Trackless Studio Software Installation & Virtual Set Project Recommendations

This Trackless Studio application note covers the following procedures and information:

- Software Installation
- Virtual Set Project Recommendations
- Virtual Set Object Naming Definitions
- Preparing Virtual Set Talent Objects for Trackless Studio
- Virtual Set Design Recommendations
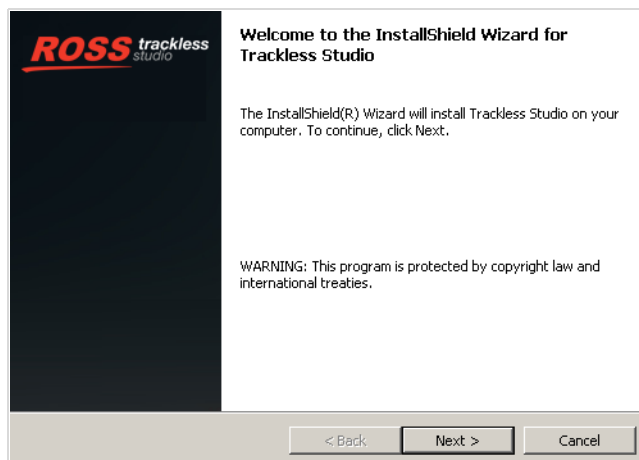- On Camera Graphics
- Virtual Shadows

Software Installation

Use the following procedure to install the Trackless Studio software.

✴ If your Trackless purchase is not a turnkey edition, ensure that the USB license dongle is installed in the hardware before installing the software.

✴ Trackless Studio is installed on the same server as the XPression software.

1. Once you have obtained the software package, double-click **Ross Trackless Studio v1.0.*xxx* for XPN 6.1.*xxxx*.exe**.

    The **Trackless Studio - InstallShield Wizard** opens.

2. Click **Next**.

The **License Agreement** section opens.

3. Select **I accept the terms in the license agreement**.

4. Click **Next**.

The **Customer Information** section opens.

5. Enter a **User Name** and **Organization** as necessary.

6. Click **Next**.

The **Ready to Install the Program** section opens.

7. Click **Install**.

The installation begins.

When the installation has completed, the **InstallShield Wizard Complete** section opens.
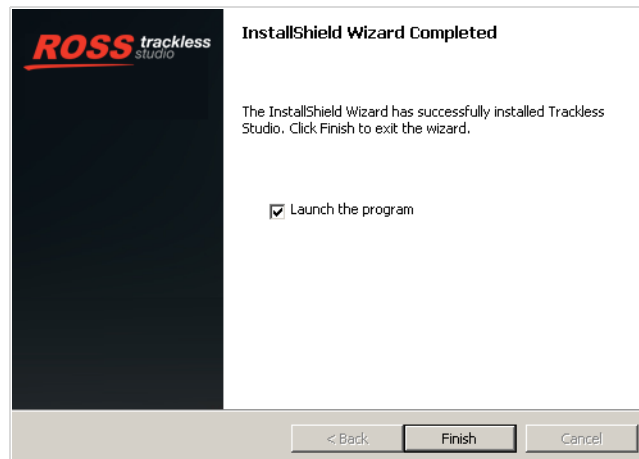
8. Click **Finish**.

If the **Launch the Program** check box is selected, the **Trackless Studio Settings** dialog box will open for initial configuration.

✸ When launching Trackless from the installer, it is recommended that XPression is running with a Trackless project open if clicking **Save & Launch** from the **Trackless Studio Settings** dialog box.

✸ When **Save & Launch** is selected in the **Trackless Studio Settings** dialog box, a Trackless software configuration file is created (settings.xml) and stored in `C:\XPressionApps\Trackless Studio`. Save this configuration file in a safe location and manually replace it after performing a Trackless Studio upgrade in order to restore previous talent camera orientations, effects, network settings, and general settings.

Virtual Set Project Recommendations

The following settings are recommended as a standard for preparing virtual sets for Trackless Studio. They are not requirements.

