



# AI Keyer User Guide

Version 1.0



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- **Real-Time Scanning:** Keep it enabled, but exclude any performance-sensitive operations involving Vizrt-specific folders, files, and processes. For example:
  - C:\Program Files\[Product Name]
  - C:\ProgramData\[Product Name]
  - Any custom directory where [Product Name] stores data, and any specific process related to [Product Name].
- **Risk Acknowledgment:** Excluding certain folders/processes may improve performance, but also create an attack vector.
- **Scan Scheduling:** Run full system scans during off-peak hours.
- **False Positives:** If behavior-based detection flags a false positive, mark that executable as a trusted application.

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### **Created on**

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# Contents

<b>1</b>	<b>Introduction .....</b>	<b>5</b>
1.1	Related Documents .....	6
1.2	Feedback and Suggestions .....	6
1.3	System Overview .....	7
1.4	System Requirements .....	8
1.4.1	General.....	8
1.4.2	Hardware .....	8
1.4.3	Software.....	8
<b>2</b>	<b>Installation .....</b>	<b>9</b>
2.1	Branded Installer .....	9
<b>3</b>	<b>Viz Engine Configuration .....</b>	<b>10</b>
3.1	Communication .....	10
3.2	Unreal Engine.....	11
3.2.1	SHM Sync Master Mode .....	11
3.2.2	SHM Sync Master Key .....	11
3.3	Video Input: Live Input .....	11
3.3.1	Texture Delays .....	13
<b>4</b>	<b>Viz Engine Scene Design .....</b>	<b>15</b>
4.1	Media Tab.....	15
4.1.1	Input Sources.....	15
4.1.2	Input Source to AI Keyer Aux Setting.....	15
4.1.3	SHM - SMURF Input Source Keyer Setting.....	16
4.2	Scene Tab.....	16
<b>5</b>	<b>Tool Configuration .....</b>	<b>20</b>
5.1	Create a Viz AI Runner Instance .....	20
5.2	Input / Output Configuration .....	21
5.2.1	Viz Engine Sync Input .....	21
5.2.2	Viz Engine Input.....	21
5.2.3	AI-Keyer-Standard / Quality.....	21
5.2.4	Viz Engine Output.....	21
5.3	Tool Configuration.....	22
5.3.1	Configuration.....	22
5.3.2	Control .....	22

5.4 Verify Configuration.....23

# 1 Introduction

The Vizrt AI Keyer separates focused people from the background to enable AR workflows without the need of a green screen.

 A virtual studio background featuring a dark blue gradient with vertical lines and a faint, glowing grid of data points or code.	<p>Virtual Studio</p>
 A live input image showing a woman with blonde hair wearing a black sequined dress, standing in front of a dark, grid-patterned background.	<p>Live input</p>
 The matte result of the AI Keyer, showing a solid black silhouette of the woman from the previous image against a white background.	<p>Matte result of the AI Keyer</p>



Composition result with the AI Keyer

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## 1.1 Related Documents

- [Viz Engine](#)
- [AI Terminal](#)

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

- [www.vizrt.com](http://www.vizrt.com)
- [Vizrt Documentation Center](#)
- [Vizrt Training Center](#)
- [Vizrt Forum](#)

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## 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](http://www.vizrt.com).

## 1.3 System Overview



The Vizrt AI Keyer is a feature configured and controlled by the *Vizrt AI Terminal*. It integrates with *Viz Engine* to key one or multiple talents using AI. Viz Engine can then be configured to use the key data to put graphics in front or behind the keyed talents.

**Note:** AI Keyer needs to run on the same computer as Viz Engine.

## 1.4 System Requirements

### 1.4.1 General

<b>OS</b>	Windows 10 (64-bit)
	Windows 11
<b>Browser</b>	Google Chrome
	Firefox
	Microsoft Edge

### 1.4.2 Hardware

	Minimal	Recommended
<b>Box</b>	HP Z4 G5	HP Z8 G5
<b>Graphics Card</b>	NVIDIA RTX 4000 Ada	NVIDIA RTX 6000 Ada
		NVIDIA RTX 5000 Ada + NVIDIA RTX 4000 Ada

**⚠ Note:** The performance is strongly influenced by the complexity of the scene loaded in *Viz Engine*. The AI Keyer offers a set of modes from light to heavy that have different impact on GPU load at the cost of keying quality. A strong graphics card such as the NVIDIA RTX 6000 Ada is strongly recommended to achieve optimal quality. Alternatively, the load can be distributed among two graphic cards.

### 1.4.3 Software

- Viz Engine (5.5 or later)

