# XPression GO2! AJA® Io®X3 Driver Installation

★ This document explains how to install the AJA IoX3 driver for XPression GO2! systems running XPression version 10.7 build 5575 or higher.

## Prerequisites

XPression GO2! has been qualified to work with AJA Driver version 16.2.

★ Prior to beginning installation, uninstall any previous versions of the AJA NTV2 driver from the Windows® **Control Panel**.

★ Install the AJA IoX3 driver prior to adding the **AJA NTV2 Video** framebuffer into XPression.

## Installation

**To install the AJA IoX3 driver:**

1. Connect the AJA IoX3 to the laptop with a Thunderbolt™3 cable.
2. Plug the AJA IoX3 into a power source.
3. Turn on the laptop.
4. Copy the driver to a USB and insert into the laptop.
5. Run the ntv2driver-16.2.0.2.msi driver package.

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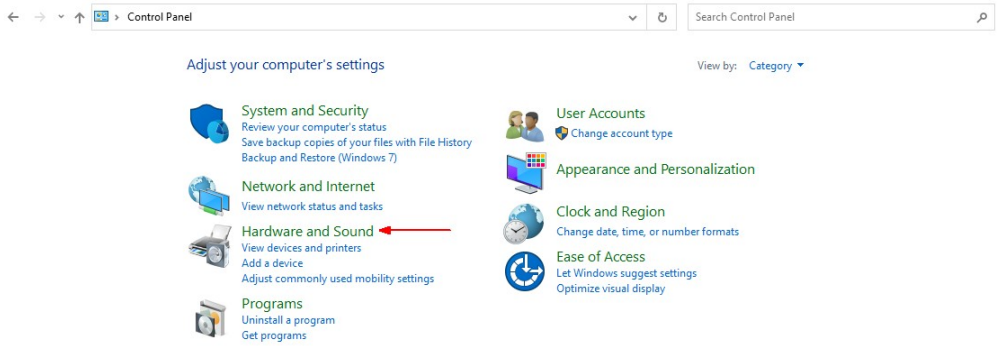
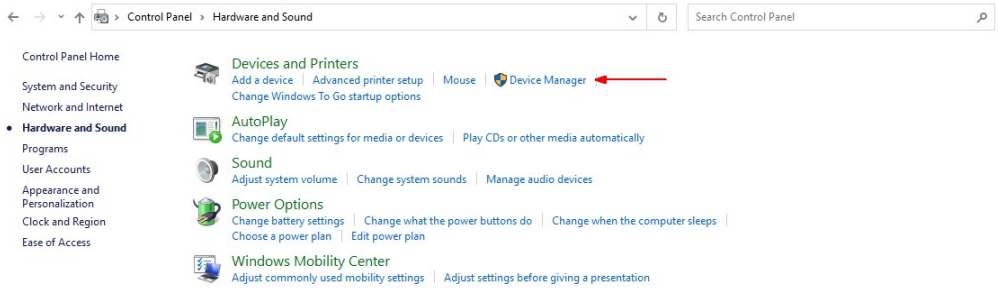
**To verify the driver has been installed:**

