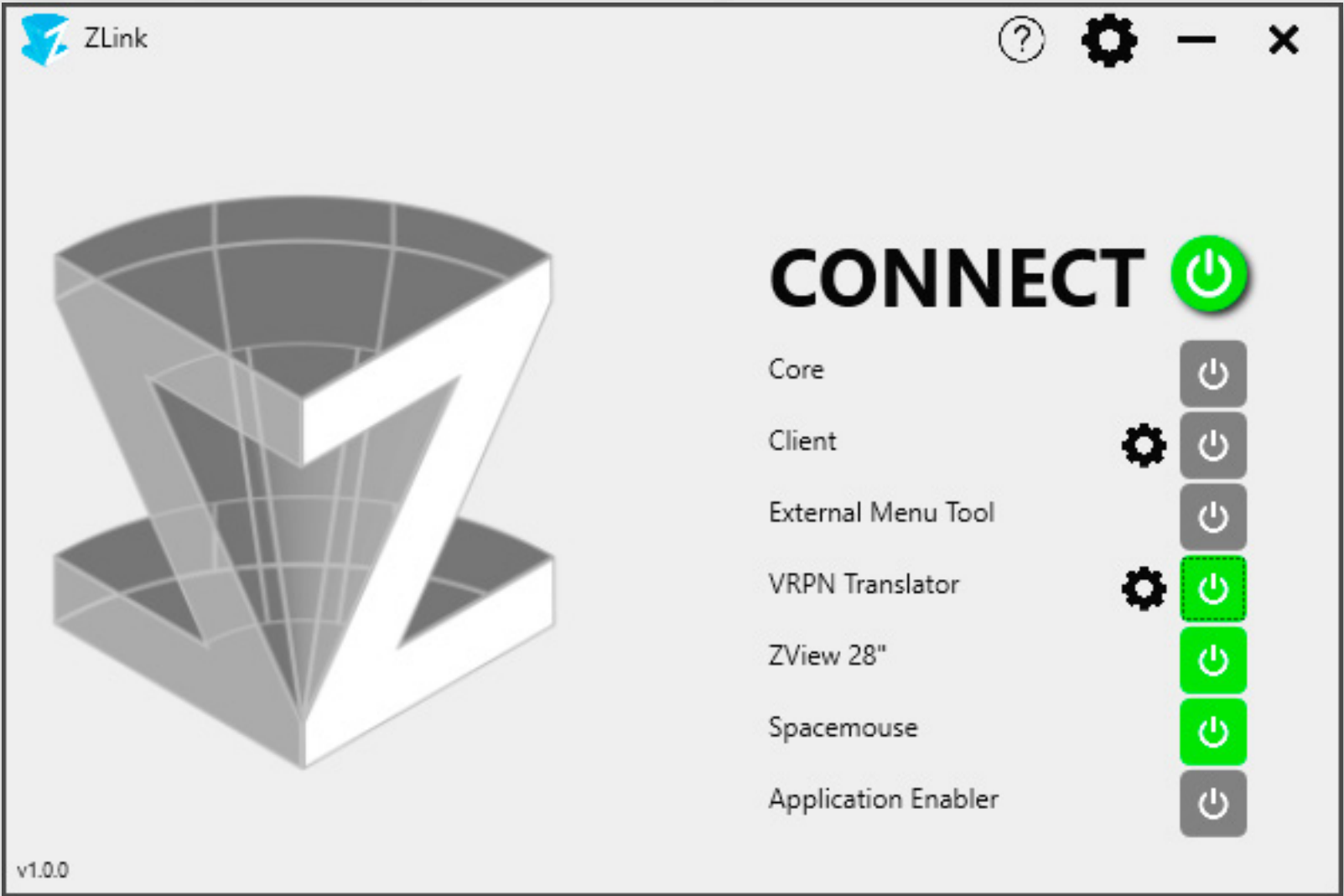
Press the **Identify** Button to check which of your connected displays is your ZVIEW monitor. A number is displayed in the upper left corner in each of your displays. Click on the drop down and select the Monitor number of the ZVIEW display. Leave all other settings as they are for now. Hit **Save** and then **Close**.



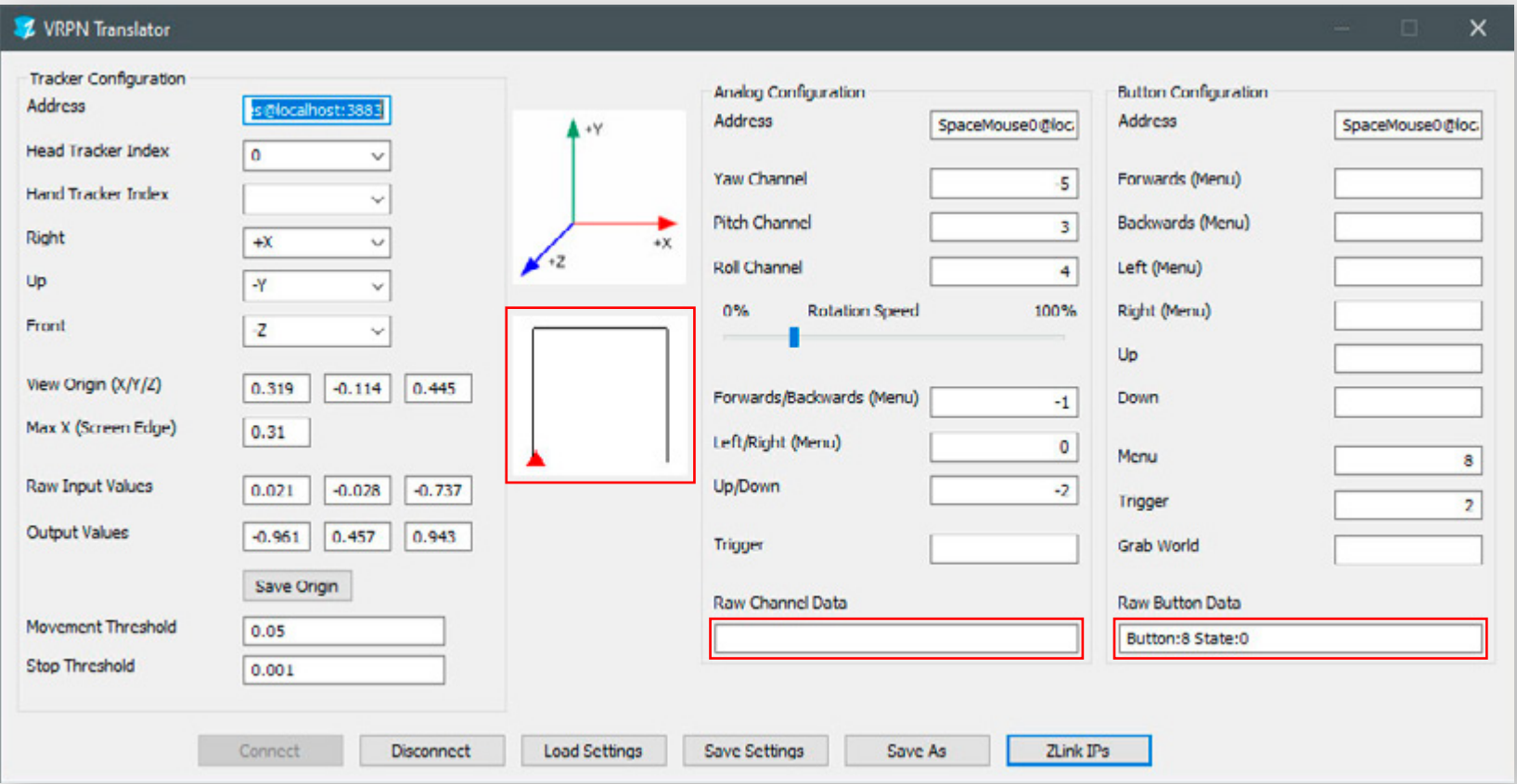
NOTE: The ZVIEW 28" resolution must be set to 3840x2160, for the ZVIEW 65" it must be 3840x1080.

VRPN Translator

Now start the ZVIEW display (here the **ZView 28"**) and the controller device (here the **Spacemouse**) by clicking on the power buttons, then start the **VRPN Translator**:



The VRPN Translator “captures” the eye-tracking coordinates and the controller device input data and sends them to the Client (3D viewport):



The VRPN Translator: Once launched it automatically connects to the eye-tracking and the device controller.

Now check if eye-tracking and input device are being recognized by the VRPN Translator:

In the left part of the window under the x-y-z pivot is a square with a red triangle. This triangle must change its position when you look at the connected ZVIEW display and move your head in front of it (pay attention to the required viewing distances, which are different for each display). This is your head position in front of the display.

In the right part you’ll find the analog and button configuration of the connected controller device. Move or rotate the knob of the space mouse or the stick of the XBOX controller and check the **Raw Channel Data** box. You should see some numbers changing. Do the same with some buttons on your controller device and you should see the Button number and its state changing in the **Raw Button Data** box.

If you are not seeing any changes for tracking or the controller, please check the following:

- are the display and the controller buttons green/running in the ZLink Launcher?
- is the controller properly connected to the PC, e.g. can you control other applications with it?
- is the space mouse connected via cable? The space mouse only works when connected via cable.
- is the eye-tracking software running on the PC and working properly?
- if the eye-tracking is running on a separate PC, make sure it is connected to the same LAN or WiFi as the PC running ZLink.

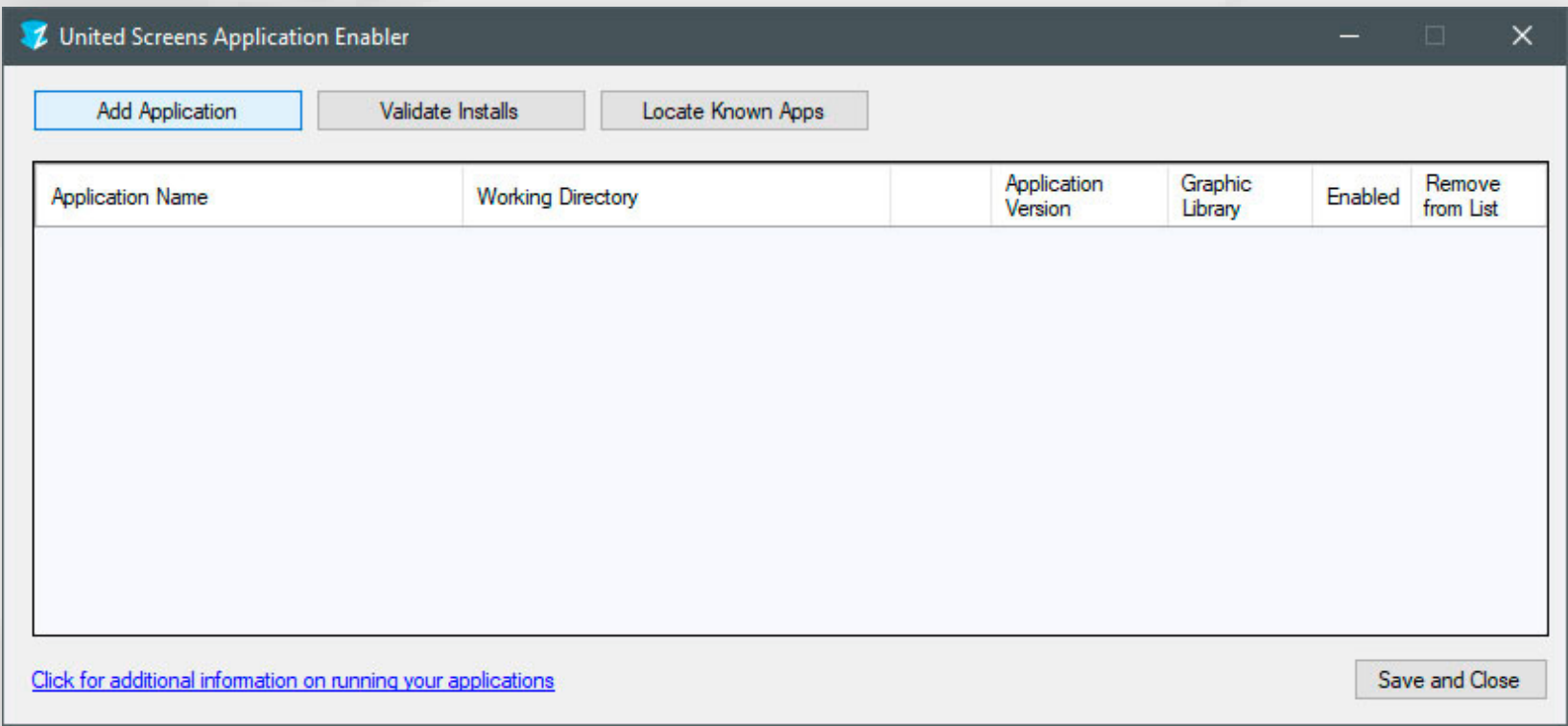
Close the VRPN Translator plus the Display (ZVIEW 28" or ZVIEW 65") and Controller (Spacemouse or Gamepad) for now.

INITIAL SETUP

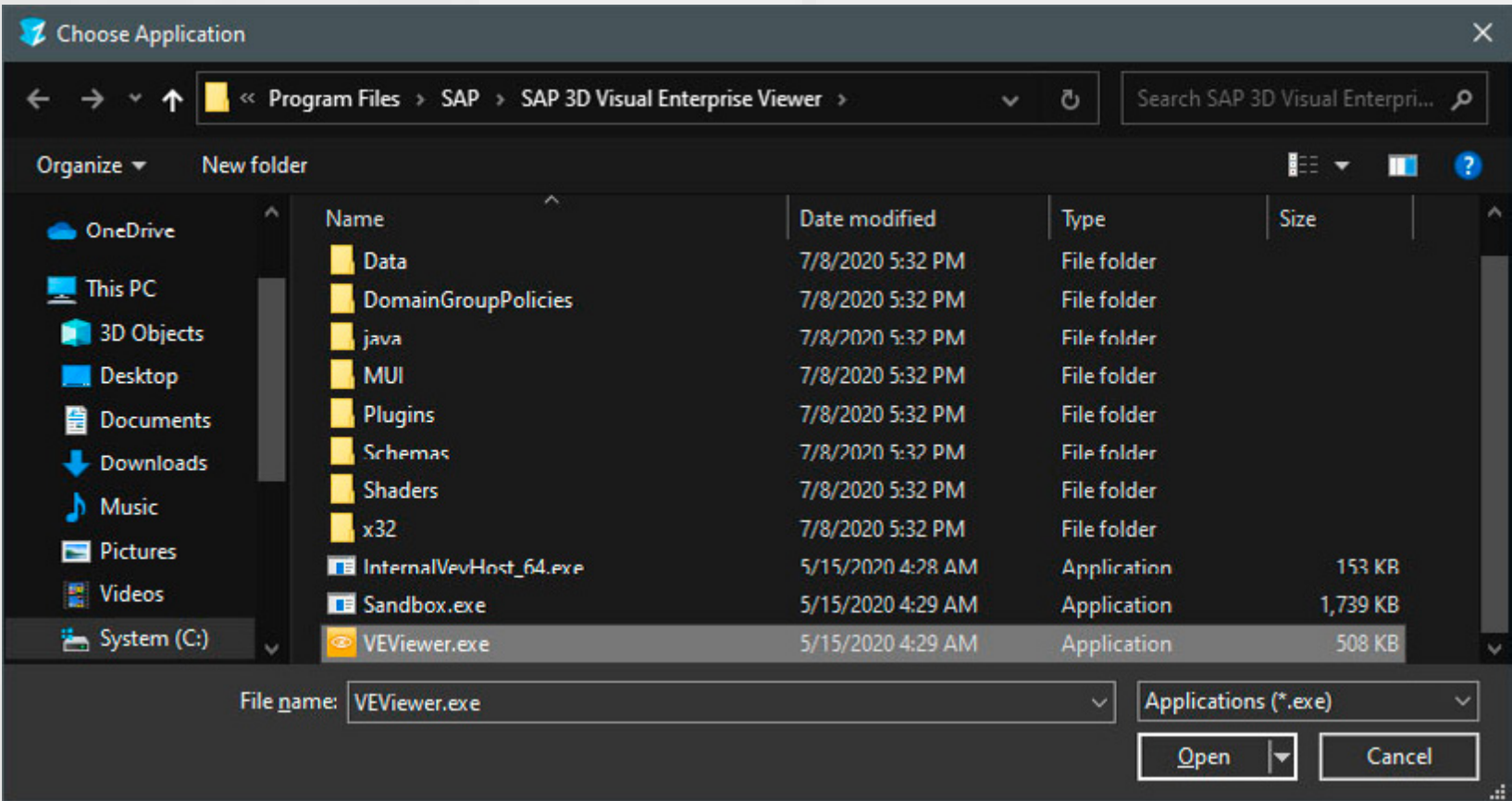
Application Enabler

Next, press the Application Enabler power button in the ZLink Launcher window. This will bring up the Application Enabler window.

Depending on your user account settings you will see a User Account Control pop-up asking you if you want to allow the Application Enabler to make changes to your device/computer. Click Yes.



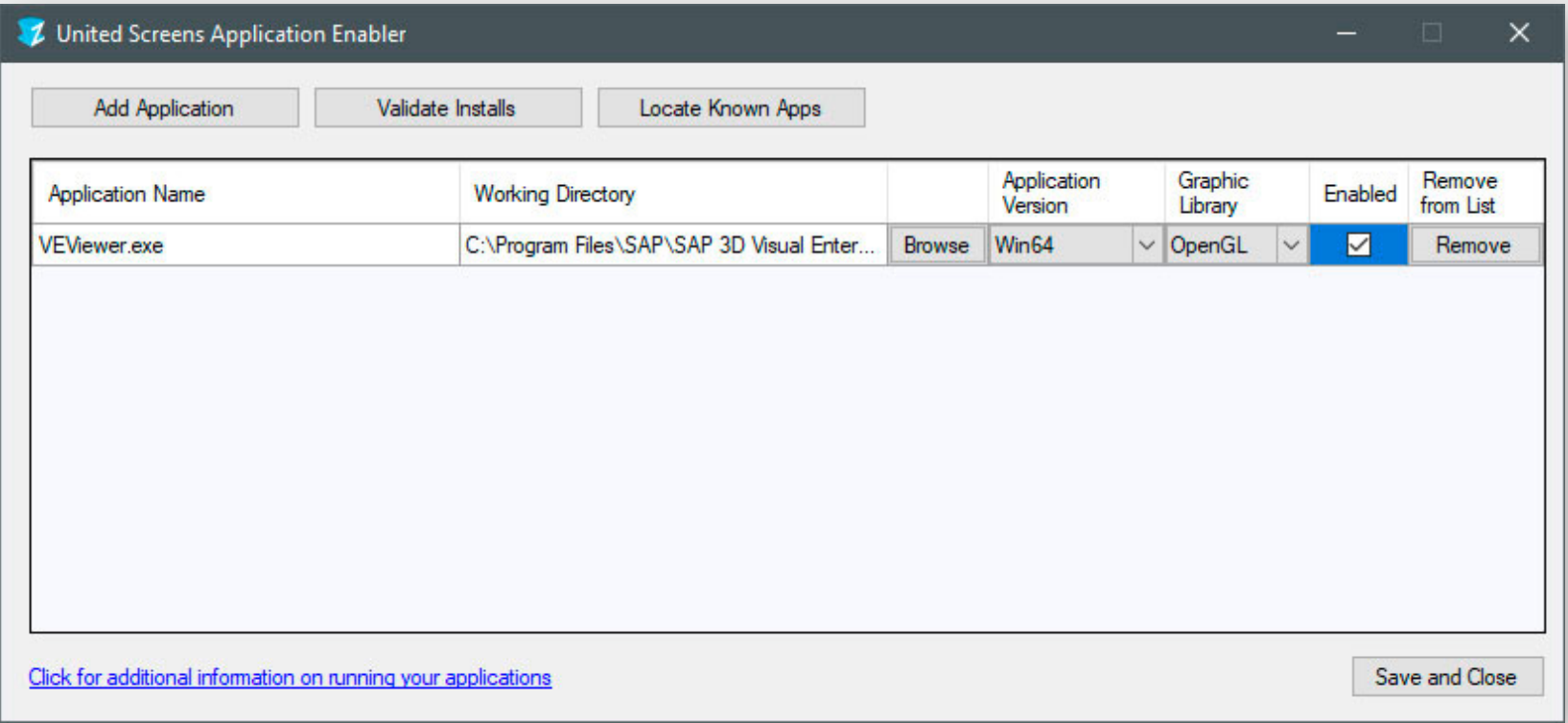
Click on **Add Application**. This will bring up an explorer window, in which you can navigate to your host application.



Locate the executable of your host application (in our case the VEViewer.exe), select it and click **Open**. You can find a list of supported applications [here](#).

Please also see the guide for your respective application at the end of this manual, section ZLink Setup Guide. Not following these individual guides will result in ZLink not being able to bridge the geometry.

You have now added your first host application to ZLink. Click on the Enabled check-box to activate/connect the application with ZLink. Now **Save and Close** the Application Enabler in the lower right.



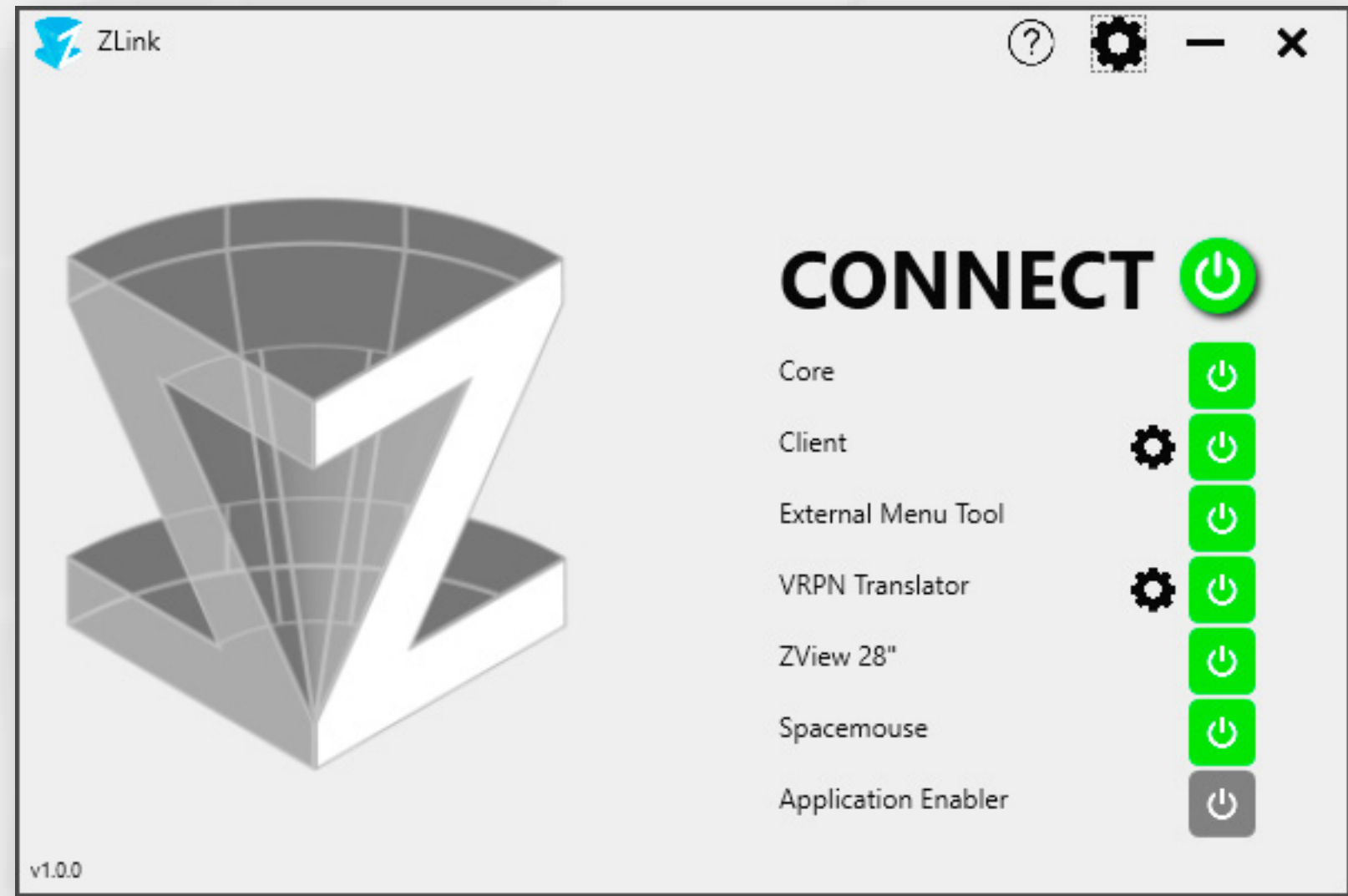
Continue with the next section: ZLink Startup Sequence

ZLINK STARTUP SEQUENCE

After the initial setup configuration you are now ready to use ZLink on your computer.
If not already open, start the ZLink Launcher.



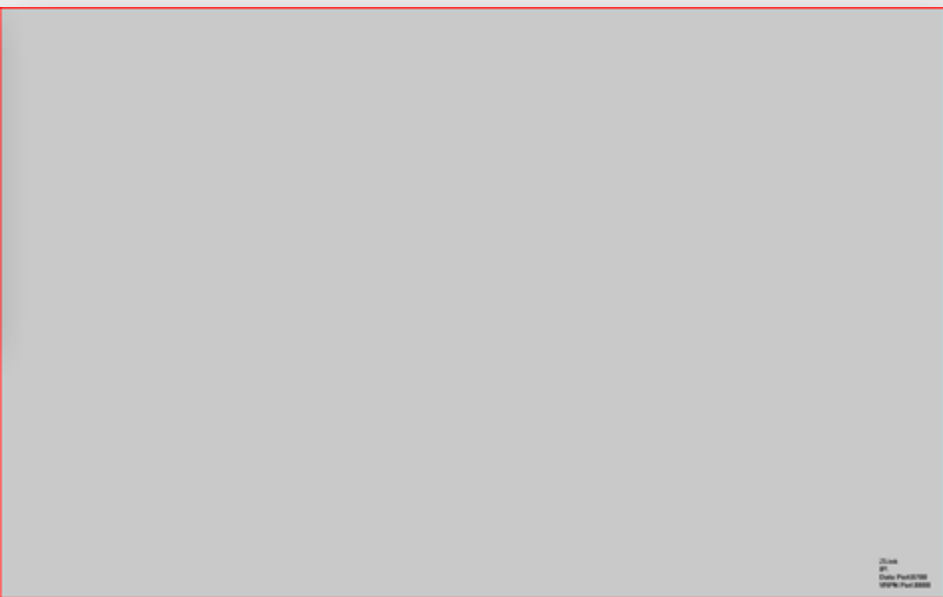
- 1) Click on the big CONNECT power button. This will start all ZLink software components at once (except the Application Enabler, which isn't needed for running ZLink).



You are now seeing the VRPN Translator window - which you can minimize, the External Menu Tool window and the Client window on the ZVIEW display, which is still an empty grey pane with a thin red border.



ZLink External Menu Tool



ZLink Client Window (S3D Viewport)

- 2) Now start one of your 3D applications, which you have added to the Application Enabler earlier. It is essential to start the host application AFTER the ZLink components. Position the host application on your 2D Display.
- 3) Load your 3D scene or model.

Once the geometry is loaded, it gets instantly duplicated into the ZLink Client window, which now loses its red frame and displays your host app geometry in stereoscopic 3D.

The next steps are important to achieve a convenient 3D effect on the ZVIEW displays:

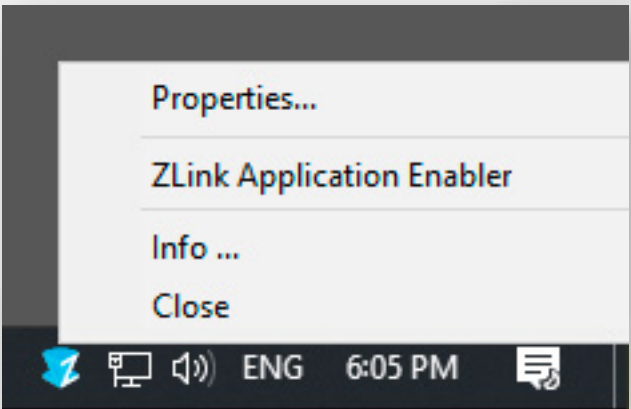
01. Try to check where your 3D geometry is positioned in the Z-axis on the screen, e.g. is it far inside the display?
02. Fly towards the object until it is close to the displays surface.
03. Now use the ZLink Menu Tool or the Client Menu to adjust the scene scale to your liking, e.g. to fit the object into the screen, by changing the *Base Scale* and the *Scale*. Press *Send* to send the values to the Client (3D Viewport).
You might need to change the window focus back to either your host app or the Client window to trigger an OpenGL drawing update.
Changing the scene scale will move your geometry further into or out of the screen depending on whether you scaled up or down. Fly towards or away from the object until it reaches the display surface again.
04. Repeat step 03 until your object/geometry fits the screens while being at the screen surface.

ZLINK COMPONENTS: CORE

The ZLink Core holds the Network and Client Configuration.

“ZLink can be configured to use multiple Clients (3D Viewports) on other PCs in your LAN, so that one host application (e.g. Catia or Siemens NX) can stream its 3D scene to multiple PCs running ZLink. This feature can be used for review and collaboration of 3D data in stereoscopic 3D.”

After launching the ZLink Core it is present in the system tray bar, right next to the system time.



The ZLink System Tray

The ZLink Core has the following functions:

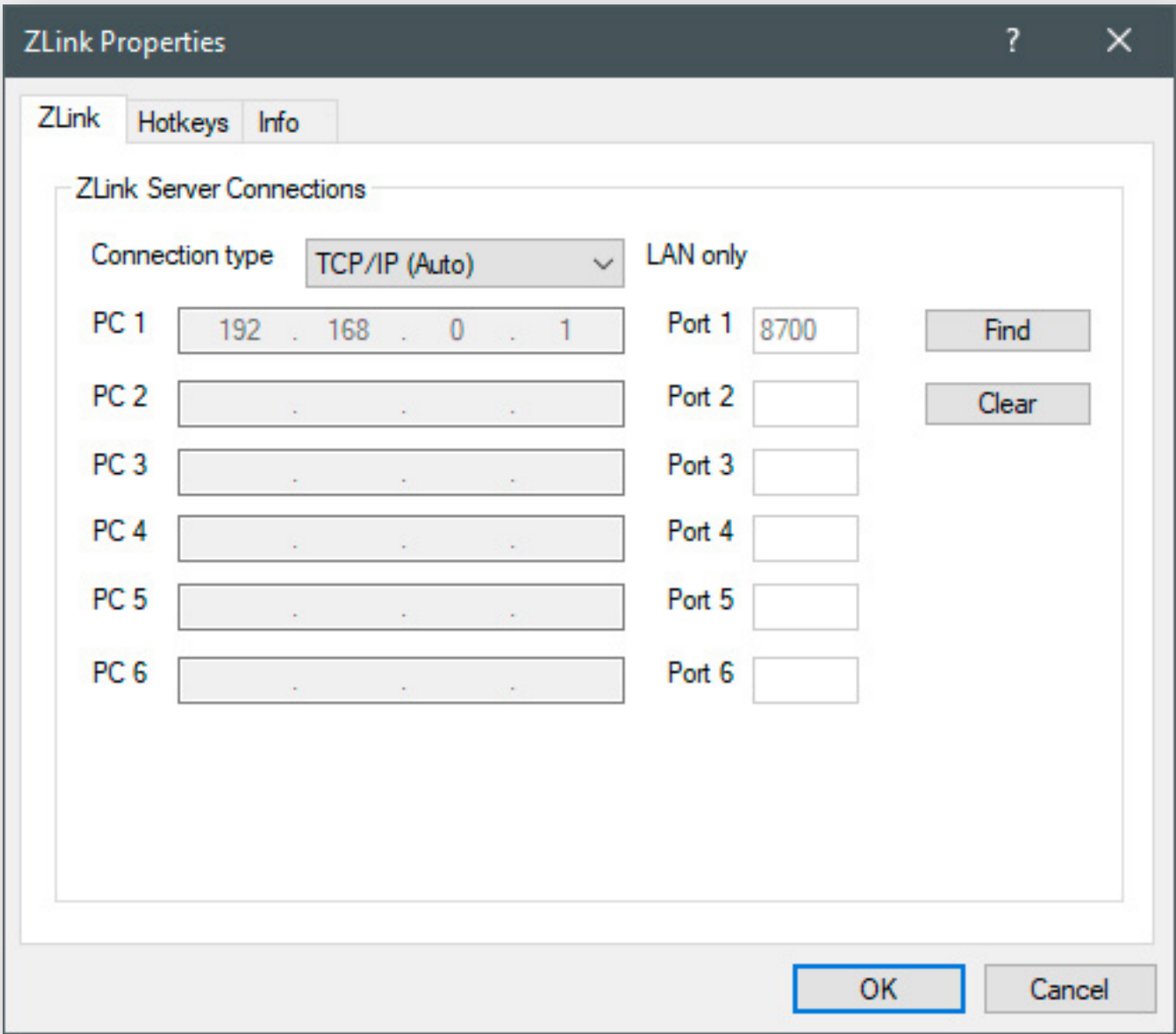
- 01. License management for the local system
- 02. Choosing and configuring the data connection (e.g. TCP/IP, ShareMem, UDP)
- 03. Choosing and configuring hotkeys for the Host App Control Panel
- 04. Displaying system info

01. License Management

Running the ZLink Core is essential, as it provides the licensing to all connected components. The active license is to be set the in the ZLink activation tool, yet the technical use is done by the Core.