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## 2 Installation

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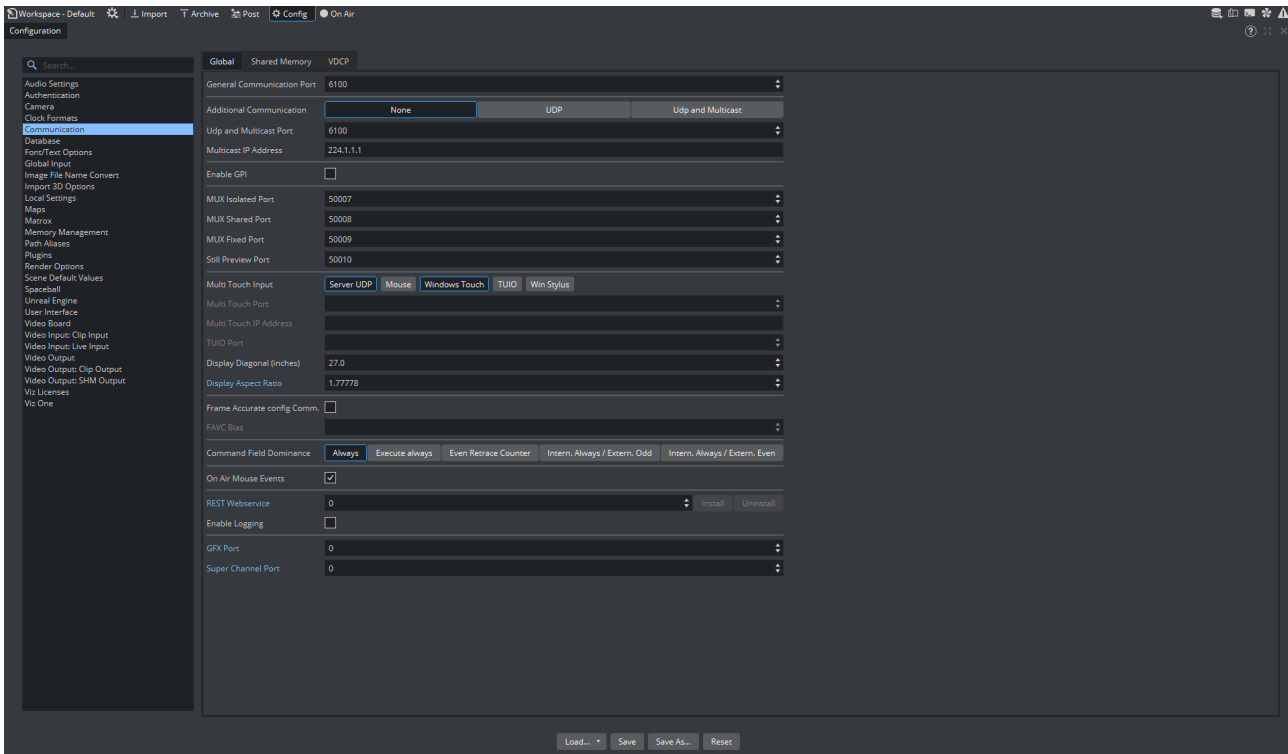
### 2.1 Branded Installer

1. Double click *Viz\_AI\_Tools-\*.exe*.
2. Select **Requirements**, **AI Terminal**, and **AI Keyer**.
3. Click **INSTALL** and follow the instructions.



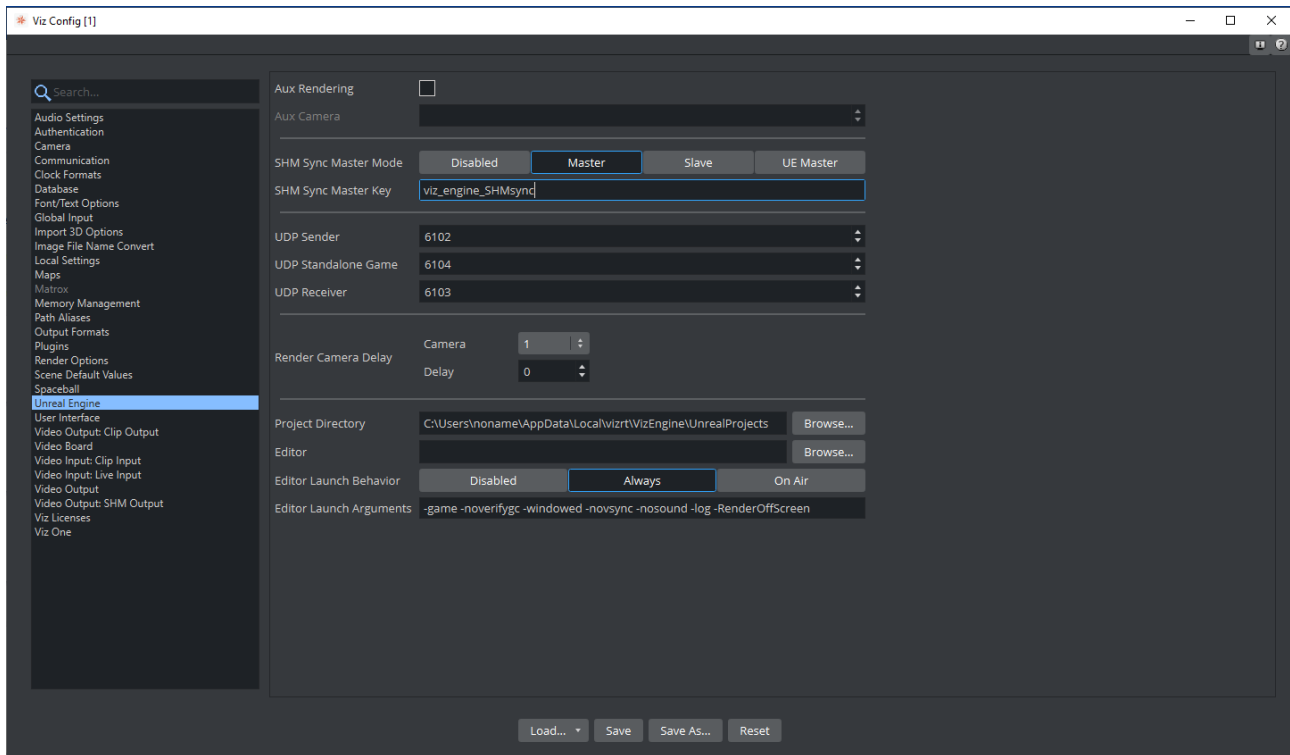
## 3 Viz Engine Configuration

### 3.1 Communication



Make sure to remember the General Communication Port. This number is required during the [Tool Configuration](#).