1. In the **Windows Control Panel**, **select Hardware and Sound**.



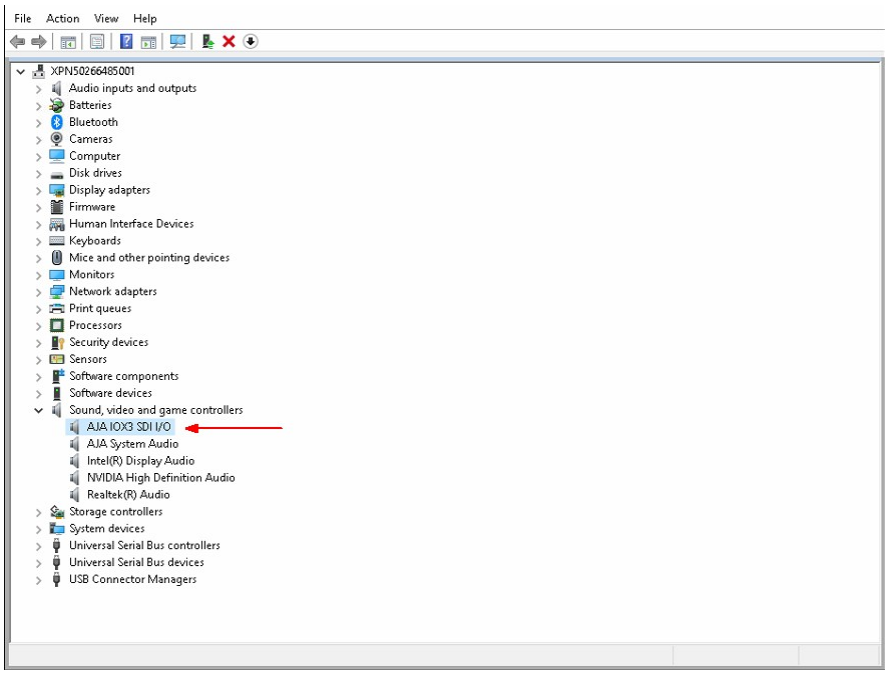

The **Hardware and Sound** screen opens.

2. Select **Device Manager**.



The **Device Manager** window opens.

3. Verify that **AJA IOX3 SDI I/O** appears under **Sound, video and game controllers**.




4. Double-click **Sound, video and game controllers**.

   The **AJA IoX3 SDI I/O Properties** window opens.

5. Verify that the **Driver Version** is 16.2.

**For more information on...**

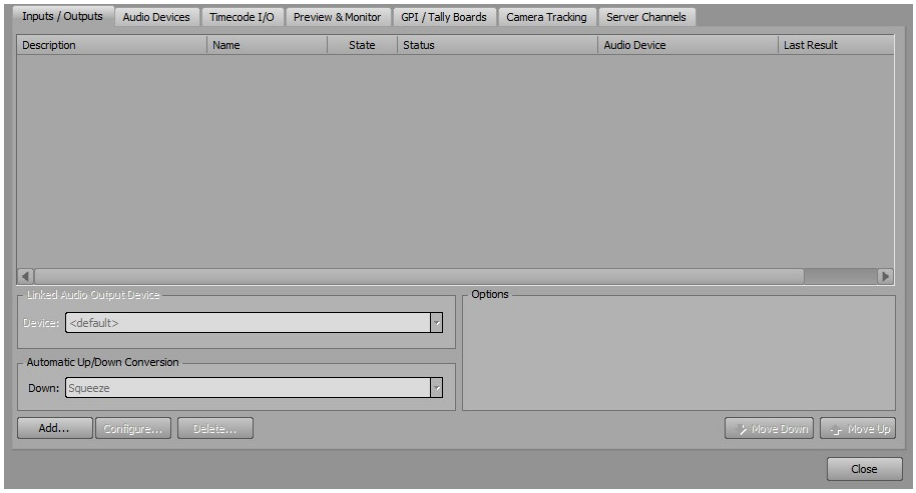
- installing the driver, see the *AJA IoX3 Installation and Operation Manual*.

# Hardware Setup

**To configure the hardware in XPression:**

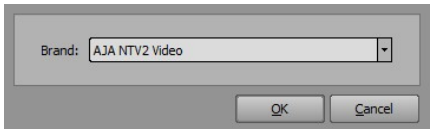
1. In XPression, select **Edit > Hardware Setup**.

   The **Hardware Setup** dialog box opens.



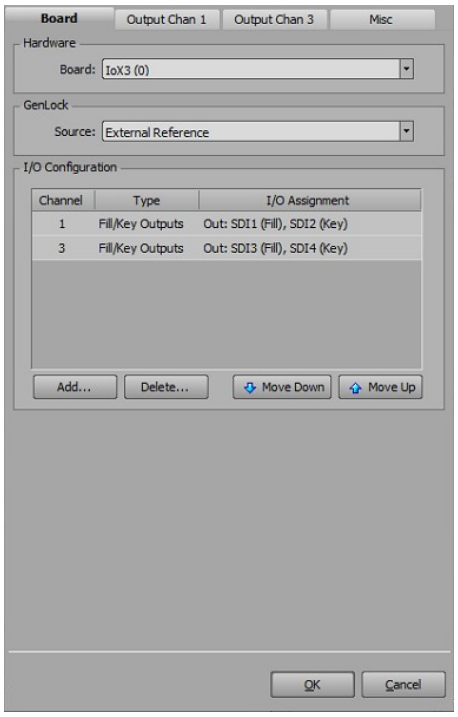

2. Select **Add**.

   The **Add New FrameBuffer Board** dialog box opens.