- Always set the **Depth Sorting** in the **Rendering** tab of the **Object Inspector** to **Manual** mode.
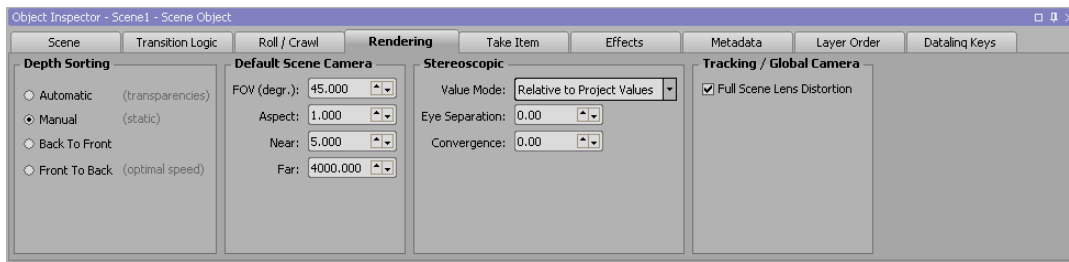
- It is recommended that one XPression unit of your virtual set has to be one inch on the real world.
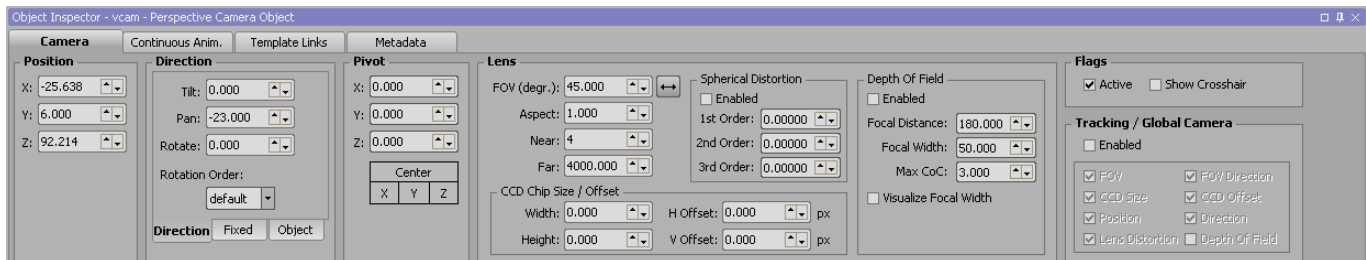- You need to have *only one camera* on each scene and it has to be a *perspective camera* set to **Active** in the **Flags** section of the **Camera** tab in the **Object Inspector**.
- Each perspective camera horizontal **FOV** has to be a 45°, **Near**: 4, **Far**: 4000.

- Recommended floor coordinate position of the virtual set: Y: 0.0.
- Virtual set center position: X:0, Y:0, Z:0.

Virtual Set Object Naming Definitions

In XPression:

- Set your virtual set scene names to: `Scene1`, `Scene2`, `Scene3`, and `Scene4` respectively.
- If you only have one scene for your virtual set, duplicate the scene so that you will get two scenes with exactly the same virtual set and content, but with different names (`Scene1` and `Scene2`). This is useful if you want to do scene (camera) transitions using the same background scenario.
- Set the name of the perspective camera object on each set to `vcam`.
- Make your perspective camera object (`vcam`) last in the **Object Manager** list (bottom object).
- Set the talent quad object name on each scene with a name starting with the prefix `vtalent_`, such as `vtalent_1`, `vtalent_2`, `vtalent_3`, and `vtalent_4`.
- Set the live source materials name for each live camera input starting with the prefix `liveinputcam_`, such as `liveinputcam_1`, `liveinputcam_2`, `liveinputcam_3`, and `liveinputcam_4`.
- If you want to control video playing on a virtual display from Trackless Studio, you have to set the material of each display screen with a name starting with the prefix `mat_display_`.
- It is strongly recommended to add your virtual set name as a prefix on any material, object, .jpg file, .obj file, etc. being used by that specific virtual set. This is highly recommended if you want to mix two or more virtual sets in just one project. For example, `Scene1` could be a news virtual set and `Scene2` could be a weather virtual set. If materials (or any objects) in both projects have the same name, the mixed project will not work properly.
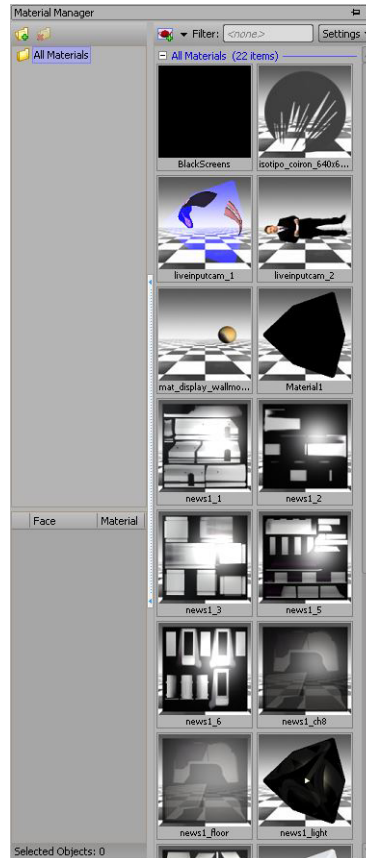
# Preparing Virtual Set Talent Objects for Trackless Studio

Live Source Material

For the live camera input you need to create the required live source material (`liveinputcam_1` up to `liveinputcam_4`, depending on the XPression hardware).

To create the live source material:

1. In XPression, open the **Material Manager**.

2. In the **Material Manager**, either select a material from the list for editing or click **Create a new Material**.

The **Material Editor** opens.
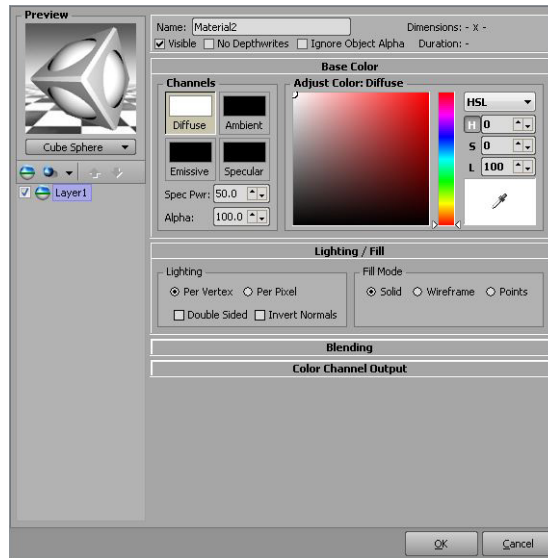
3. Click the **Add a new shader to the current layer** list and select **Live Source**.

A **LiveSource** shader is added.
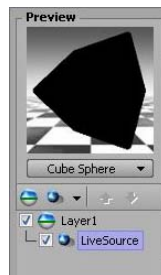
4. In the **Name** box, enter `liveinputcam_1`.

