AI Terminal User Guide

Version 1.0

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Contents

1   Introduction

AI Terminal is an application to configure and control various Viz AI features and connect them with other Vizrt products and solutions.

1.1   Related Documents

- Viz Engine Administrator Guide

For more information about all of the Vizrt products, visit:

- www.vizrt.com
- Vizrt Documentation Center
- Vizrt Training Center
- Vizrt Forum

1.2   Feedback And Suggestions

We encourage feedback on our products and documentation. Please contact your local Vizrt customer support team at www.vizrt.com.

1.3   System Overview
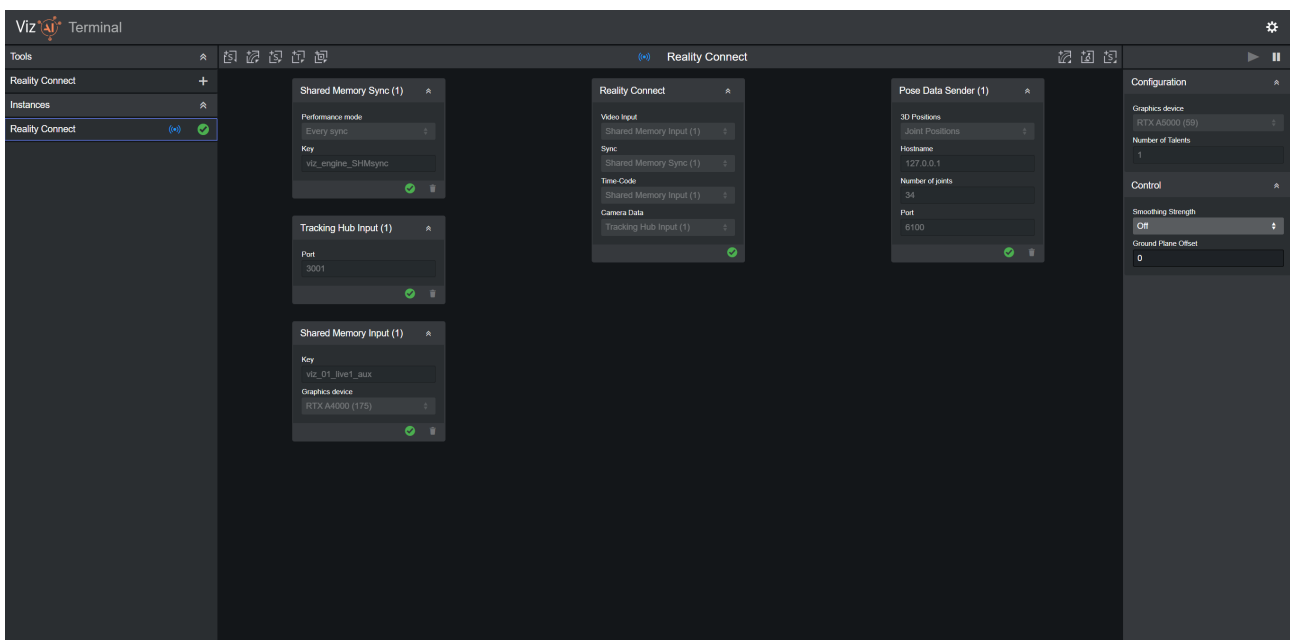
AI Terminal controls Viz AI features for several other Vizrt products and solutions. This version supports integrations with Viz Engine (via shared memory and UDP command interface), Viz Virtual Studio (via Tracking Hub) and NDI.

Viz Engine

Viz Virtual Studio ⟷ Viz AI

NDI®

1.4   System Requirements

1.4.1   General

OS	Windows 10 (64-bit)
Browser	Google Chrome
	Firefox
	Microsoft Edge

1.4.2   Hardware

> ⚠ **Note**: Hardware requirements are defined by each Viz AI feature and Vizrt product integration separately. Please refer to the documentation of these Vizrt products and AI features to find this information.
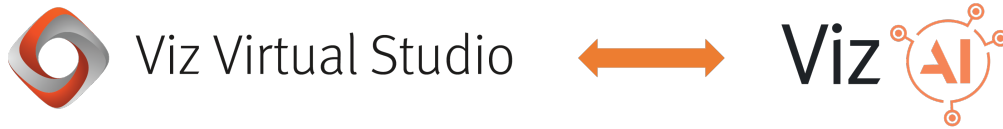
1.4.3   Integrations

· Viz Engine (5.1 or later)
· Viz Virtual Studio / Tracking Hub (1.7 or later)
· NDI (5.0 or later)

1.4.4   Other Software

· CodeMeter (7.40b or later)
· Microsoft Visual C++ 2015-2022 Redistributable

2   Installation

2.1   AI Core

Launch *VizAiCore-*.msi* and follow the instructions.