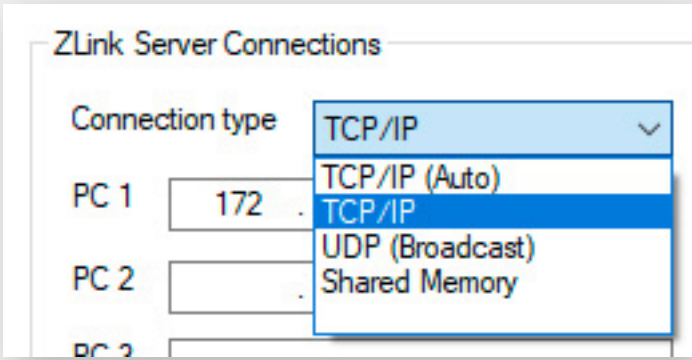
02. Data connection Type

The connection type is to be set on the ZLink Properties ZLink tab. It is accessed by right clicking the tray icon and selecting “Properties...”. The connection type defines how the graphic data from your host app is transported to the ZLink Client.



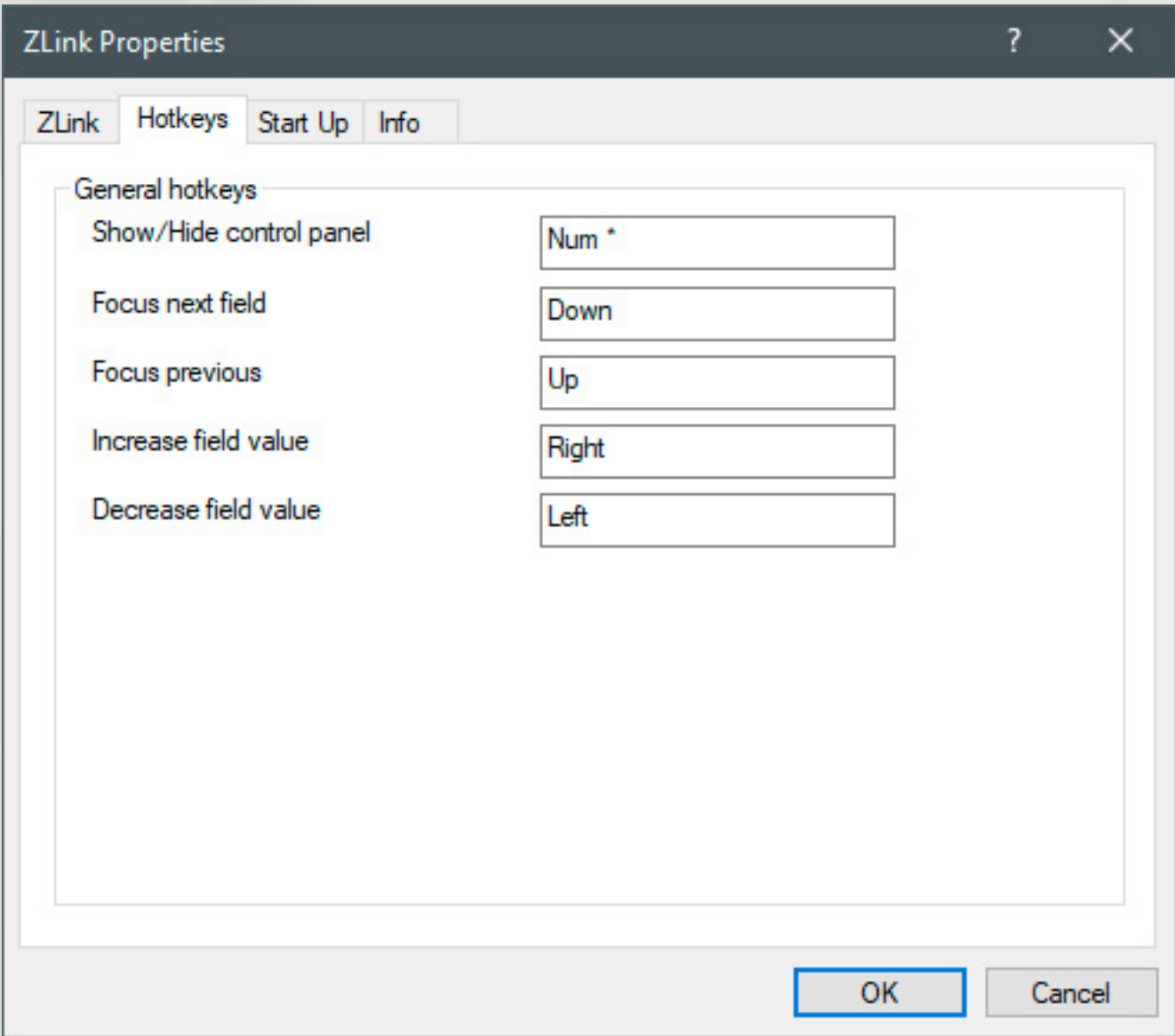
The available options are:

- TCP/IP (Auto): Using TCP/IP connections on the LAN with automatic IP and Port configuration.
- TCP/IP: Using TCP/IP connections on the LAN with manual IP and Port configuration.
- UDP (Broadcast): Data is transmitted in the LAN's broadcast address.
- Shared Memory: Does not access the network, but uses system RAM to transport the data. The fastest way of bringing data into the client, recommended for local-only single-client setups.



03. Defining Host-App Control Panel Hotkeys

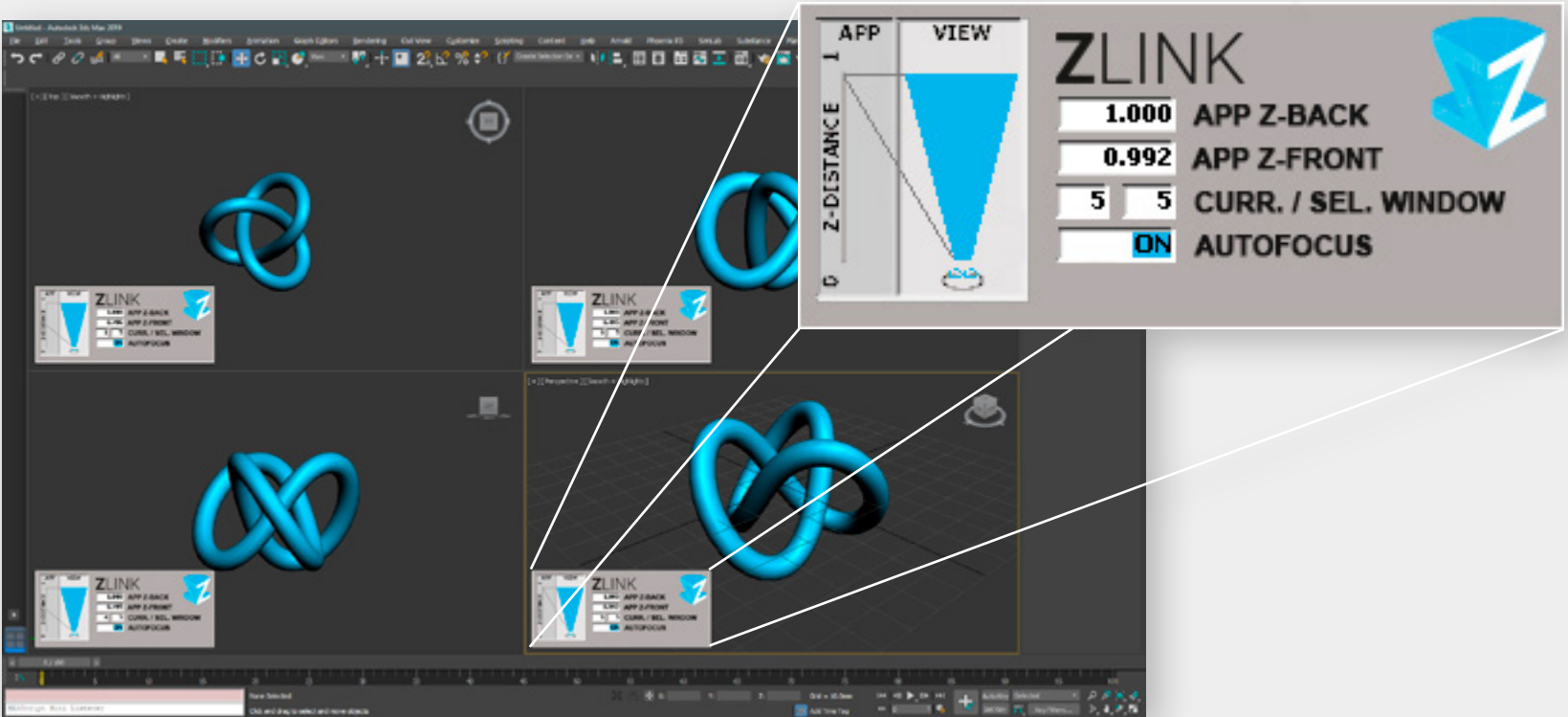
To define the hotkeys, switch to the *Hotkeys* tab of the ZLink Properties. To change any hotkey binding, simply click into the desired field and press a new hotkey to assign.



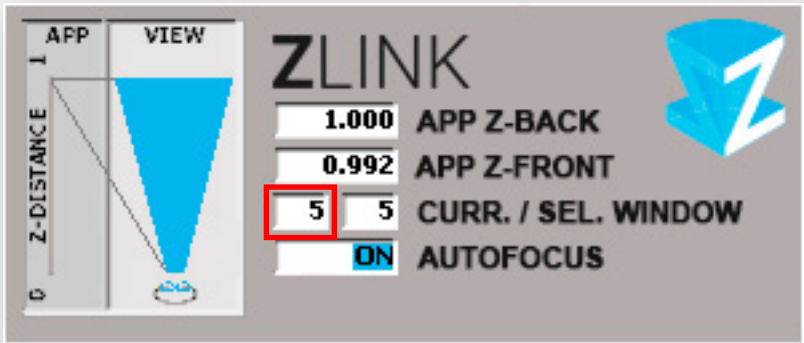
NOTE: The hotkeys will be unavailable system wide for as long as a ZLink session is running.

Host-App Control Panel

The Host-App Control Panel is a menu displayed in the host app, showing debug information but also letting the user choose which 3D viewport of the host app to bridge into the ZLink Client.



To bring up the Host-App Control Panel press the * key on the num-pad while moving or rotating your model with the mouse. This action is required to refresh the OpenGL buffer, because the Host-App Control Panel is directly drawn into all of your host application's viewports. Check the current viewport number of each viewport (marked in red below):



Now press the *Up* key on your keyboard to move the selection into the selected window (*SEL. WINDOW*) field. Don't forget to move or rotate your model to refresh the viewport. Now use the *Left* and *Right* key to change the *SEL. WINDOW* number to the viewport number you would like to see in the ZLink Client.

04. Displaying System Info

To get a quick overview about your system and the ZLink software, switch to the Info Tab of the ZLink Properties. Alternatively, right click the ZLink Core tray icon and select "Info".

ZLINK COMPONENTS: CLIENT

The ZLink client is then rendering front end of the ZLink software. It receives the 3D data from the host app. Further, it receives tracking data from the VRPN translator.

After startup the client will show a grey window on the ZVIEW Display.



The ZLink Client Window

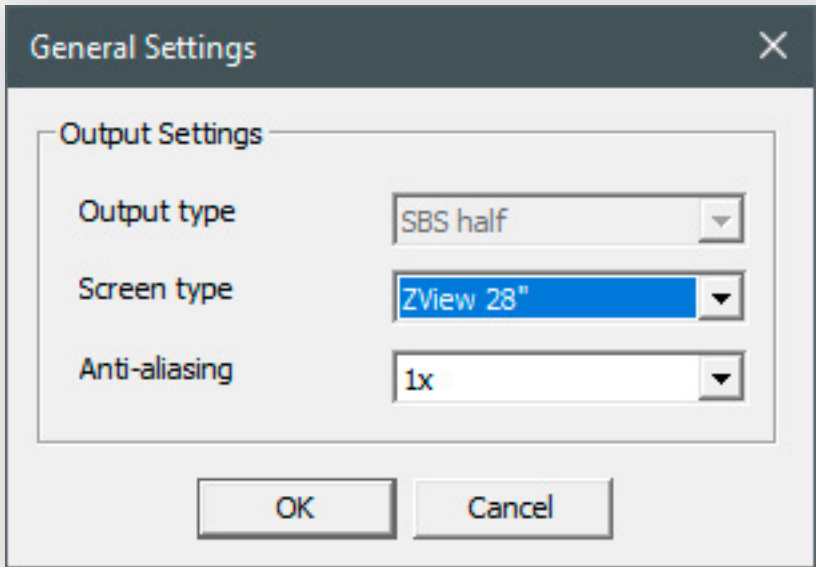
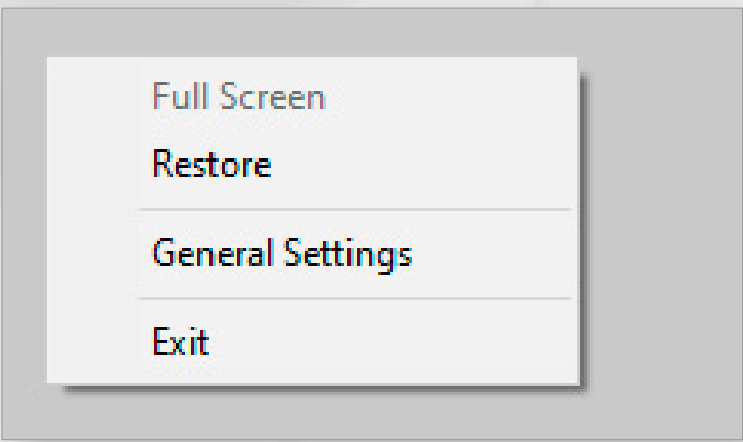
In the lower right corner of the client the status information is displayed:



- The local computer's IP.
- The data port that the client is listening on.
- The VRPN port that the client is listening on.

Right clicking into the client shows the context menu. The individual options in the context menu are:

- **Full screen**: put the client into fullscreen mode on selected display
- **Restore**: put client into windowed mode
- **General Settings**: configure the output device and Anti-Aliasing settings



NOTE:
Be careful with the Anti-aliasing setting as it can slow down the display performance.

The ZLink Client Menu provides control over scene **Scale** and 3D camera **Speed** and provides the ability to place camera position **Flags** for “highlighting” certain points of interest of the scene geometry.

ZLink Menu




Reset: Position Scale Speed

Base: MM CM M KM IN FT

Scale: Smaller Larger

Speed: Slower Faster

Flags: Add Del Go Save Load **A H**

To open the ZLink Client Menu press this SpaceMouse Button  or the XBOX Controller Menu Button . Use the Knob/Stick to move through the menu and change values with the SpaceMouse Trigger Button  or the XBOX Controller Trigger Button RB.

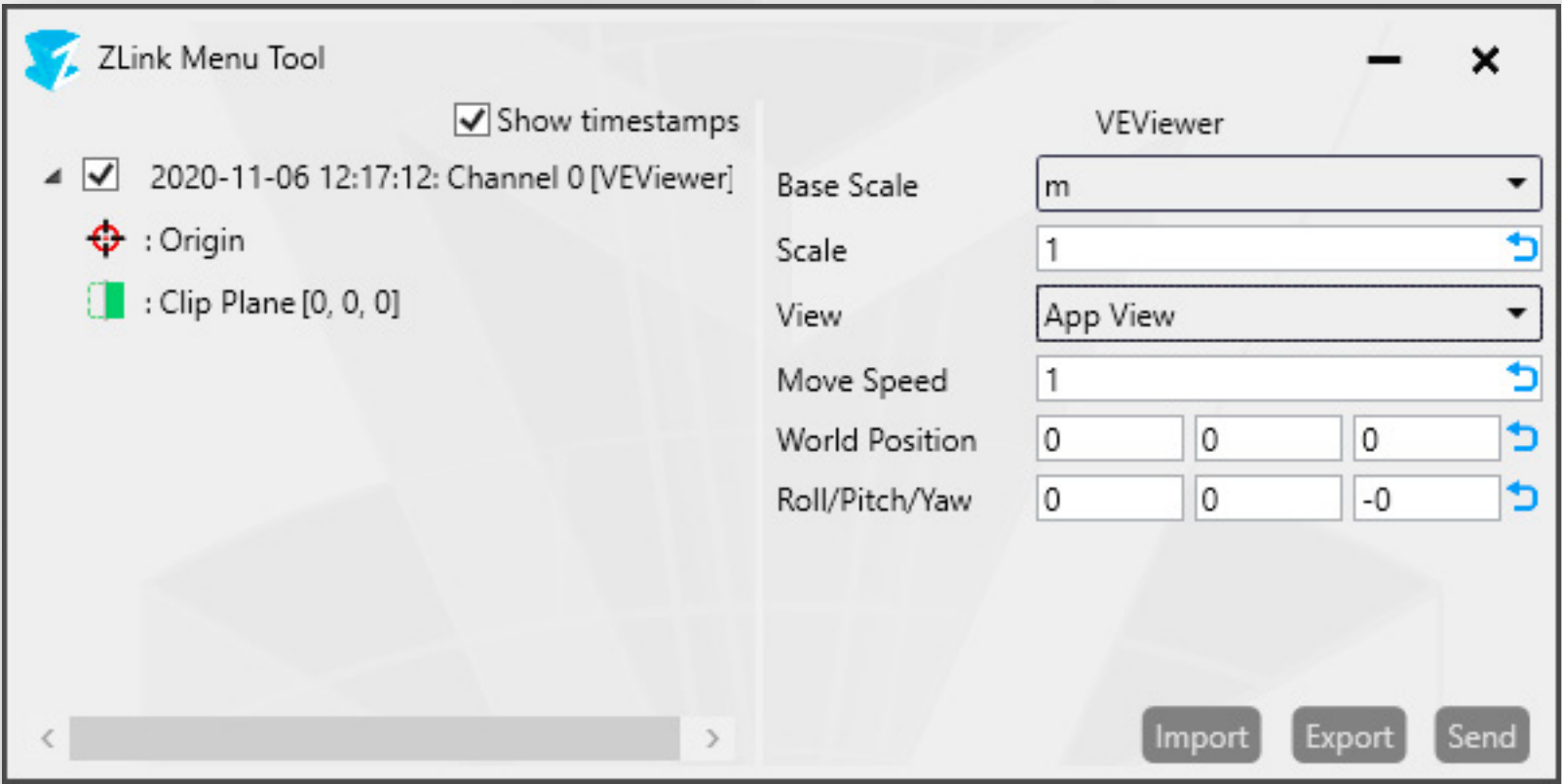


INFO

- The ZLink Menu can only be opened when the ZLink Client window is selected and a host application is bridging geometry into the Client!
- Depending on the host application it can happen that the Client window is not being refreshed, which can lead to a static image including the impression that the ZLink menu is not closing or reacting. When this happens click back into the viewport of the host application to force an OpenGL drawing update!
- To change the button mappings of the SpaceMouse or the XBOX controller use the VRPN Translator.
- Alternatively to the ZLink Client Menu, the scene Scale, Camera Speed and Camera Position values can be set using the **External Menu Tool** from the ZLink Launcher.

ZLINK COMPONENTS: EXTERNAL MENU TOOL

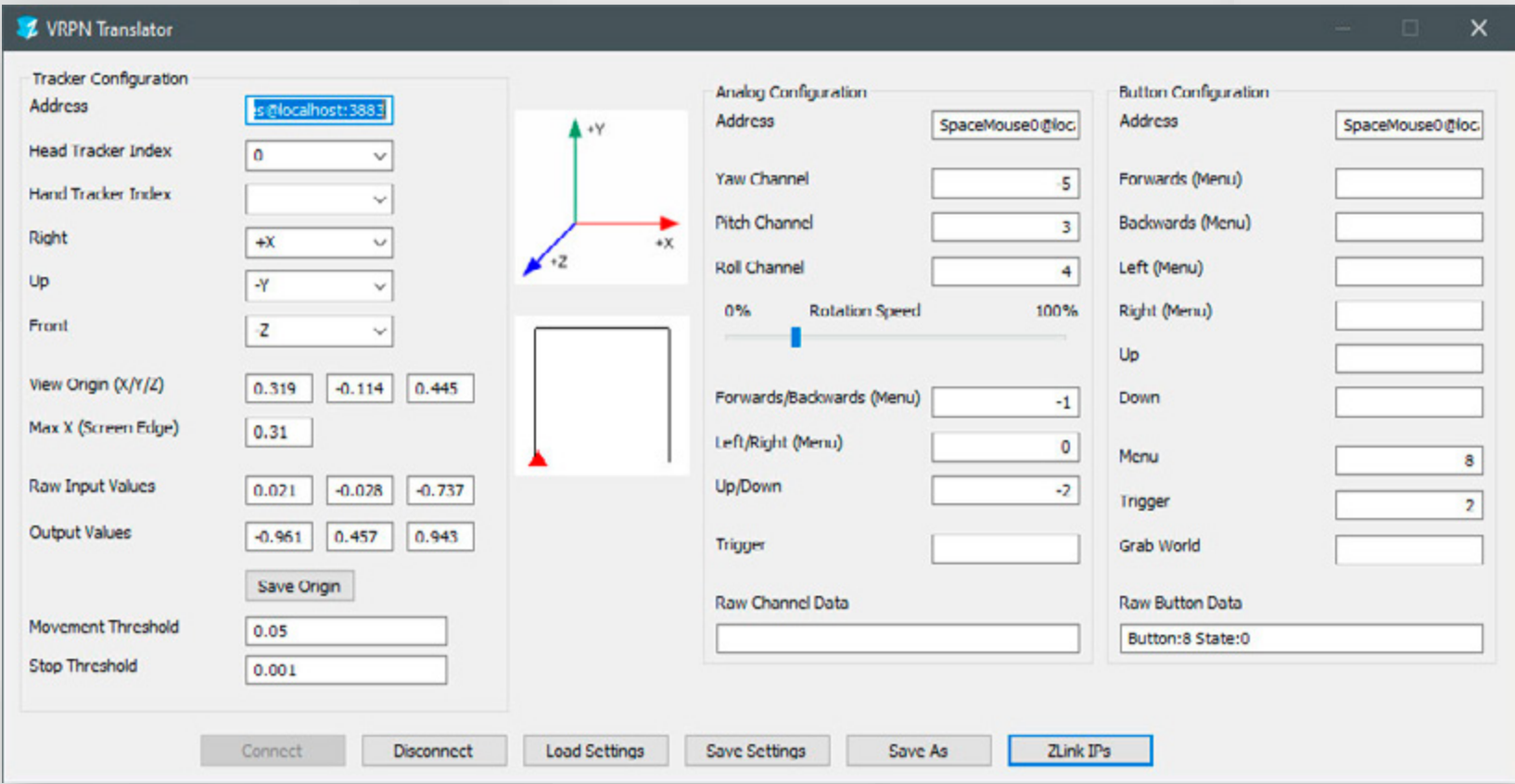
The External Menu Tool gives the user the possibility to control the ZLink Client functions without having a controller device connected. These settings are essentially the same as in the Client Menu. Additionally the External Menu Tool lets the user Export and Import the settings, so that the user does not need to redo respectively re-find the correct settings for a particular model again and again.



The External Menu Tool

Usage:
Change **Base Scale**, **Scale** and **Move Speed** as needed, then click the **Send** button to send the values to the Client window. Should the geometry disappear from the Client window, press the **World Position** and **Roll/Pitch/Yaw** reset arrows and hit Send.
If you don't see any changes in the Client window after having send the changes, force on OpenGL drawing update by moving/rotating the model in the host app viewport.

The VRPN Translator translates your Input device's control data and the ZVIEW display's Eye-Tracking data for use in the ZLink client. The VRPN Translator is split into three sections. Tracker, Analog and Button configuration:



The ZLink VRPN Translator interface with SpaceMouse Tracking configured

NOTE: Always click the Save Settings button in order to confirm and send changes to the Client. Should there be connection/update problems, Disconnect and Connect again.

The Tracker section configures the tracking indexes, adjusts tracking axes and configures the Eye-Tracking origin and scaling.

The Analog section configures the analog axes of flysticks, gamepads and (space-) mouses. Basically any input that can be pressed partially, resulting in e.g. a value of 0.67 - unlike buttons which have a state of either 0 or 1. Analog inputs are very useful for inputs requiring sensitivity, such as movement and yaw, pitch and roll.

The Button section configures your input device's buttons, which are typically designed differently from analog inputs and are best used for menu operations. The pre-configured controller devices for ZLink are the 3Dconnexion SpaceMouse Pro and the XBOX One Controller.

If you like to use a different controller you can write your own VRPN Server for your device and connect it to the VRPN Translator via the Address fields in the Analog and Button section. The address is composed of the device, e.g. "SpaceMouse", the descriptor of where the server is running, e.g. @localhost or @192.168.0.10, and optionally the port, e.g. :5001. A full address looks like the following examples:

SpaceMouse0@localhost
XInput0@192.168.0.15:5002

There is no modification to the Tracker Configuration required as both ZVIEW-28" and ZVIEW-65" Eye-Tracking are pre-configured for ZLink. If you want to use your own head tracking you can do so by starting the appropriate head track VRPN server and connect it to the VRPN Translator. There are pre configured server files (e.g. for dTrack) and reference examples in the ZLink installation folder under Tracking/VRPN_Server.

Configuring the Eye-Tracking data: Tracker Configuration

The Eye-Tracking data from the connected ZVIEW displays can be "filtered" before it's used as position data for the virtual camera in the ZLink Client. This is particularly handy if you encounter a jittery movement of the virtual camera and want to stabilize it.

- **Movement Threshold:** the distance your eyes need to move in front of the screen to trigger a position change of the virtual camera
- **Stop Threshold:** the distance your eyes can move in front of the screen below which no position change of the camera is happening

Configuring the controller device analog data: Analog Configuration

Pushing a Analog Axis of one of your controller's analog sticks/knob will make one or more data channels in the **Raw Channel Data** field roll. The read data is shown in brackets [0.00]. The number in front of the brackets 0 to 5 indicates the currently pressed axis index. In order to change the current Analog Configuration, simply enter the axis channel number of your choice into one of the camera axis channels:

- **Yaw/Pitch/Roll:** Camera Y/X/Z rotation
- **Forward/Backward (Menu):** forward/backward camera movement & ZLink Menu item switching
- **Left/Right (Menu):** Left/Right camera movement & ZLink Menu item switching
- **Up/Down:** Up/Down camera movement

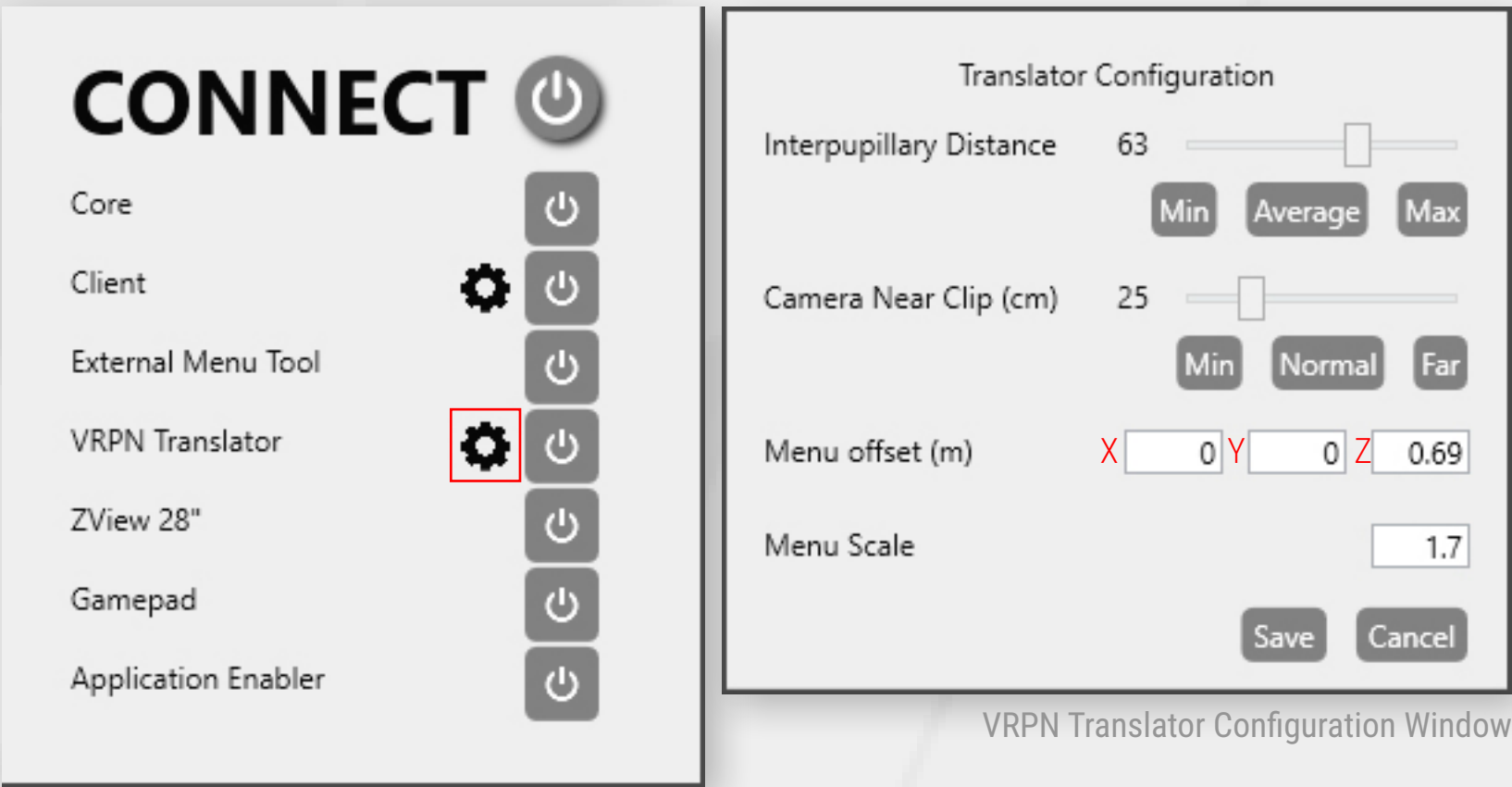
The Rotation Speed slider lets the user set the camera rotation speed.

Configuring the controller device button data: Button Configuration

Pushing a Button on your controller will show the button index and state in the **Raw Button Data** field. In order to change the current Button Configuration, simply enter the button number of your choice into one of the button channels:

- **Forward (Menu) & Backward (Menu):** forward/backward camera movement & ZLink Menu item switching
- **Left (Menu) & Right (Menu):** Left/Right camera movement & ZLink Menu item switching
- **Up & Down:** Up/Down camera movement
- **Menu:** opens the ZLink Client Menu
- **Trigger:** changes ZLink Client Menu value
- If you need help with your device please contact us at support@united-screens.tv

There is an additional settings window for the VRPN Translator, which can be accessed from the ZLink Launcher:



These Translator Configuration settings are the non-expert settings so to say. Here you can fine tune the on-screen 3D effect, define geometry clipping and the position and size of the Client Menu.

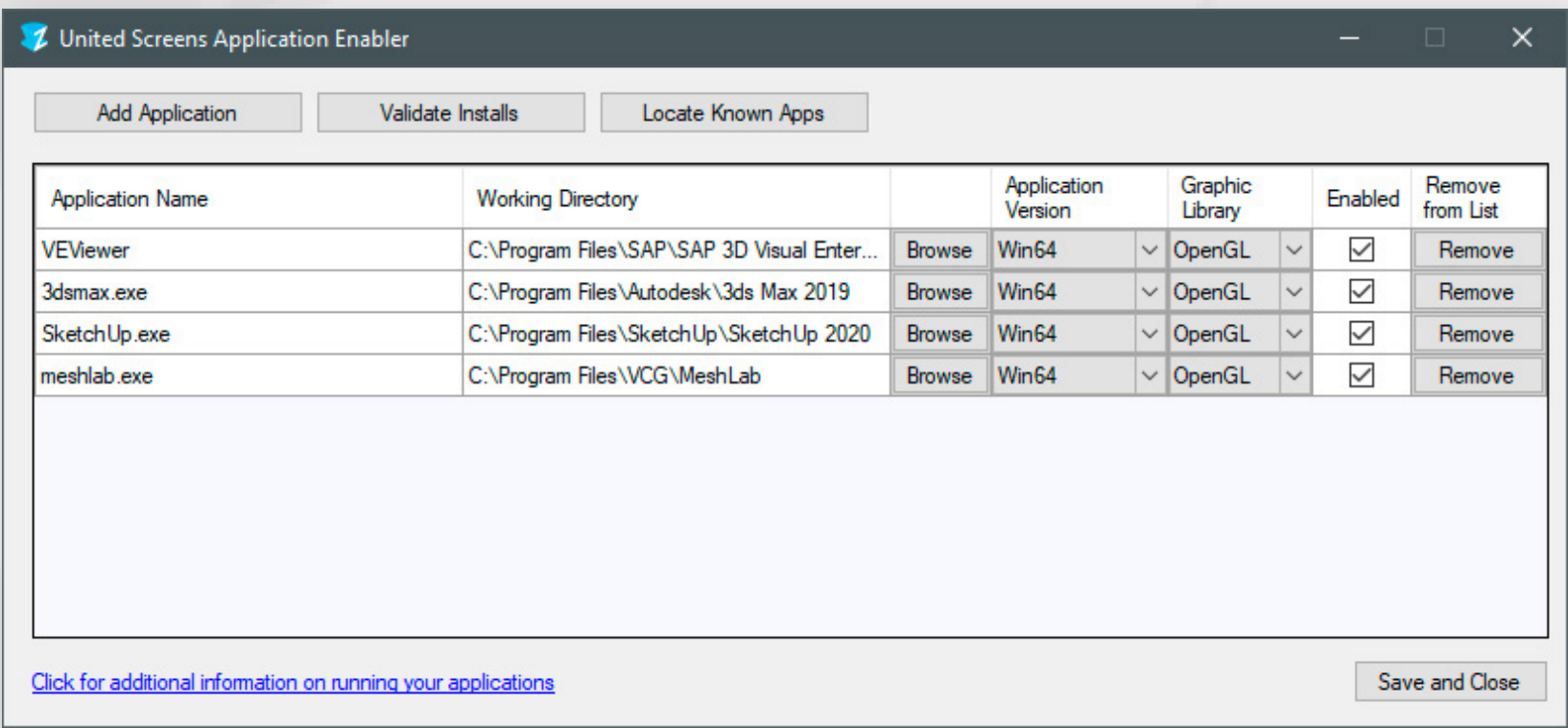
- Interpupillary Distance: the eye-distance of the user
- Camera Near Clip (cm): the distance from which the geometry is cut off, measured along camera z-axis
- Menu offset (m): Client Menu offset from the Client world origin in meters in XYZ
- Menu Scale: Client Menu Scale

With the **Interpupillary Distance** slider the user's eye-distance (normally measured from pupil to pupil) should be entered. As an average value for most people 63mm has proven good. Smaller values will lead to less impressive 3D that is accepted by a wider range of users.