5. In the **Video** section, use the **Input Source** list to select **XMIO Channel 1**.

6. In the **Color Blending** section, use the **Blend Mode** list to select **Use Current Stage**.

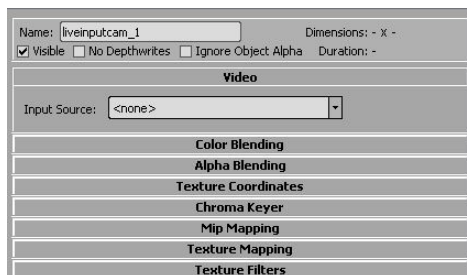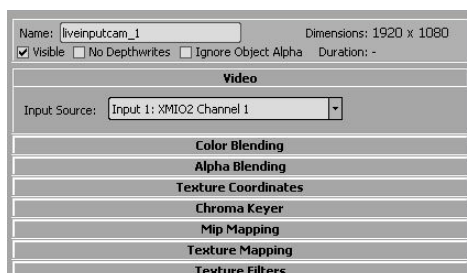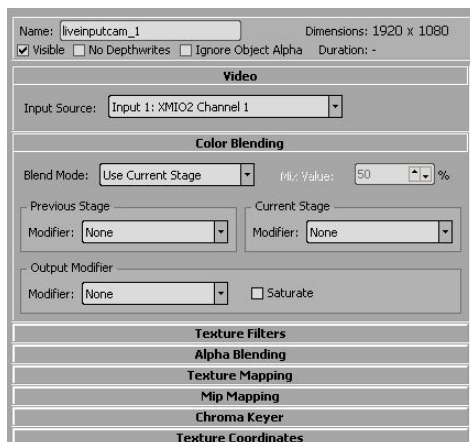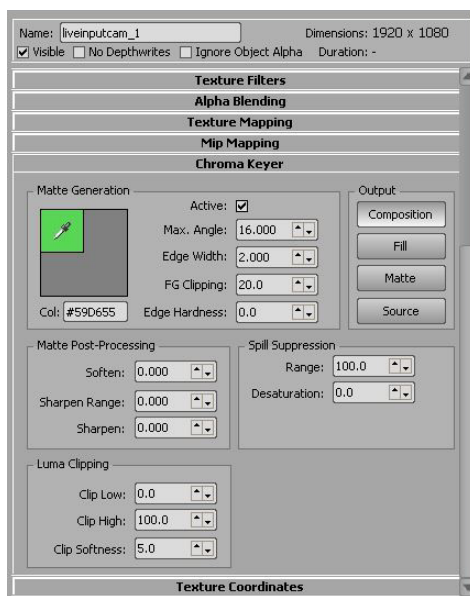7. In the **Chroma Keyer** section, select the **Active** check box and adjust the chroma key settings as necessary.


✦ Do not use the **Chroma Keying** effect in the **Keyer** list of the **Effects** window. This could cause depth rendering issues. Always enable the chroma keyer for the shader inside the **Material Editor**.

8. Repeat steps 2 to 7 for the each additional live source material, entering `liveinputcam_2` for the **Name** and selecting **XMIO Channel 2** as the **Input Source**.

Talent Quad

- Create required quad objects for the talent/anchor video input, if not already created. Each quad object has to be 1920 pixels width by 1080 pixels height. Do not change the pixel size of the quad. If you want to adjust it to your virtual set, modify the **Scale** value in the **Transform** tab of the **Object Inspector** for each quad object.

- If your camera is physically vertical (rotated 90 degrees to the right), set the **Z** axis **Rotation** value in the **Transform** tab of the **Object Inspector** for quad objects to 90.

- Verify that the **Pivot** value in the **Transform** tab of the **Object Inspector** for each of the talent quad objects is set to **X**:0, **Y**:0, **Z**:0. In XPression virtual sets, normally one XPression unit will be one inch, so you may need to scale the quads to approximately 0.043 (between 0.036 and 0.05). Keep the aspect ratio, so the scale is exactly the same value on each axis (X and Y).

- Center your talent quads **Position** value in the **Transform** tab of the **Object Inspector** where you prefer. The position will be fixed, only the rotation will change automatically on runtime depending on the live camera position and rotation. It is recommended to start with **X**:0, **Y**:0, **Z**:0 and then adjust by fine tuning the positions.
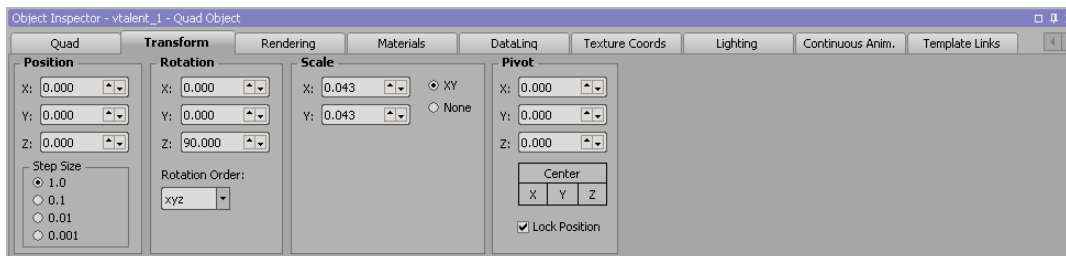
✦ It is normal if you do not see the talent quad looking at the camera while designing in XPression Studio Layout mode. Trackless Studio will adjust this automatically when running. Of course, you can rotate the corresponding axis for testing while editing: rotate the Y axis if you are using a physical vertically rotated camera and rotate the X axis if you are using a standard horizontal physical camera setup with no rotation.