2.2   AI Terminal

Launch *VizAiTerminal-*.msi* and follow the instructions.

2.3   Viz AI Plugins

Launch *VizAiPlugins-*.msi* and follow the instructions.

> ⚠ **Note:** Restart potentially running instances of Viz Engine to load the installed Viz AI plug-ins.

2.4   Other Software

2.4.1   CodeMeter

Install *CodeMeter 7.40b* or newer.

2.4.2   Microsoft Visual C++ 2015–2022 Redistributable

Install *Microsoft Visual C++ 2015-2022 Redistributable*. The download is available from Microsoft.

3   Settings

Open the settings by clicking the cogwheel icon on the top right of the AI Terminal window.

3.1   Sections

3.1.1   General
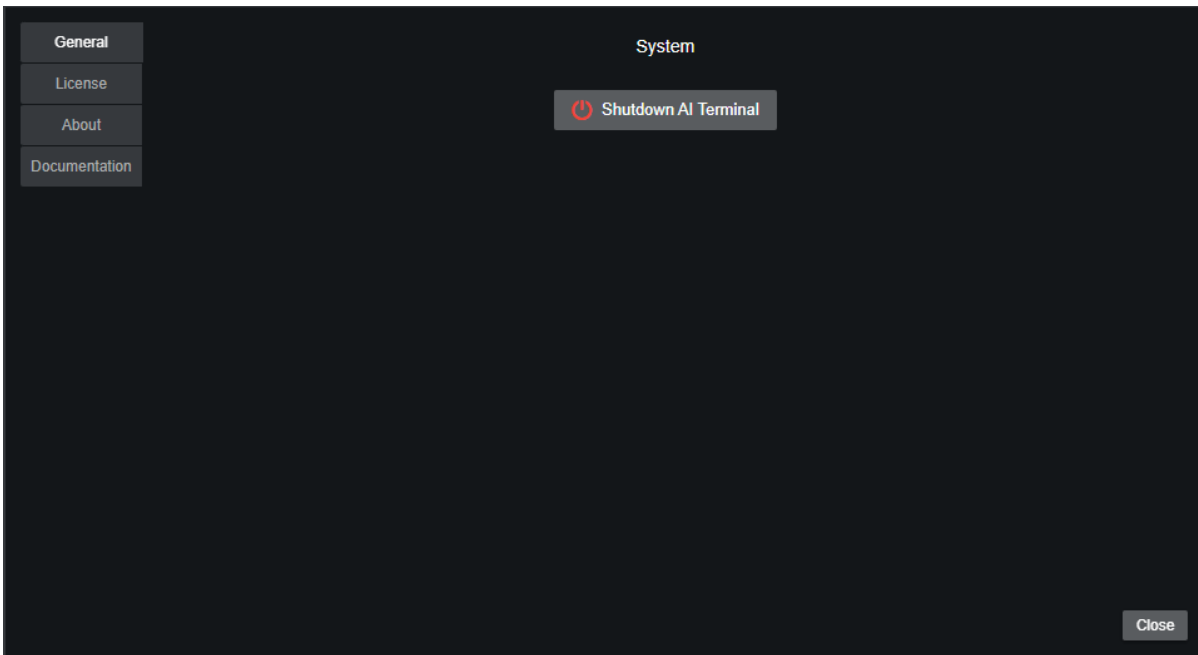
The general section contains a button to shutdown the AI terminal application. This also shutdowns all AI tools.