## 3.2 Unreal Engine



### 3.2.1 SHM Sync Master Mode

Set to *Master*.

### 3.2.2 SHM Sync Master Key

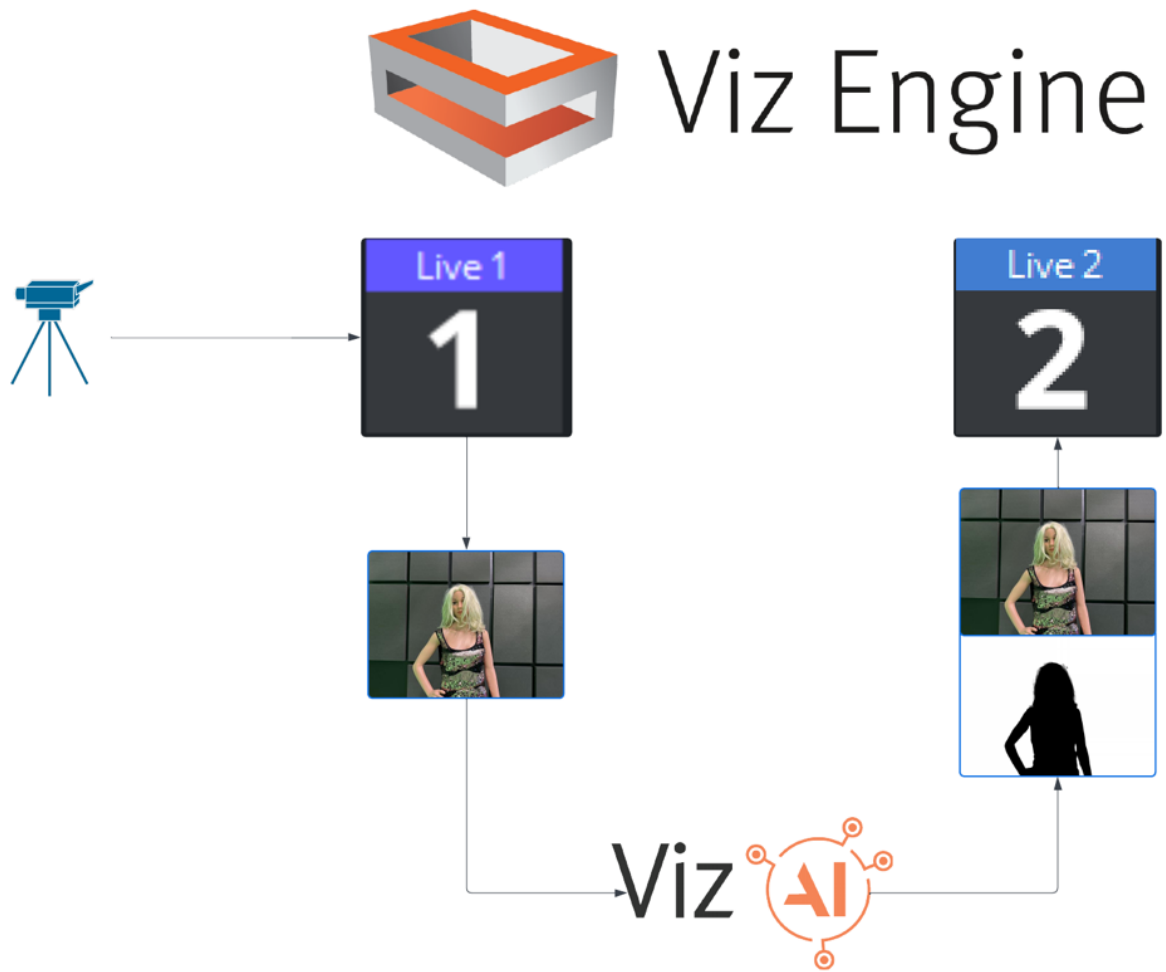
Specify a non-empty name.