Texture Coordinates

- In the **Texture Coords** tab of the **Object Inspector** for the quads, always set the **Mode** option in the **Misc** section to **Border**.

- In the **Texture Coords** tab of the **Object Inspector** for the quads, always center the **Pivot** by setting **X** to 0.500 and **Y** to 0.500.

- Sometimes a line border can appear in your input video. Remove it by scaling the quads in the **Scale** section of the **Texture Coords** tab of the **Object Inspector**. Setting **X** and **Y** to 0.990 should be more than enough.
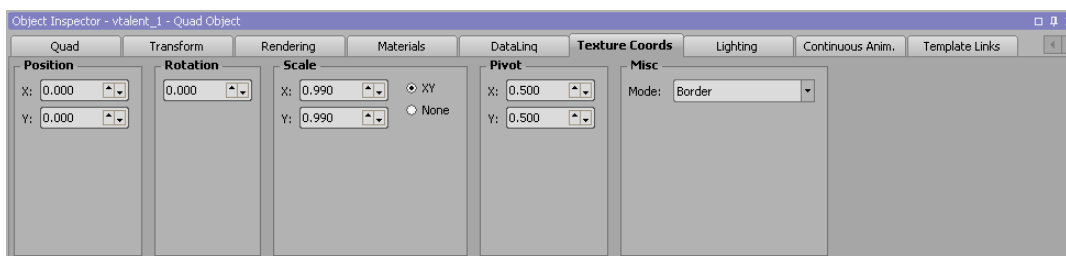
Virtual Set Design Recommendations

- Always try to keep the XPression performance indicator (**Perf**) below 50%. Always test your virtual set project using a 1080i 29.97 output format with a Matrox XMIO SDI output card. That specific configuration is the one that currently requires more processing, so if your virtual set works fine on that resolution, it will most likely work on other lower configurations. Testing your virtual set in a virtual output is a not real benchmarking option.

- Try not to use video files inside your virtual set as materials (none, if possible). If you are using video files inside your virtual set, remember to always use the XPression Codec and also be sure to use exactly the same frame rate and format for your video as your XPression virtual set project settings.

- For continuous animated backgrounds or textures, we strongly recommend using render view based materials other than videos.

- Try not to apply XPression **Effects** on the scene such as **DepthOfField**.

- Be careful when using advanced materials and textures such as **Reflection Map**, this can lead to stuttering when moving the camera around.

- Try not to use thin lines and small objects. It will require higher anti-aliasing to appear properly.

- Always delete unused materials in your projects.

- Less than 200.000 polygon 3D models.

On Camera Graphics

If you want to add some GUI fixed position graphics following your cam view on top of all the graphics on your virtual set, *do not* use the camera layer object in XPression. It is recommend to use quads or any other object as a child of the camera.

For example, if you want to add a "raining" video on top of all your graphics, create a quad object with a size covering all your output (for example, 1920 x 1080). Add the raining video material onto the quad.