3.1.2 License
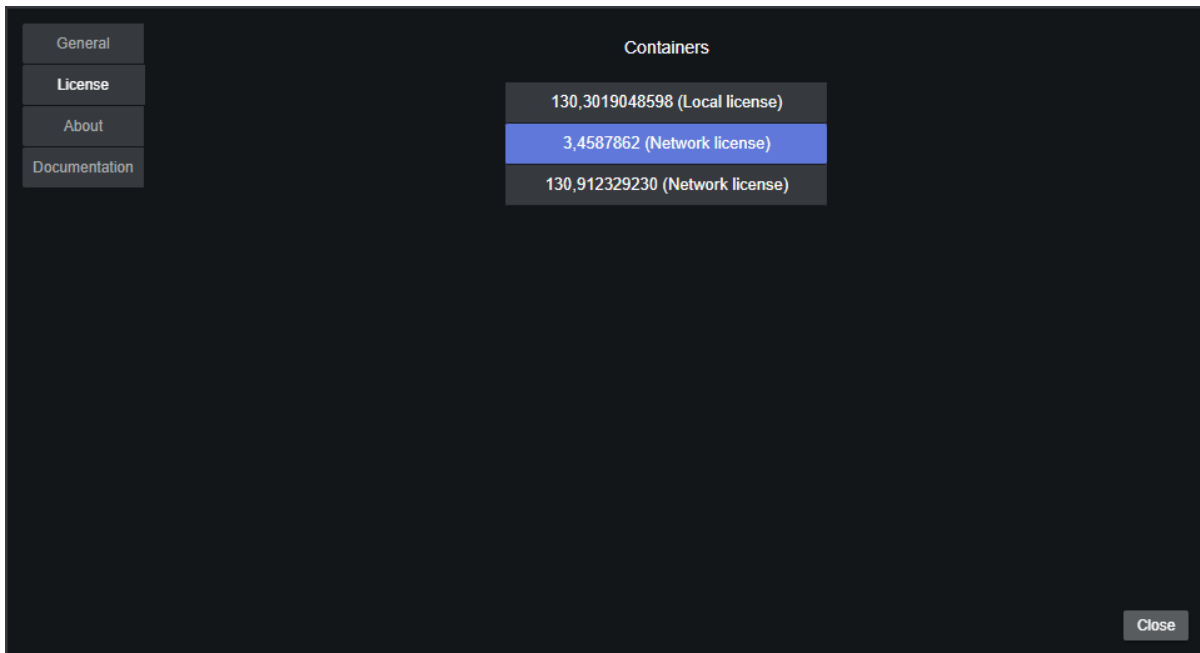
When entering the license section, the available license containers are loaded. This might take a few seconds. Select which license container is used to acquire the Viz AI feature licenses. The license is only acquired when a tool is created.

3.1.3 About
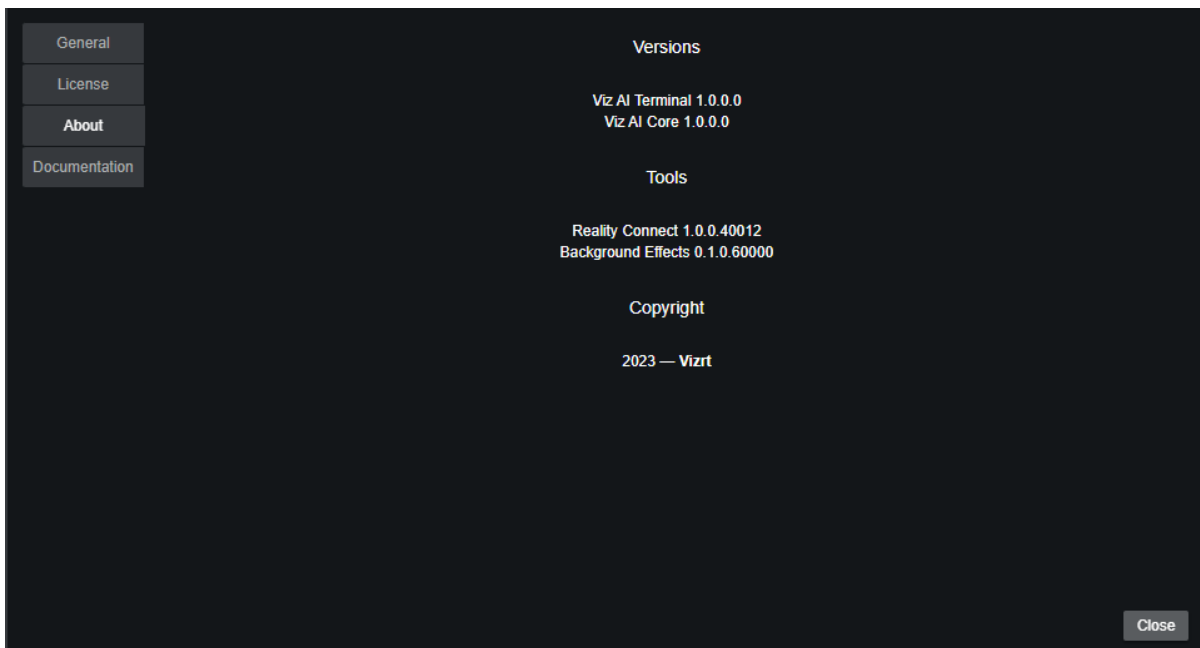
The about section has version information about the installed AI Terminal and Viz AI tools.