## 3.3 Video Input: Live Input

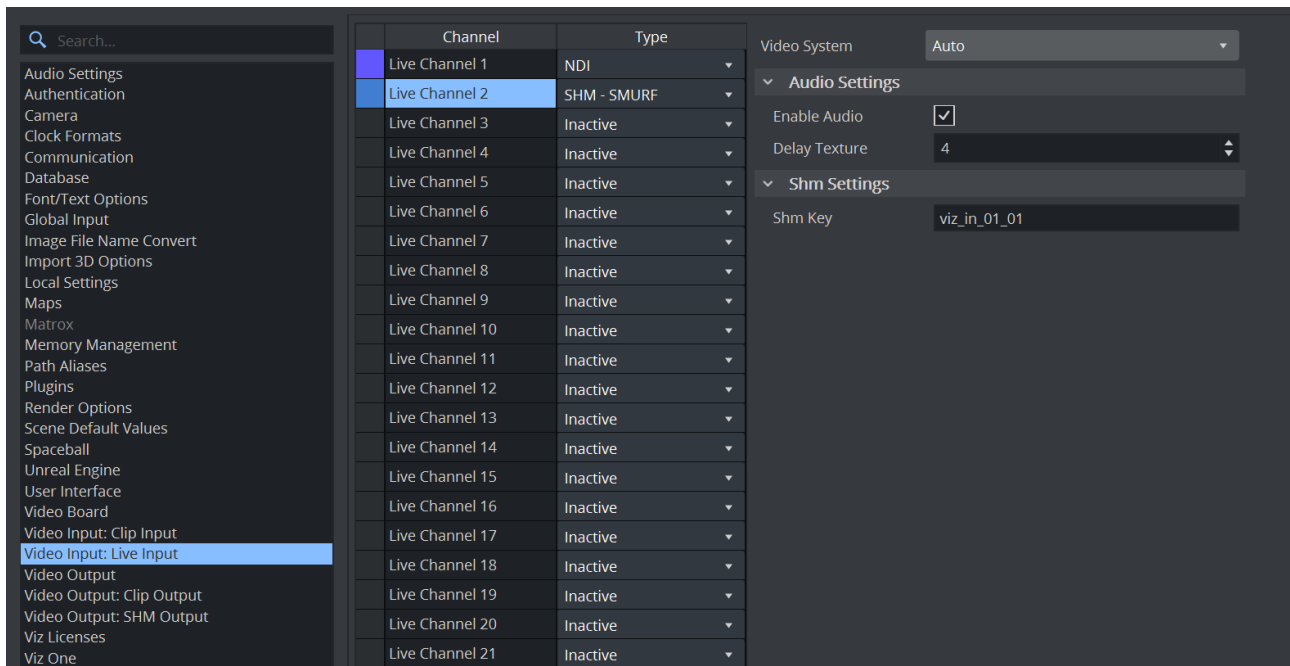
Enable at least one input source, that is the video of which foreground is being keyed. This is the source we configure later to be sent to the Vizrt AI Keyer. Then, enable a Live Channel as **SHM-SMURF**, which we configure later to contain the keyed result. Remember the Channel numbers for both input configuration. This is required during the [Tool Configuration](#) and [Scene Design](#). Below an example with Live 1 as general video input channel and Live 2 as SHM - SMURF containing the keyed foreground signal.



**Information:** The AI Keyer also supports a Clip Channel as input. The channel receiving the AI Keyer output, however, is always a Live Channel.

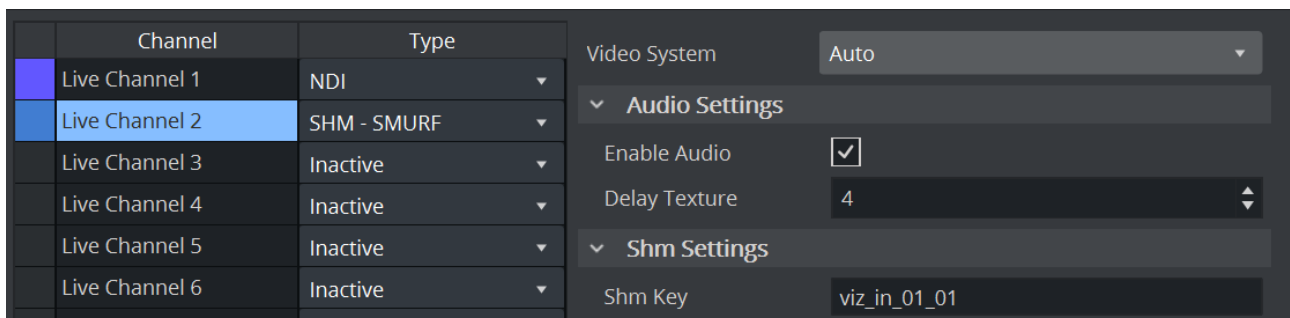


Live Channels can be enabled in the *Video Input: Live Input* section of the Engine's *Config* window:



### 3.3.1 Texture Delays

When enabling a Live Channel as **SHM-SMURF** source, the *Delay Texture* value is automatically set to 4:



To sync the two inputs, the live input source channel must also be delayed (ideally by the same value) using the *Delay After Input Graph* option:

Channel	Type
Live Channel 1	NDI
Live Channel 2	SHM - SMURF
Live Channel 3	Inactive
Live Channel 4	Inactive
Live Channel 5	Inactive
Live Channel 6	Inactive
Live Channel 7	Inactive
Live Channel 8	Inactive
Live Channel 9	Inactive
Live Channel 10	Inactive
Live Channel 11	Inactive

Video System: HD - 1080p

Bits Per Channel: 8

**Audio Settings**

Enable Audio:

Delay Texture: 13

**Ndi Settings**

Enable Alpha:

Source: LV-TAO (MLC)

**Expert Settings**

Delay After Input Graph: 4

## 4 Viz Engine Scene Design

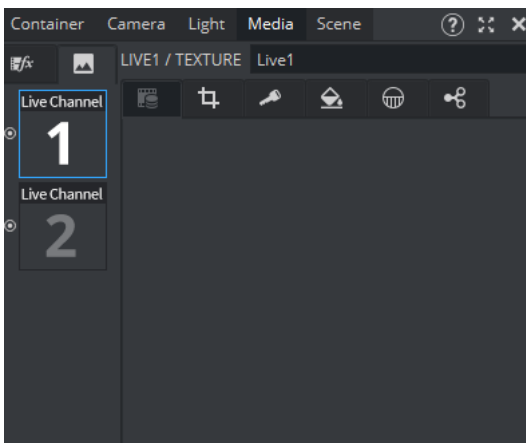
This section describes the steps required to design a Viz Engine scene that can use the AI Keyer capability.