To create an on camera graphic:

- set it as a child of the vcam object.
- set the **Rotation** settings in the **Transform** tab of the **Object Inspector** to **X**:0, **Y**:0, **Z**:0.
- set the **Position** settings in the **Transform** tab of the **Object Inspector** to **X**:0, **Y**:0, and **Z**:-50
- adjust the **Scale** settings in the **Transform** tab of the **Object Inspector** to cover all your camera view (0.015, for example).
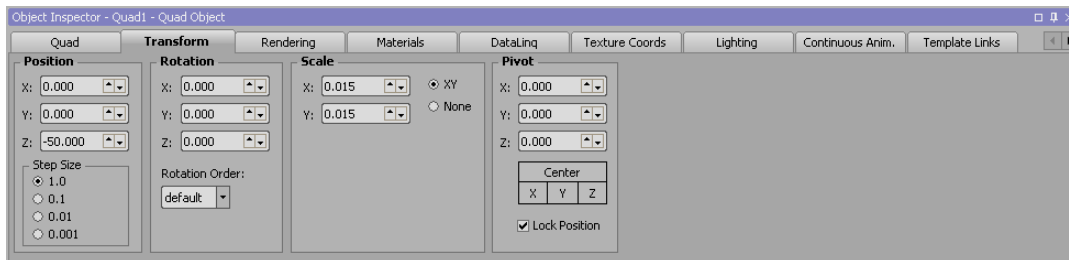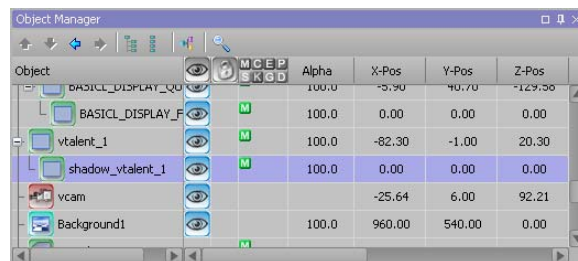

Virtual Shadows

You can create a virtual shadow for the talent. It will be useful *only* if the talent does not move from the center position of the quad and does not move their legs much.

To create a virtual shadow:

- copy and paste the talent quad object, adding a suffix `shadow_` to its name.
- position the new quad as a child of the talent quad object in the **Object Manager**.

- rotate the new quad to floor level. Use a plain color material (such as red) for fine tuning.
- duplicate the **liveinputcam** material, adding a suffix `shadow_` to its name.
- in the **Base Color** section of the **Material Editor** for the material **Layer**, set the **Diffuse** channel to black (**H**:0, **S**:0, **L**:0).

- in the **Base Color** section of the **Material Editor** for the material **Layer**, set the **Alpha** value to 10.
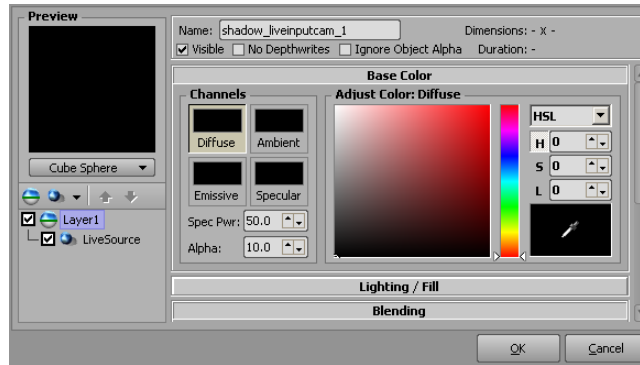
- in the **Blending** section of the **Material Editor** for the material **Layer**, set the **Blending Mode** to **Multiply**.
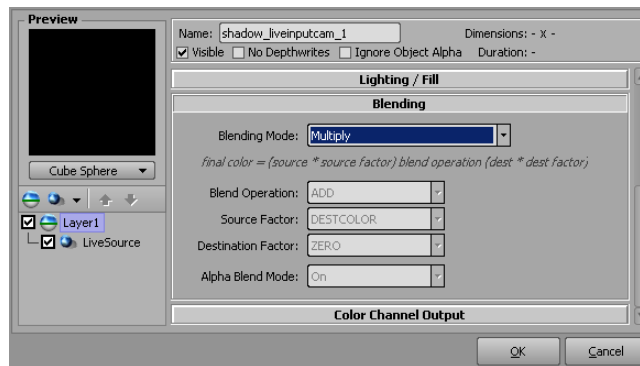
✶ Be aware that this effect can affect the XPression machine performance depending on the virtual set project you are currently using.