3.1.4   Documentation
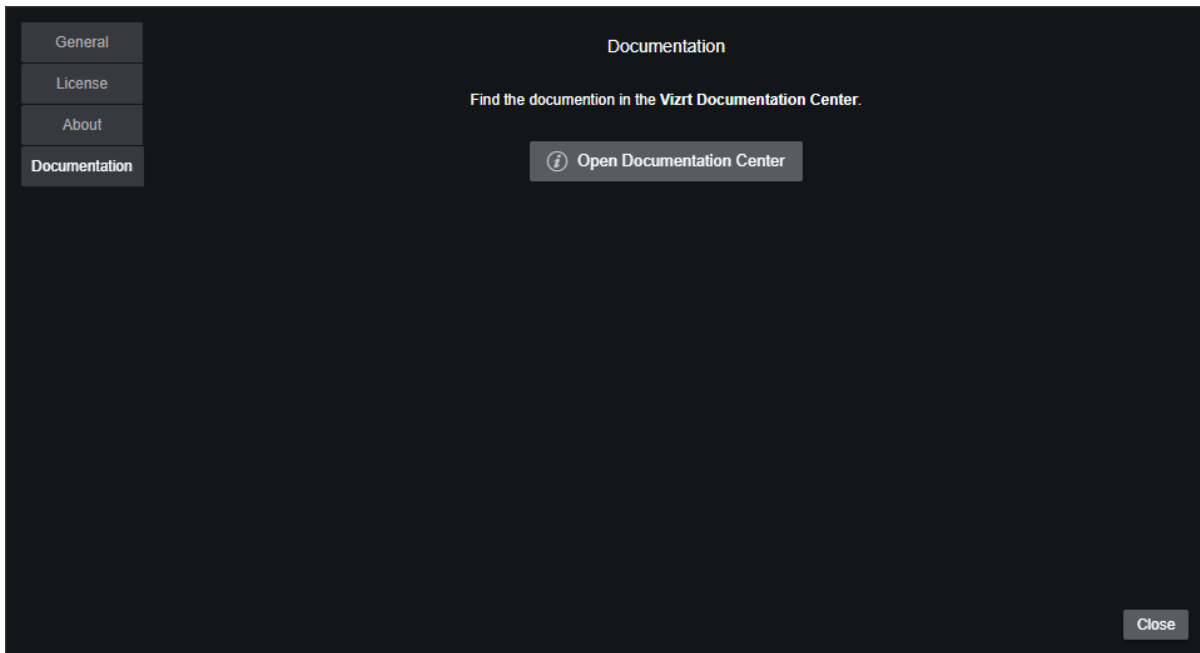
The documentation section contains a link to the Vizrt Documentation Center.

4 Tool Setup

This section indicates how to setup tools:

- Installed Tools
- Create and Terminate a Tool
- Tool Configuration
- Run and Pause a Tool
- Errors and Warnings

4.1 Installed Tools
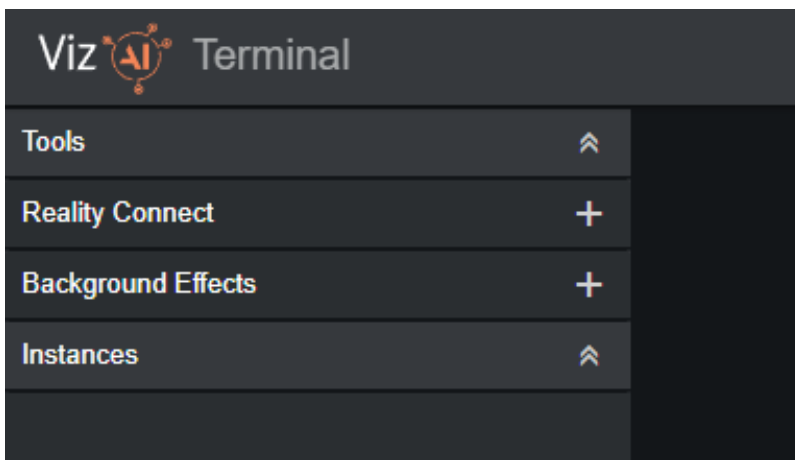
The installed Viz AI tools are listed in the top-left section of the AI Terminal.