**Note:** The AI Keyer requires a *Precision Keyer* and a *AI Keyer Greenscreen-less* license. Make sure to have these enabled in the **Viz Engine Settings > Viz Licenses** panel.

### 4.1 Media Tab

#### 4.1.1 Input Sources

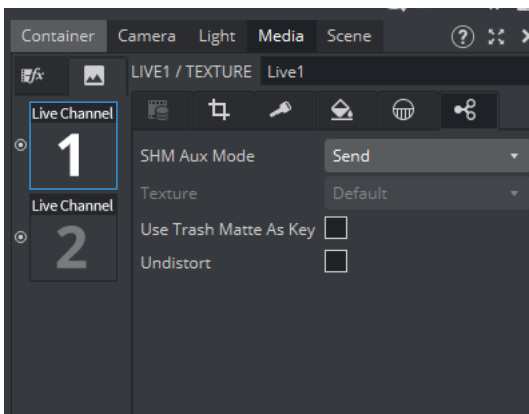
Drag the configured video input source and the shared memory SHM - SMURF source into the media Textures.



In this guide, we assume that Live Channel 1 is the live video input source and Live Channel 2 is the SHM - SMURF source, as shown in the [Viz Engine Configuration](#) section.

#### 4.1.2 Input Source to AI Keyer Aux Setting

Make sure to set the *SHM Aux Mode* of the source for which a key is required to *Send*. This source is now also available as input source for the AI Keyer tool.



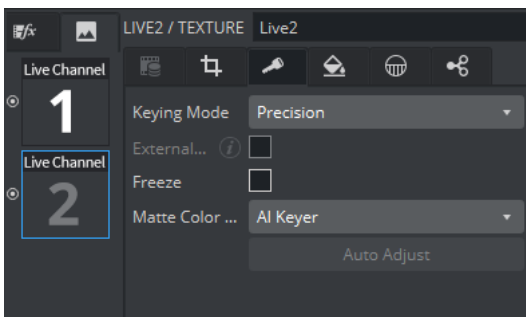
The *SHM Aux Mode* can be set in the **Media > Aux** tab of the video input source for which we want an AI generated key. In our example, this is Live Channel 1.

**Note:** The Input Source needs to be added to the Textures. If you cannot change the SHM Aux Mode, the Channel is likely configured as DVE. Right click on it and select **Set to Texture**.

### 4.1.3 SHM - SMURF Input Source Keyer Setting

Configure the **Media > Keyer** tab of the Live Channel configured as SHM - SMURF as follows:

- Set the **Keying Mode** to *Precision* - **if** you want to set the edge/blur/light wrap properties of Precision Keyer on the AI Keyer.
- Set the **Keying Mode** to *Linear* - otherwise.
- Set the **Matte Color Mode** to *AI Keyer*.



In our example, the SHM - SMURF configured Live input is Live Channel 2.

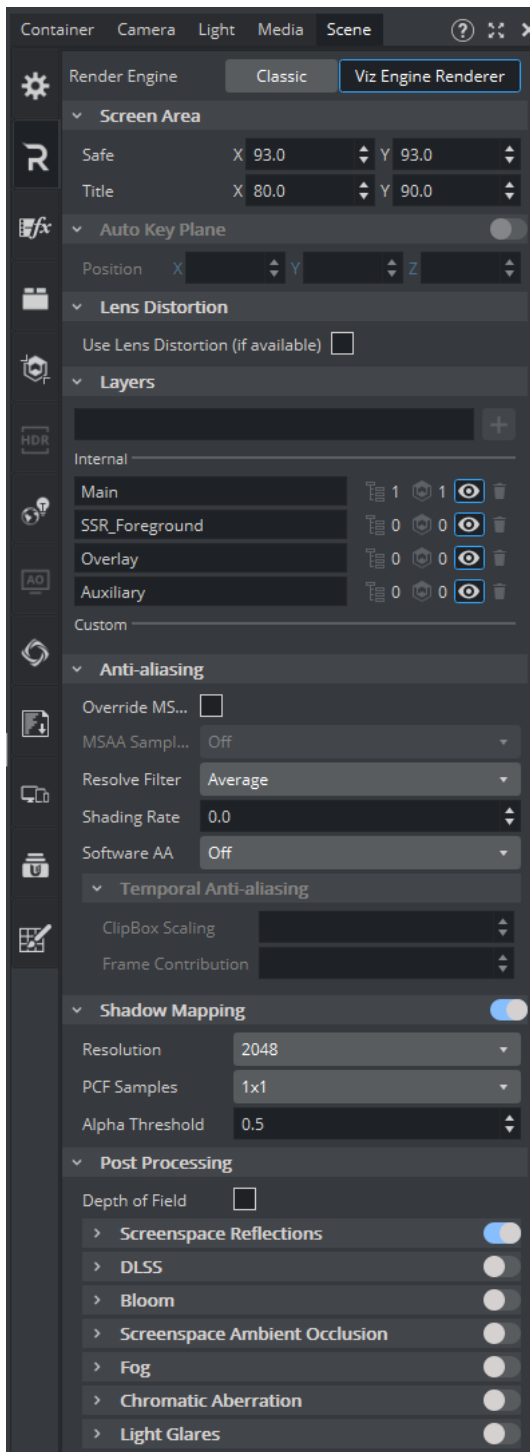
**Note:** The Input Source needs to be added to the Textures. If you cannot change the SHM Aux Mode, the Channel is likely configured as DVE. Right click on it and select **Set to Texture**.