Camera Near Clip (cm) adjusts how close geometry can come visually to the users head before it gets clipped out.

With the **Menu offset (m)** the user can move the Client Menu into or out of the screen (Z value) as well as left/right (X value) and up/down (Y value).

The United Screens Application Enabler enables the host applications to be used with ZLink.
Applications need to be added to the Application Enabler and the **Enabled** check-box must be checked to enable the bridging functions.



Application Enabler Window

To add any application, click the **Add Application** Button. Select the target application’s main executable file. This is sufficient for most applications, yet some apps require additional configuration. It is recommended to read about the individual per-app configuration in the corresponding part of the manual.

Clicking the **Validate Installs** button will check all enabled application’s function file status and update them.

Clicking the **Locate Known Apps** will check for all known applications in their default installation paths. All applications found will automatically be added to the list.

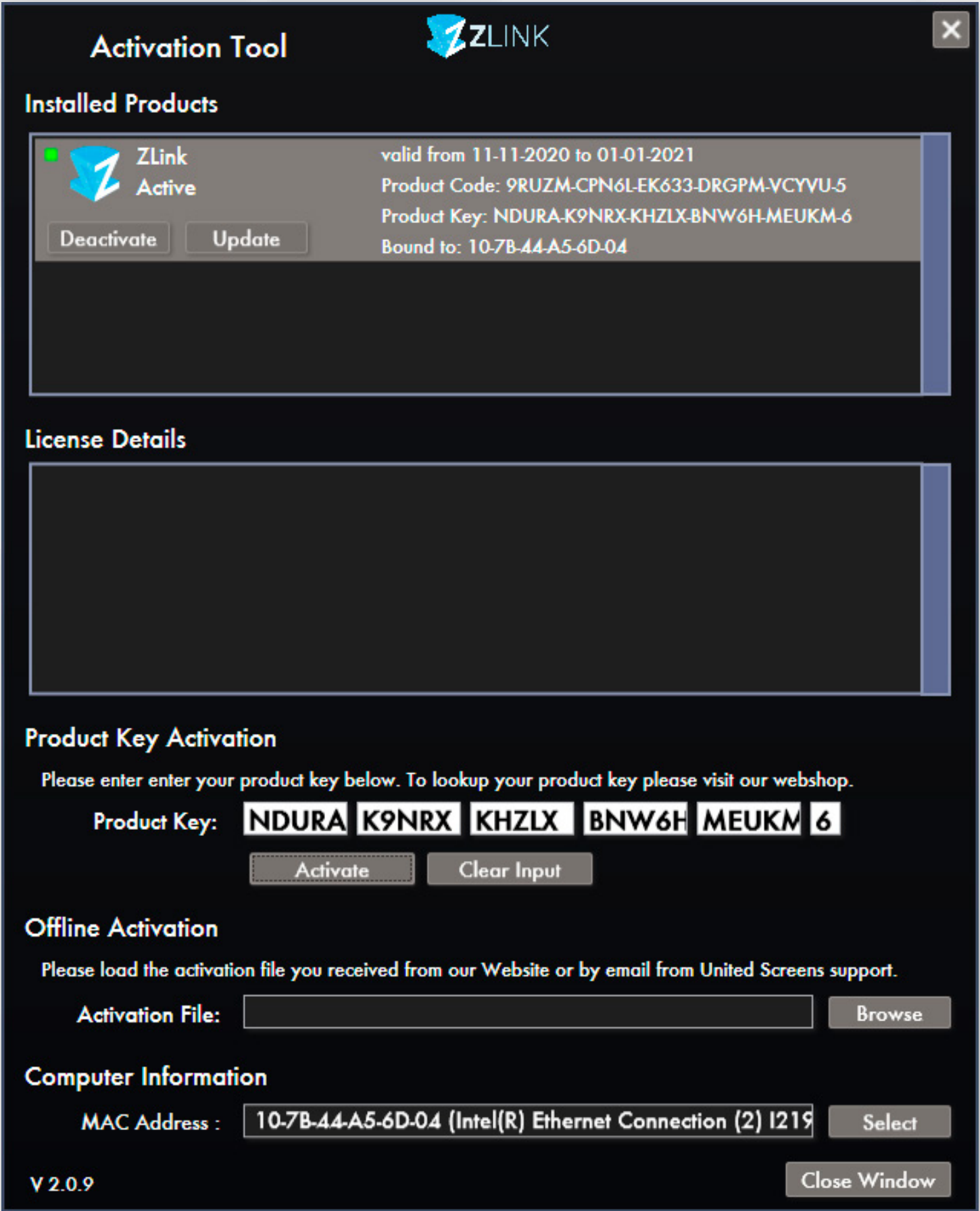
The **Browse** button in each application’s row opens an additional folder selection dialogue. This is only required for a few apps which have non-standard working directories. It is recommended to read about the individual per-app configuration in the corresponding part of the manual.

The **Application Version** drop-down allows to choose between a 32-bit and a 64-bit version of the host application. This is usually auto-detected and should only be changed when absolutely sure.

The **Graphic Library** allows to inject different function libraries. Using the Debug option is only recommended for advanced users for diagnosis.

In order to **Remove** app entries from the list the **Enabled** check-box needs to be unchecked!

The ZLink Activation tool is designed to activate and deactivate ZLink software licenses.



To activate ZLink, a product key is to be entered in the product key activation box. Once the key is entered, clicking the Activate button will contact the United Screens licensing webserver to check the key out.

For offline computers an error message will be displayed and a request file will be generated. The request file is then to be send to license@united-screens.tv. Emails are checked daily in the German Time Zone between 10:00 and 17:00. Once the Activation file is received it can be opened in the activation tool to activate the license. Attention: Offline-Deactivation is not possible.

To transfer/deactivate a license the computer must be connected to the internet and the activation tool must pass through any firewall. To deactivate the license, the *Deactivate* button for the product in the *Installed Products* list is clicked. The activation tool will contact the United Screens license webserver and hand the activation back to the system. The product key can then be used to activate the software on any other computer.

Clicking a license entry from the *Installed Products* list displays the license features, e.g. available output devices and additionally unlocked features.

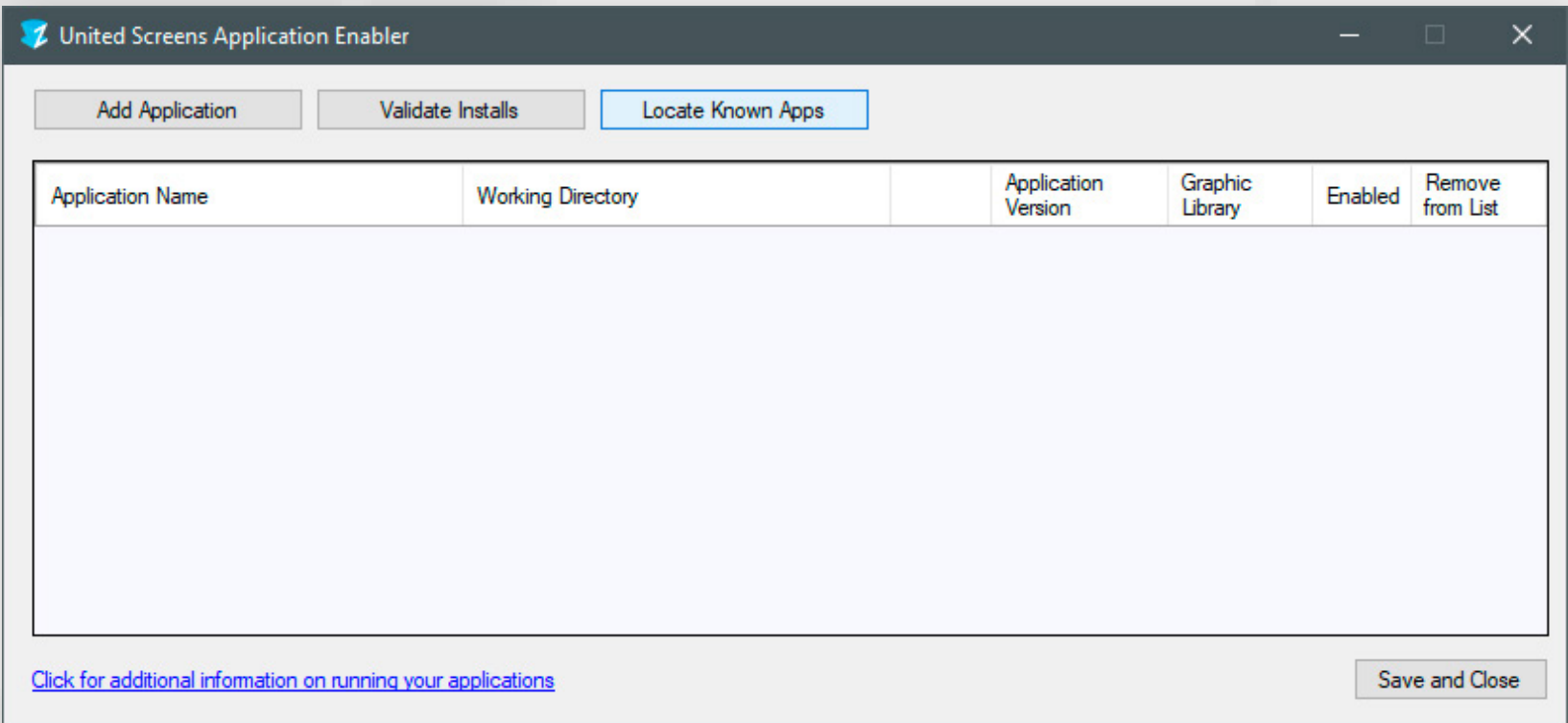
Under *Computer Information* the computer's available MAC addresses are shown and available for selection. We recommend to select a physical network card with a static MAC address. Virtual adapters tend to change their MAC addresses and USB devices with MAC addresses have a tendency to vanish.

Prior to checking the following solutions please make sure your PC has the .NET Framework installed. Under normal conditions the .NET Framework is pre-installed with Windows. If it's not, you can download it from here:

<https://dotnet.microsoft.com/download/dotnet-framework/net48>

- 1) The ZLink Client is grey after loading 3D models in my CAD application.
 - Check for correct usage of the Application Enabler for your CAD application. Check if the opengl32.dll is present in the CAD application's directory.
 - Check for your CAD application using the correct Rendering API (OpenGL). Check application profile.
 - Check the ZLink Core configuration (PC1-PC6). Try setting to **Connection Type** to TCP/IP with IP/Port: 127.0.0.1/8700.
 - Check the Host-App Control Panel's **Curr. / Sel. Window No.** (see Page 11 of this manual)
- 2) The ZLink Client shows distorted graphic data and does not react to tracking.
 - Make sure to have followed the Nvidia Quadro configuration guide
 - Check that your CAD application runs in perspective projection mode. Check the host application configuration as per this manual Setup Guide, pages 19-45.
 - Confirm that the VRPN Translator settings are as per default. Exit the Translator and start it again to revert to default settings.
 - Make sure to position the user in at the optimal viewing distance (see ZVIEW Spec Sheets) in front of the screen. Extreme viewing angles and distances cause loss of tracking and graphics distortions.
 - Try spinning the 3D Model in the CAD application. Very seldom ZLink captures a broken OpenGL frame. By spinning the 3D data new frames are forced to be generated.
 - Try restarting the ZLink Client and THEN the host application.
- 3) The Software gives a license error on start
 - Check the Activation Tool for additional information, get in touch with us at support@united-screens.tv
- 4) I want to switch the viewport from which the geometry is bridged into ZLink:
 - Use the Host-App Control Panel, see manual section **ZLink Components: Core - Host-App Control Panel**, Page 11
- 5) Using the SpaceMouse does not result in action in the ZLink Client
 - Make sure to use your SpaceMouse in wired mode only
 - Make sure to have configured correctly for your SpaceMouse in the ZLink Launcher (Restart all components if you have just freshly re-configured)
 - Make sure the ZLink Client window has mouse focus / is selected
- 6) Changes in the Launcher are not applied
 - All configuration changes of components through the launcher require a restart of the prior configured component to take effect. Please restart the component.
- 7) Is the XBOX One Controller the only supported gamepad?
 - No, yet it is a very good gamepad. You can technically use any X-Input compatible gamepad. Make sure to map and assign your buttons / axis.
- 8) I can't start Zview 28" or Zview 65"
 - Open your task manager and see if any process named **vrpn_server_ZView65.exe** or **vrpn_server_ZView28.exe** is running. If so, close them and restart the component from your launcher.

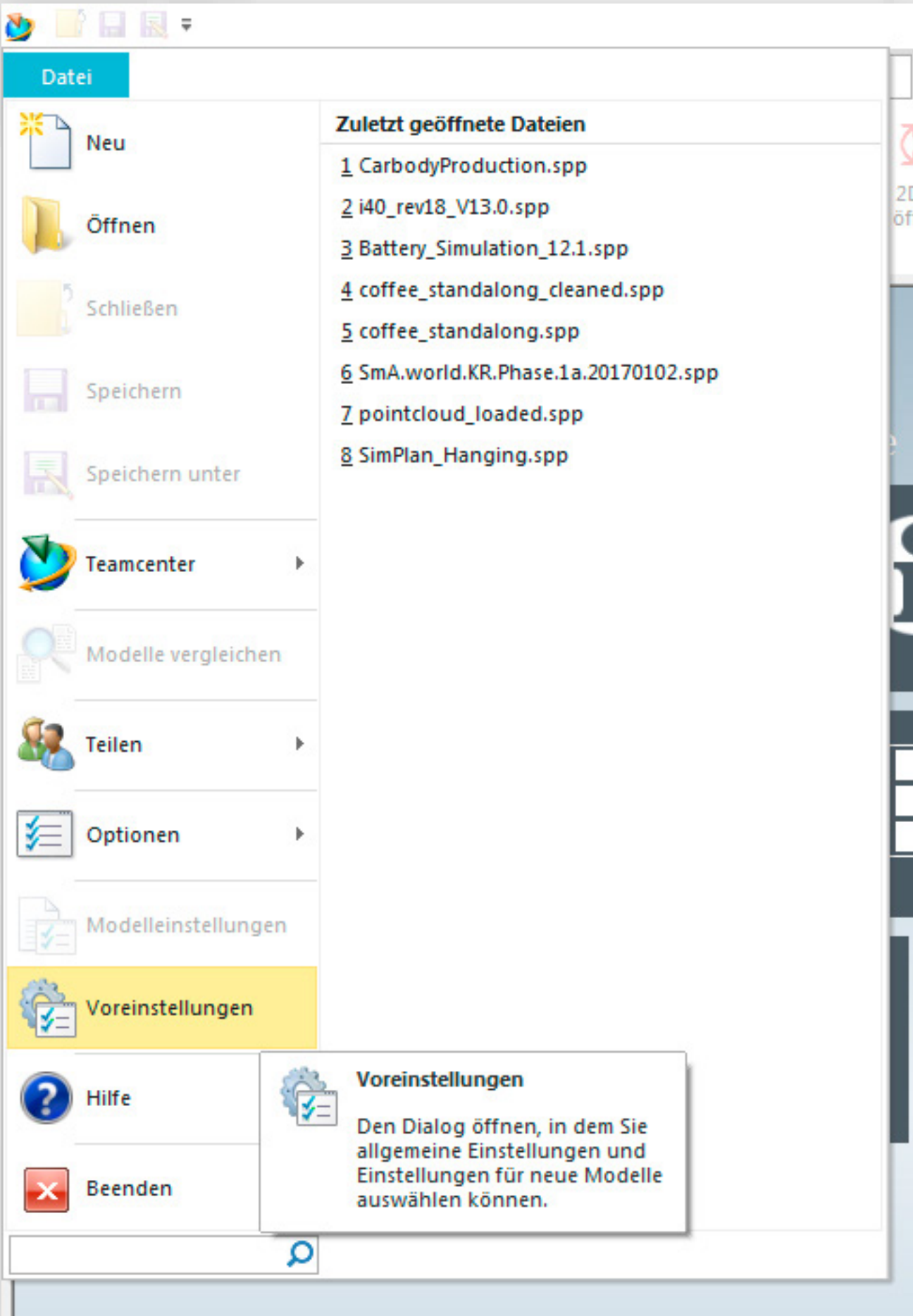
1) Open the ZLink Application Enabler via the ZLink Launcher.



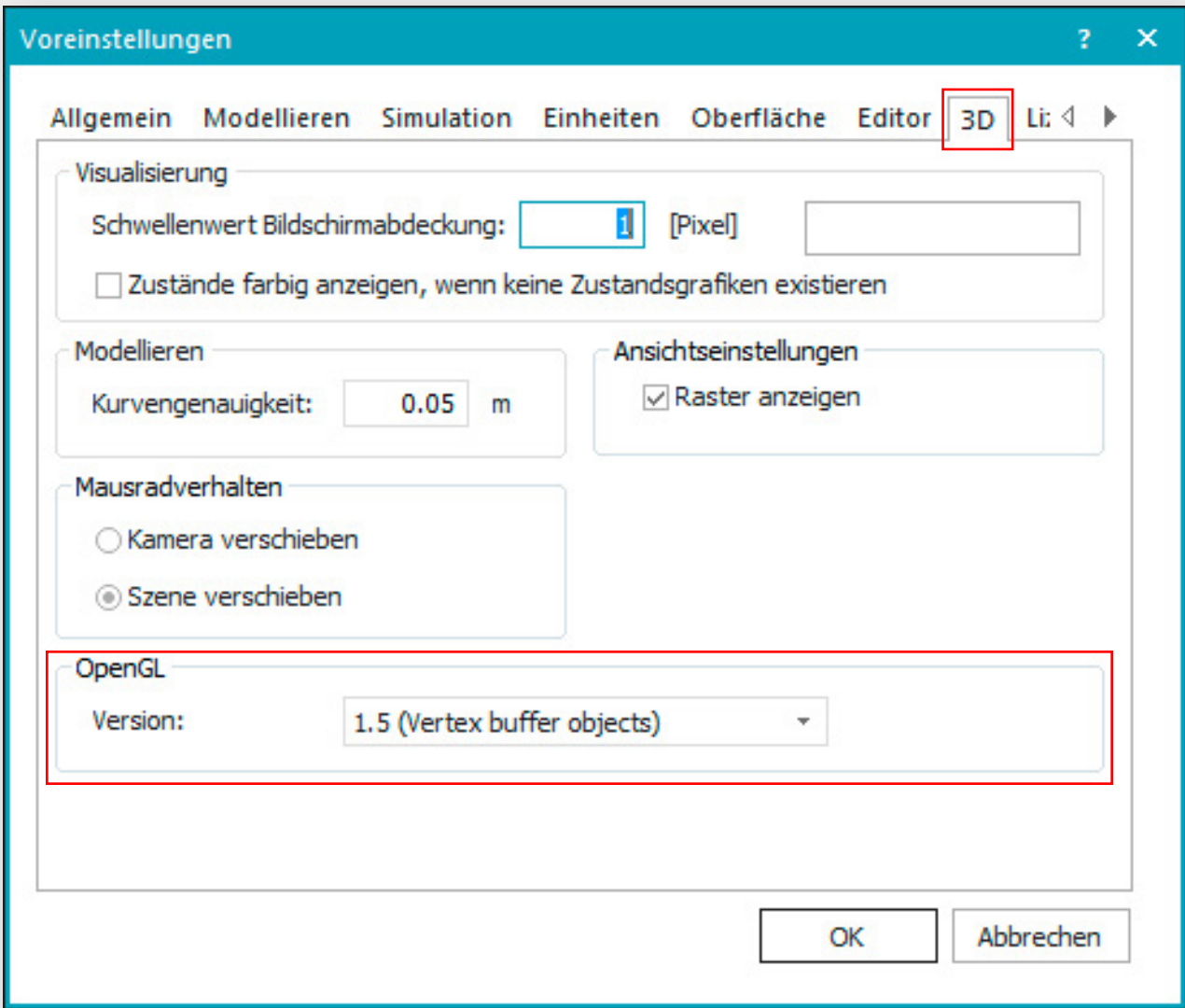
- 2) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known NX installation locations and add them to the list.
- 3) If your NX is installed to a non standard directory, please click **Add Application**, locate your "ugraf.exe" file. It is usually located in:
 - "\Program Files\Siemens\NX 10.0\UGII"
 - "\Program Files\Siemens\NX 11.0\NXBIN"
 - "\Program Files\Siemens\NX 12.0\NXBIN"
- 4) Place the checkmark in the **Enabled** column.
- 5) Click **Save and Close**.
- 6) NX is now properly configured for use with ZLink.

SETUP GUIDE: PLANT SIMULATION

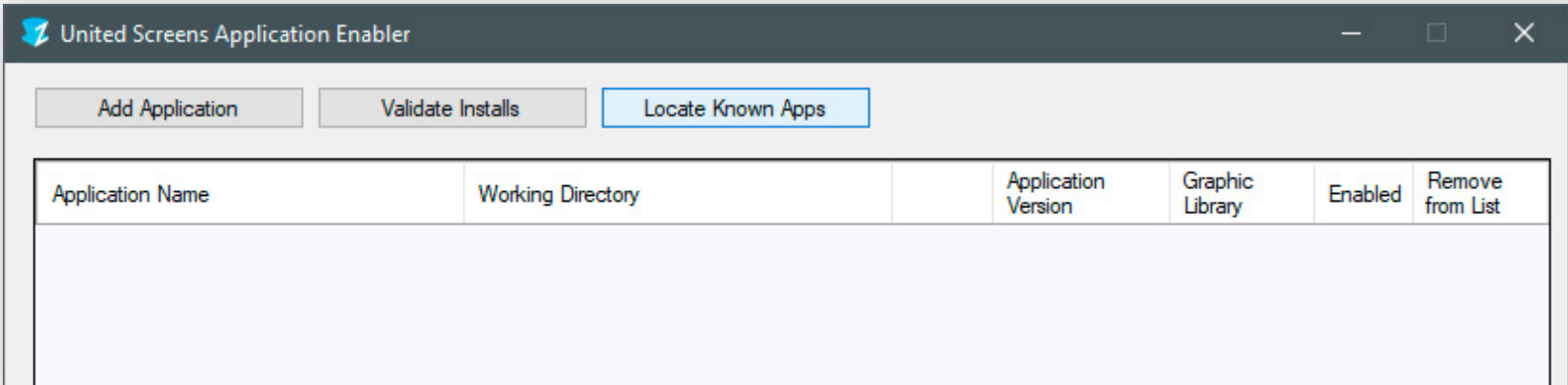
- 1) Launch Plant Simulation
- 2) Click on “File” and “Preferences”



- 3) Switch to the “3D” Tab and set the “OpenGL Version” to 1.5



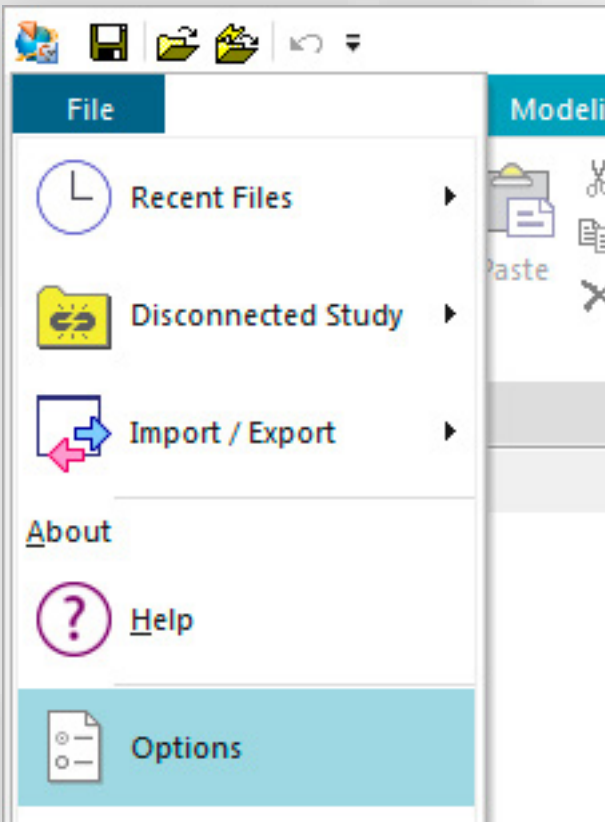
- 4) Exit Plant Simulation
- 5) Open the ZLink Application Enabler via the ZLink Launcher.
- 6) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known Plant Simulation installation locations and add them to the list.



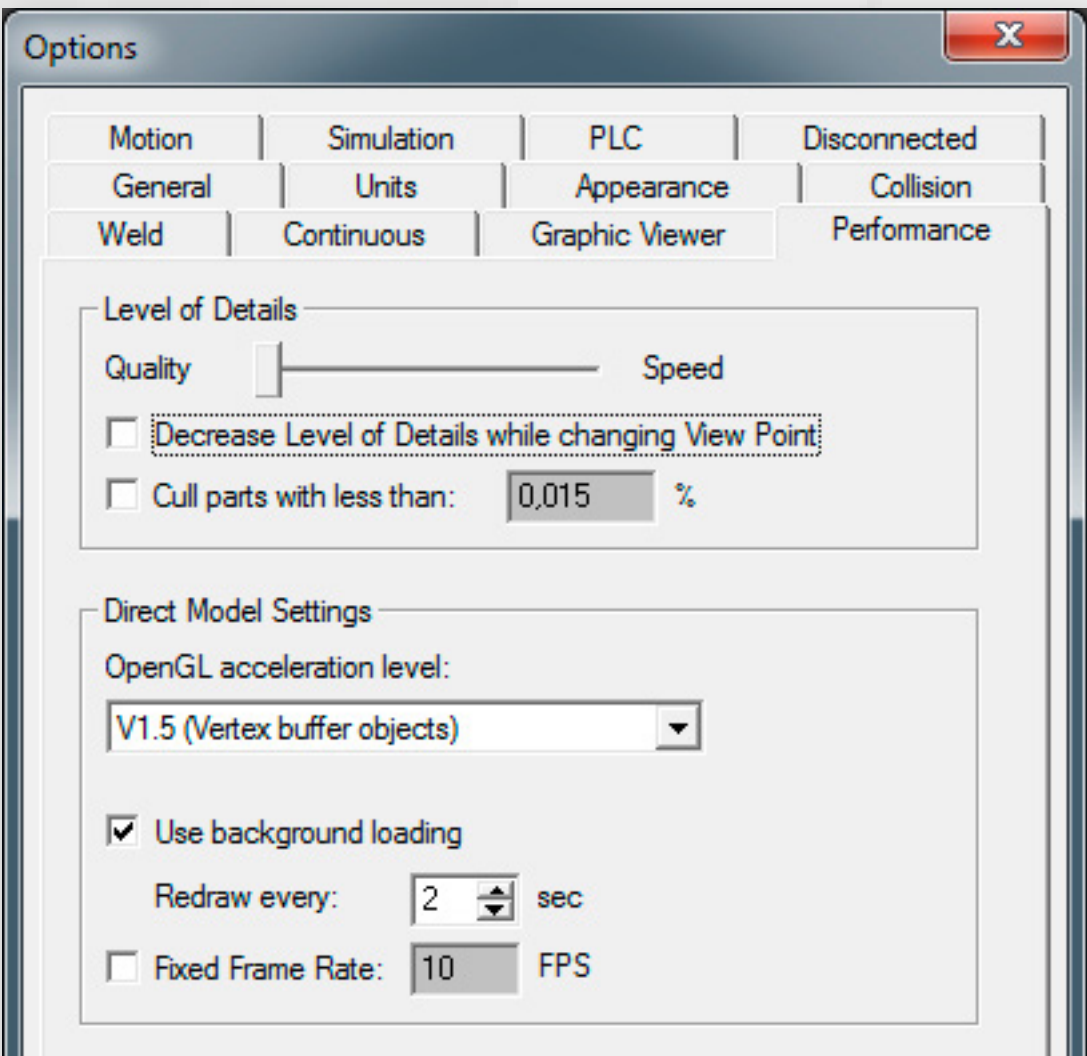
- 7) If your Plant Simulation is installed to a non standard directory, please click **Add Application**, locate your “Plant Simulation.exe” file. It is usually located in: “\Program Files\Siemens\Tecnomatix Plant Simulation”
- 8) Place the checkmark in the **Enabled** column.
- 9) Click **Save and Close**.
- 10) Plant Simulation is now properly configured for use with ZLink.

SETUP GUIDE: PROCESS SIMULATE

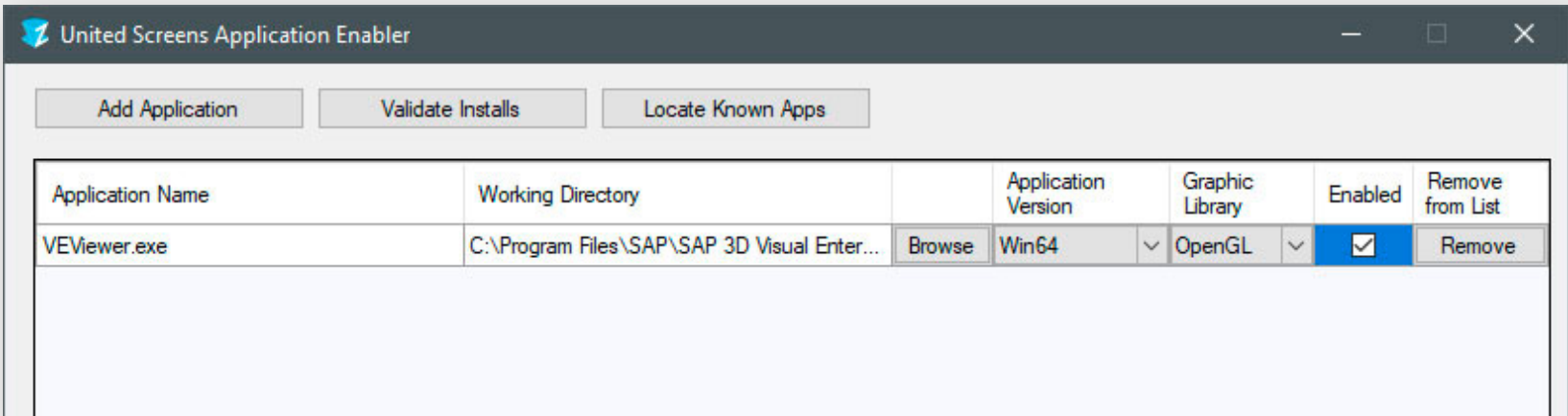
- 1) Launch Process Simulate
- 2) Click on File and Options



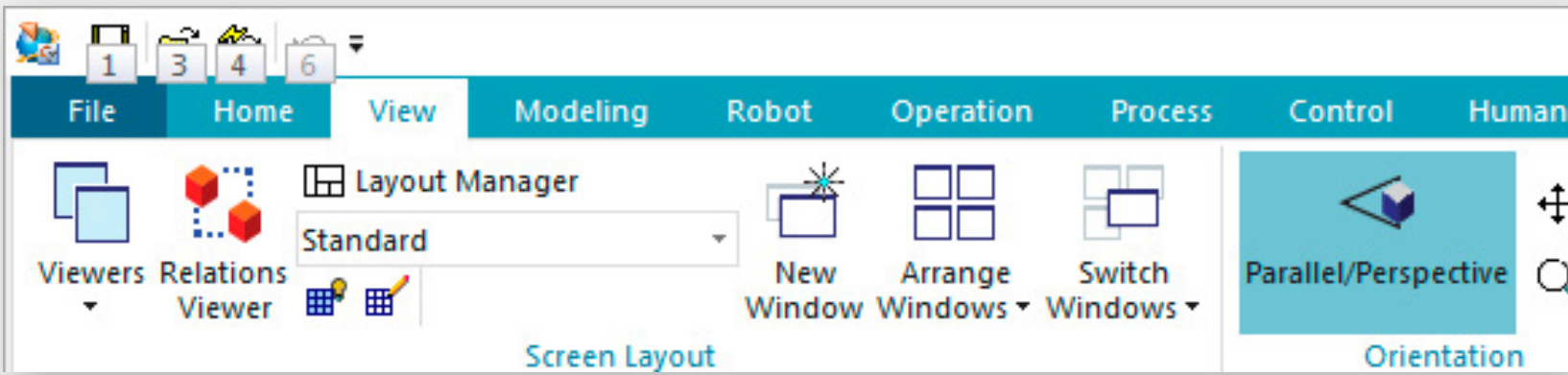
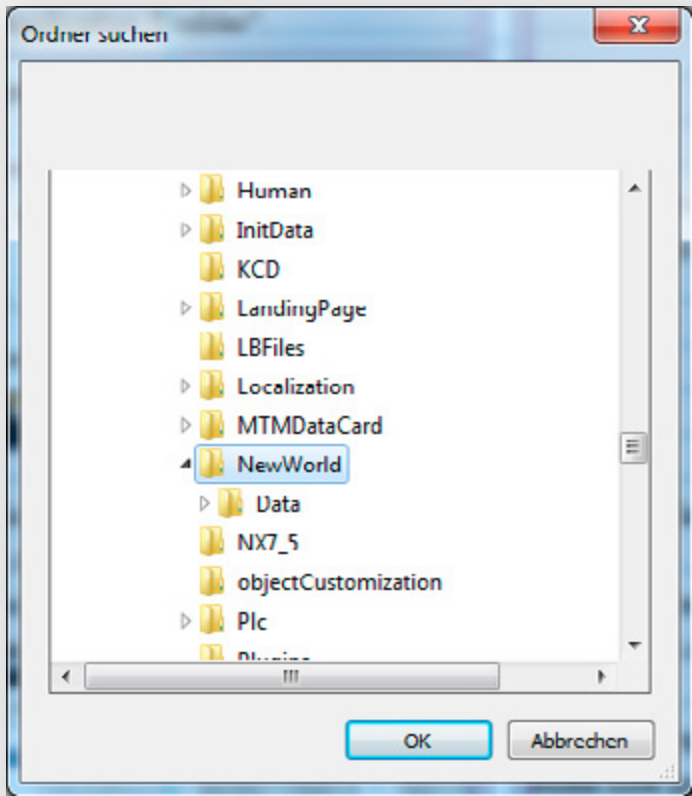
- 3) Switch to the Performance Tab and set the OpenGL Acceleration Level to V1.5, drag the Level of Details Slider all to the left for best Quality.