4.2 Create And Terminate A Tool

Click the **+** button next to a tool and a new instance starts in a new process.
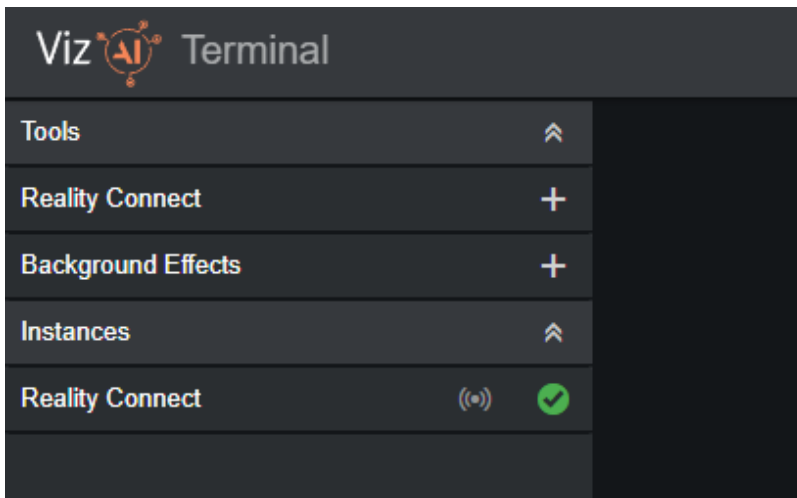
Close the newly created window to terminate the tool.

4.3   Tool Configuration

Select a tool instance and a view similar to the image bellow is shown:
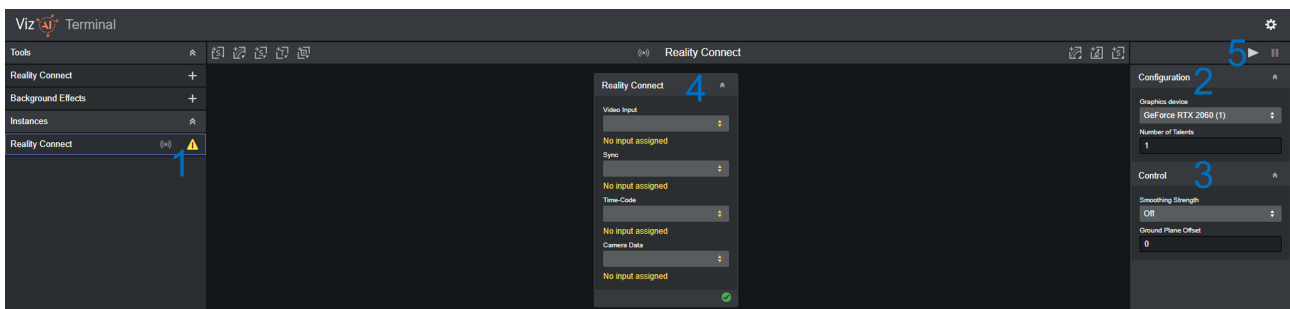
The tool configuration view contains the following:

- If an error or warning is present, this is indicated with a corresponding icon in the tools list (1).
- Find the configuration (2) and control (3) options in the right panel. The control options remain editable while the tool is running.
- Find the input and output configuration in the center panel (4). The input and output configuration is further documented in the I/O Modules chapter.
- Run and stop the tool with the play and pause buttons on the top of the right panel (5).

During the configuration, warnings and errors indicate if a parameter is not specified as expected:
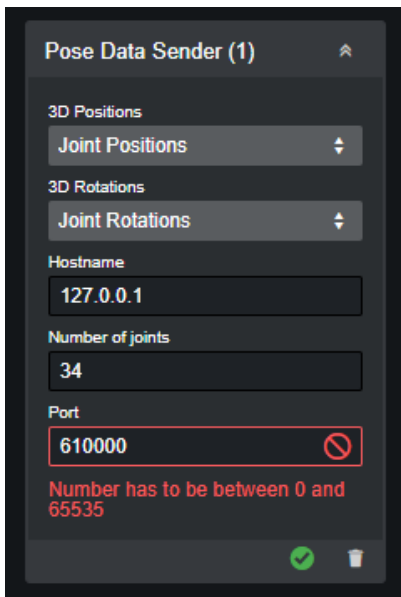
4.4   Run And Pause A Tool

If no configuration errors are present, the tool is launched with the play button on the top of the right panel:
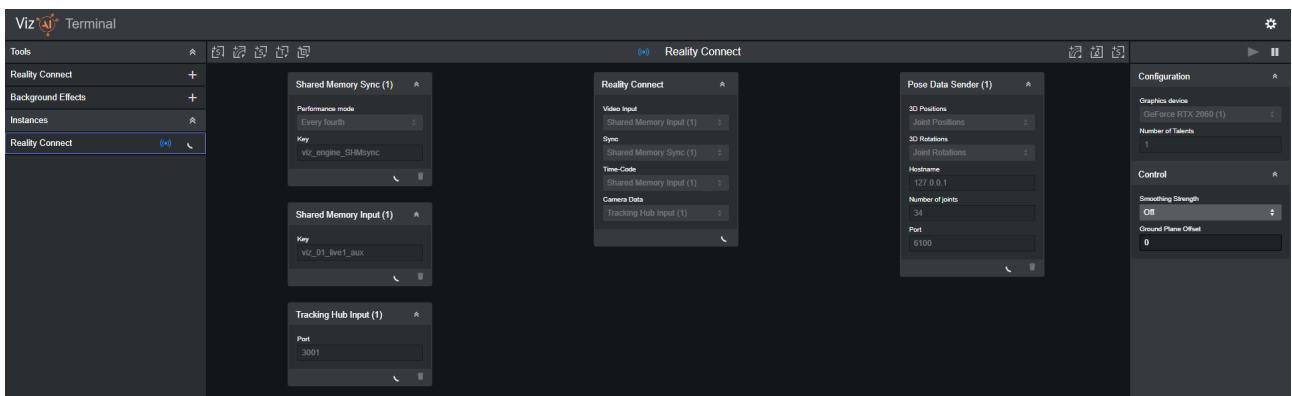
After initialization, which is indicated by spinning wheels, icons indicate the running state for each of the elements. On hover, a tooltip text gives more information about what is causing the error or warning. To change configuration, first pause the tool with the pause button on the top of the right panel and resume the tool after the configuration is changed:
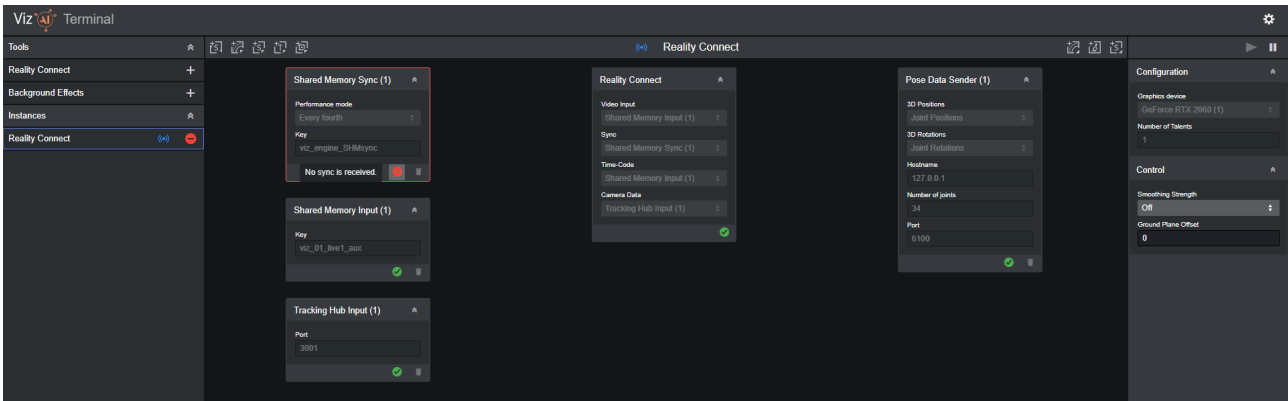
If everything runs as expected, all icons turn into green check marks:
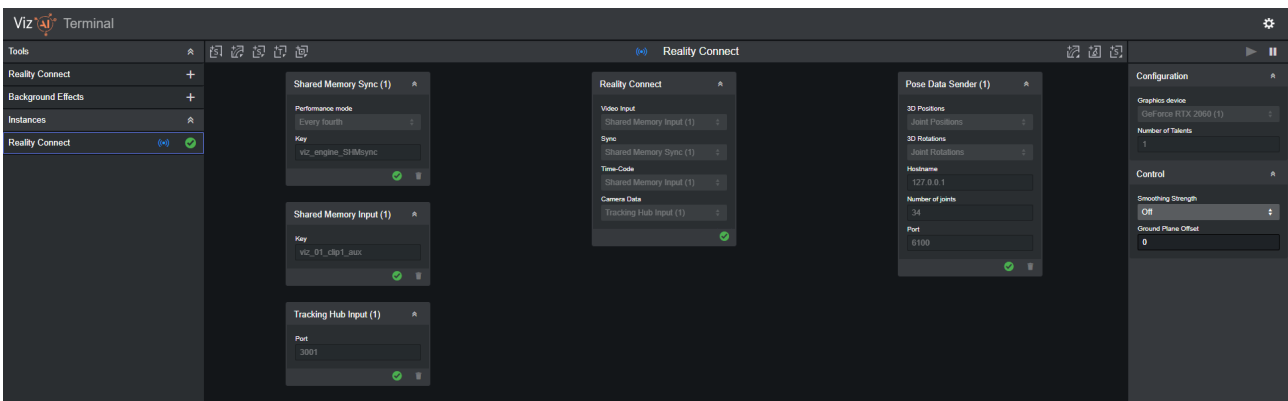
> ⓘ **Note:** The configuration is stored per tool and is restored when starting a new instance of the same tool.