**Note:** The edge/blur/light wrap properties of Precision Keyer can be applied also on AI Keyer. See the [Viz Artist User Guide](#) for a detailed explanation.

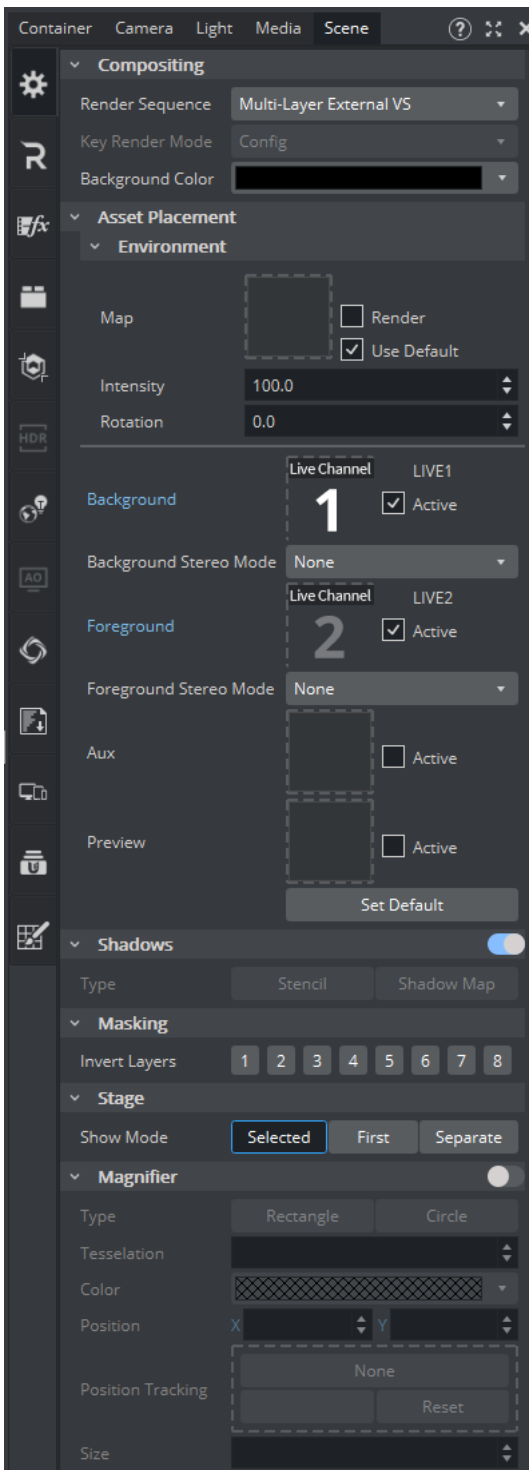
## 4.2 Scene Tab

**Note:** The Scene Tab is independent of the AI Keyer setup. The rest of this guide shows an example configuration of the Scene Tab.

For this example, make sure to set the **Scene > Render Engine** to *Viz Engine Renderer*.



Set the **Scene > Render Sequence** to *Multi-Layer External VS*. Drag the original source (Live Channel 1 in this example) to the background and the SHM - SMURF coming from the AI Keyer as the foreground (Live Channel 2 in this example).



You can now start designing the scene with a correctly keyed talent:



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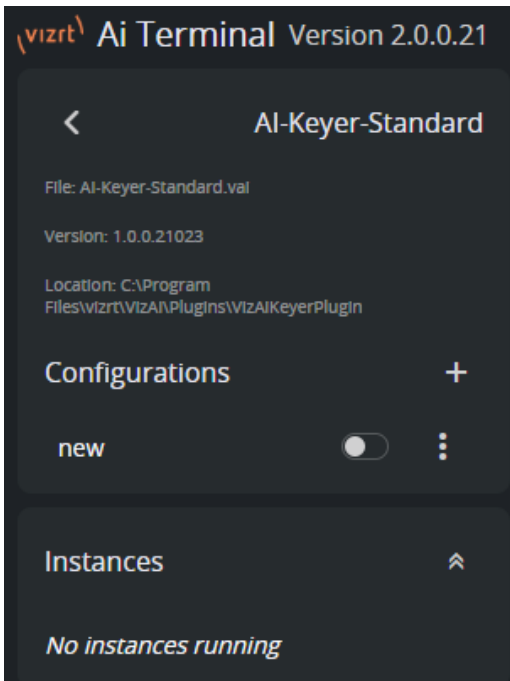
## 5 Tool Configuration

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### 5.1 Create a Viz AI Runner Instance