- 4) Exit Process Simulate.
- 5) Open the ZLink Application Enabler via the ZLink Launcher.
- 6) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known Process Simulate installation locations and add them to the list.

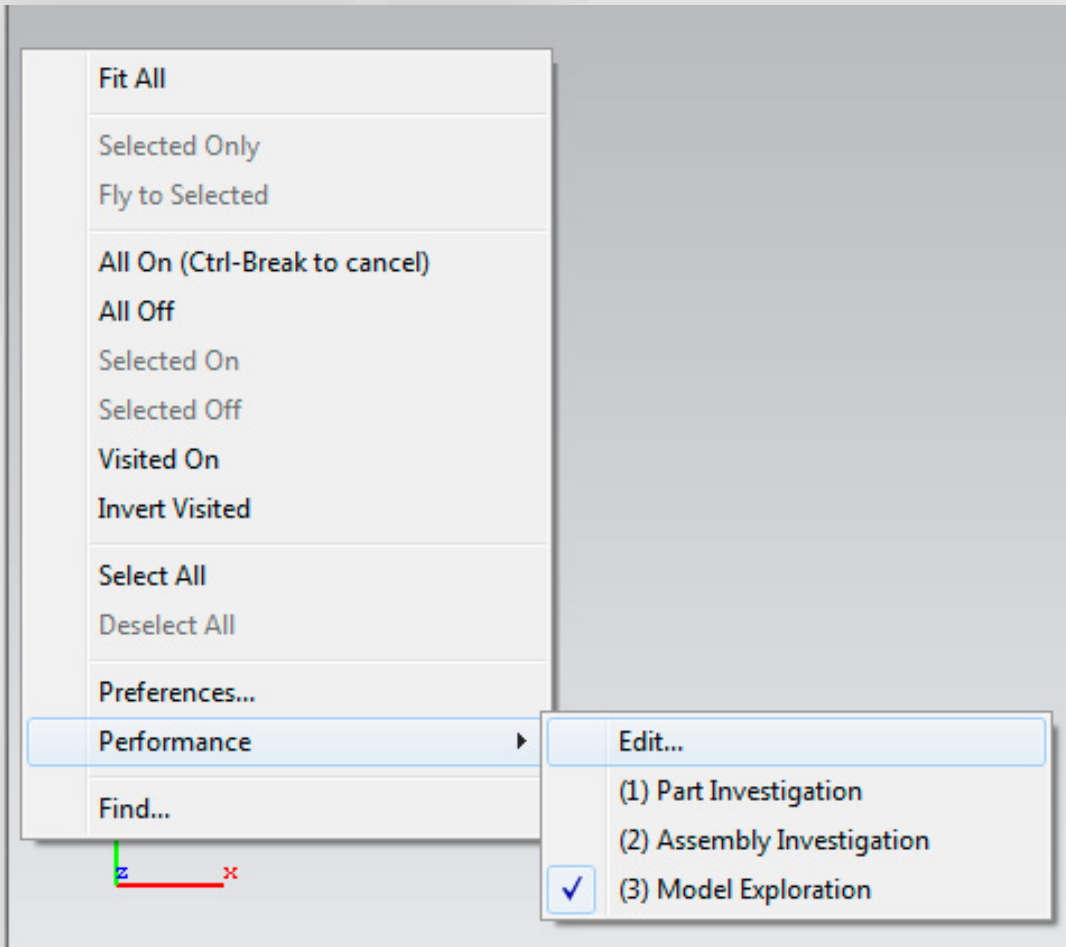


- 7) If your Process Simulate is installed to a non standard directory, please click **Add Application**, locate your **Tune.exe** file. It is usually located in **\Program Files\TecnomatixShared\TecnomatixCurrent\emPower** or **\Program Files\Tecnomatix_13.1\emPower**
- 8) After adding your non-standard-directory version of Process Simulate, click the **Browse** button. Navigate to the **New World** subdirectory and click OK. It is usually located either in **\Program Files\TecnomatixShared\TecnomatixCurrent\emPower\NewWorld** or in **\Program Files\Tecnomatix_13.1\emPower\New World**.
- 9) Place the checkmark in the **Enabled** column.
- 10) Click **Save and Close**.
- 11) Process Simulate is now properly configured for use with ZLink.
- 12) NOTE: make sure Process Simulate is running in perspective view mode.

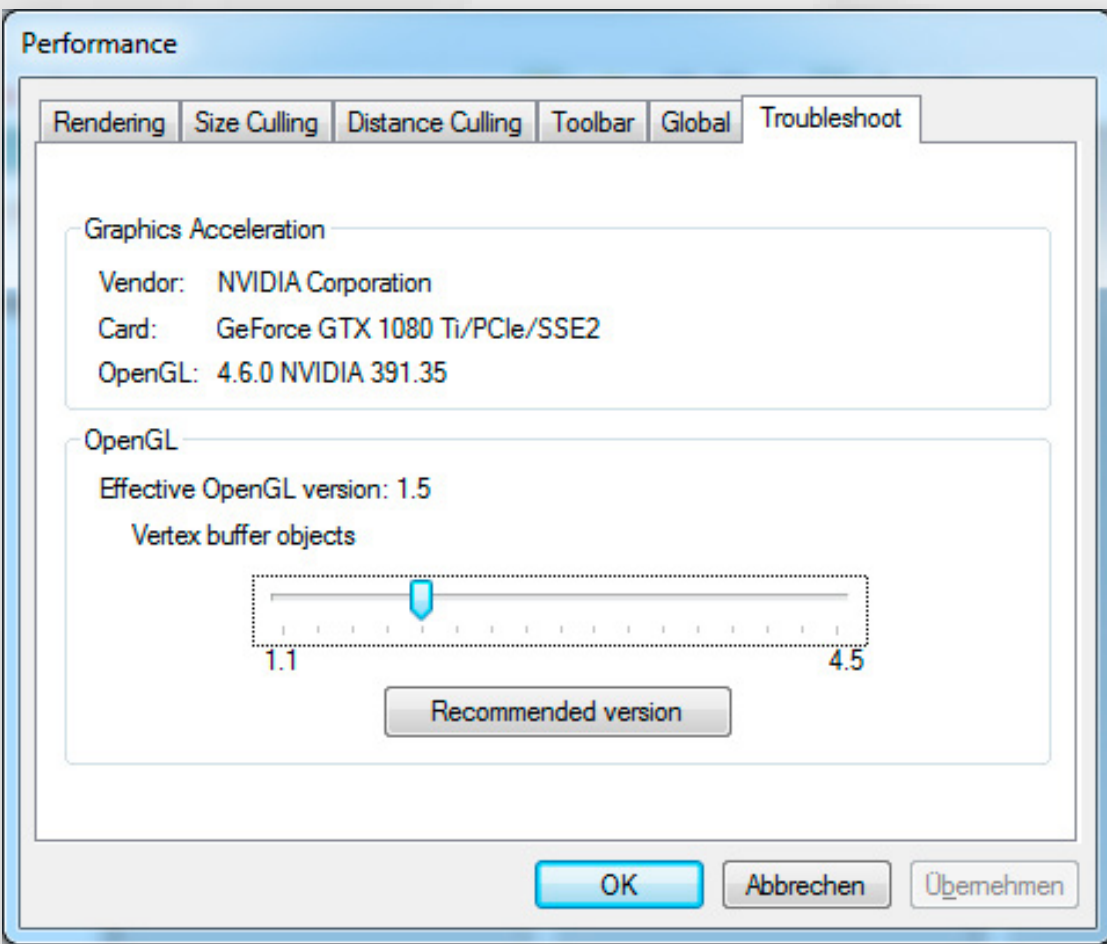


SETUP GUIDE: JT2GO

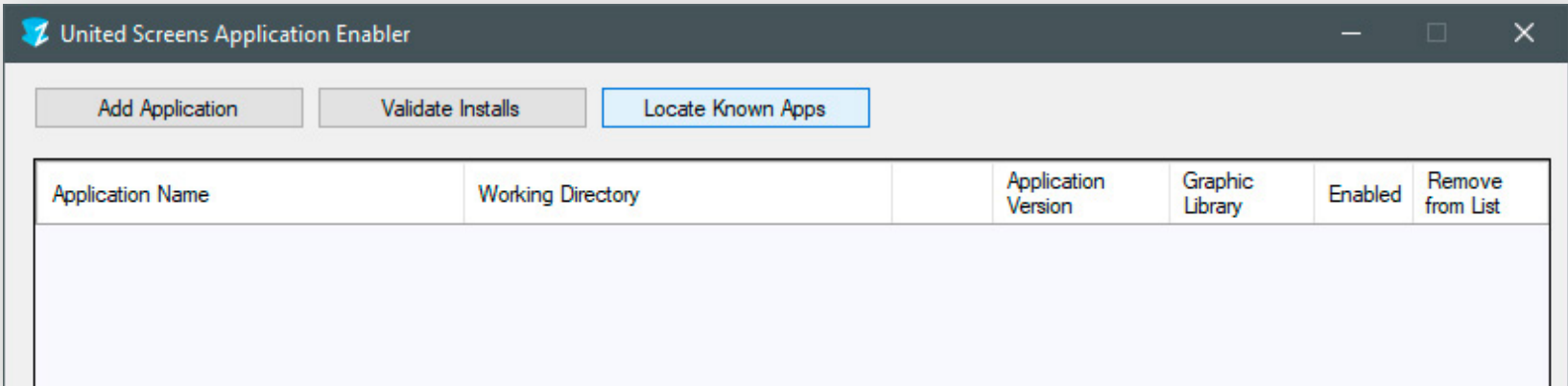
- 1) Launch JT2Go and load a model.
- 2) Right-click into the viewport and select **Performance** -> **Edit**



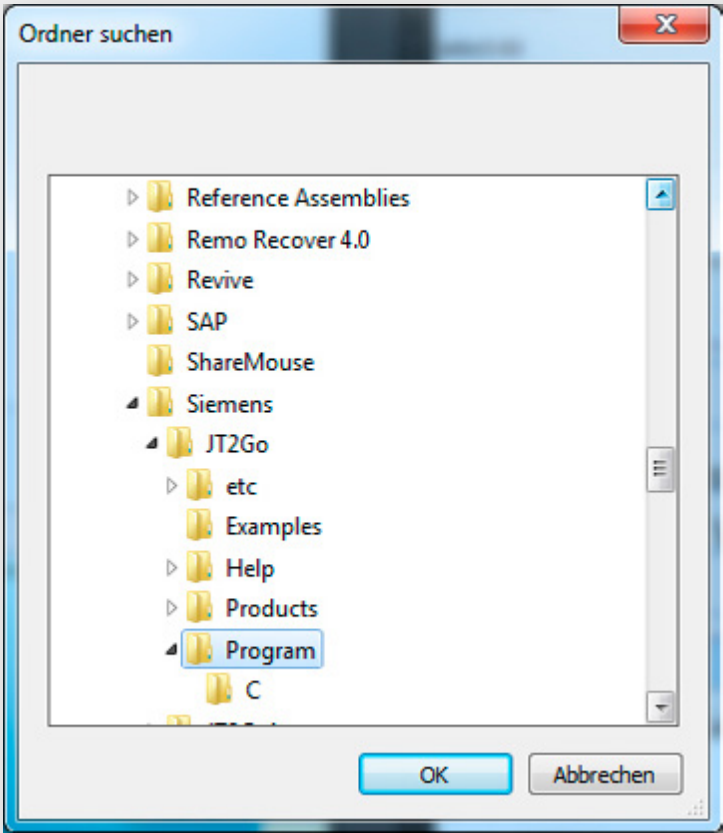
- 3) Switch to the **Troubleshoot** Tab and set the **Effective OpenGL Version** to "1.5" and click **OK**.



- 4) Exit Jt2Go.
- 5) Open the ZLink Application Enabler via the ZLink Launcher.
- 6) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known JT2Go installation locations and add them to the list.



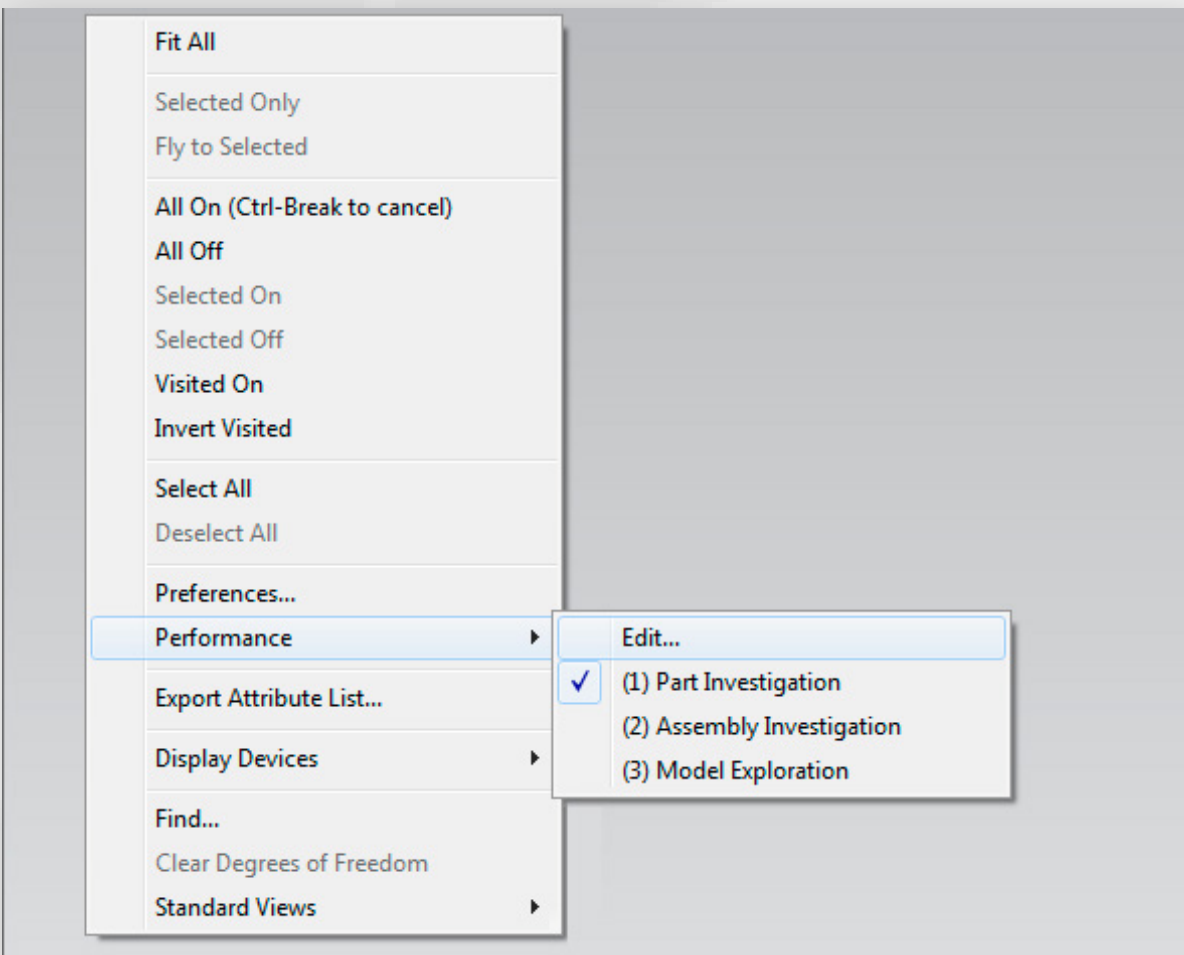
- 7) If your JT2Go is installed to a non standard directory, please click **Add Application**, locate your **VisView_NG.exe** file. It is usually located in **\Program Files\Siemens\JT2Go\Products\JT2Go**.
- 8) After adding your non-standard-directory version of JT2Go, please click the **Browse** button. Navigate to the **Program** subdirectory and click OK. It is usually located in **\Program Files\ Siemens\JT2Go\Program**.



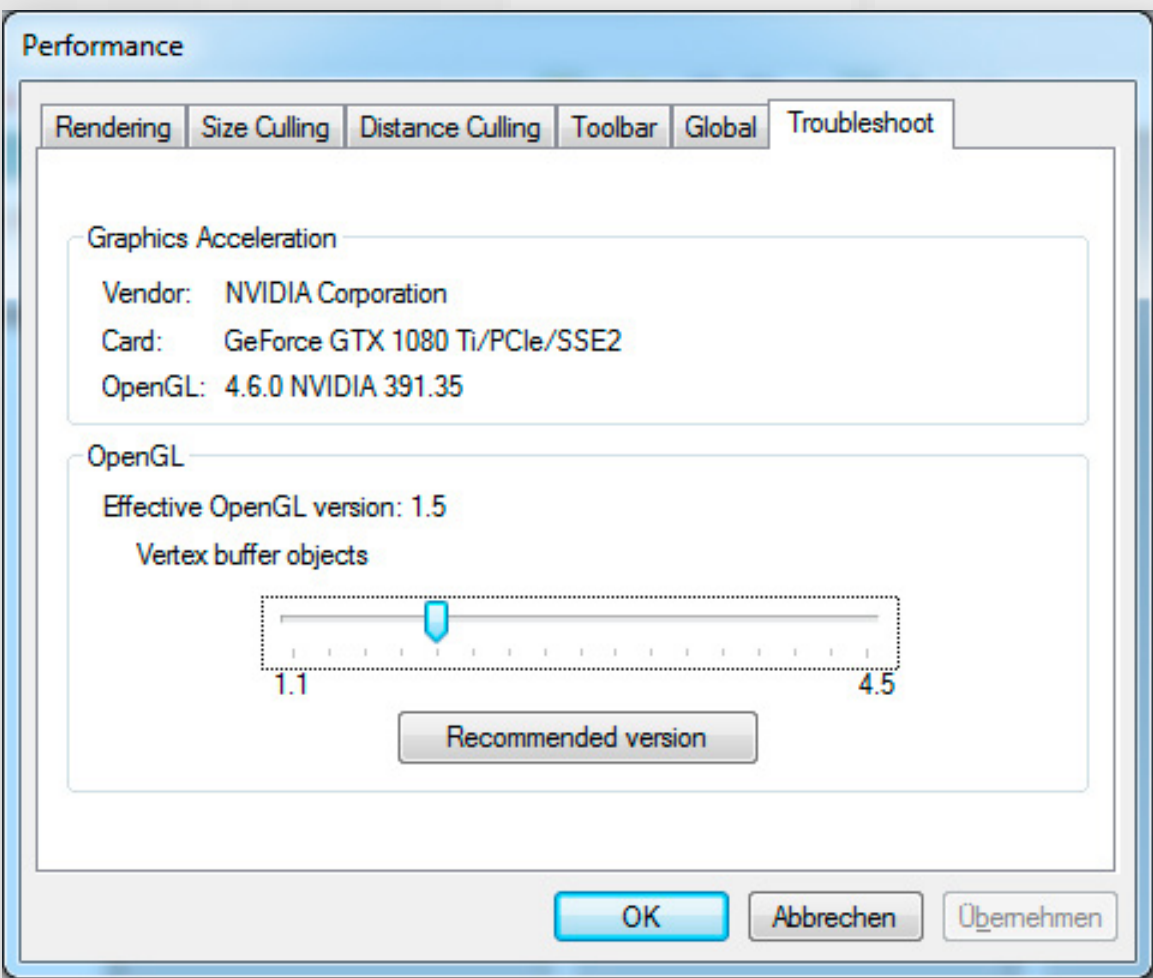
- 9) Place the checkmark in the **Enabled** column.
- 10) Click **Save and Close**.
- 11) JT2Go is now properly configured for use with ZLink.

SETUP GUIDE: TEAMCENTER VISUALIZATION / TCVIS / CONNECT

- 1) Launch TcVis and load a model.
- 2) Right-click into the viewport and select **Performance -> Edit**

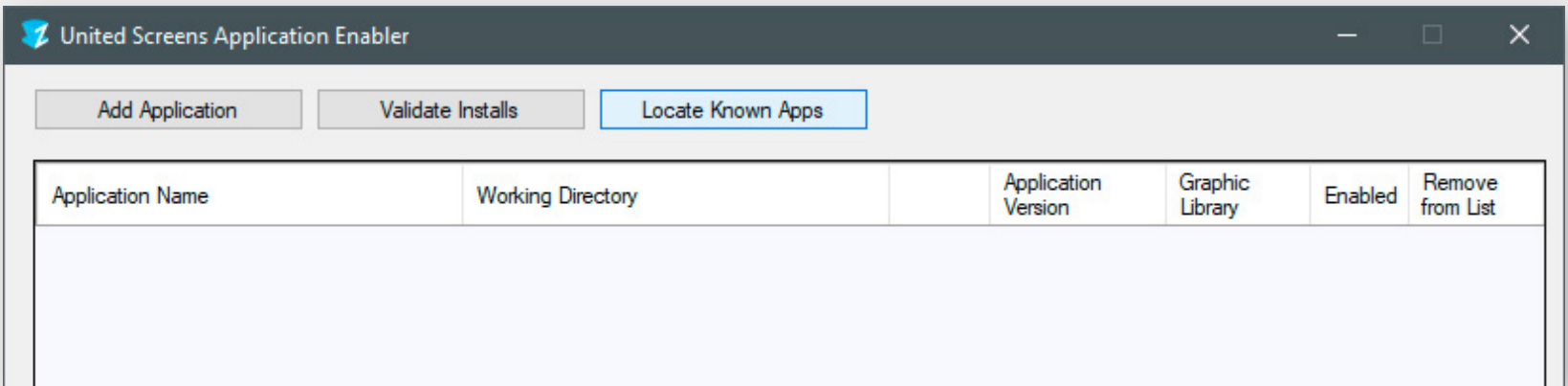


- 3) Switch to the **Troubleshoot** Tab and set the **Effective OpenGL Version** to "1.5" and click **OK**.



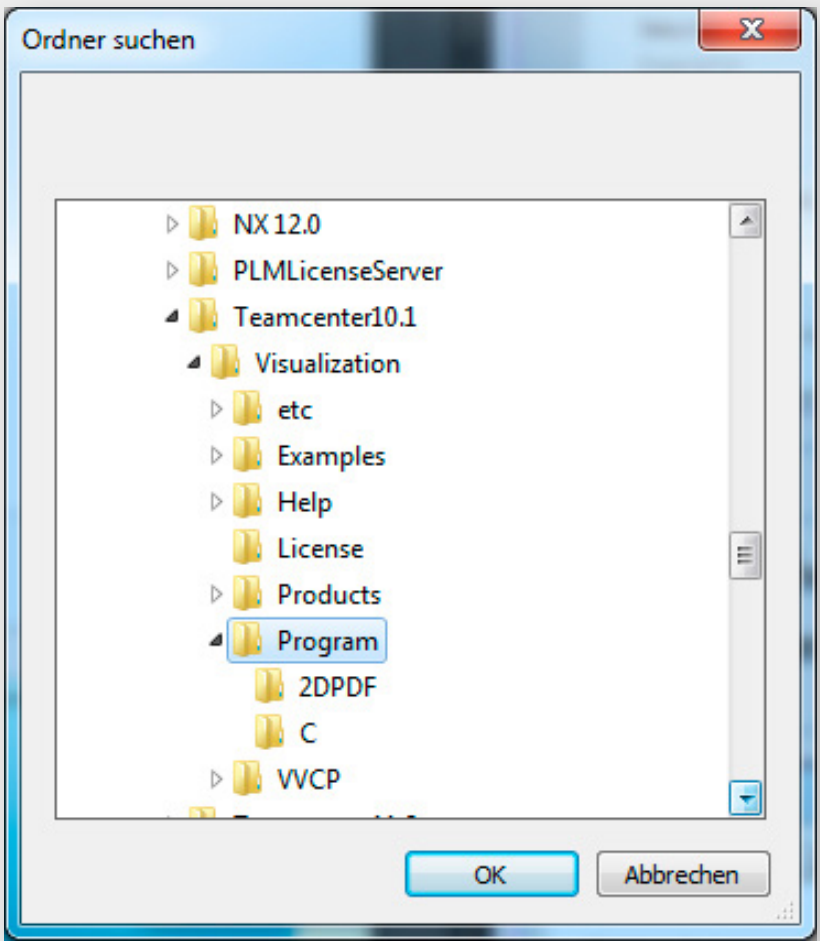
- 4) Exit TcVis.

- 5) Open the ZLink Application Enabler via the ZLink Launcher.
- 6) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known TcVis installation locations and add them to the list.

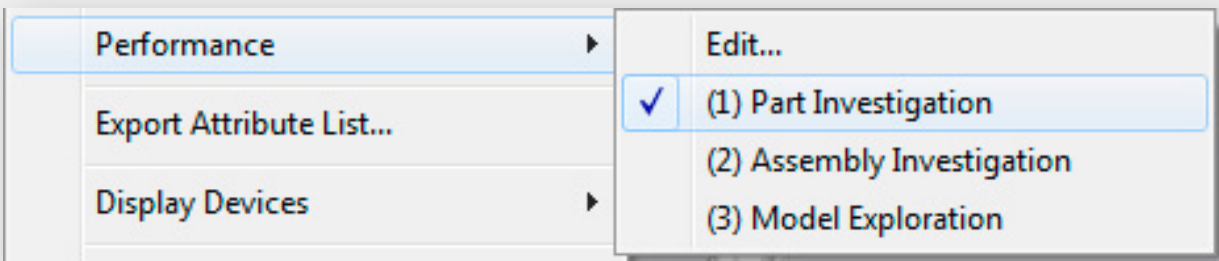


- 7) If your TcVis is installed to a non standard directory, please click **Add Application**, locate your **VisView_NG.exe** file. It is usually located in **\Program Files\Siemens\Teamcenter11.3\Visualization\Products\Mockup**.

- 8) After adding your non-standard-directory version of TcVis, please click the **Browse** button. Navigate to the **Program** subdirectory and click **OK**. It is usually located in **\Program Files\Siemens\Teamcenter11.3\Visualization\Program**.

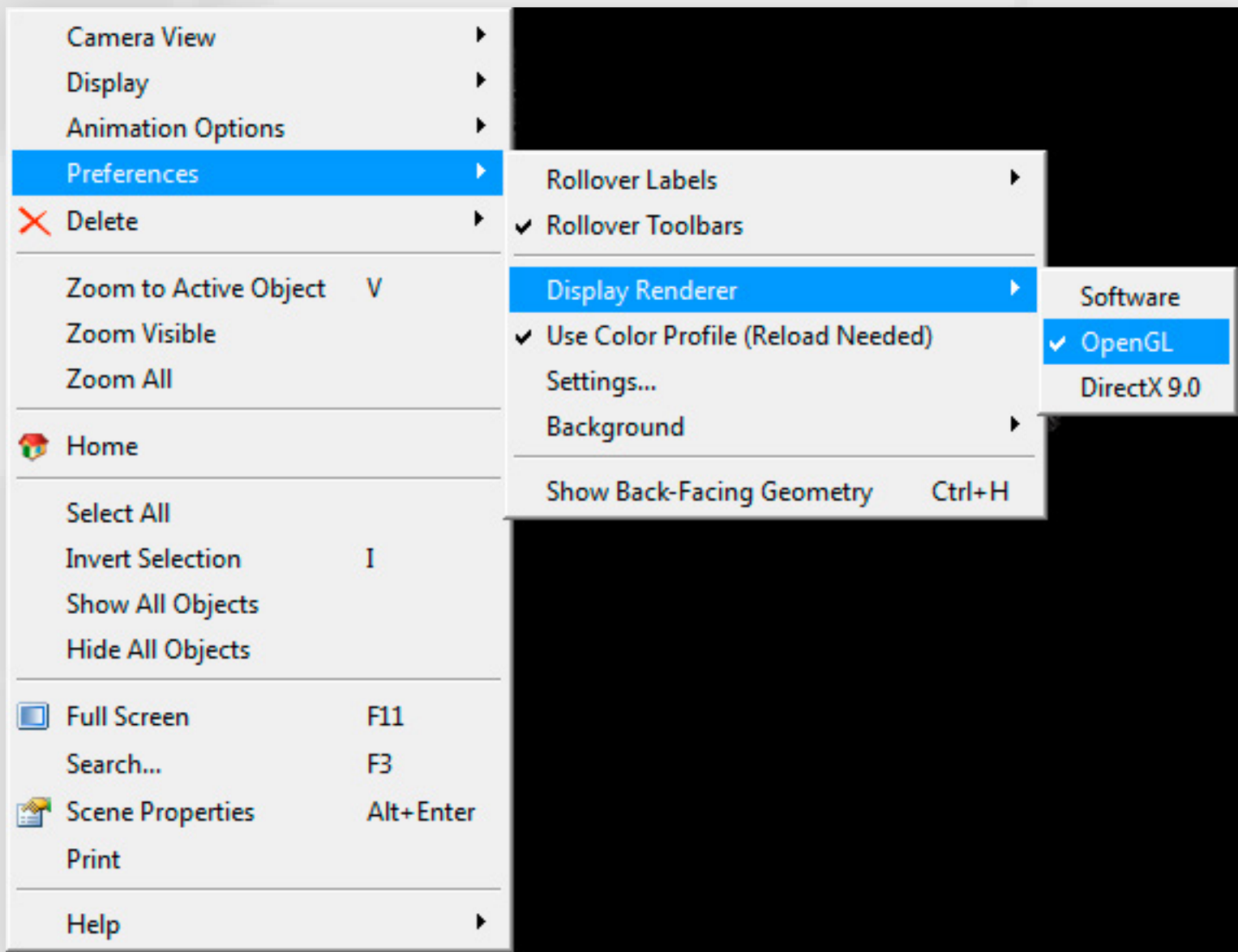


- 9) Place the checkmark in the **Enabled** column.
- 10) Click **Save and Close**.
- 11) TcVis is now properly configured for use with ZLink.
- 12) **NOTE:** we recommend to set the **Performance** of TcVis to **Part Investigation**



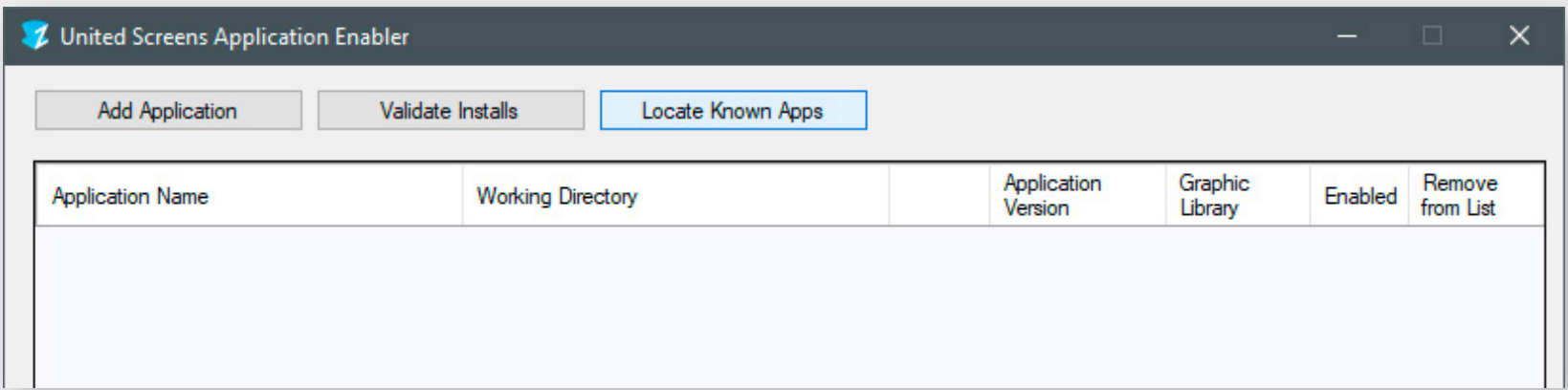
SETUP GUIDE: SAP VISUAL ENTERPRISE VIEWER / AUTHOR

- 1) Launch SAP Visual Enterprise Viewer/Author and load a model.
- 2) Right click into the viewport, select **Preferences -> Display Renderer -> OpenGL**



- 3) Exit SAP Visual Enterprise Viewer / Author.