3. Select **AJA NTV2 Video** from the list.
4. Select **OK**.

The **AJA NTV2 Framebuffer Setup** dialog box opens on the **Board** tab.




a. In the **Hardware** section, use the **Board** list to select the installed board.

   This menu is automatically populated based on installed hardware (XPression GO2! uses the IoX3).

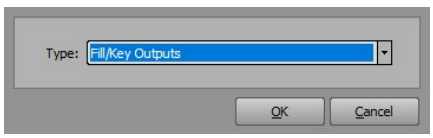
b. In the **GenLock** section, use the **Source** list to select the source of the genlock signal with which to synchronize XPression. The available genlock signal sources are as follows:

   - **External Reference** — Synchronize with a genlock signal received from an external application through the GenLock In port of the XPression computer. Ross Video recommends using an external reference for the genlock signal source.
   - **Input 1** — Sync to Video In 1 source signal.
   - **Input 2** — Sync to Video In 2 source signal.
   - **Free Running** — Do not synchronize XPression with an external source.

   ★If the output keying mode is set to **Internal** in the **Output** tab, it is recommended that the GenLock source be set to an SDI input.

c. In the **I/O Configuration** section, select **Add** to add an input or output channel.

   The **Select I/O Type** dialog box opens.



d. Use the **Type** list to select an input /output type.

The options are:

- **<none>** (this option is not applicable)
- **Fill-Only Output** (1 output, no input) (requires a separate license or the XPression Clips option)
- **Fill/Key Outputs** (2 outputs, no input)
- **Fill Input** (1 input, no output)
- **Internal Keyer** (1 input, 1 output)

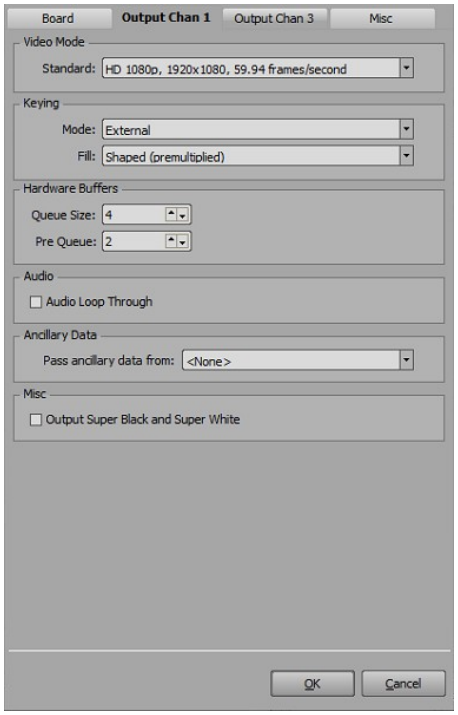
e. Select **OK**.

The input/output assignment is added to the **I/O Configuration** list.

Repeat steps c to e for as many channels as necessary.

★SDI channel assignments are automatic and any channels beyond the number of channels supported by the graphics card will be listed as N/A.

5. Select an **Output** tab to configure output settings.



a. In the **Video Mode** section, use the **Standard** list to select the video format in which to output an XPression project. Depending on the graphics card, the available video formats are as follows:

   - **<from project>** — automatically switch to the output video format from the video format of the currently loaded project.

   The project video format is ignored when a specific output video format is selected, and the selected video format is used to playout scenes.

   - **PAL, 720x576, 25 frames/second**
   - **NTSC, 720x486, 29.97 frames/second**
   - **HD 1080i, 1920x1080, 25 frames/second**
   - **HD 1080i, 1920x1080, 29.97 frames/second**
   - **HD 1080p, 1920x1080, 23.976 frames/second**
   - **HD 1080p, 1920x1080, 29.97 frames/second**
   - **HD 1080p, 1920x1080, 50 frames/second**
   - **HD 1080p, 1920x1080, 59.94 frames/second**
   - **HD 1080p, 1920x1080, 60 frames/second**
   - **HD 720p, 1280x720, 50 frames/second**
   - **HD 720p, 1280x720, 59.94 frames/second**
   - **HD 720p, 1280x720, 60 frames/second**
   - **HD 1080psf, 1920x1080 23.976 frames/second**
   - **HD 1080psf, 1920x1080 24 frames/second**
   - **HD 1080psf, 1920x1080 25 frames/second**
   - **HD 1080psf, 1920x1080 29.97 frames/second**
   - **HD 1080psf, 1920x1080 30 frames/second**
   - **UHD 2160p (Quad), 3840x2160, 29.97 frames/second**
   - **UHD 2160p (Quad), 3840x2160, 50 frames/second**
   - **UHD 2160p (Quad), 3840x2160, 59.94 frames/second**
   - **UHD 2160p (2SI), 3840x2160, 29.97 frames/second**
   - **UHD 2160p (2SI), 3840x2160, 50 frames/second**
   - **UHD 2160p (2SI), 3840x2160, 59.94 frames/second**
   - **UHD 2160psf (Quad), 3840x2160, 23.976 frames/second**
   - **UHD 2160psf (Quad), 3840x2160, 24 frames/second**
   - **UHD 2160psf (Quad), 3840x2160, 25 frames/second**