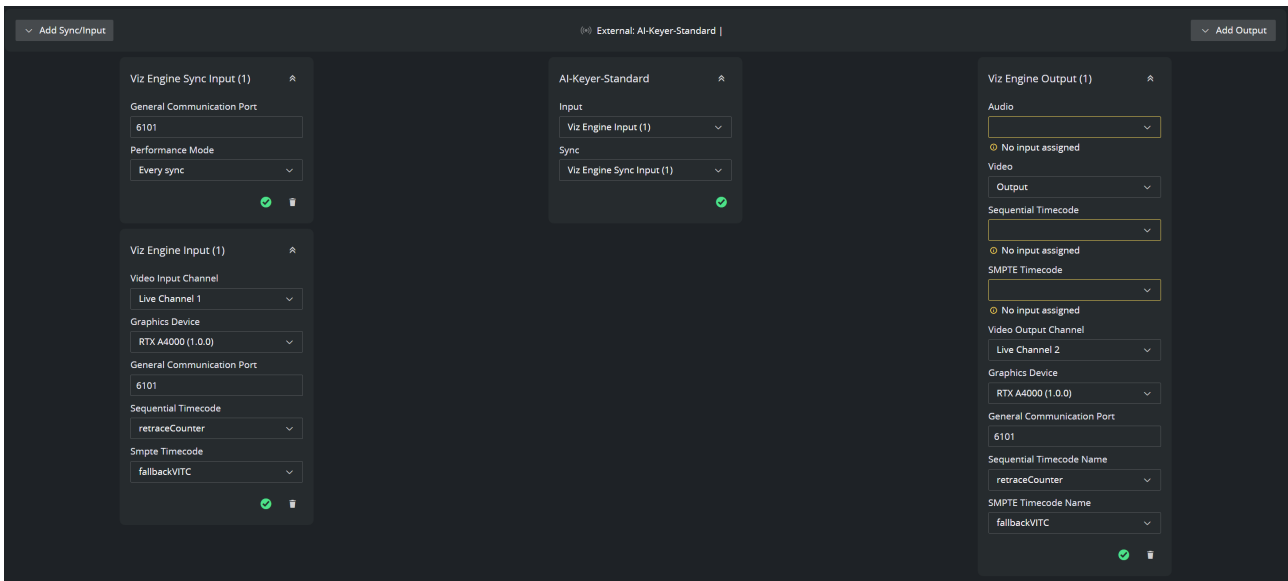
After installation, *AI-Keyer-Standard*, *AI-Keyer-Wide1*, and *AI-Keyer-Wide2* tools are automatically discovered by the AI Terminal. Choose one, then:

- Create a new configuration with the **+** button.
- Launch with an existing configuration using the power on/off  switch.



Once the instance is powered on, a Viz AI Runner console becomes visible and its configuration can be opened under *Instances*.

## 5.2 Input / Output Configuration



### 5.2.1 Viz Engine Sync Input

- Specify the same value for **General Communication Port** as configured earlier in [Viz Engine Configuration](#).
- Set the **Performance Mode** to *Every sync*. If performance problems appear later when starting the tool, this mode can be changed to improve performance.

### 5.2.2 Viz Engine Input

- Set the **Video Input Channel** to the configured live video source.
  - The dropdown menu is automatically populated and refreshed every 60 seconds.
  - In this guide, we assume that Live Channel 1 is the live video input source, as shown in the [Viz Engine Configuration](#) section.
- Set **Graphics device** to the device the Viz Engine is running on.
- Specify the same value for **General Communication Port** as configured earlier in [Viz Engine Configuration](#).
- Choose the **Sequential Timecode** and **SMPTE Timecode** to use (for example, *retraceCounter* and *fallbackVITC*, respectively).

### 5.2.3 AI-Keyp-Standard / Quality

- Set the **Input** to the **Video Input Channel** configured in **Viz Engine Input** panel.
- Set the **Sync** to **Viz Engine Sync Input**.

### 5.2.4 Viz Engine Output

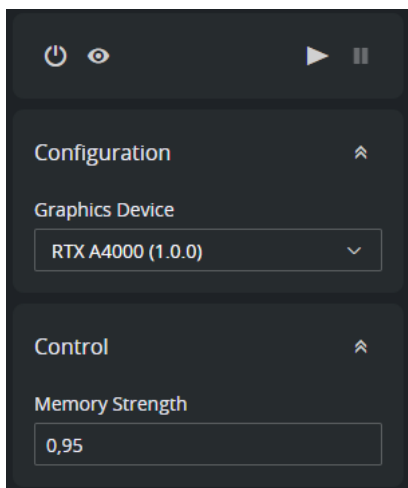
- Set the **Video** to *Output*.

- Set the **Video Output Channel** to the configured SHM - SMURF source.
  - The dropdown menu is automatically populated and refreshed every 60 seconds.
  - In this guide, we assume that Live Channel 2 is the SHM - SMURF source, as shown in the [Viz Engine Configuration](#) section.
- Set **Graphics Device** to the device the Viz Engine is running on.
- Specify the same value for **General Communication Port** as configured earlier in [Viz Engine Configuration](#).
- Choose the **Sequential Timecode Name** and **SMPTE Timecode Name** to use, as set in the **Viz Engine Input** panel (for example, *retraceCounter* and *fallbackVITC*, respectively)

**Note:** Entries for **Audio**, **Sequential Timecode** and **SMPTE Timecode** can be left blank.

**Note:** In rare cases, the Tool Configuration interface stops refreshing the **Video Input Channel** or **Video Output Channel** dropdowns, and an empty list is shown. In this case, to force a refresh, please manually close the Tool console and start the configuration again. Parameters already entered remain.