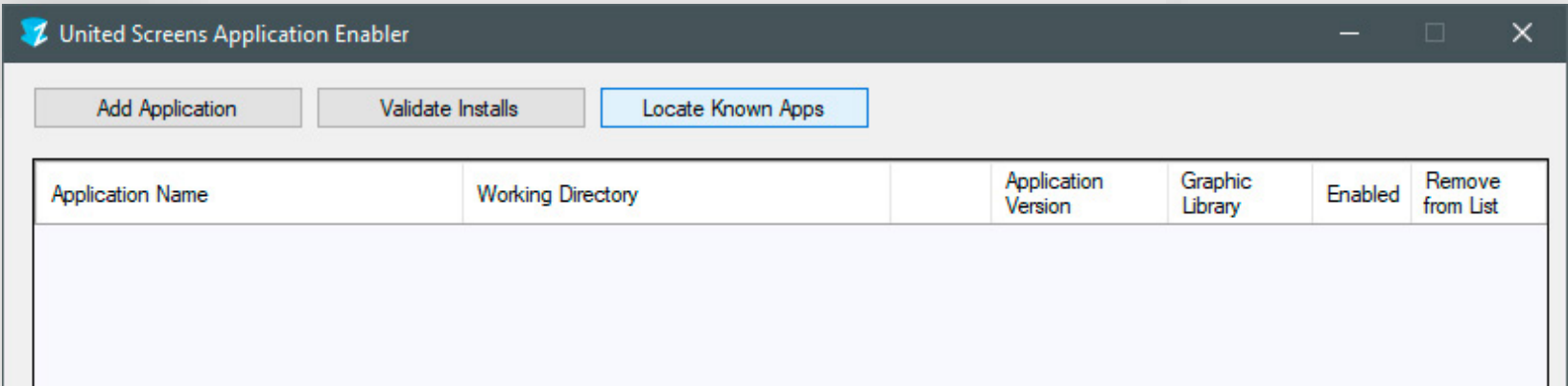
- 4) Open the ZLink Application Enabler via the ZLink Launcher.
- 5) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known SAP Visual Enterprise installation locations and add them to the list.



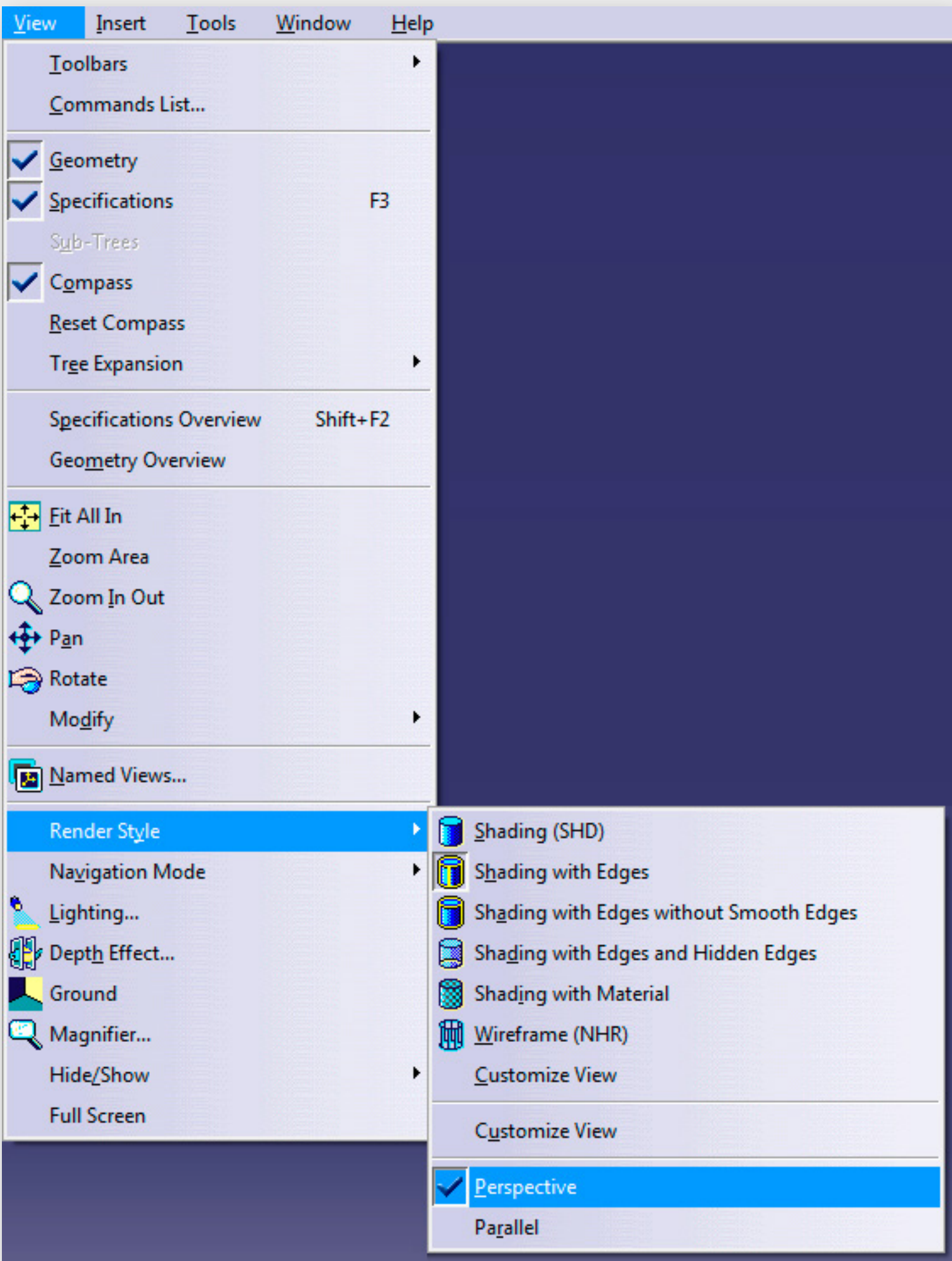
- 6) If your SAP Visual Enterprise is installed to a non standard directory, please click **Add Application**, locate your **VEViewer.exe** or **VEAuthor.exe** file.
- 7) Place the checkmark in the **Enabled** column.
- 8) Click **Save and Close**.
- 9) SAP Visual Enterprise is now properly configured for use with ZLink.

SETUP GUIDE: CATIA / DELMIA

- 1) Open the ZLink Application Enabler via the ZLink Launcher.
- 2) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known Catia / Delmia installation locations and add them to the list.

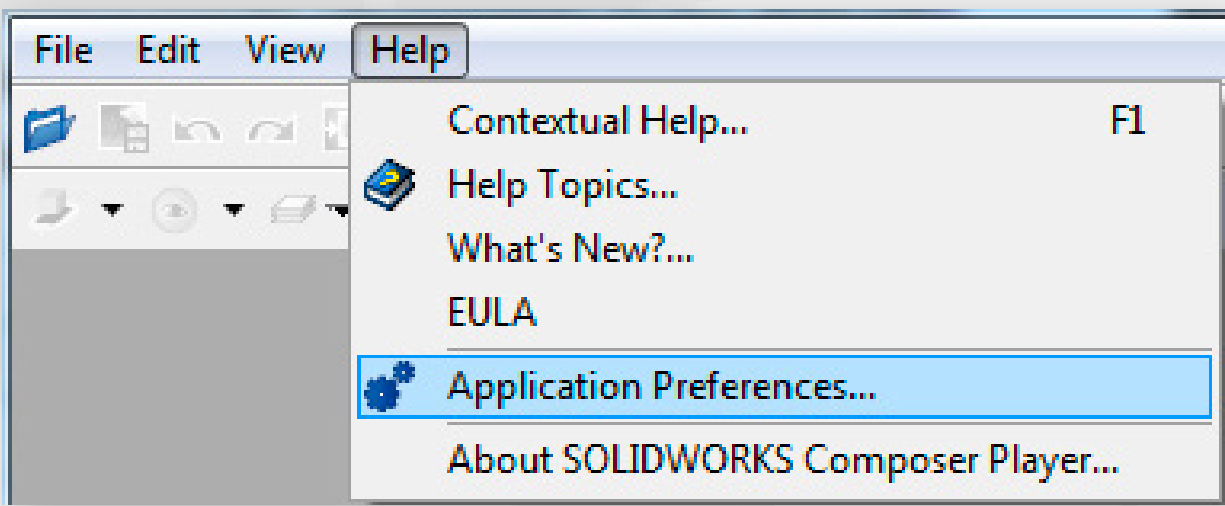


- 3) If your Catia/Delmia is installed to a non standard directory, please click **Add Application**, locate your **CNext.exe**. The standard path is **\Program Files\Dassault Systemes\Bxx\win_b64\code\bin** (xx = version number).
- 4) Place the checkmark in the **Enabled** column.
- 5) Click **Save and Close**.
- 6) Catia/Delmia is now properly configured for use with ZLink.
- 7) NOTE: Please make sure to set the Visualization mode in Catia to **Perspective**, you can find it in **View -> Render Style**

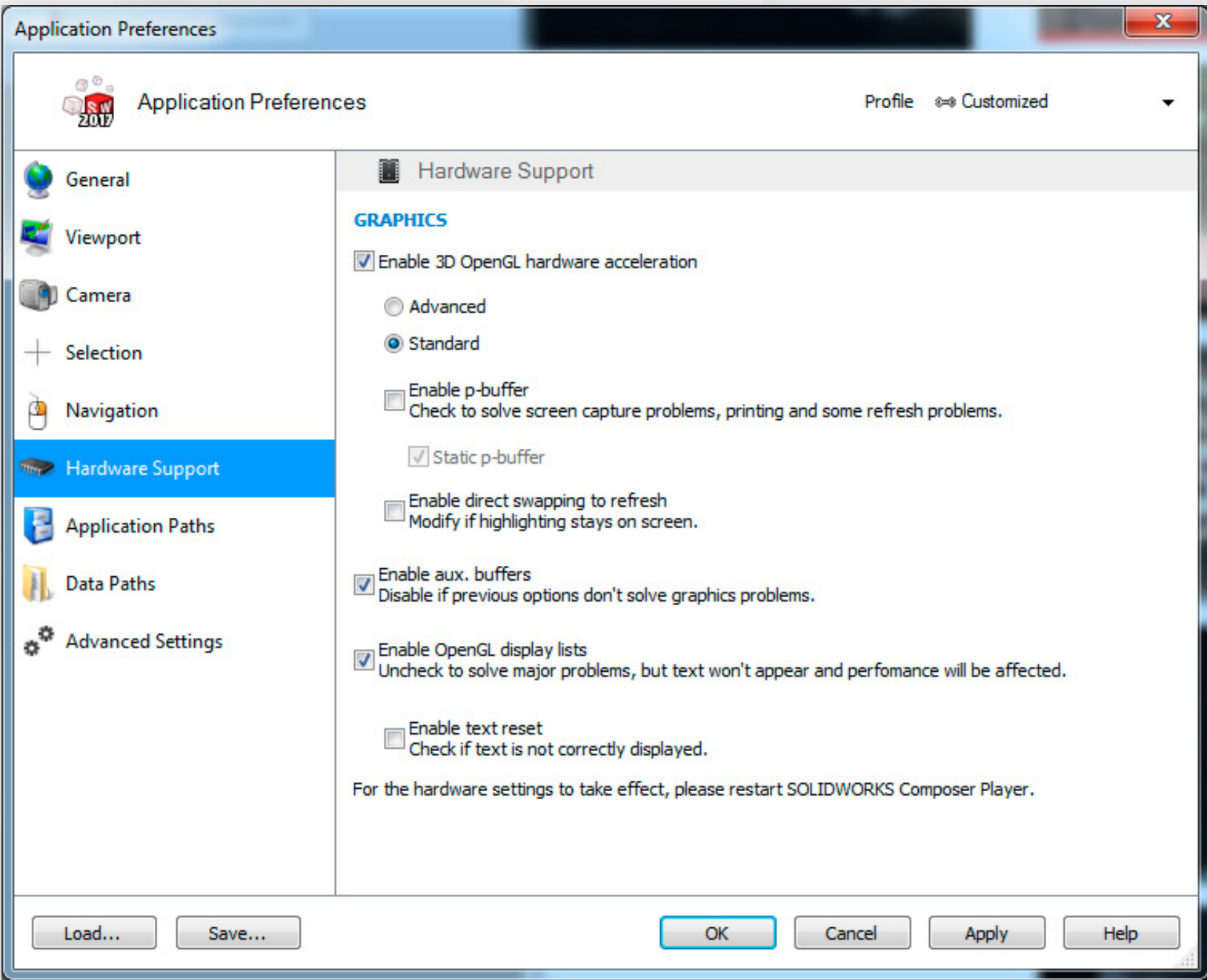


SETUP GUIDE: CATIA COMPOSER (PLAYER)

- 1) Launch Catia Composer (Player)
- 2) Click **Help** and **Application Preferences**

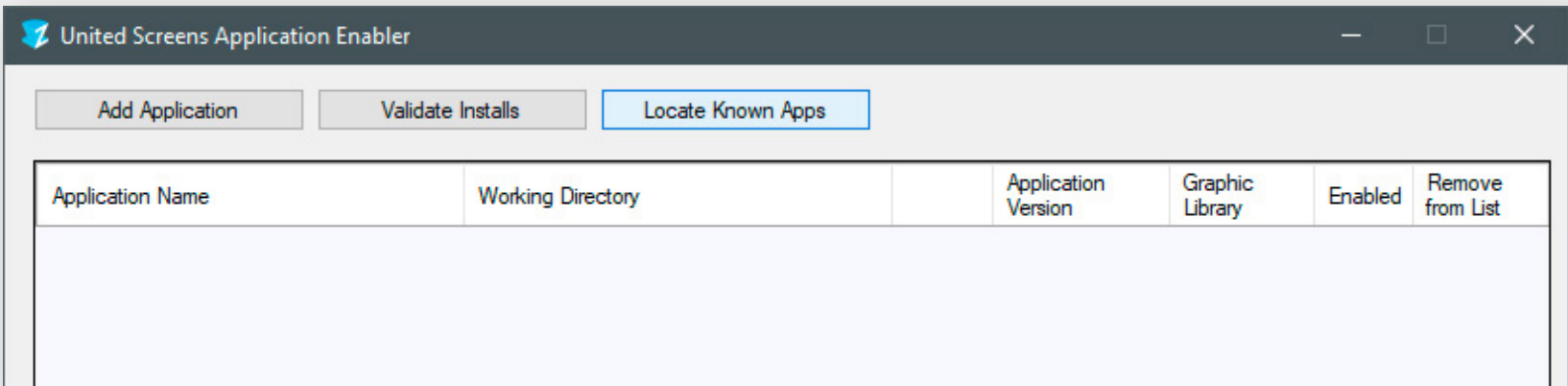


- 3) Switch to the **Hardware Support** Tab and set the **OpenGL Acceleration Level** to **Standard**. Uncheck the **Enable P-Buffers** checkbox.

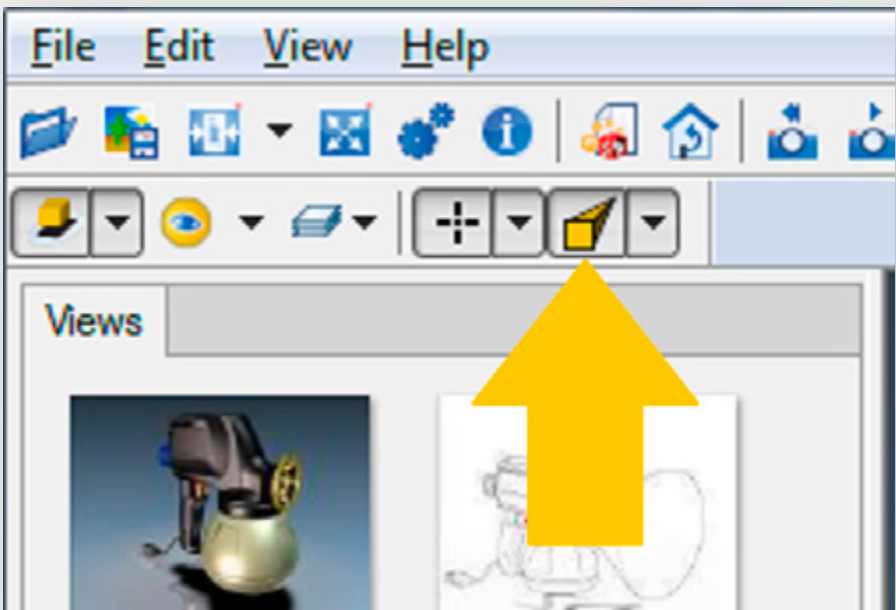


- 4) Exit Catia Composer (Player).

- 5) Open the ZLink Application Enabler via the ZLink Launcher.
- 6) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known Catia Composer (Player) installation locations and add them to the list.

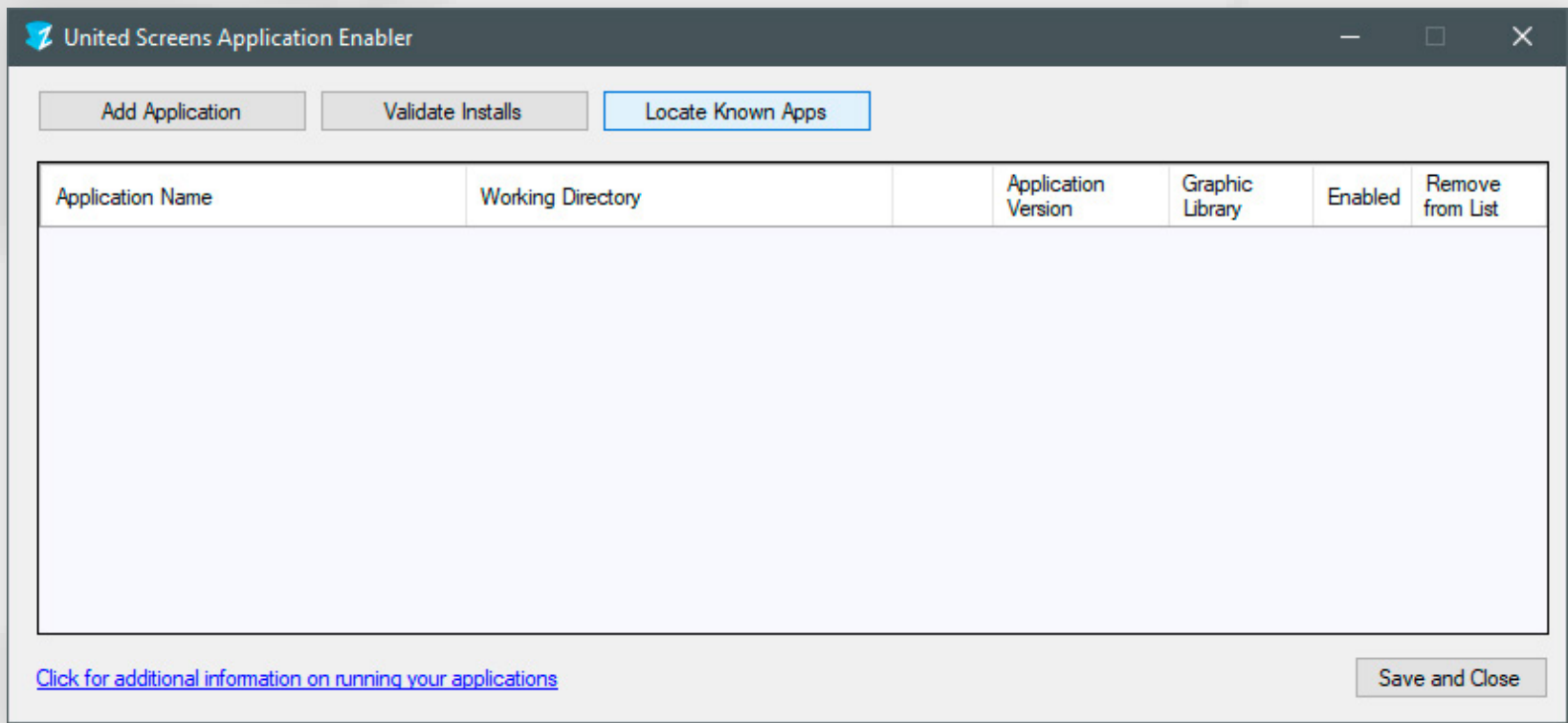


- 7) If your Catia Composer (Player) is installed to a non standard directory, please click **Add Application**, locate your **ComposerPlayer.exe/ CatiaComposer.exe** file. It is usually located in **\Program Files\Dassault Systemes\CATIAComposer\x.x\Bin**.
- 8) Place the checkmark in the **Enabled** column.
- 9) Click **Save and Close**.
- 10) Catia Composer (Player) is now properly configured for use with ZLink.
- 11) **NOTE:** Please make sure Catia Composer (Player) is running in perspective view mode.

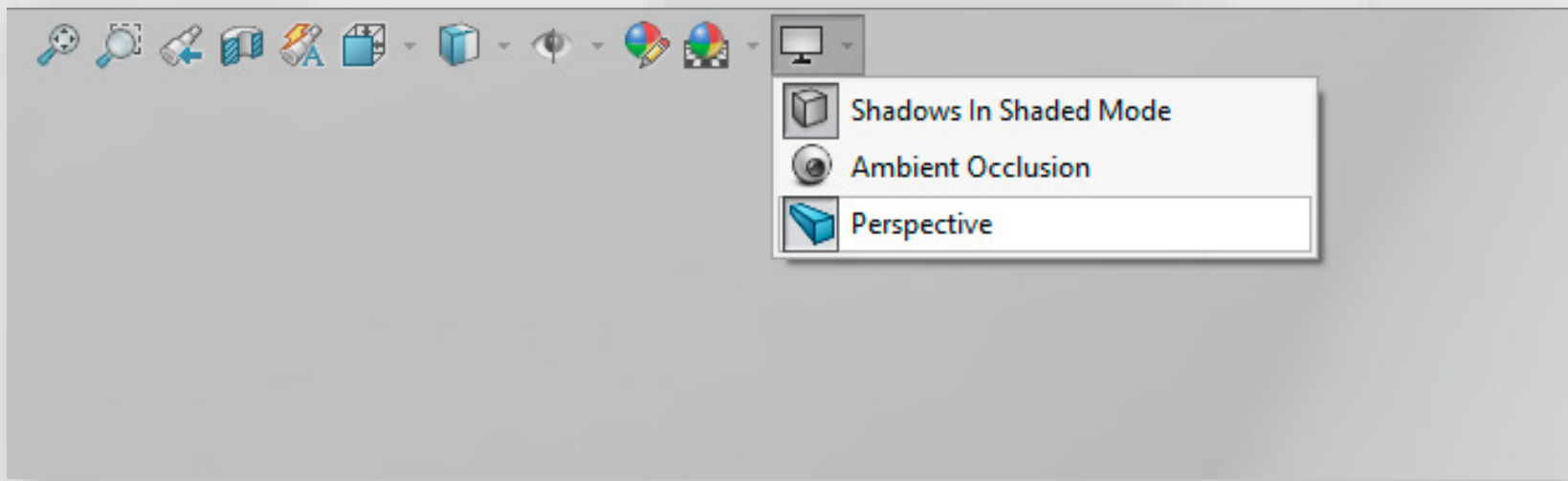


SETUP GUIDE: SOLID WORKS 2019

- 1) Open the ZLink Application Enabler via the ZLink Launcher.
- 2) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known SolidWorks installation locations and add them to the list.

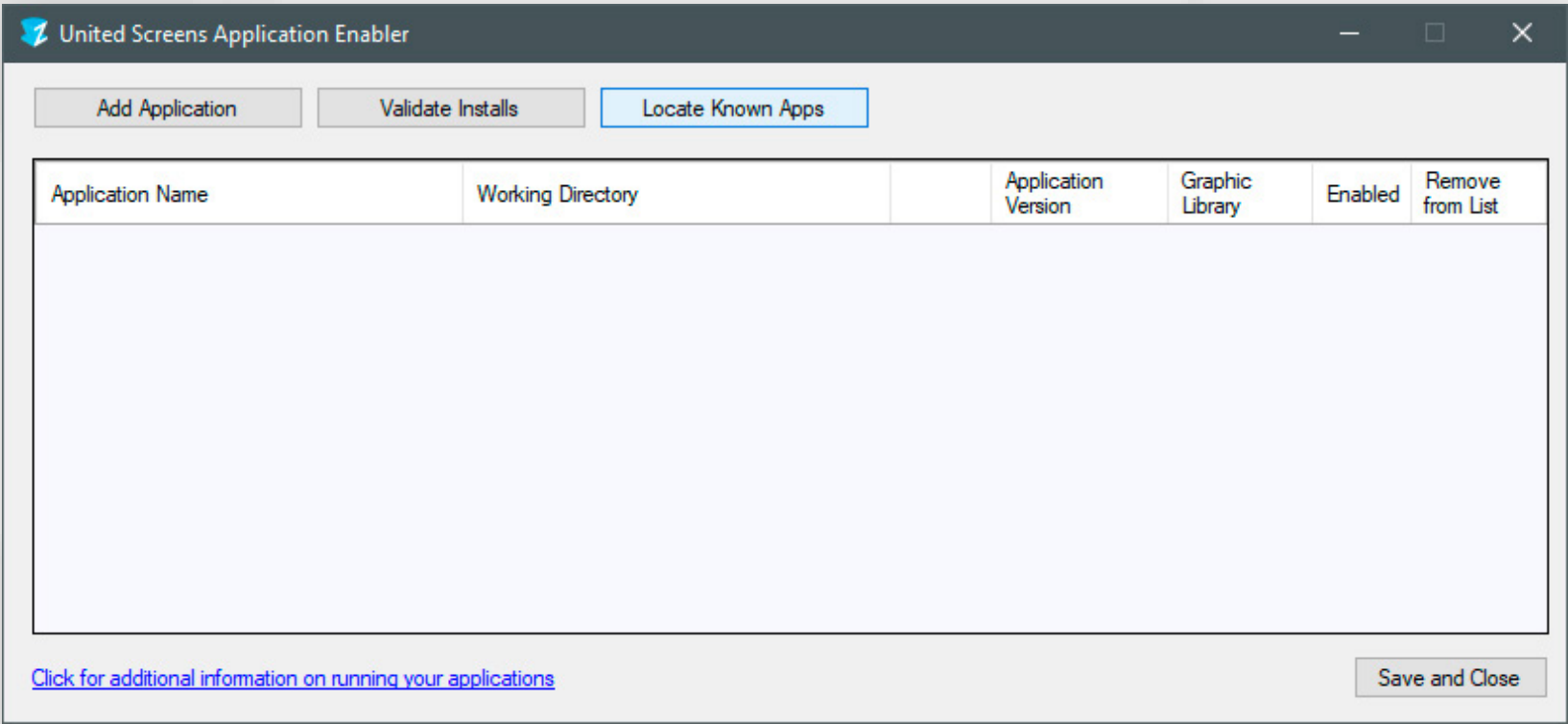


- 3) If SolidWorks is installed to a non standard directory, please click **Add Application**, locate your **SLDWORKS.exe**. The standard path is **\Program Files\SOLIDWORKS Corp\SOLIDWORKS**
- 4) Place the checkmark in the **Enabled** column.
- 5) Click **Save and Close**.
- 6) SolidWorks is now properly configured for use with ZLink.
- 7) **NOTE:** Please make sure to set the visualization mode in SolidWorks to "Perspective":



SETUP GUIDE: AUTODESK ALIAS DESIGN

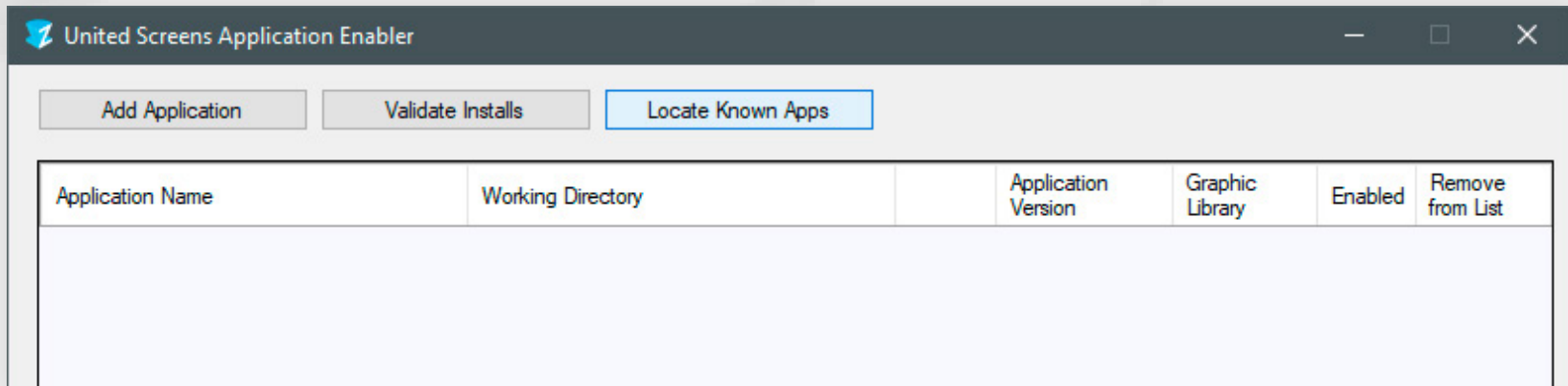
- 1) Open the ZLink Application Enabler via the ZLink Launcher.
- 2) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known Alias Design installation locations and add them to the list.



- 3) If your Alias Design is installed to a non standard directory, please click **Add Application**, locate your **Alias.exe**. The standard path is **\Program Files\Autodesk\AliasDesign2019\bin**. Depending on your Alias Version the pathname might be different, yet the **bin** subfolder in the Alias "Version" "Year" (e.g. AliasDesign2019) level is where we find the targeted **Alias.exe**.
- 4) Place the checkmark in the **Enabled** column.
- 5) Click **Save and Close**.
- 6) Alias Design is now properly configured for use with ZLink.

SETUP GUIDE: ICEM SURF

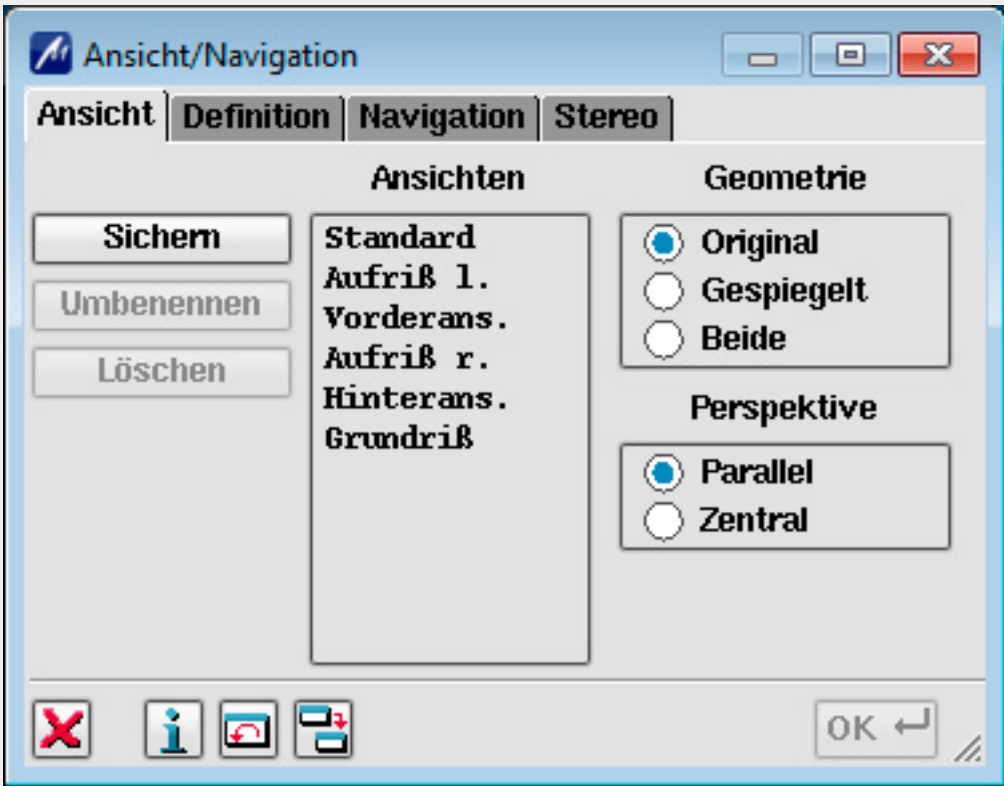
- 1) Open the ZLink Application Enabler via the ZLink Launcher.
- 2) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known ICEM Surf installation locations and add them to the list.