4.5   Errors And Warnings

> ⚠ **Note:** Errors and warnings of the input and output adapters are listed in the I/O Modules chapter.

Severity	Text	Potential Fixes
Error	Tool has failed processing. Revisit the tool's configuration parameters.	· Try another configuration. · Likely, the tool can not deal with the format of one of the inputs. For example, the tool expects two images of the same dimension. Check the tool's documentation for further information.

Severity	Text	Potential Fixes
Error	Tool failed to setup. Revisit the tool's configuration parameters.	· Try another configuration. · There is likely an issue with the tool. Check that the tool is compatible with this version of the AI Terminal and check the tool's documentation for further information.
Warning	One or multiple frames were dropped. Consider to choose a different performance mode.	· If the tool offers different performance modes, choose one with higher performance versus quality. · Distribute the load of your applications onto different graphics devices. The graphics device chosen for the Viz AI tool can be changed in the configuration panel. · If not every frame needs to be processed, choose a different performance mode for the configured Synchronization adapter (for example, *every second*).

5   I/O Modules

Input and output adapters are created by clicking the corresponding icons in the top bar of the input and output configuration panel.

Synchronization and input adapters are listed on the left while output adapters are listed on the right. Hover the icons to see the full name of the adapter.
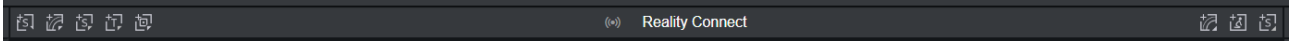
This section contains information on the following:

- Synchronization
- Input
- Output

5.1   Synchronization

5.1.1   Shared Memory Sync

A shared memory sync is used to synchronize the AI tool with an application that provides a sync over shared memory such as the Viz Engine.

Parameters

Name	Type	Explanation
Performance mode	Selection	Selects whether every, every second or every fourth sync is processed.
Key	Text	Specifies the shared memory key.

Errors and Warnings

Severity	Text	Potential Fixes
Error	Setup has failed. Revisit this sync's configuration.	Restart the computer.
Error	Initialization has failed. Revisit this sync's configuration.	Restart the computer.

Severity	Text	Potential Fixes
Error	No sync is received.	Check that the specified shared memory key matches the key which is setup in the integrated application (for example, Viz Engine).

5.2   Input

5.2.1   Shared Memory Input

A shared memory input is used to integrate with applications that can send video frame via shared memory (SMURF), for example Viz Engine. This input requires a Shared Memory Sync created and assigned to the same tool.

Parameters

Name	Type	Explanation
Key	Text	Specifies the shared memory key.
Graphics Device	Text	Specifies the graphics device for texture sharing.

Data

Type	Comments
Image	Supported formats: · RGBA (8-bit, SDR).
Time-Code	Name: · *retraceCounter*. Type: · Sequential.

Errors and Warnings

Severity	Text	Potential Fixes
Error	Setup has failed. Check that a Shared Memory Sync is created and assigned to the same tool.	Create a Shared Memory Sync adapter and assign it to the same tool.
Error	Initialization has failed. Revisit this inputs' configuration.	Restart the computer.
Error	No input is received. Make sure the specified key is correct.	Check that the specified shared memory key matches the key which is setup in the integrated application (for example, Viz Engine). Check that the selected graphics device matches the device which is used in the integrated application (for example, Viz Engine).
Error	Input did not contain all required data.	Check that the input contains all assigned data formatted as specified in the table above.

5.2.2   NDI Input

Use this input to integrate an NDI source.

Parameters

Name	Type	Explanation
NDI Source	Text	Specifies the name of the NDI source.

Data

Type	Comments
Image	Supported formats: · RGBA (8-bit, SDR).
Time-Code	-

Errors and Warnings

Severity	Text	Potential Fixes
Error	Setup has failed. Revisit this inputs' configuration.	Restart the computer.
Error	Could not connect to the specified NDI source. Make sure the NDI source exists.	Use the NDI Studio Monitor to verify that the specified NDI source exists.
Error	No input is received.	Use the NDI Studio Monitor to verify that the specified NDI source exists and provides a running video signal.
Error	Unsupported color format.	Check that the input contains all assigned data formatted as specified in the table above.

5.2.3   Tracking Hub Input

Use this input to integrate with a Tracking Hub.

Parameters

Name	Type	Explanation
Port	Number	Specifies the port to receive the tracking data.

Data

Type	Comments
Tracking-Data	-

Errors and Warnings

Severity	Text	Potential Fixes
Error	Setup has failed. Revisit this inputs' configuration.	Restart the computer.

Severity	Text	Potential Fixes
Error	Initialization has failed. Could not bind to the specified port.	The specified port is already used by another application. Try another port and adapt the setting correspondingly in the Tracking Hub.
Error	No input is received. Verify the specified port and check corresponding settings on the Tracking Hub.	Check that the Tracking Hub is sending data to the specified port.
Error	Input did not contain all required data.	Check that this version of AI Terminal is compatible with the installed version of Tracking Hub.

5.2.4   Webcam

Use this input to integrate with a webcam.

Parameters

Name	Type	Explanation
Camera index	Number	Specifies which camera to use (automatically detects how many available webcams are on the computer).

Data

Type	Comments
Image	-

Errors and Warnings

Severity	Text	Potential Fixes
Error	Setup has failed. Revisit this inputs' configuration.	Restart the computer.

Sever ity	Text	Potential Fixes
Error	Failed to initialize. Make sure the webcam is not used in another application.	Check that the webcam is connected to the computer and accessible by the *Camera* app pre-installed on most Windows systems. The webcam might be already in use by another application. Close this other application.
Error	No input is received.	Restart the tool.
Error	Input did not contain all required data.	Restart the tool.

5.3   Output

5.3.1   Shared Memory Output

A shared memory output is used to integrate with applications that can receive video frame via shared memory (SMURF), for example Viz Engine. This output requires a Shared Memory Sync created and assigned to the same tool.

Parameters

Name	Type	Explanation
Key	Text	Specifies the shared memory key.
Graphics Device	Text	Specifies the graphics device used for texture sharing.
Image	Image	Specifies an image to be sent with this output.

Errors and Warnings

Severity	Text	Potential Fixes
Error	Setup has failed. Check that a Shared Memory Sync is created and assigned to the same tool.	Create a Shared Memory Sync adapter and assign it to the same tool.
Error	Initialization has failed. Revisit this outputs' configuration.	Restart the computer.
Error	Failed to write output.	Check that there is no other application that is writing to the same shared memory key.
Error	Data does not conform with this output module's requirements.	Make sure an image is assigned. The data provided by the tool does not conform with this output module's requirements. Check the tool's documentation for more information.

5.3.2 NDI Output

Use this output to integrate with other application capable of reading NDI.

Parameters

Name	Type	Explanation
NDI Output	Text	Specifies the name of the NDI output.
Image	Image	Specifies an image to be sent with this output.

Errors and Warnings

Severity	Text	Potential Fixes
Error	Setup has failed. Revisit this outputs' configuration.	Restart the computer.

Sever ity	Text	Potential Fixes
Error	Initialization has failed. Revisit this outputs' configuration.	Check that there is no other NDI signal generated on this computer with the same name.
Error	Failed to write output.	Check that there is no other NDI signal generated on this computer with the same name.
Error	Data does not conform with this output module's requirements.	Make sure an image is assigned. The data provided by the tool does not conform with this output module's requirements. Check the tool's documentation for more information.

5.3.3   Pose Data Sender

Use this sender to communicate detected pose data to the *Pose Data Receiver Viz Engine Plugin* (distributed with the Reality Connect tool).

Parameters

Name	Type	Explanation
3D Positions	3D-Positions	Specifies the 3D positions to be sent with this output.
Hostname	Text	Specifies the host address of the Viz Engine.
Number of joints	Number	Specifies the number of joints contained in the pose.
Port	Number	Specifies the communication port of the Viz Engine.

Errors and Warnings

Sever ity	Text	Potential Fixes
Error	Setup has failed. Revisit this outputs' configuration.	Restart the computer.
Error	Initialization has failed. Revisit this outputs' configuration.	Check that the Viz Engine is running and has the same communication port configured as specified here.

Severity	Text	Potential Fixes
Error	Failed to write output.	Check that the Viz Engine is running and has the same communication port configured as specified here.
		Check that the Viz Engine is configured with a valid UDP port (search the Viz Engine config for *smm_udp_service*).
Error	Position data does not conform with this sender's requirements.	Make sure that 3D positions are assigned.
		The data provided by the tool does not conform with this output module's requirements. Check the tool's documentation for more information.