b. In the **Keying** section, use the **Mode** list to select how graphics are output to a video stream.

   The available modes are as follows:

   - **Off (Fill Only)** — output a video signal with no key.
   - **External** — output the key and fill graphics as separate video signals. Graphics mixing occurs in an external keyer/mixer.
   - **Internal** — key and fill graphics are mixed internally and output as a single video signal from the framebuffer. In this mode the framebuffer functions as the keyer/mixer.

   ★Selecting external or internal keying will change the number of inputs/outputs required and the I/O assignments in the **Board** tab.

   ★If the output keying mode is set to **Internal**, it is recommended that the **GenLock** source in the **Board** tab be set to an SDI input.

c. When **External** is selected in the **Mode** list, use the **Fill** list to select the method used to process fill graphics before output.

   The available processing methods are as follows:

   - **Shaped (premultiplied)** — multiply/shape the fill signal color information by the luminance information in the key signal.
   - **Unshaped** — output fill and key signals "as is".

d. In the **Hardware Buffers** section, use the **Queue Size** box to enter or select the number of frames to buffer in memory before sending to the output.

   Use this setting to avoid buffer under runs, which may cause frame skipping. Larger queue sizes ensure smooth playout of generated graphics, but add delay to the output.

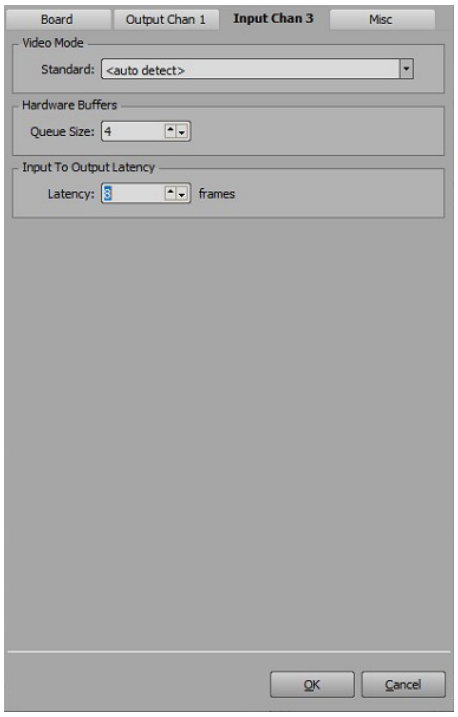
e. Use the **Pre Queue** box to enter or select the number of frames to buffer for the pre-queue. The pre-queue size can be between 1 and 8.

f. In the **Audio** section, select the **Audio Loop Through** checkbox to enable embedded audio loop through. This option applies to internal keyer only.

g. In the **Ancillary Data** section, select the **Pass Ancillary Data From** checkbox and use the list to select an input from which to pass the vertical ancillary data from a live source. The functionality of this feature is based on the availability of an ancillary input that is determined by the installed output board.

h. In the **Misc** section, select the **Output Super Black and Super White** to output using the full super black to super white range.

6. Select the **Input** tab to configure input settings.



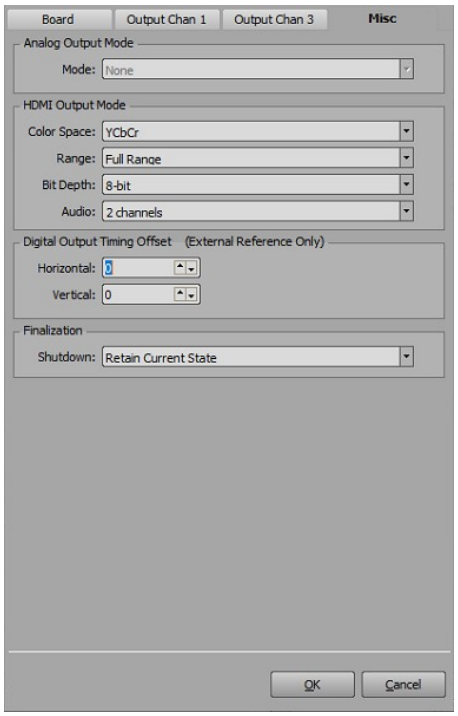

a. In the **Video Mode** section, use the **Standard** list to select the video format in which to receive video.

b. In the **Hardware Buffers** section, use the **Queue Size** box to enter or select the number of frames to buffer in memory before sending to XPression.

c. In the **Input to Output Latency** section, use the **Latency** box to enter or select a fixed delay, in frames, between the input and output.

   To remain fixed, the delay must be large enough to accommodate the **Queue Size** and **Pre Queue** values in the **Hardware Buffers** section.

7. Select the **Misc** tab to configure analog, HDMI output, digital output timing offset, startup, and shutdown settings.




a. In the **Analog Output Mode** section, use the **Mode** list to select the video format in which to output an analog video signal.

b. In the **HDMI Output Mode** section, use the **Color Space** list to select the specific organization of colors for the HDMI output.

   The options are:

   - **YCbCr**
   - **RGB**

c. Use the **Range** list to select the color range for the selected color space. The options are:

   - **SMPTE Range**
   - **Full Range**

d. Use the **Bit Depth** list to select the number of bits used for a pixel. The options are:

   - **8-bit**
   - **10-bit**

e. Use the **Audio Channels** list to select the number of audio channels to output. The options are:

   - **2 channels**
   - **8 channels**

f. In the **Digital Output Timing Offset** section, use the **Horizontal** box to enter or select the horizontal delay timing offset with regards to an external reference. This setting is for external reference only.

g. In the **Vertical** box, enter or select the number of lines for vertical delay timing offset with regards to an external reference. This setting is for external reference only.

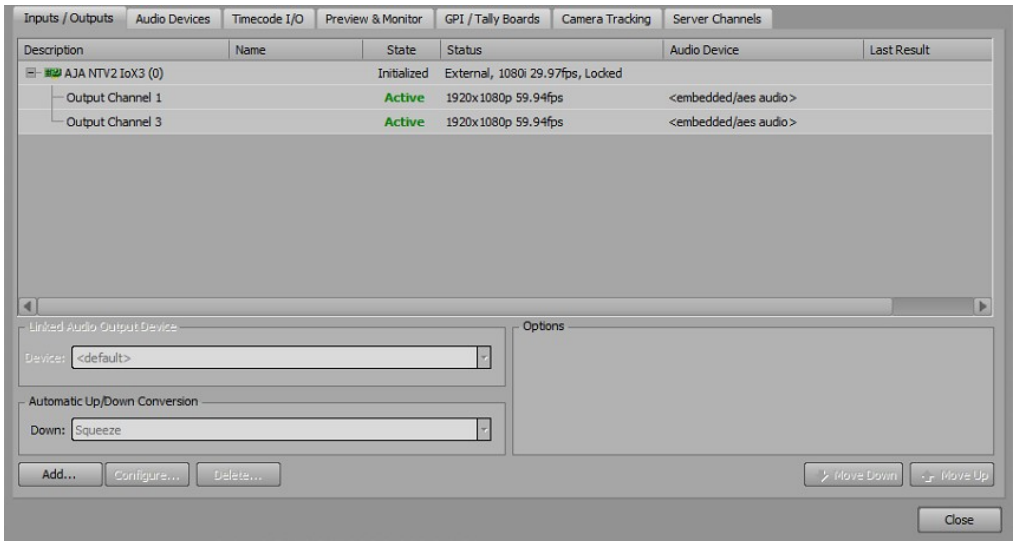
h. In the **Finalization** section, use the **Shutdown** list to select the video state at shutdown.

The available states are as follows:

- **Retain Current State** — do not clear the content of the framebuffers on shutdown.
- **Clear Framebuffers** — clear all framebuffers from the output framebuffer.

8. Select **OK**.

The configured AJA IoX3 framebuffer board is added to the **Inputs / Outputs** tab of the **Hardware Setup** dialog.




9. In the **Hardware Setup** dialog, select **Close**.

The **Hardware Setup** dialog closes.