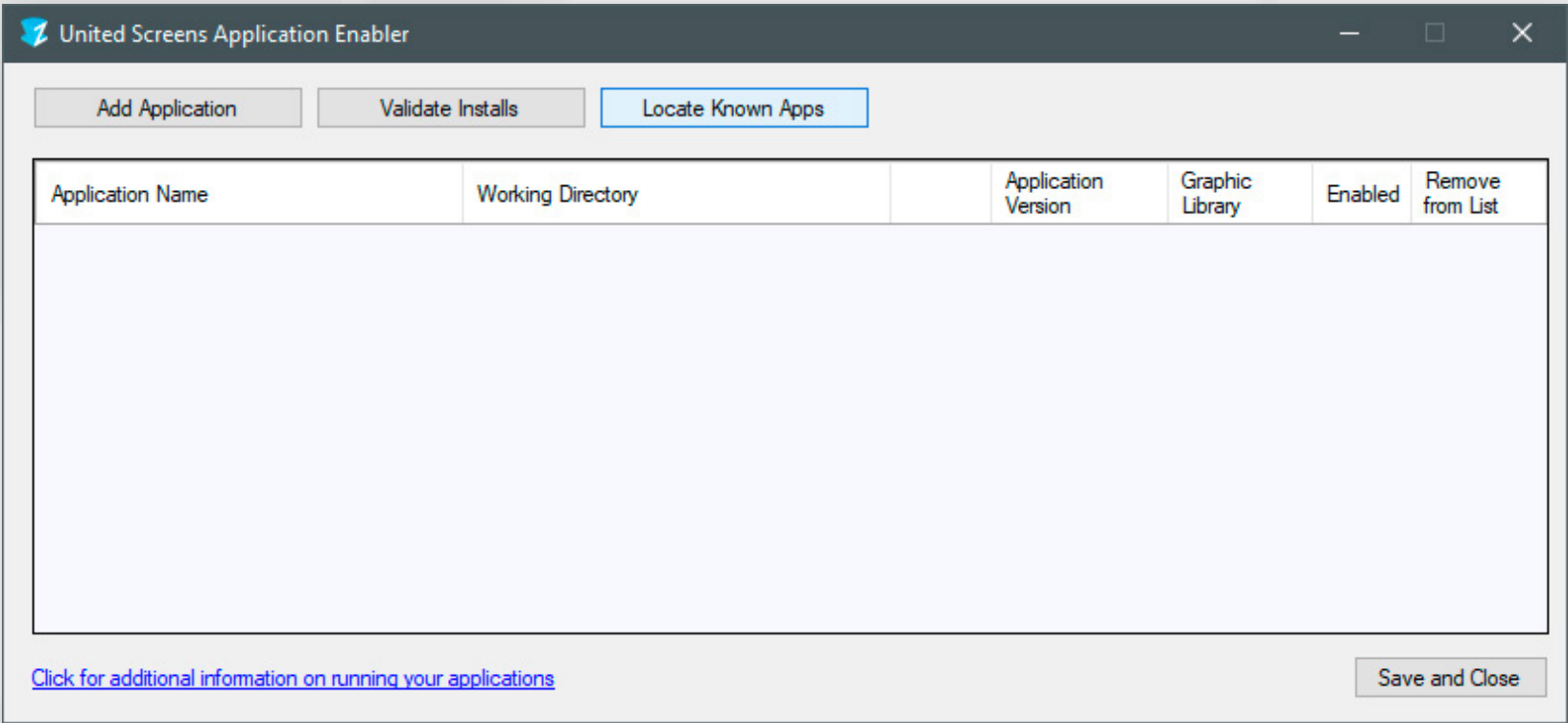
- 3) If your ICEM Surf is installed to a non standard directory, please click **Add Application**, locate your **ICEMSurf.exe**. The standard path is **\Program Files\ICEM\win_b64\code\bin**.
- 4) Place the checkmark in the **Enabled** column.
- 5) Click **Save and Close**.
- 6) ICEM Surf is now properly configured for use with ZLink.
- 7) Start the ZLink client and then launch ICEM Surf. Load a ICEM Surf project file. In ICEM Surf, click on **View** (eye symbol with three arrows in lower button bar).



- 8) Then choose the **Perspective** option **Central** instead of **Parallel**.



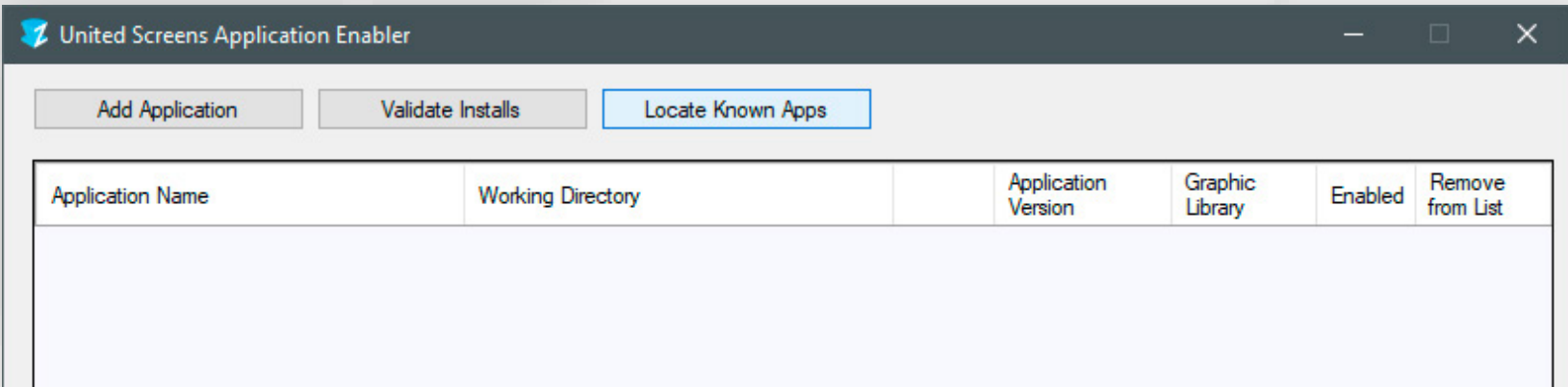
- 1) Open the ZLink Application Enabler via the ZLink Launcher.
- 2) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known IPS installation locations and add them to the list.



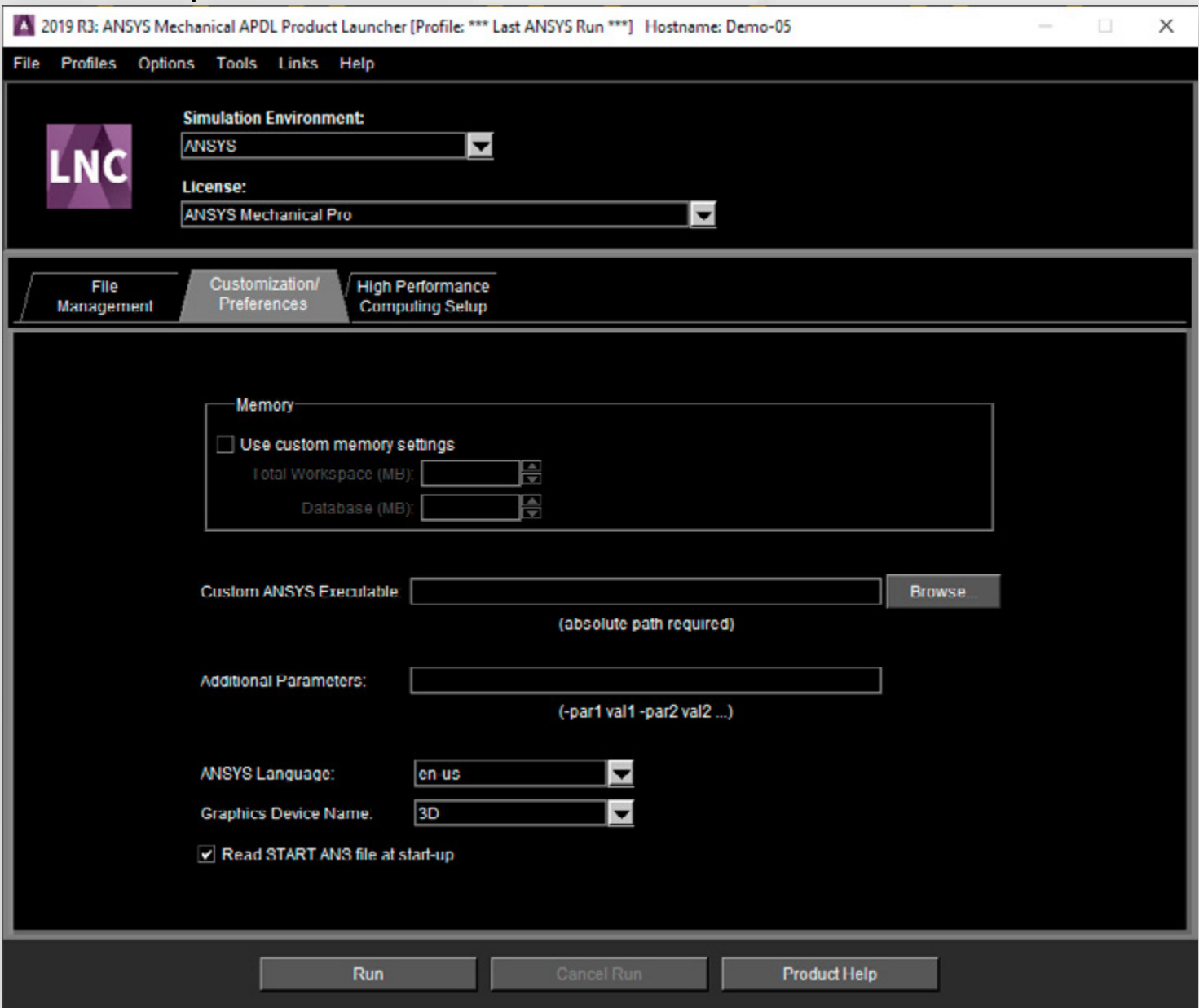
- 3) If your IPS is installed to a non standard directory, please click **Add Application**, locate the **IPS.exe** file. It's usually located in **C:\IPS x.x** (xx =version, e.g. IPS 3.5).
- 4) Place the checkmark in the **Enabled** column.
- 5) Click **Save and Close**.
- 6) ICEM Surf is now properly configured for use with ZLink.

SETUP GUIDE: ANSYS MECHANICAL

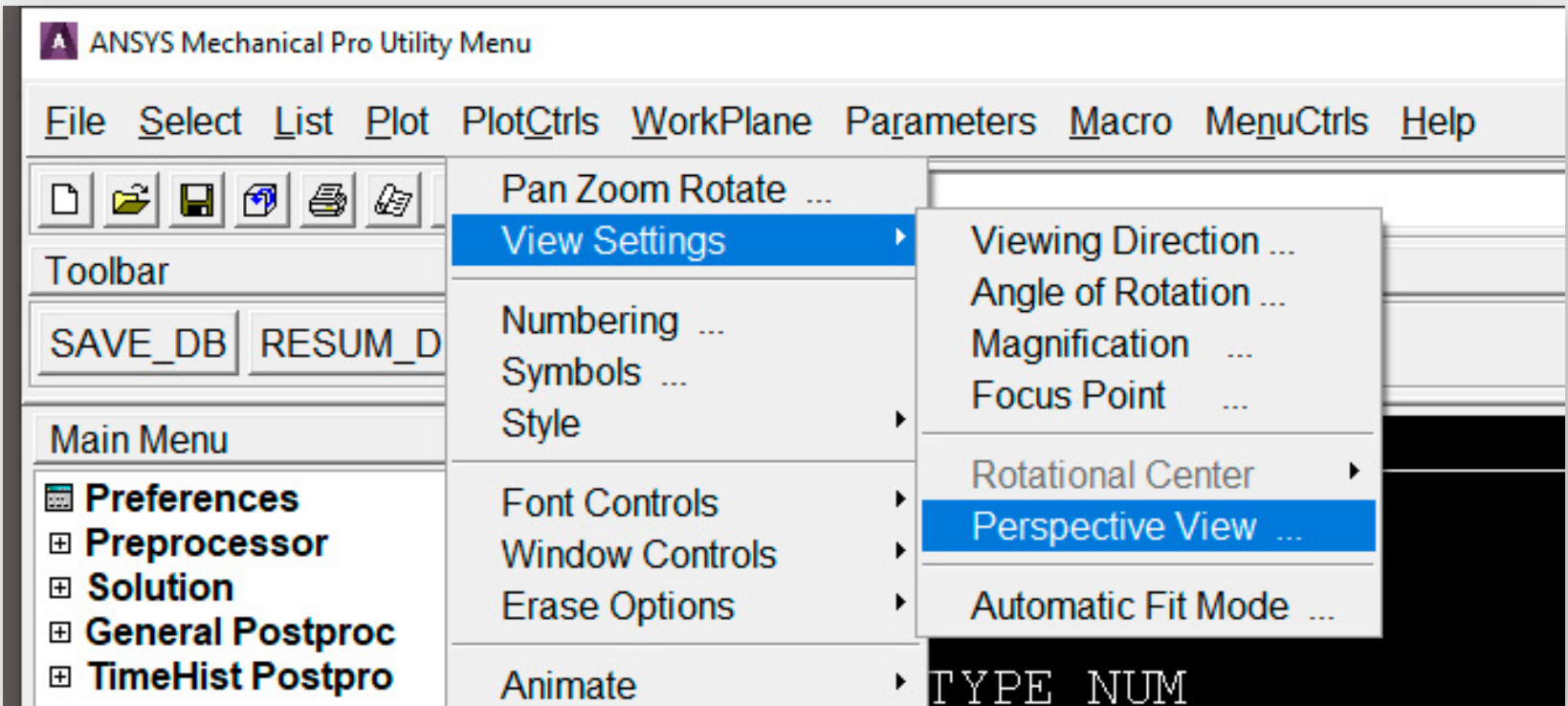
- 1) Open the ZLink Application Enabler via the ZLink Launcher.
- 2) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known Ansys Mechanical installation locations and add them to the list.



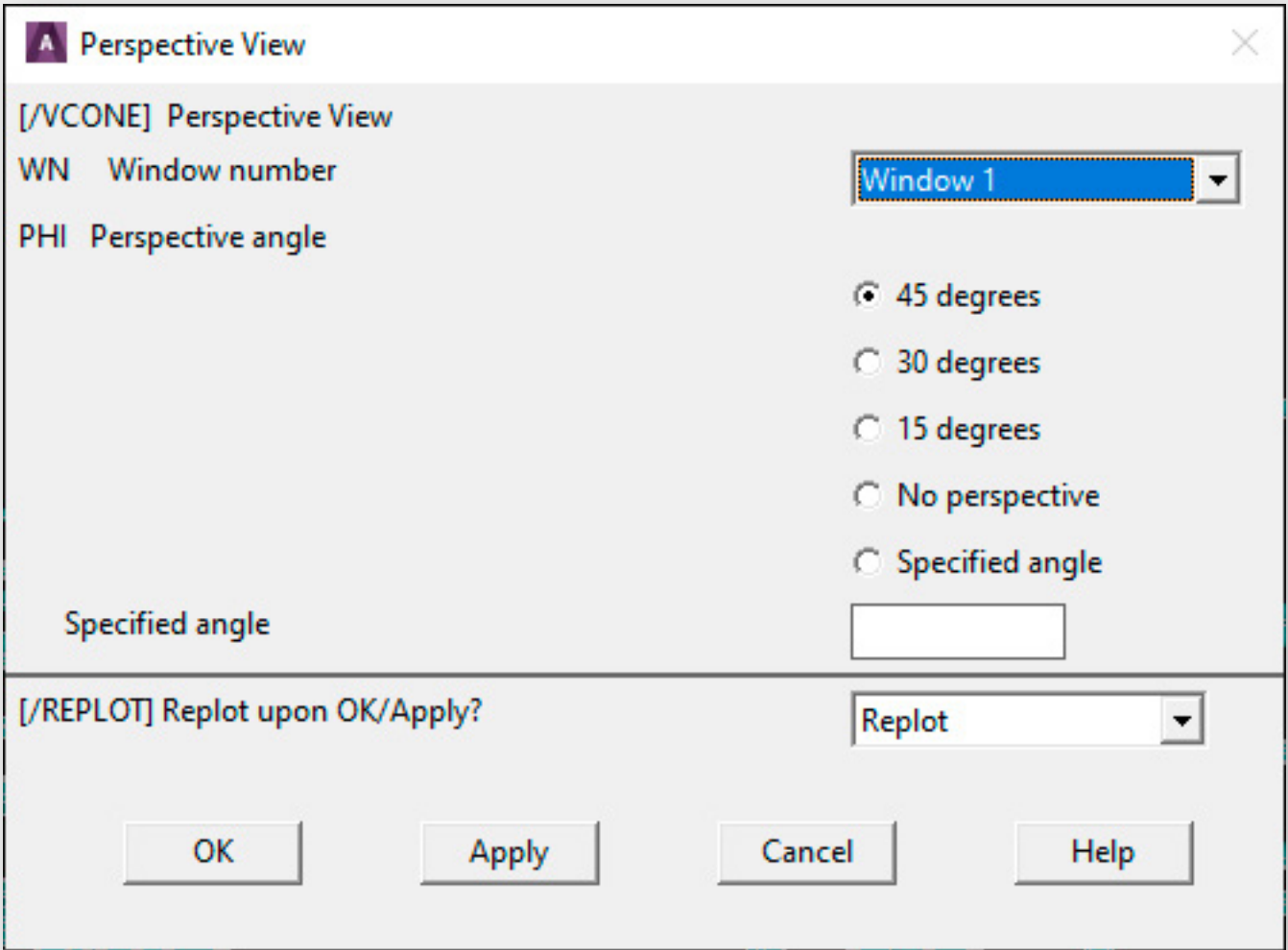
- 3) If your Ansys is installed to a non standard directory, please click **Add Application**, locate your **Ansys.exe**. The standard path is `\Program Files\ANSYS Inc\v195\ansys\bin\winx64`.
- 4) Place the checkmark in the **Enabled** column.
- 5) Click **Save and Close**.
- 6) Start the Ansys Launcher and switch to the **Customization/Preferences** tab. Set the **Graphics Device Name** to **3D**, then run.



- 7) Start the ZLink client and then launch Ansys. Load an Ansys project file. In Ansys, click on **PlotCtrls** and then **View Settings** -> **Perspective View**.



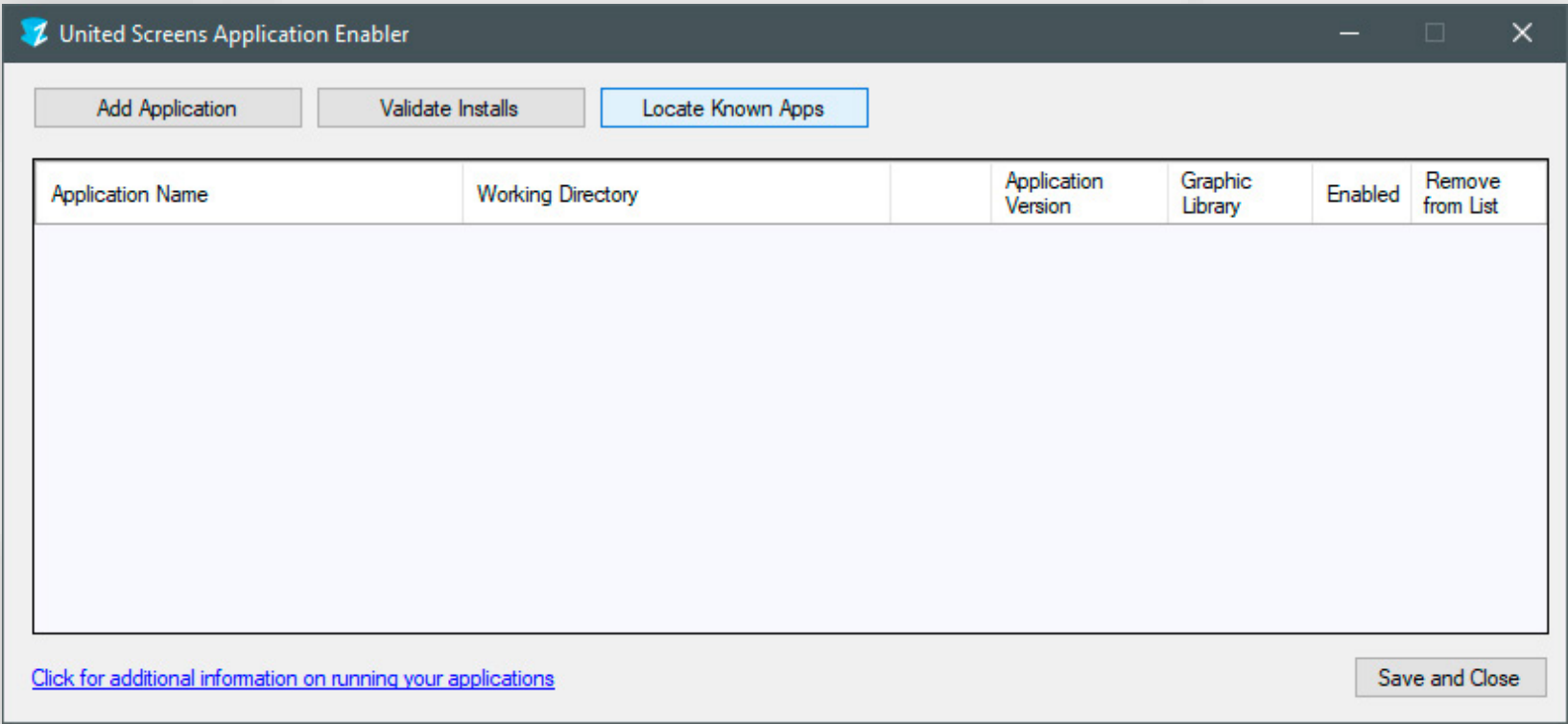
- 8) Select **45, 30 or 15 degrees** or a specified angle. Do not choose **no perspective**. Then click **OK**.



- 9) Ansys is now properly configured for use with ZLink.

SETUP GUIDE: ANSYS ENSIGHT

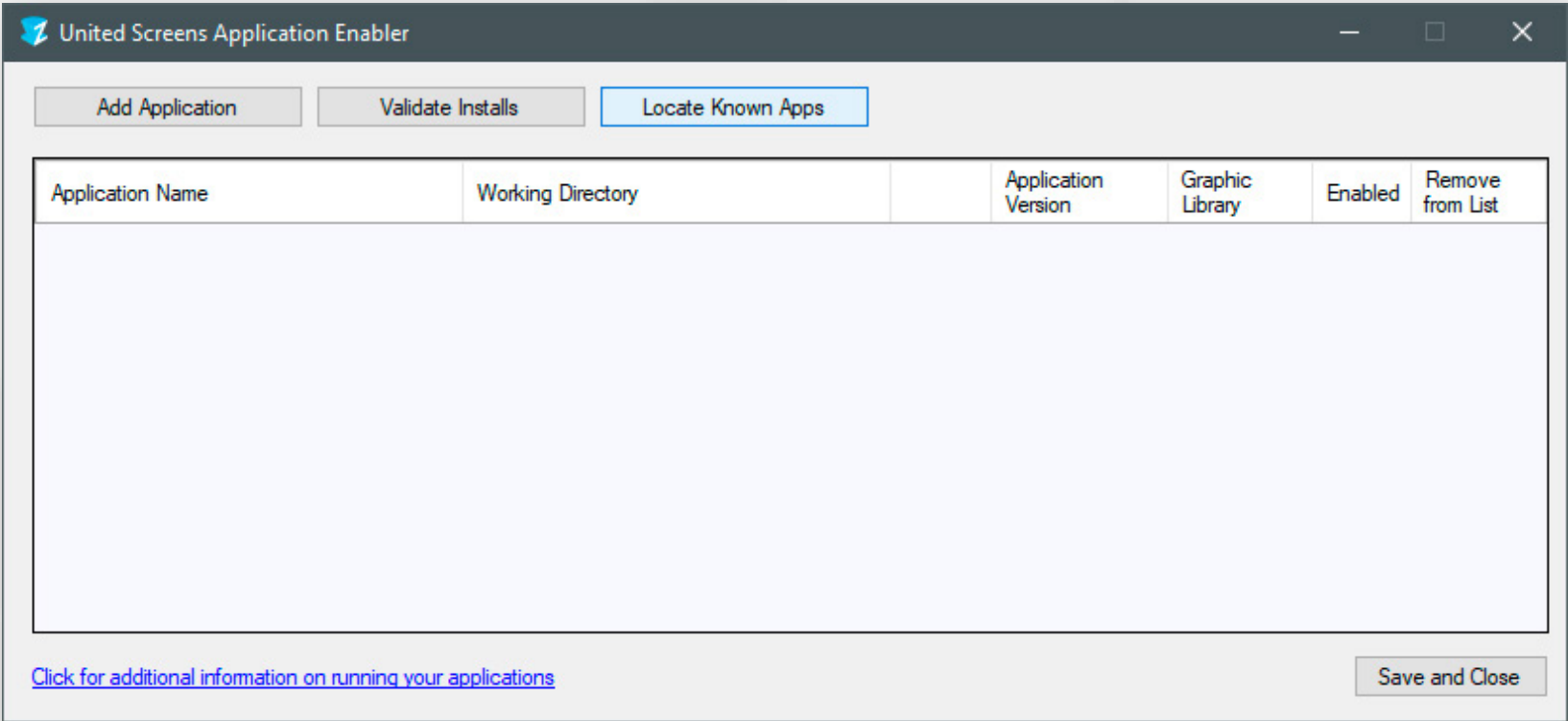
- 1) Open the ZLink Application Enabler via the ZLink Launcher.
- 2) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known Ansys Enight installation locations and add them to the list.



- 3) If your Ansys is installed to a non standard directory, please click **Add Application**, locate your **ens195cl.exe**. The standard path is **\Program Files\ANSYS Inc\v195\CEI\ensight195\machines\win64** ("v195" in the path might differ, based on the ansys/ensight version).
- 4) Place the checkmark in the **Enabled** column.
- 5) Click **Save and Close**.
- 6) Ansys Enight is now properly configured for use with ZLink.

SETUP GUIDE: PARAVIEW 5.7

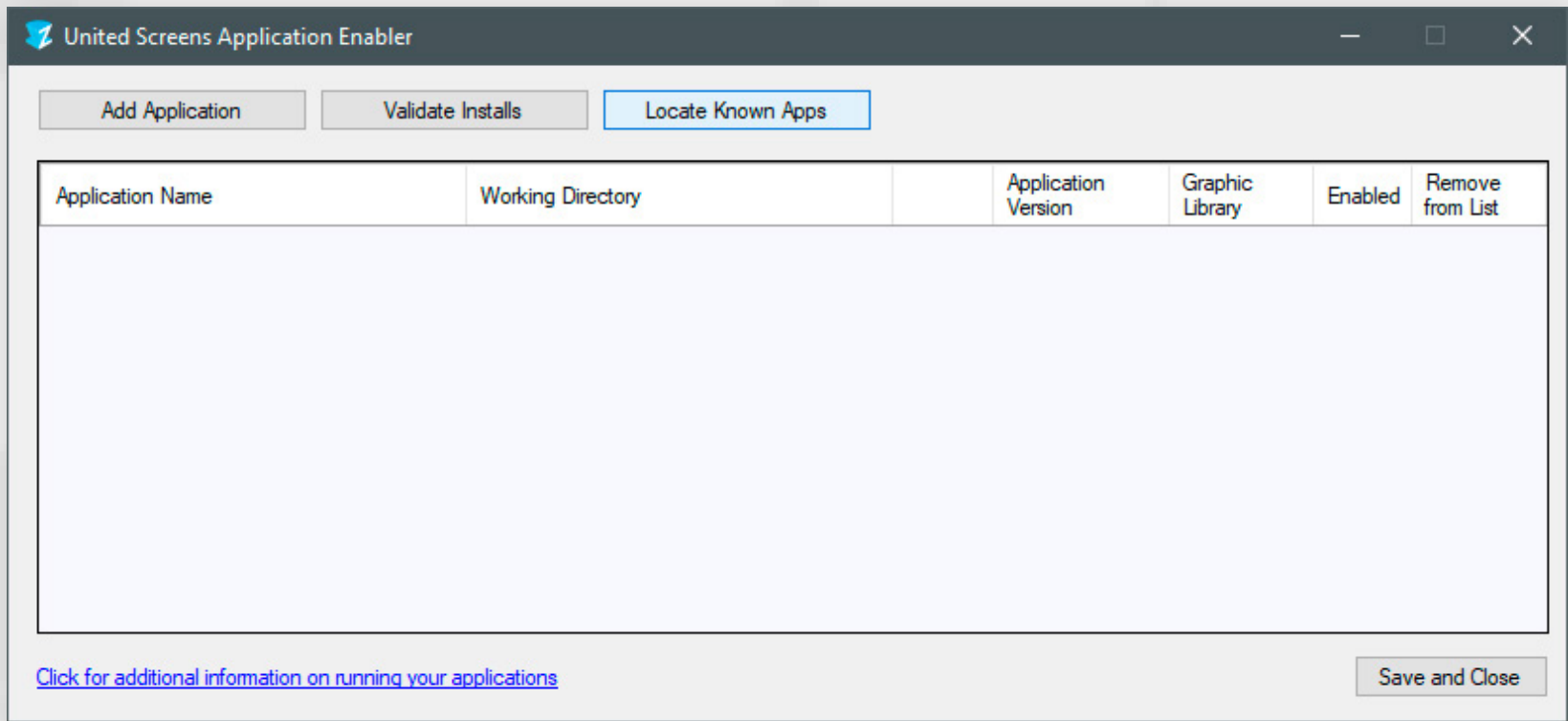
- 1) Download and use exactly this version of Paraview:
ParaView-5.7.0-Windows-Python3.7-msvc2015-64bit
<https://www.paraview.org/download/>
- 2) Open the ZLink Application Enabler via the ZLink Launcher.
- 3) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known Paraview installation locations and add them to the list.



- 4) If your Paraview is installed to a non standard directory, please click **Add Application**, locate your **paraview.exe**. The standard path is **\Program Files\ParaView-5.7.0-Windows-Python3.7-msvc2015-64bit\bin**.
- 5) Place the checkmark in the **Enabled** column.
- 6) Click **Save and Close**.
- 7) Paraview is now properly configured for use with ZLink.

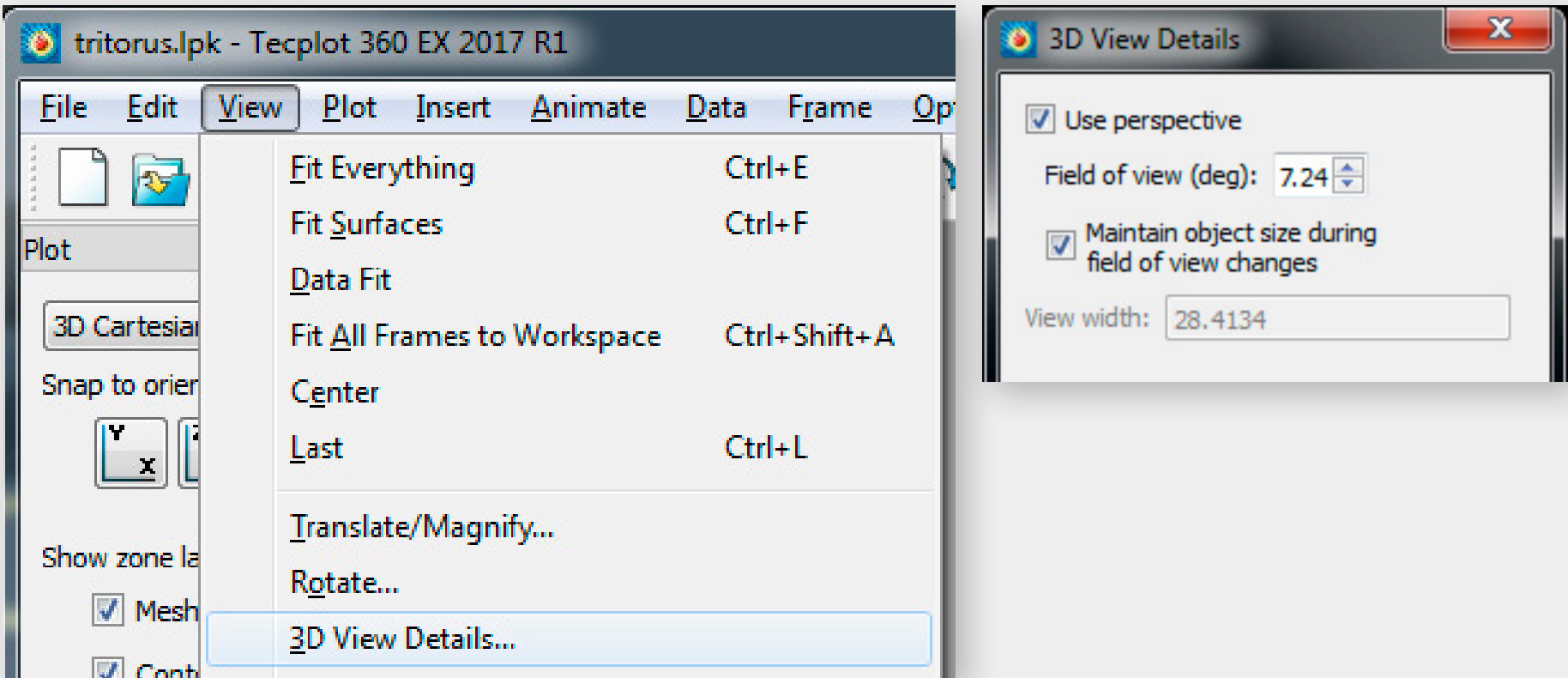
SETUP GUIDE: TECPLOT 360

- 1) Open the ZLink Application Enabler via the ZLink Launcher.
- 2) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known TecPlot installation locations and add them to the list.



- 3) If your TecPlot is installed to a non standard directory, please click **Add Application**, locate your **tec360.exe**. The standard path is **\Program Files\Tecplot\Tecplot 360 EX 2017 R1\bin**.
- 4) Place the checkmark in the **Enabled** column.
- 5) Click **Save and Close**.

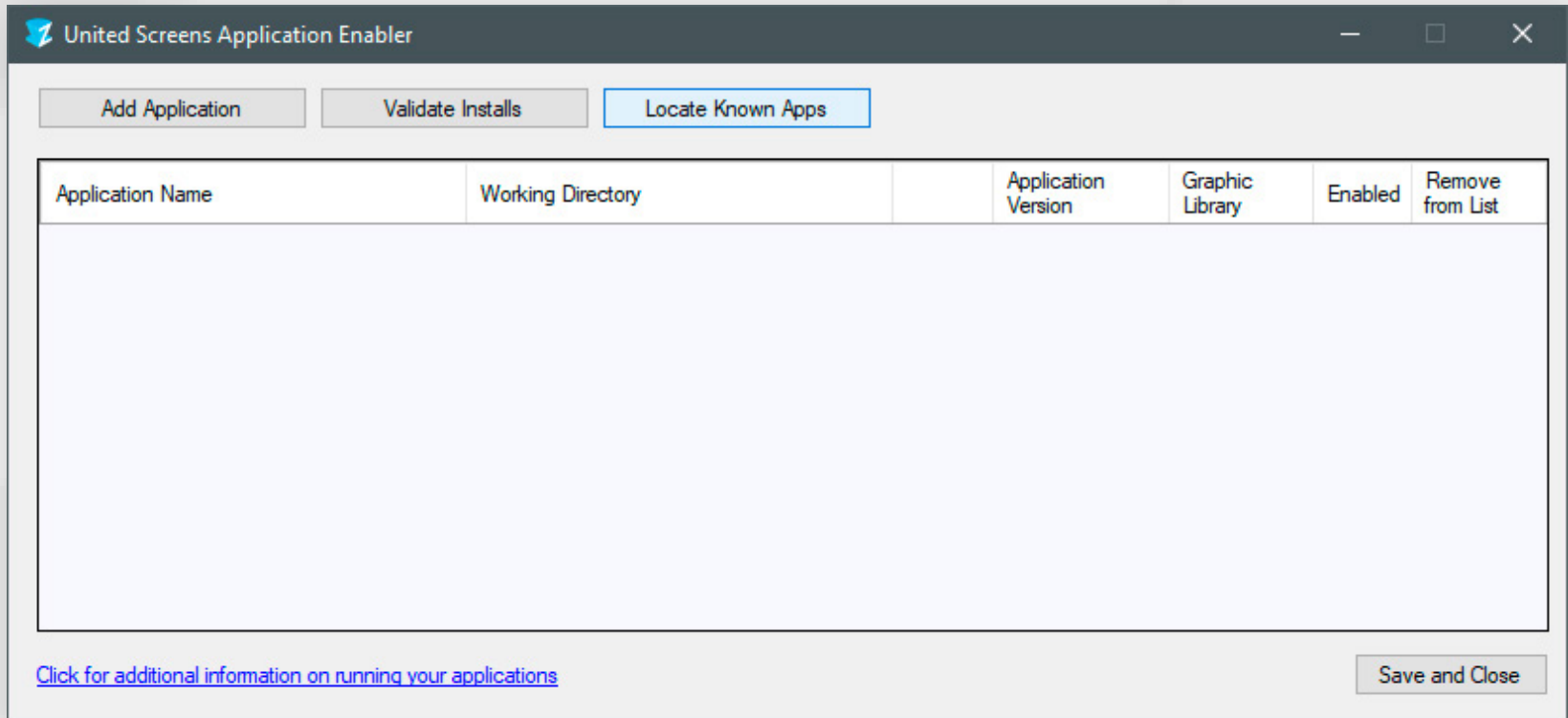
- 6) Start the ZLink Client and then launch TecPlot. Load a TecPlot project file. In TecPlot, click on **View -> 3D View Details** and place the checkmark at **Use Perspective**.



- 7) TecPlot is now properly configured for use with ZLink.

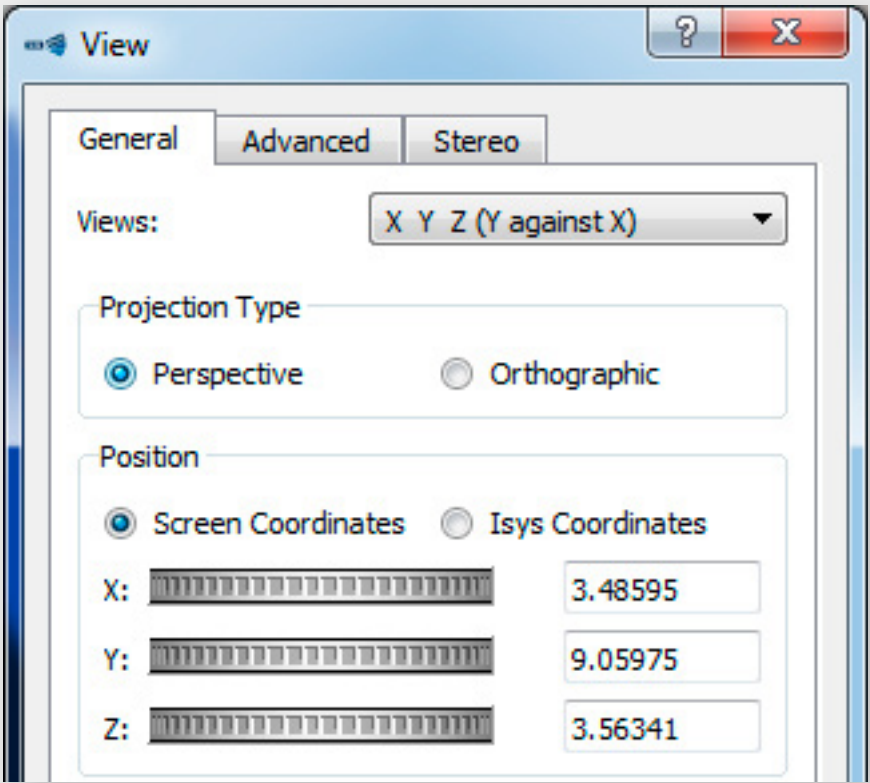
SETUP GUIDE: SIMPACK

- 1) Open the ZLink Application Enabler via the ZLink Launcher.
- 2) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known SimPack installation locations and add them to the list.



- 3) If your SimPack is installed to a non standard directory, please click **Add Application**, locate your **simpack-gui.exe**. The standard path is **\Program Files\Simpack-20xx\run\bin\win64** (xx= year release number, e.g. 18).
- 4) Place the checkmark in the **Enabled** column.
- 5) Click **Save and Close**.

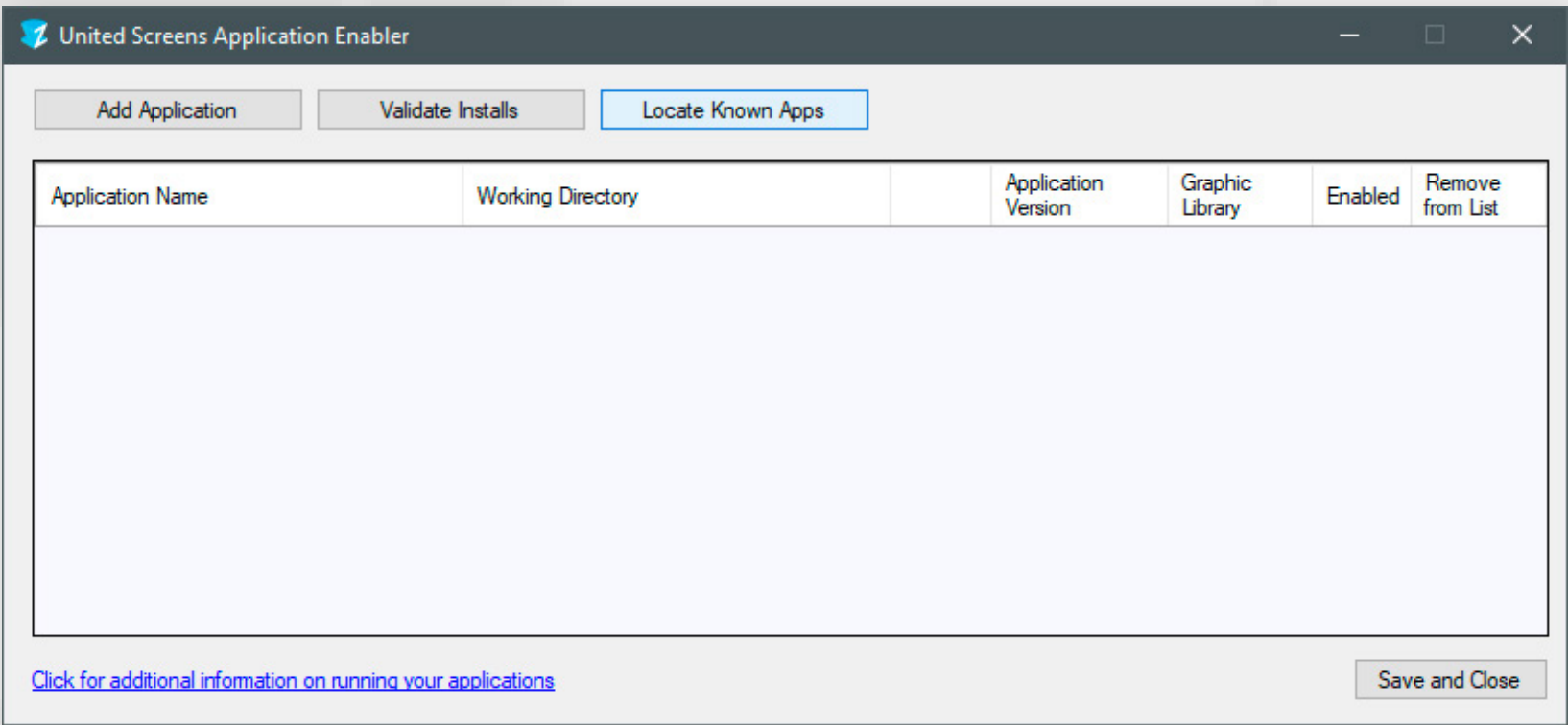
- 6) Start the ZLink Client and then launch SimPack. Load a SimPack project file. In SimPack, click on **View** and select **Properties**. Set the **Projection Type** to **Perspective**.



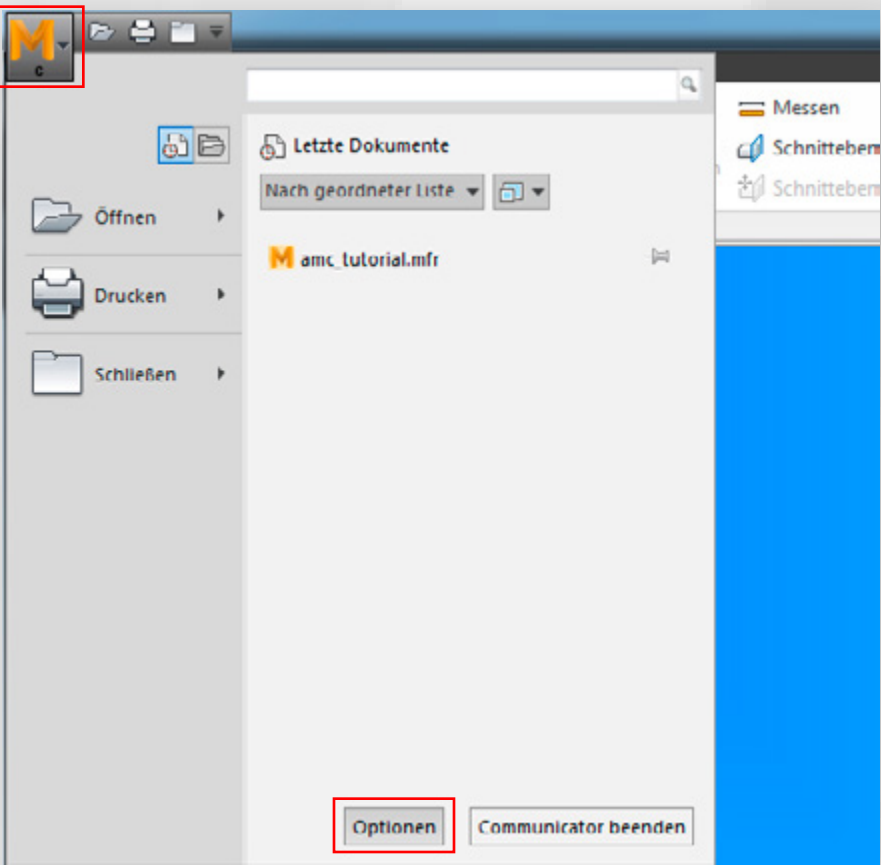
- 7) SimPack is now properly configured for use with ZLink.

SETUP GUIDE: AUTODESK MOLDFLOW COMMUNICATOR

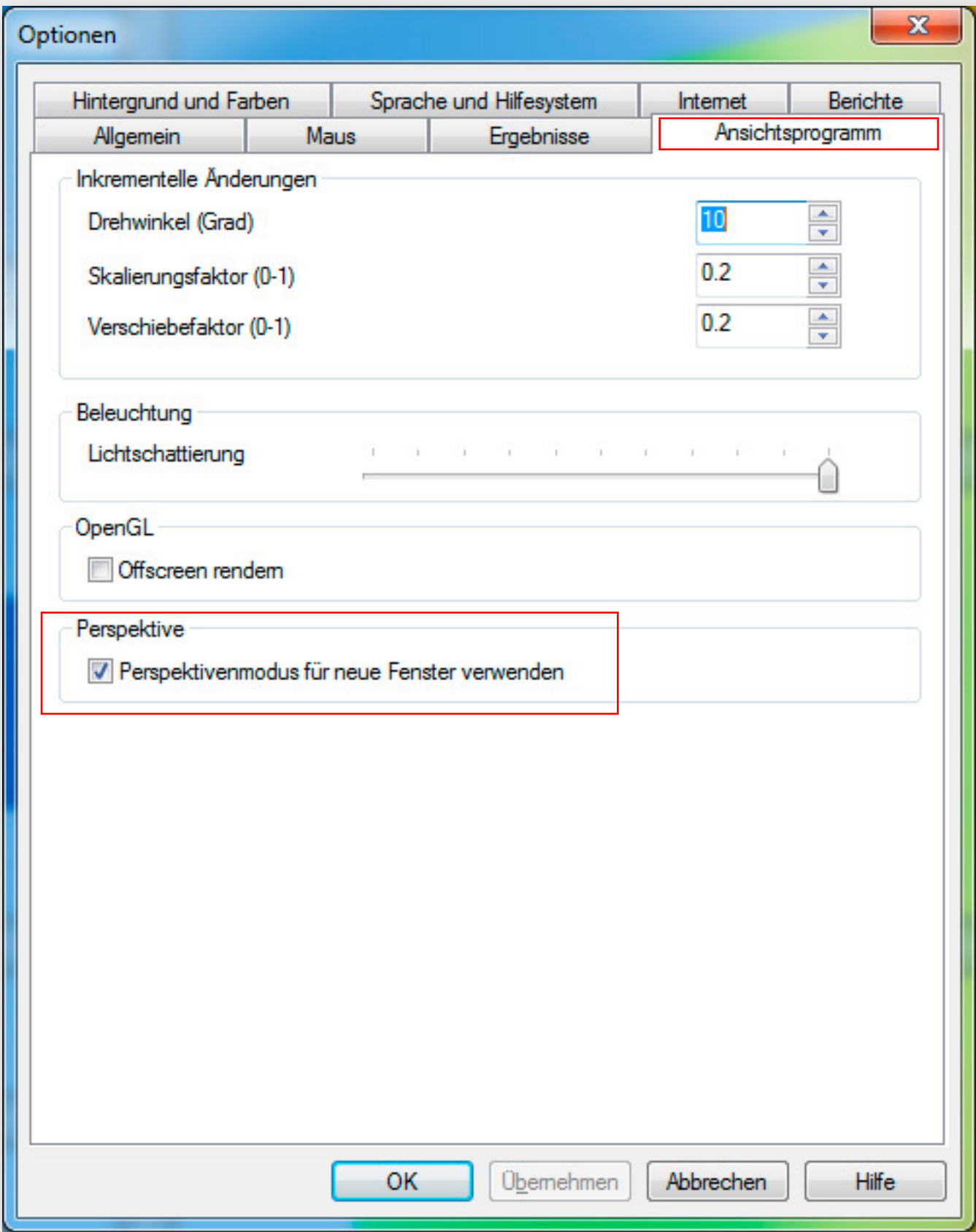
- 1) Open the ZLink Application Enabler via the ZLink Launcher.
- 2) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known Moldflow installation locations and add them to the list.



- 3) If your Moldflow is installed to a non standard directory, please click **Add Application**, locate your **mfresview.exe**. The standard path is **\Program Files\Autodesk\Moldflow Communicator 20xx\bin** (xx= year release number, e.g. 18).
- 4) Place the checkmark in the **Enabled** column.
- 5) Click **Save and Close**.
- 6) Start the ZLink Client and then launch Moldflow. Load a Moldflow project file. In Moldflow, click on **File** and select **Options**.



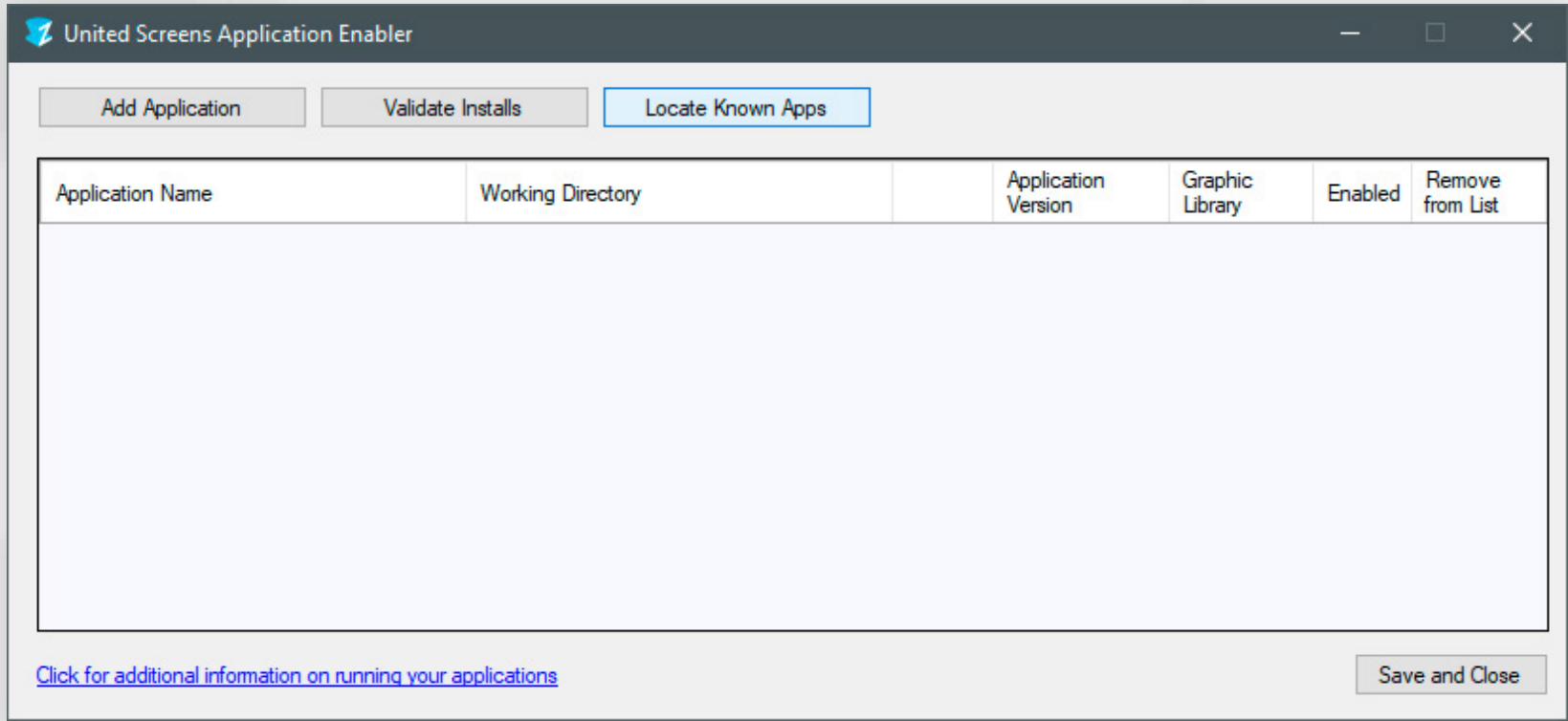
- 7) Go To **Viewing Options** and tick the checkbox at **Use Perspective Mode** for new windows.



- 8) Moldflow is now properly configured for use with ZLink.

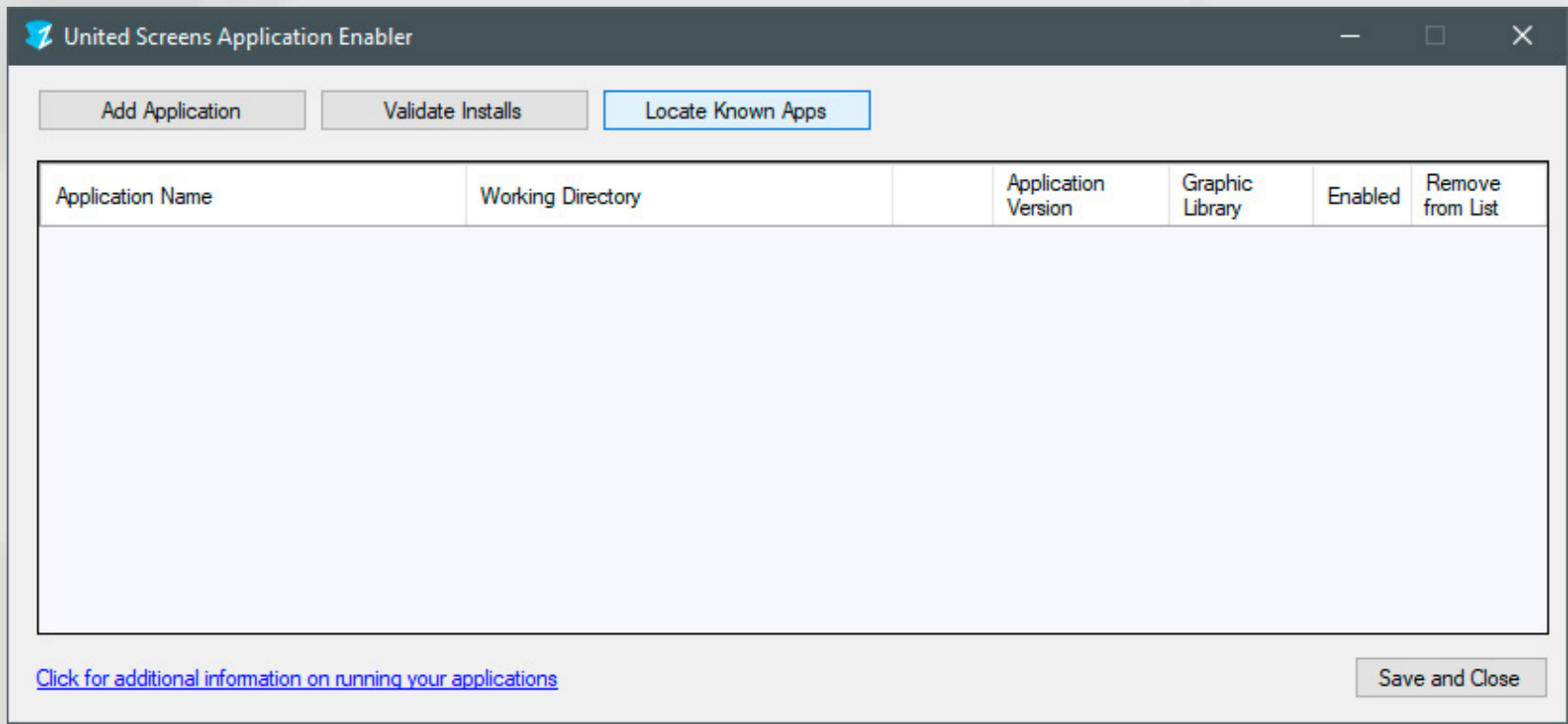
SETUP GUIDE: FLEDERMAUS

- 1) Open the ZLink Application Enabler via the ZLink Launcher.
- 2) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known Fledermaus installation locations and add them to the list.



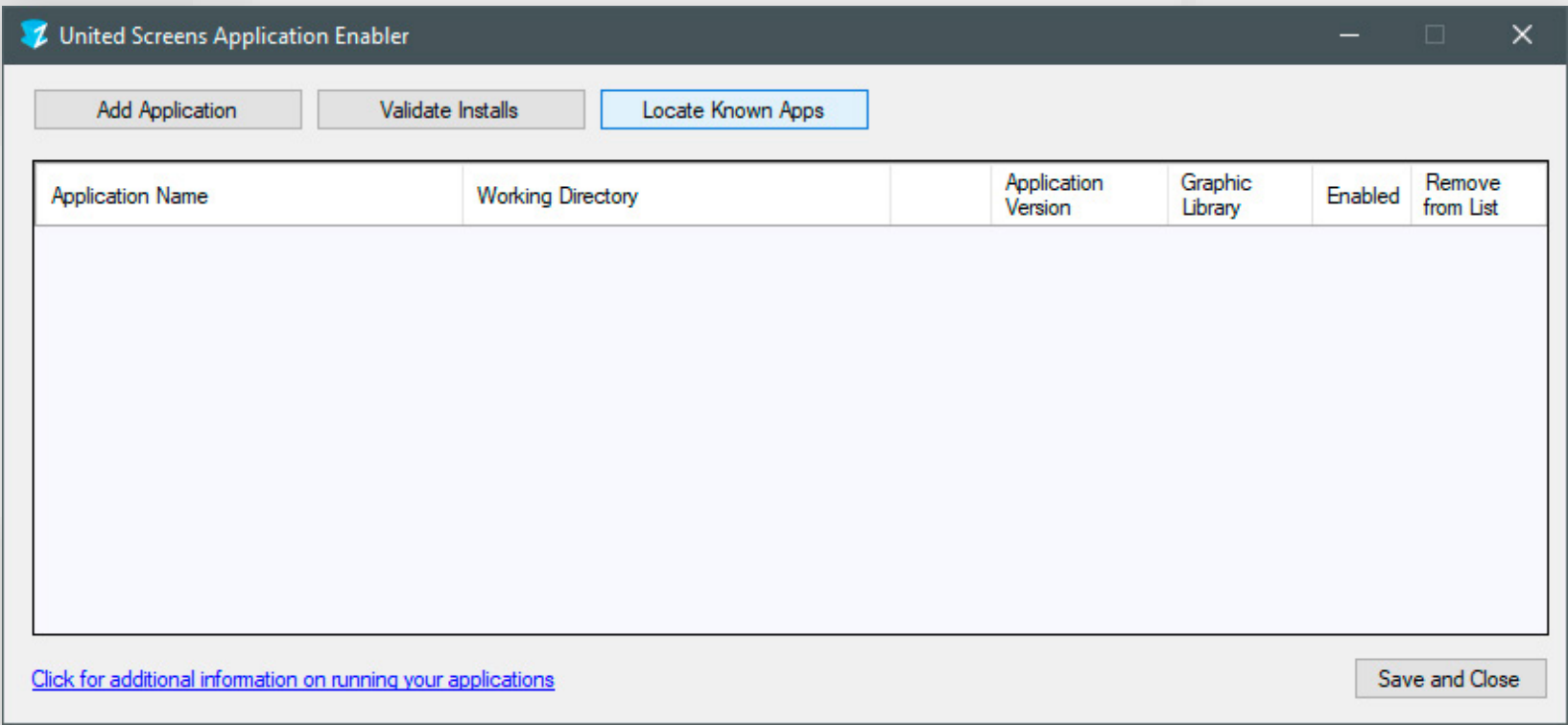
- 3) If your Fledermaus is installed to a non standard directory, please click **Add Application**, locate your **Fledermaus.exe**. The standard path is **\Program Files\QPS\Fledermaus\bin**.
- 4) Place the checkmark in the **Enabled** column.
- 5) Click **Save and Close**.
- 6) Start the ZLink Client and then launch Fledermaus. Load a Fledermaus project file. In Fledermaus, click on **View** and select **Properties**. Set the **Projection Type** to **Perspective**.
- 7) Fledermaus is now properly configured for use with ZLink.

- 1) Open the ZLink Application Enabler via the ZLink Launcher.
- 2) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known Qimera installation locations and add them to the list.



- 3) If your Fledermaus is installed to a non standard directory, please click **Add Application**, locate your **qimera.exe**. The standard path is **\Program Files\QPS\Qimera\bin**.
- 4) Place the checkmark in the **Enabled** column.
- 5) Click **Save and Close**.
- 6) Qimera is now properly configured for use with ZLink.

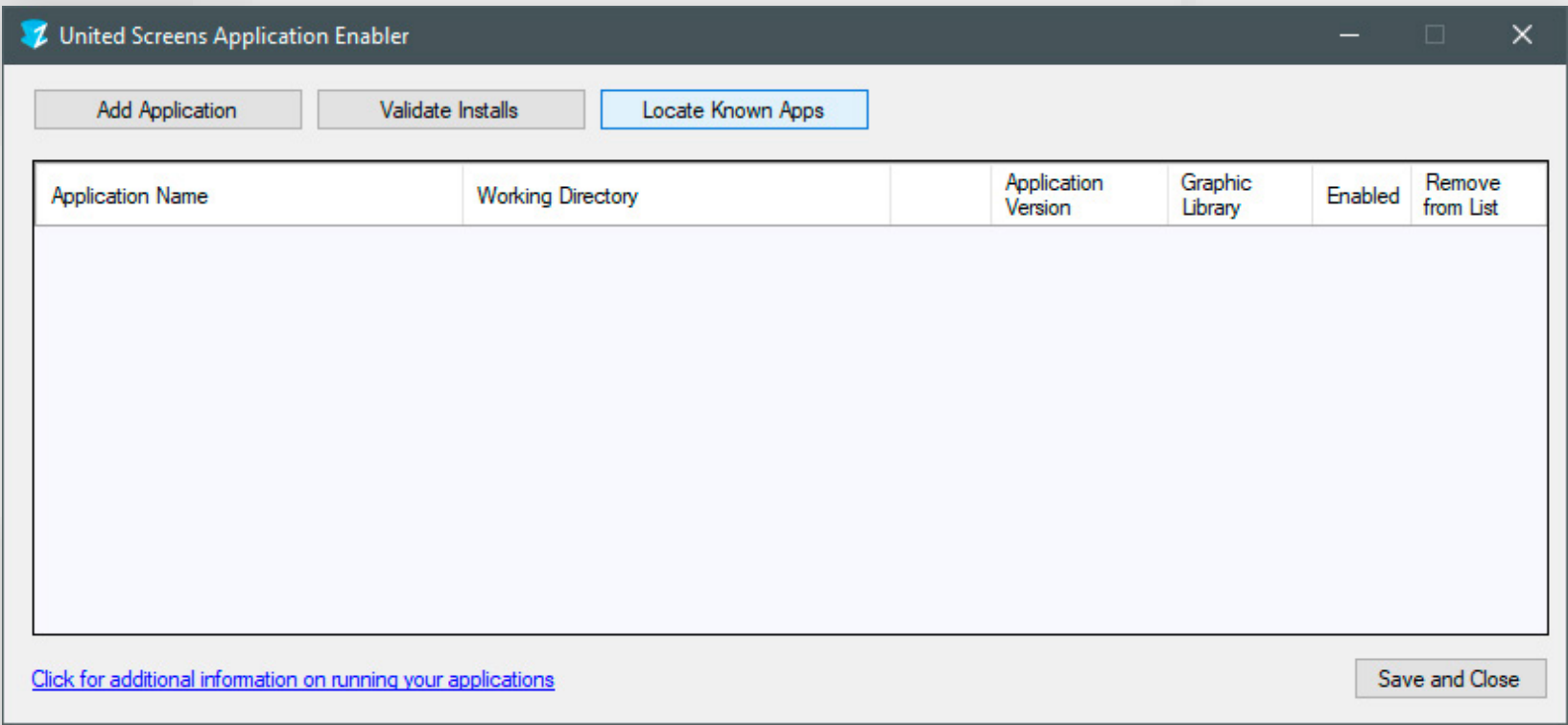
- 1) Open the ZLink Application Enabler via the ZLink Launcher.
- 2) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known Petrel installation locations and add them to the list.



- 3) If your Petrel is installed to a non standard directory, please click **Add Application**, locate your **Petrel.exe**. The standard path is **\Program Files\Schlumberger\Petrel 2016**, or potentially **\Program Files\Schlumberger\Petrel 2017** for the 2017 version; 2018 /19 /20 alike.
- 4) Place the checkmark in the **Enabled** column.
- 5) Click **Save and Close**.
- 6) Petrel is now properly configured for use with ZLink.

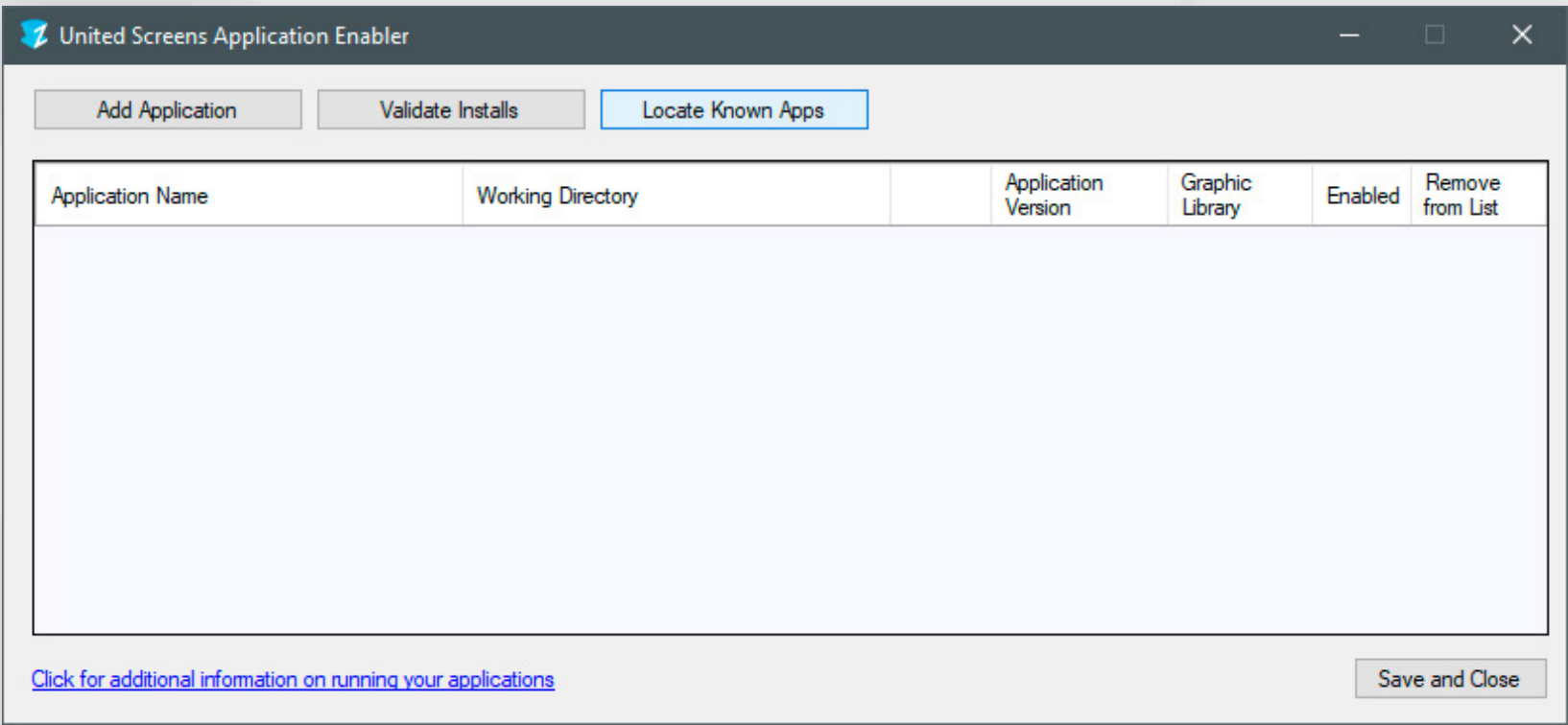
SETUP GUIDE: ACUTE3D VIEWER

- 1) Open the ZLink Application Enabler via the ZLink Launcher.
- 2) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known Acute3D Viewer installation locations and add them to the list.



- 3) If your Acute3D Viewer is installed to a non standard directory, please click **Add Application**, locate your **CCViewer.exe**. The standard path is **\Program Files\Bentley\Acute3D Viewer\bin**.
- 4) Place the checkmark in the **Enabled** column.
- 5) Click **Save and Close**.
- 6) Acute3D Viewer is now properly configured for use with ZLink.

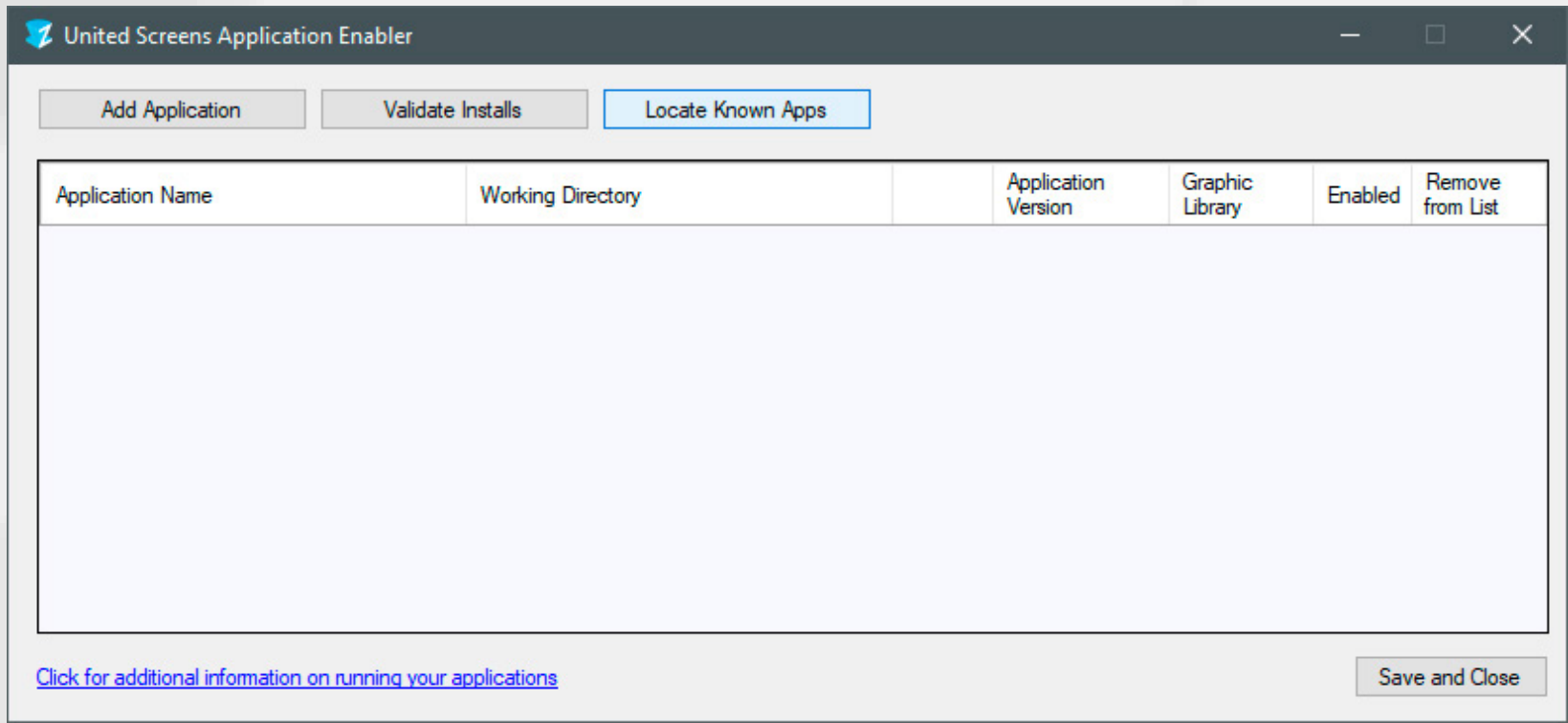
- 1) Open the ZLink Application Enabler via the ZLink Launcher.
- 2) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known Meshlab installation locations and add them to the list.



- 3) If your Meshlab is installed to a non standard directory, please click **Add Application**, locate your **Meshlab.exe**. The standard path is **\Program Files\VCG\MeshLab**.
- 4) Place the checkmark in the **Enabled** column.
- 5) Click **Save and Close**.
- 6) Meshlab is now properly configured for use with ZLink.

SETUP GUIDE: SKETCHUP

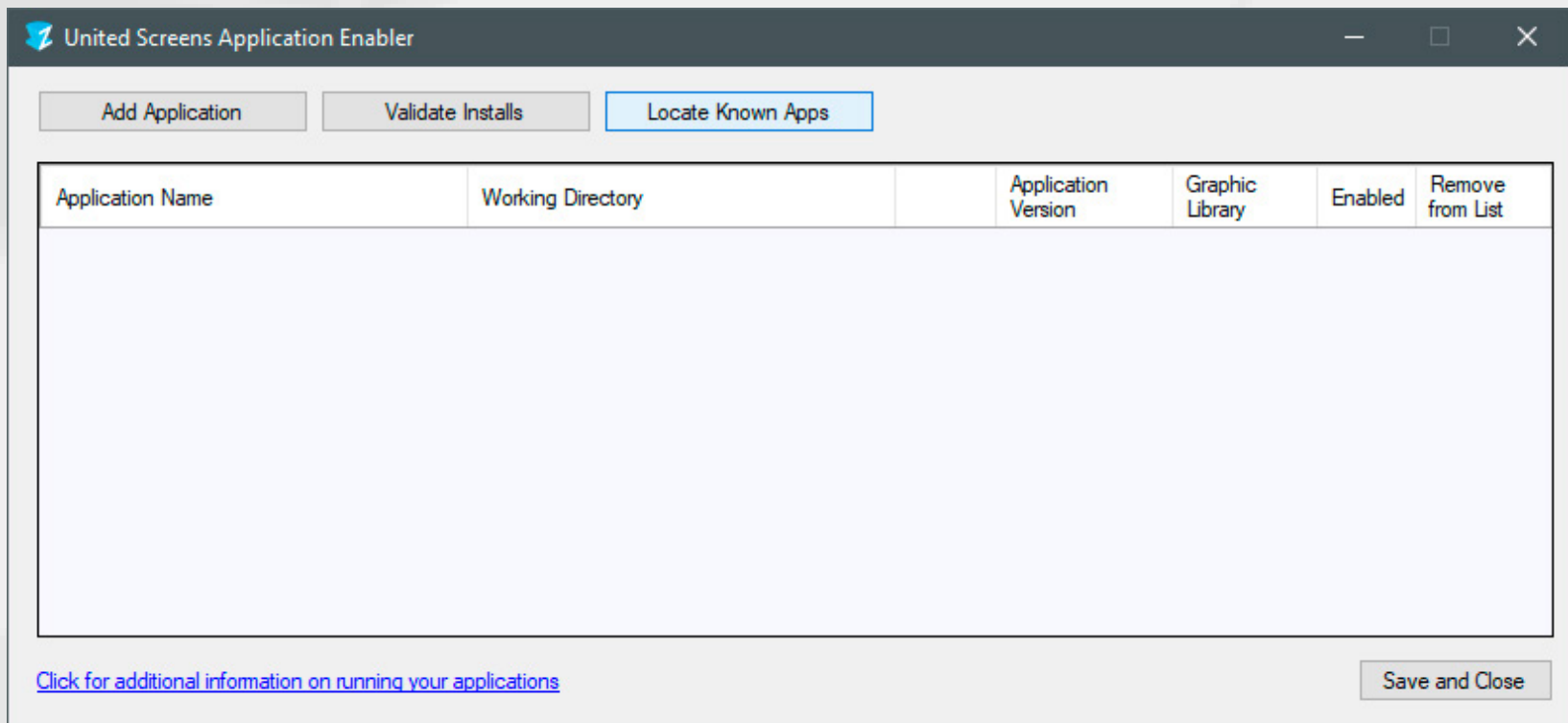
- 1) Open the ZLink Application Enabler via the ZLink Launcher.
- 2) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known Sketchup installation locations and add them to the list.



- 3) If your Sketchup is installed to a non standard directory, please click **Add Application**, locate the **SketchUp.exe** file. It's usually located in **\Program Files\SketchUp\SketchUp 20xx** (xx =year/version).
- 4) Place the checkmark in the **Enabled** column.
- 5) Click **Save and Close**.
- 6) Sketchup is now properly configured for use with ZLink.

SETUP GUIDE: VISTABLE 2.6+

- 1) Open the ZLink Application Enabler via the ZLink Launcher.
- 2) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known visTABLE installation locations and add them to the list.

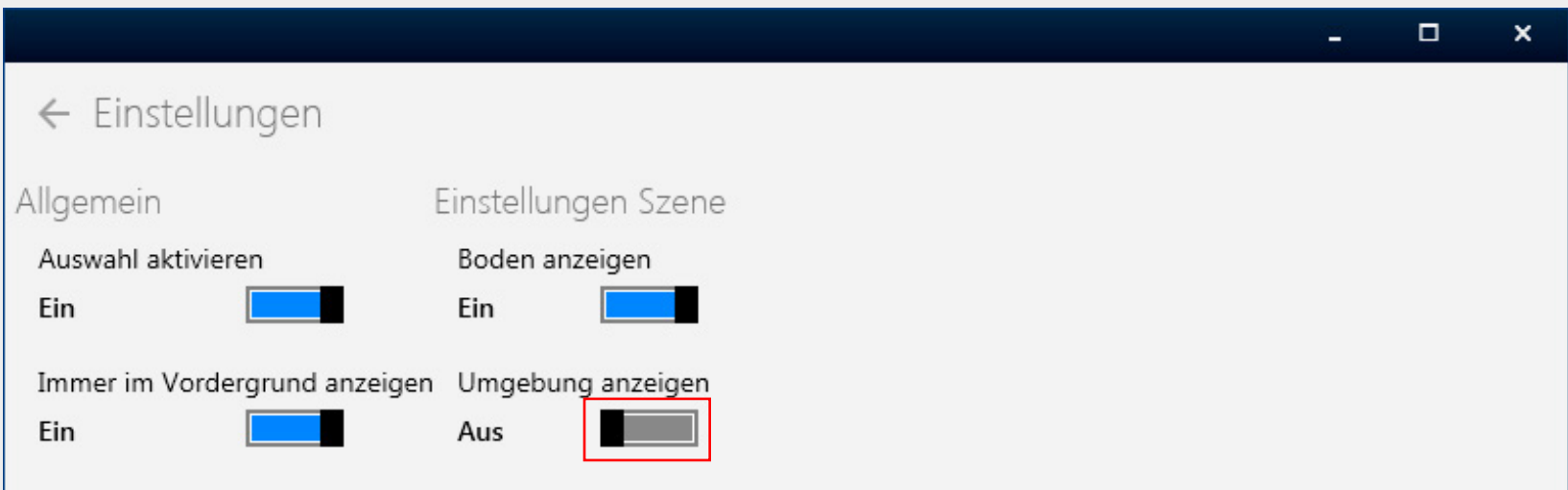


- 3) If your VisTABLE is installed to a non standard directory, please click **Add Application**, locate your **3dc64.exe**. The standard path is **\Program Files (x86)\visTABLE\2.x\bin** (x= version number).
- 4) Place the checkmark in the **Enabled** column.
- 5) Click **Save and Close**.
- 6) If you have installed VisTABLE into its standard directory, you can skip Step 7 and instead download this [support package](#). Copy the **Vistable_OpenGL** Shortcut to **C:\Program Files (x86)\visTABLE\2.0\bin**. Keep the **vistable_VR_start.vbs** on your desktop.
- 7) If you have installed VisTABLE into a custom directory, do the following: Create a shortcut to 3dc64.exe and open its properties. Add the following parameter in the target line: -8c1b014c-2b6d-442c-a6b7-06e3112f5eeb, so the full path looks like this: "YOUR CUSTOM PATH\visTABLE\2.x\bin\3dc64.exe" -8c1b014c-2b6d-442c-a6b7-06e3112f5eeb.
Hint: You can copy and paste the GUID / letter-number sequence from this PDF. Launching this shortcut launches the 3D Viewer of VisTABLE in OpenGL mode - which is required for VR bridging with ZLink.

- 8) Launch VisTABLE. Launch the newly created/downloaded shortcut. Load a visTABLE file. Click the three bars in the top left corner and select "Settings" ("Einstellungen" in German).



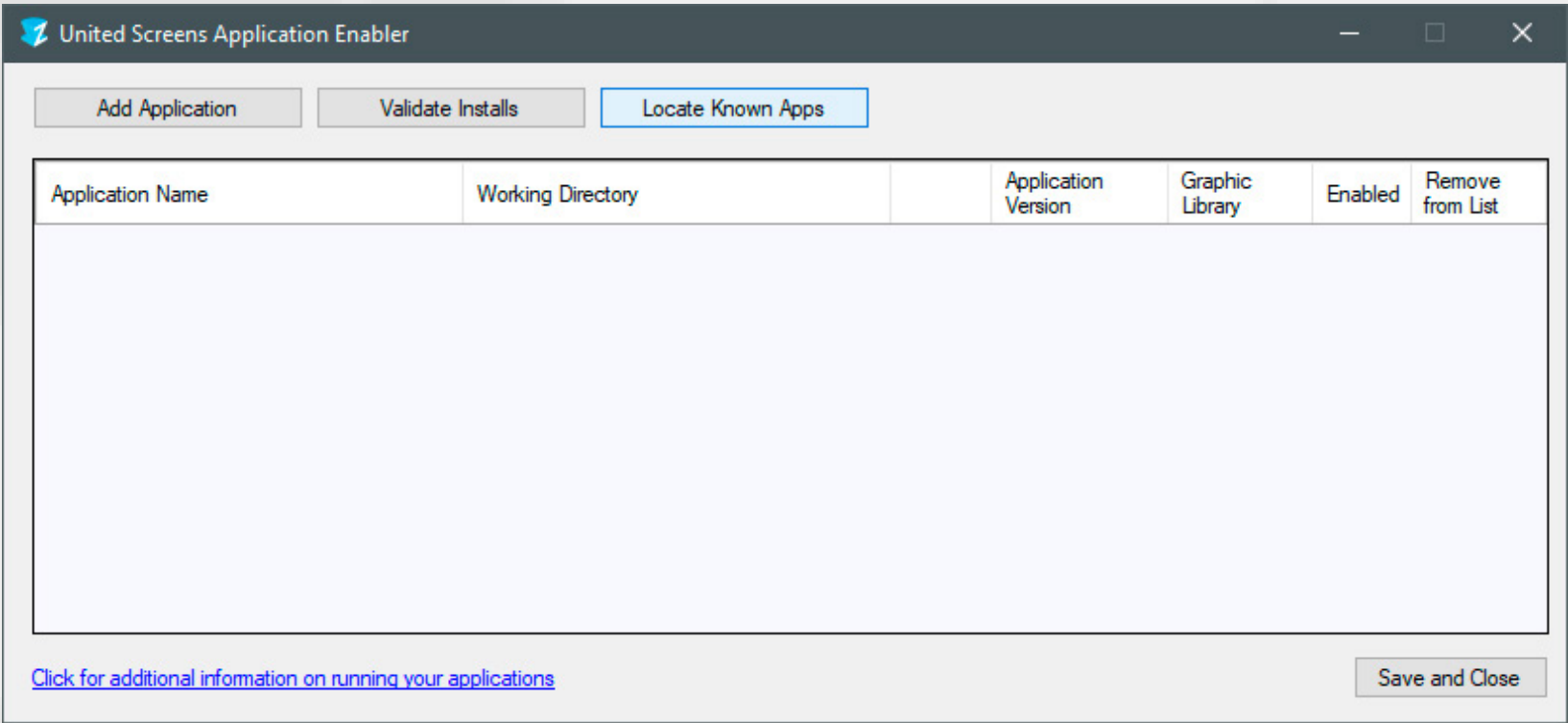
- 9) Disable Show Environment.



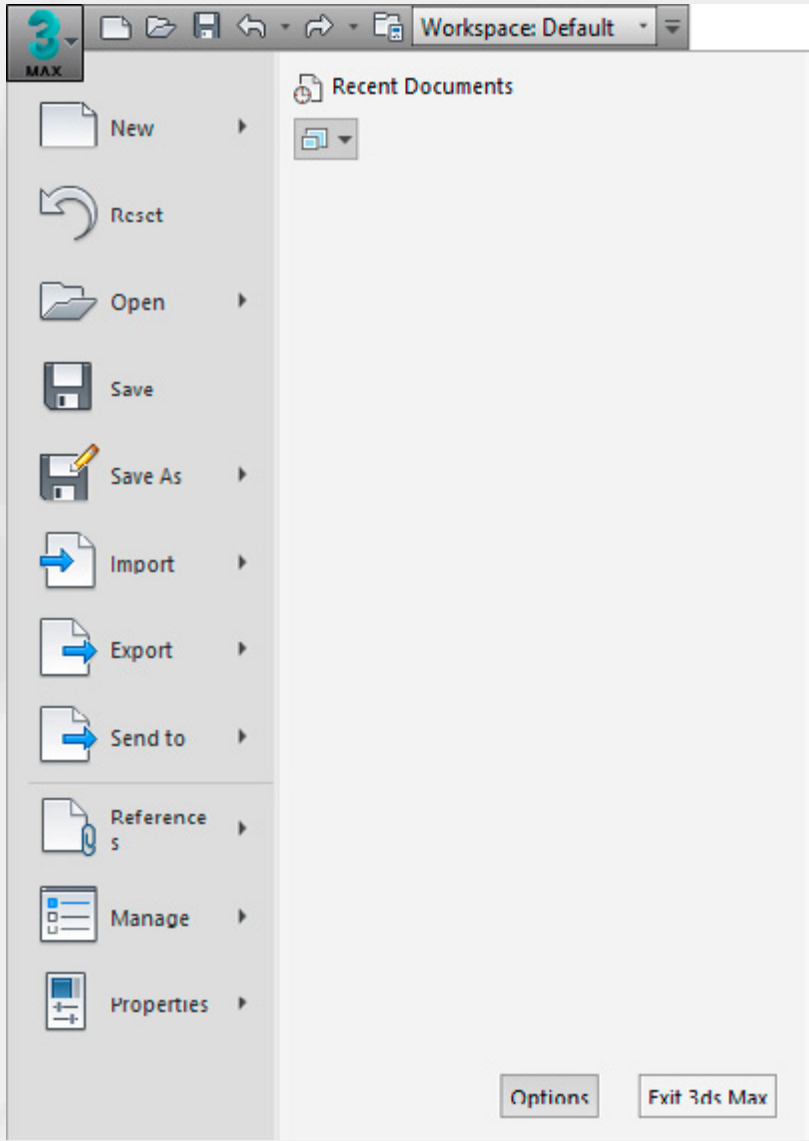
- 10) Now close visTABLE and the 3dc64.exe. For the daily use, launch the software components in the following order (after having started ZLink via the Launcher -> CONNECT):
 - 3dc64.exe custom shortcut
 - visTABLE
 - or simply use the VBS file from the support package
- 11) VisTABLE is now properly configured for use with ZLink.

SETUP GUIDE: AUTODESK 3DS MAX

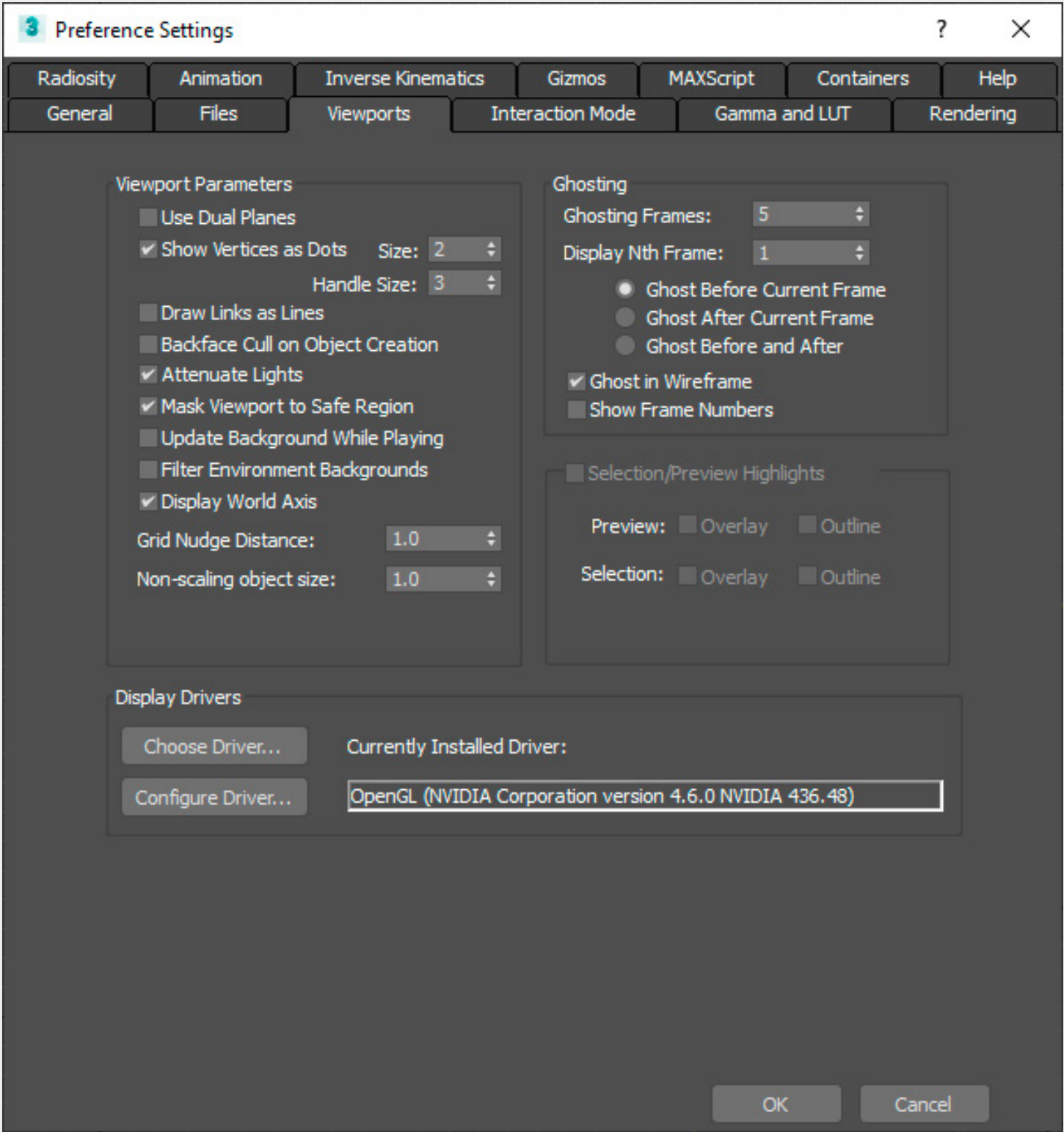
- 1) Open the ZLink Application Enabler via the ZLink Launcher.
- 2) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known 3dsMax installation locations and add them to the list.



- 3) If your 3ds Max is installed to a non standard directory, please click **Add Application**, locate your **3dsmax.exe**. The standard path is **\\Program File\\Autodesk\\3ds Max 20xx** (xx = version number).
- 4) Place the checkmark in the **Enabled** column.
- 5) Click **Save and Close**.
- 6) Start 3ds Max. Click the button in the top left corner to display the **menu**, select **Options**.



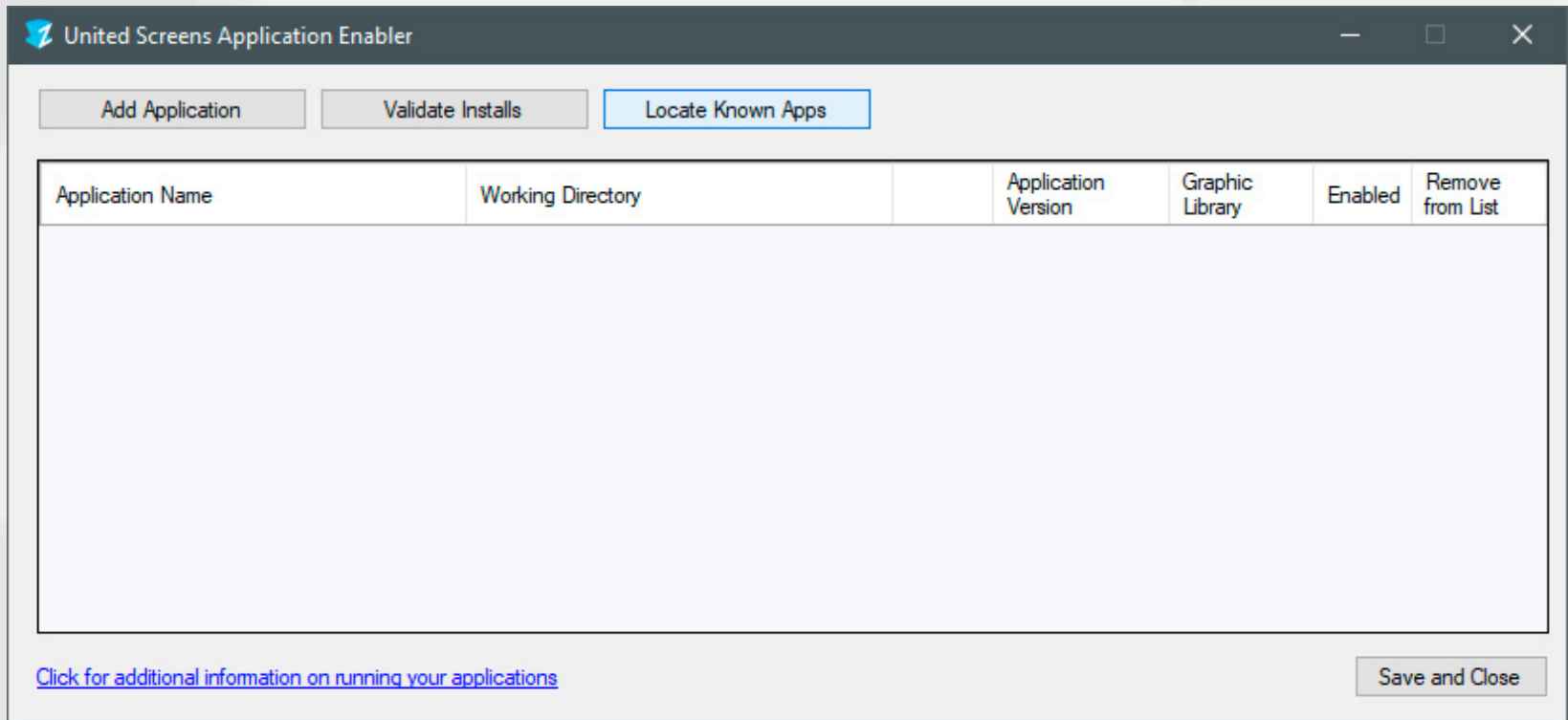
- 7) Switch to the **Viewports** tab. Click on **Choose Driver**. Select **Legacy OpenGL** and exit 3ds Max.



- 8) 3dsMax is now properly configured for use with ZLink.

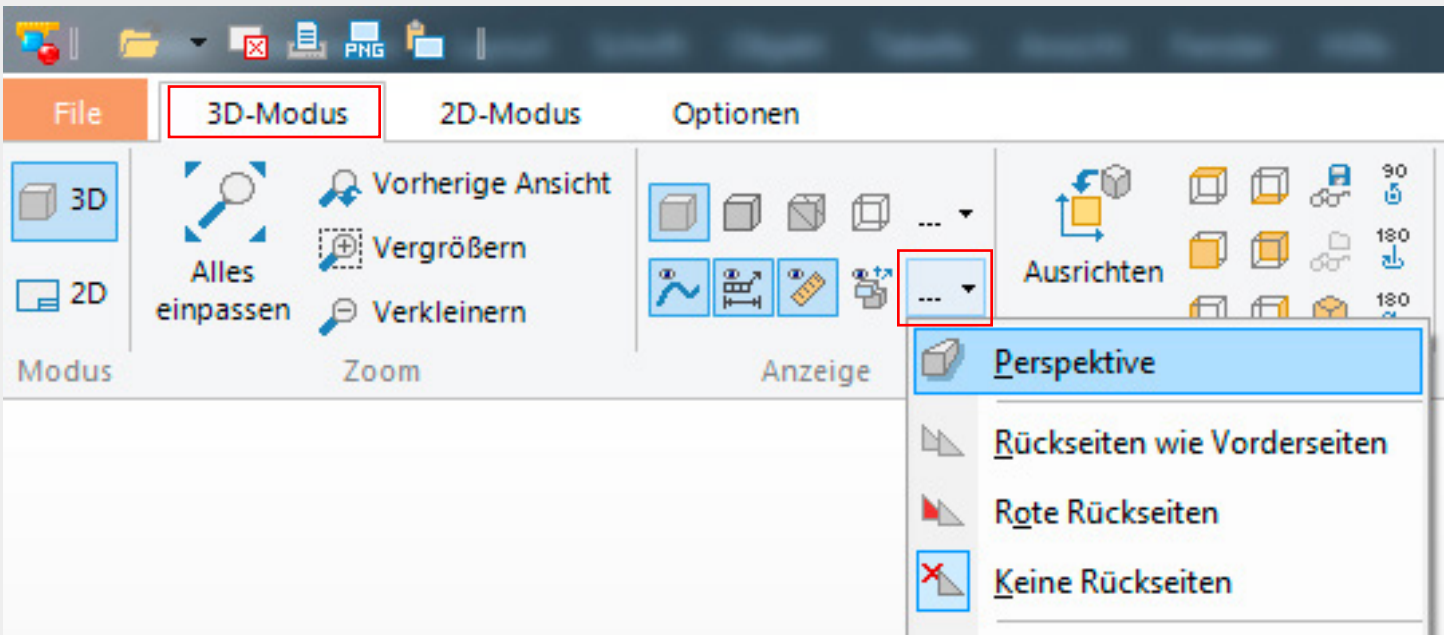
SETUP GUIDE: 3D TOOL

- 1) Open the ZLink Application Enabler via the ZLink Launcher.
- 2) Click **Locate Known Apps**. The Launcher will search the standard program files folders for known 3D-Tool installation locations and add them to the list.



- 3) If your 3D-Tool is installed to a non standard directory, please click **Add Application**, locate your **3D-Tool.exe**. The standard path is **\Program Files\3D-Tool FreeViewer Vxx** (xx = version number). 3D Tool Basic, Advanced and Premium are configured similarly to the free viewer.
- 4) Place the checkmark in the **Enabled** column.
- 5) Click **Save and Close**.

- 6) 3D-Tool is now properly configured for use with ZLink.
- 7) NOTE: Start the ZLink Client and then launch 3D-Tool. Load any 3D model. Enable **Perspective** in the **3D Mode** tab.



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