## 5.3 Tool Configuration



### 5.3.1 Configuration

- Select the **Graphics Device** that is used by the AI Keyer tool.

### 5.3.2 Control


Choose the desired **Memory Strength** value. This value affects how much information is retained into the model “memory” context and is applied immediately.

- A value of **0.0** is equivalent to running the AI Keyer with no memory (“on-shot” prediction).
- A value of **1.0** is equivalent to running the AI Keyer with the maximum memory context.

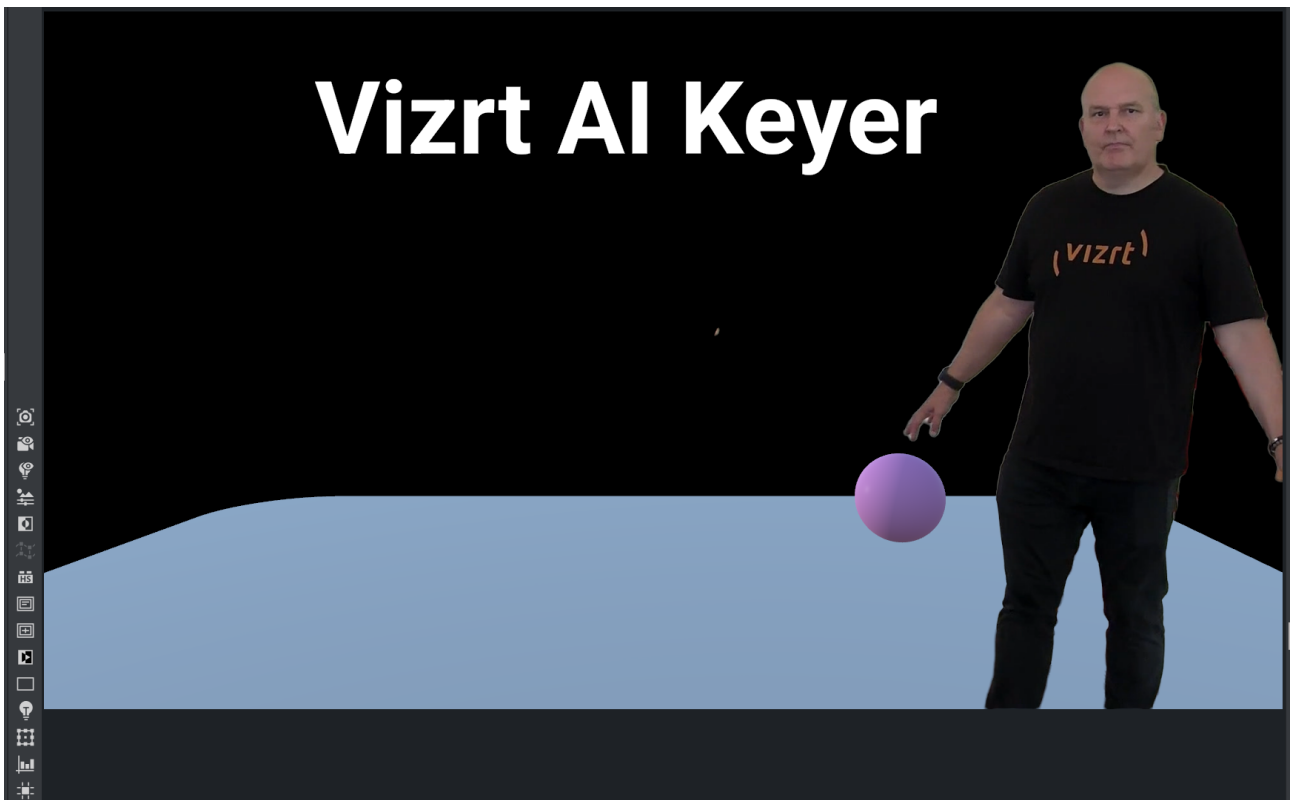
**Information:** Setting a value for the **Memory Strength** depends on the specific application. A memory strength of 0 helps removing *ghosting* artifacts that can otherwise appear in the case of fast moving objects or hard-cut scenarios. On the other hand, it can introduce flickering in the produced key, due to lack of temporal context. Similarly, a memory strength of 1.0 helps reducing flickering over temporal sequences, risking introducing ghosting artefacts in fast-moving scenarios. Start with a **Memory Strength** of 0.95 and only adjust it if needed.

**Note:** While not running, the Tool periodically contacts Viz Engine to retrieve information. While this operation happens sporadically, to avoid consuming resources make sure to close all Viz AI Runner consoles when not in use.

## 5.4 Verify Configuration

Start the tool using the play button  in the top right corner of the page and verify that no errors are shown. Check the *AI Terminal User Guide* for proposed actions in case of errors.

If all applications are setup as instructed, a scene designed as in [Viz Engine Scene Design](#) displays a correctly keyed talent.



This can be verified by clicking the **Key ON/OFF** button in the Engine Scene Editor window to preview the incoming key:

