Kraken OVA Deployment Guide
Kraken OVA Deployment, 2.9

This Quick Start Guide describes how to deploy Haivision's Kraken H.264/HEVC Video Encoder/Transcoder within a virtual environment from an Open Virtual Appliance (OVA) file.

> ℹ️ **Note**
>
> Kraken is available as a virtual machine for VMware ESXi and vSphere environments. For hardware acceleration of video encoding and decoding, VMWare ESXi 6.5 with Update 1 must be installed on the host appliance, and the Intel processor on the host appliance must have Intel Quick Sync Video (QSV) support.

This guide details how to enable GPU passthrough for Iris Pro hardware encoding (when supported by the hardware) and supported capture cards. This guide assumes you are familiar with VM servers and hypervisor systems.

After completing the steps in this guide, you will have a Kraken Virtual Machine installed that will include Kraken's support for Intel hardware-accelerated video encoding and access to the capture card.

For detailed Kraken configuration and operation information, please refer to the User's Guide (available at https://doc.haivision.com). For the default credentials, refer to the *Important Notice* (postcard shipped with appliances). You may download the *Important Notice* as well as the latest software and Release Notes through the Download Center on the Haivision Support Portal (http://support.haivision.com).

Confirming the BIOS Settings

To confirm the BIOS settings:

1. Reboot the target and open the system's BIOS menu.
2. Open the **Processor** submenu.
3. Enable both the **Vt-d** (Intel Virtualization Technology for Directed I/O) and **Intel Virtualization Technology** BIOS settings, as shown in the following example.
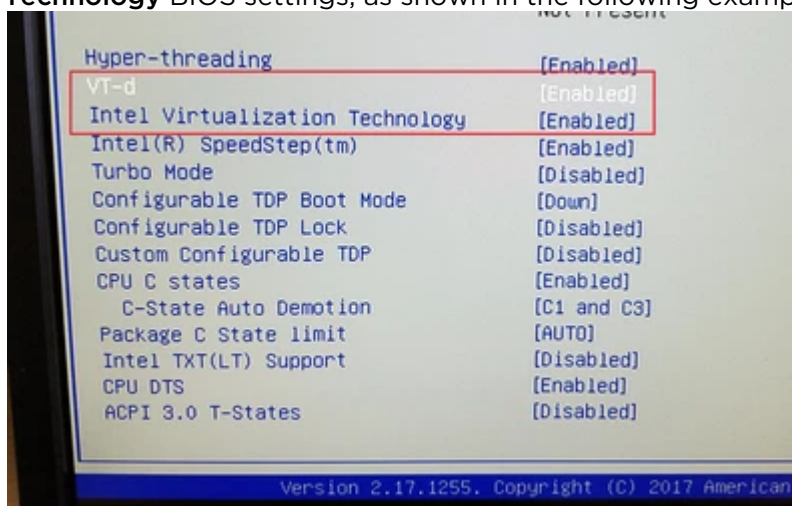

4. Select **Save & Exit**.

Enabling Hardware Passthrough on the Host

Assuming VMWare ESXi 6.5 is installed with Update 1 on the host system, you must now enable the passthrough of the hardware devices on the system needed by Kraken. This first step is done at the host level.

1. Log into the hypervisor.
2. In the Navigator, choose **Host→Manage→Hardware**.
3. On an example host, locate the Intel graphics card and the video capture devices to be enabled for passthrough. Following is an example of the devices available on Haivision's Kraken CR:
   • 0000:00:02.0 Intel Corporation Iris Pro Graphics P580
   • 0000:02:00.0 Blackmagic Design DeckLink Micro Recorder
   • 0000:03:00.0 Conexant Systems, Inc. CX23885 PCI Video and Audio Decoder

4. Referring to the following screenshot, enable Passthrough on all of these devices.
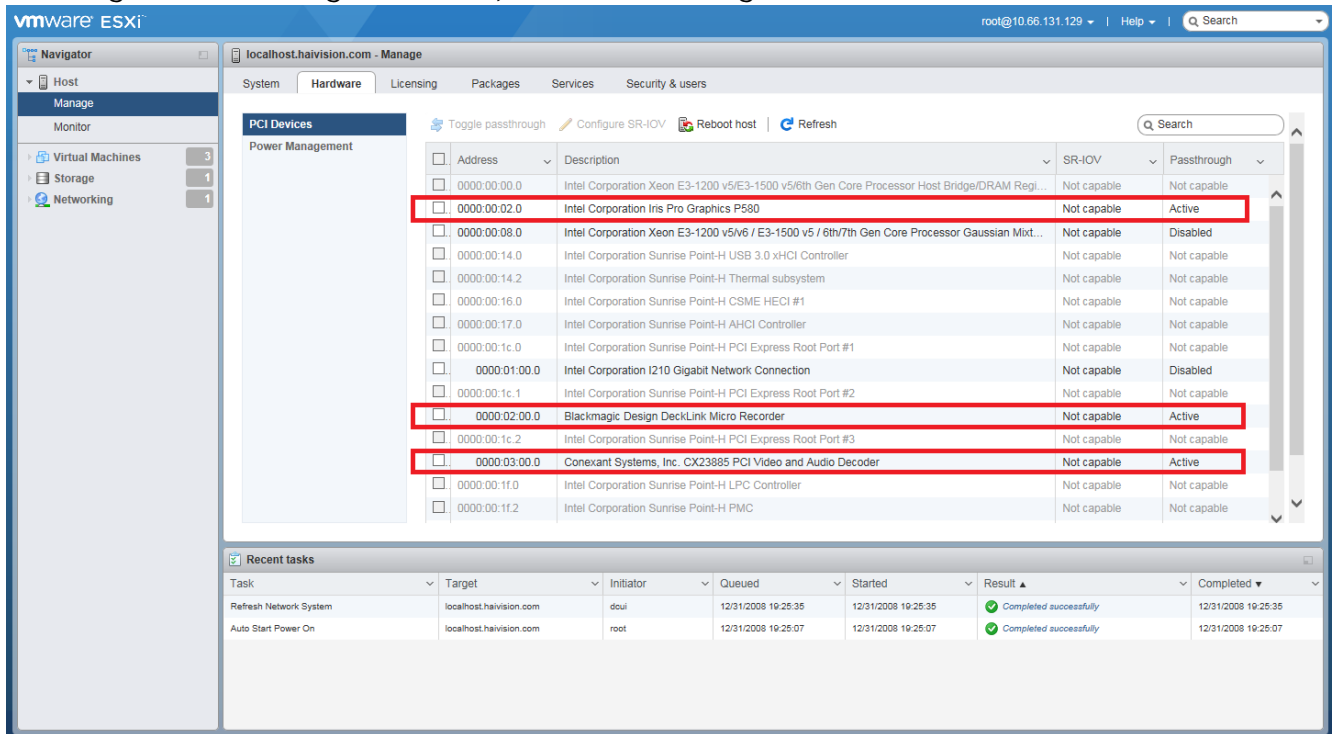
> **ⓘ Note**
>
> The Intel Graphics Controller is identified differently depending on the CPU model. For example, on Skylake systems, it reports as: **Intel Corporation Iris Pro Graphics ####** (as shown in the above screenshot), while on Kaby Lake systems, it reports as: **Intel(R) Display controller**.

5. Reboot the host to confirm the settings if you changed anything.

> **✅ Tip**
>
> You can toggle all three devices at once, and then reboot.

> 🛈 **Note**
>
> After making this change, you may notice that the VMWare ESXi host console boot screen no longer comes up completely. This is because the GPU passthrough is enabled at the host level and is unfortunately normal. The progress bar will stop at the message "vmkapi_v2_1_0_0_vmkernel_shim loaded successfully." There will be no further visual indication from the host console that VMWare is booting up, but it is. After a couple of minutes, you will be able to navigate to the hypervisor with a Web browser and log in.
>
>
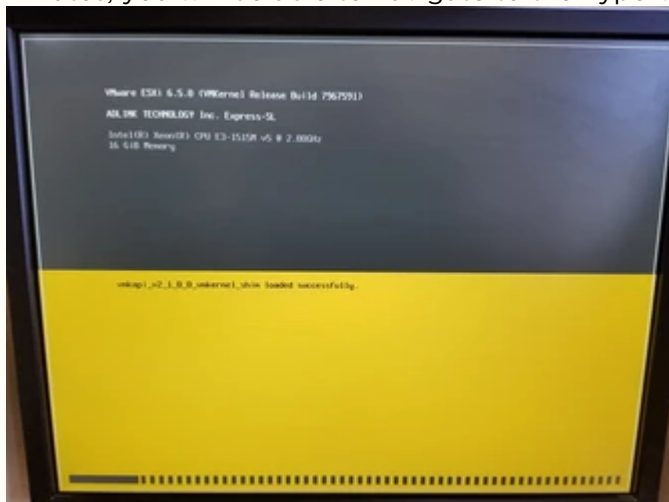
Importing the Kraken OVA

Follow these instructions to import the Kraken OVA onto the hypervisor.

1. Log into the hypervisor and select Virtual Machines.
2. Choose Create / Register VM.
3. Choose "Deploy a virtual machine from an OVF or OVA file."
4. Name the VM and drag/drop the Kraken OVA file onto the window.
5. Click **Next** to choose the default datastore.
6. Click **Finish** to begin importing.
7. It will take a few minutes for the OVA file to upload to the appliance.

Learning the Virtual Machine's IP Address

> **ⓘ Note**
>
> The virtual machine will power on after it is imported. You will see the Kraken "Loading Please Wait" screen in the VMWare console.

1. After the Kraken VM loads, the device's IP address is displayed on the console. Write it down.
2. If static IP addressing on the virtual machine is preferred, use the console to modify it (refer to the Kraken User's Guide for details).
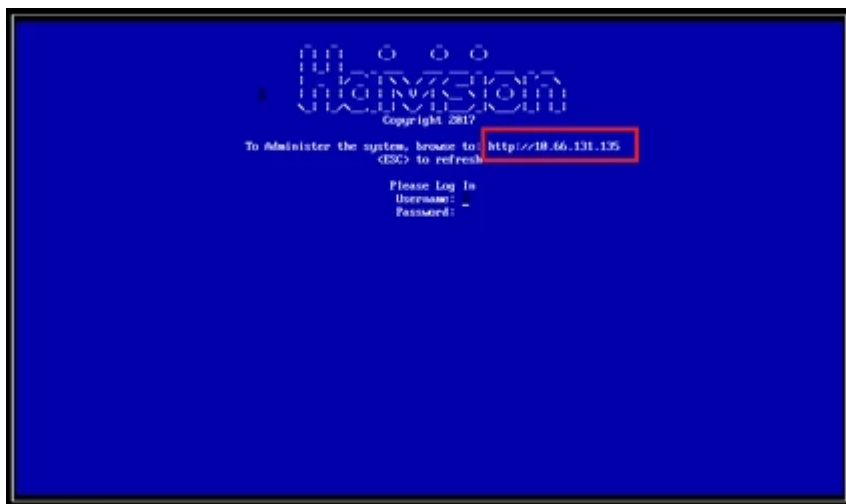

3. When changing to a static IP address, confirm that the settings are valid before moving on to the next step.

Configuring the Kraken Virtual Machine

Now that the VM's IP address is known and configured, it is time to enable the hardware passthrough to the Virtual Machine.

1. Close the VM console window and "Shut Down" the Kraken VM using the hypervisor.
2. Select the Kraken VM and choose "Actions"→"Edit Settings".
3. Make the following strategic modifications:
   - Increase CPU count from 2 to the desired number.
     More CPU's assigned to the Kraken device increases its ingest and video reformatting capabilities.
   - Under Memory, make the "Reservation" setting equal to the "RAM" setting. 4096 is the default and will work for both.
   - Choose "Add other device"→"USB Device".
     At the bottom you will see a "New USB device" called "Blackmagic design DeckLink Micro Recorder".
   - Choose "Add other device"→"PCI Device" three times.
     All three of them will say "Iris Pro Graphics P580 - 0000:00:02.0".
   - Leave one of them alone, and set the other two PCI Devices to be "DeckLink Micro Recorder - 0000:02:00.0" and "CX23885 PCI Video and Audio Decoder - 0000:03:00.0".
   - Click **Save**.

Following are screen shots of the settings after all of the modifications are done.
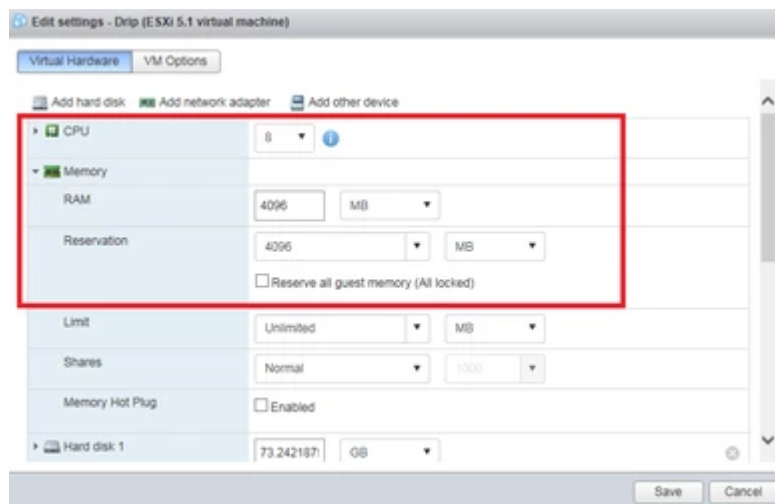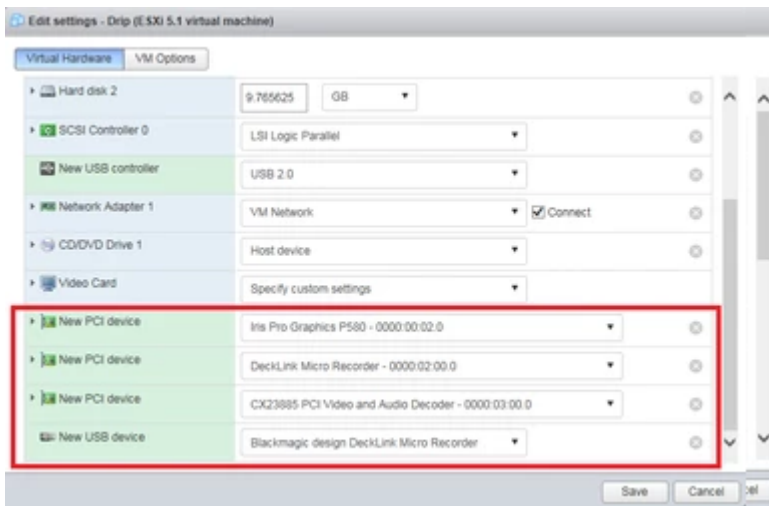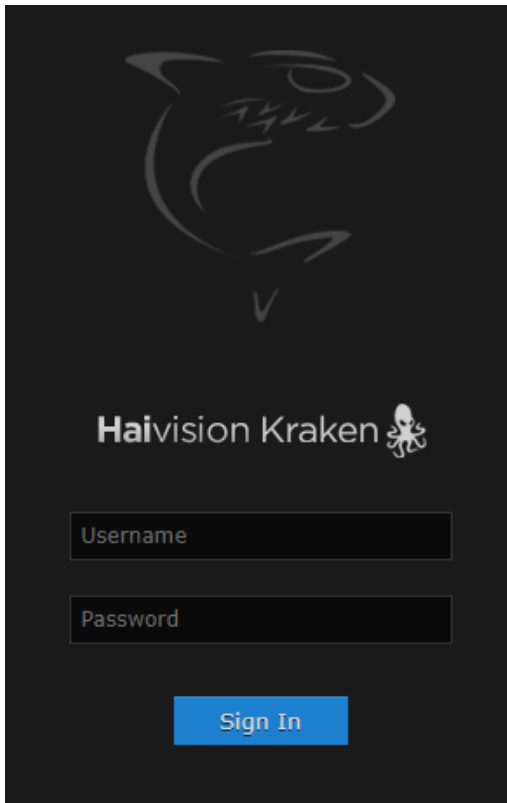
Booting the Virtual Appliance

Now that the device passthrough to the VM has been enabled in the settings, power on the VM. The VM console will function briefly and then go black. This is because the GPU device is being passed to the Virtual Machine, making it unavailable for use by the console. You may notice that the host console to the monitor (which was stuck at `"vmkapi_v2_1_0_0_vmkernel_shim loaded successfully"`) disappears at this time as well.
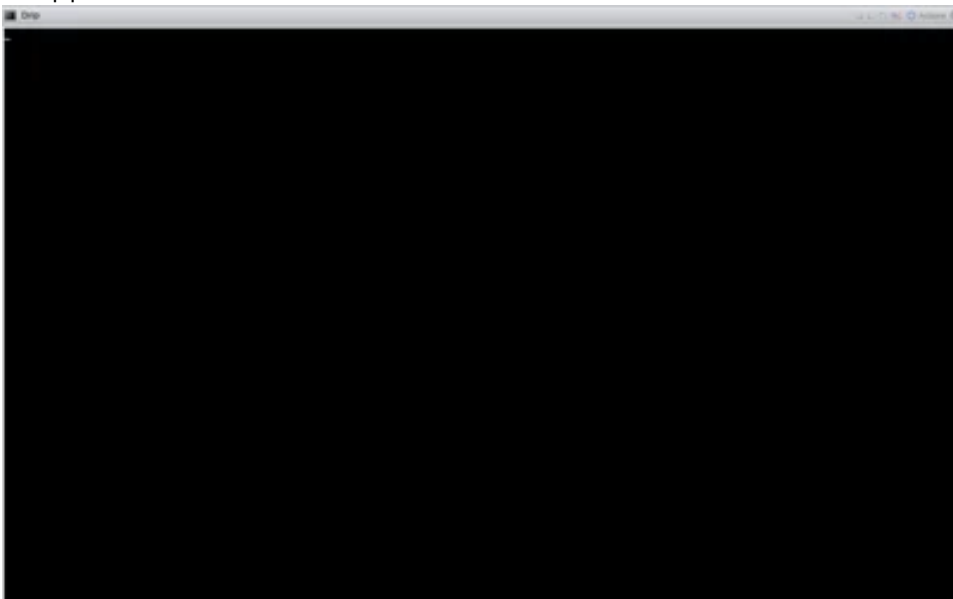
Using your Web browser, you can now navigate to the Web page of the Kraken virtual machine.

Licensing the Virtual Appliance

The next step is to license the Kraken virtual appliance:

1. Sign in to the Web interface using one of the credentials provided in the *Important Notice*.
2. If you see a License Required dialog, click **Add License.**
   -or-
   Click the ⚙ **Administration** icon on the toolbar (the settings gear) and click **Licensing** from the sidebar.
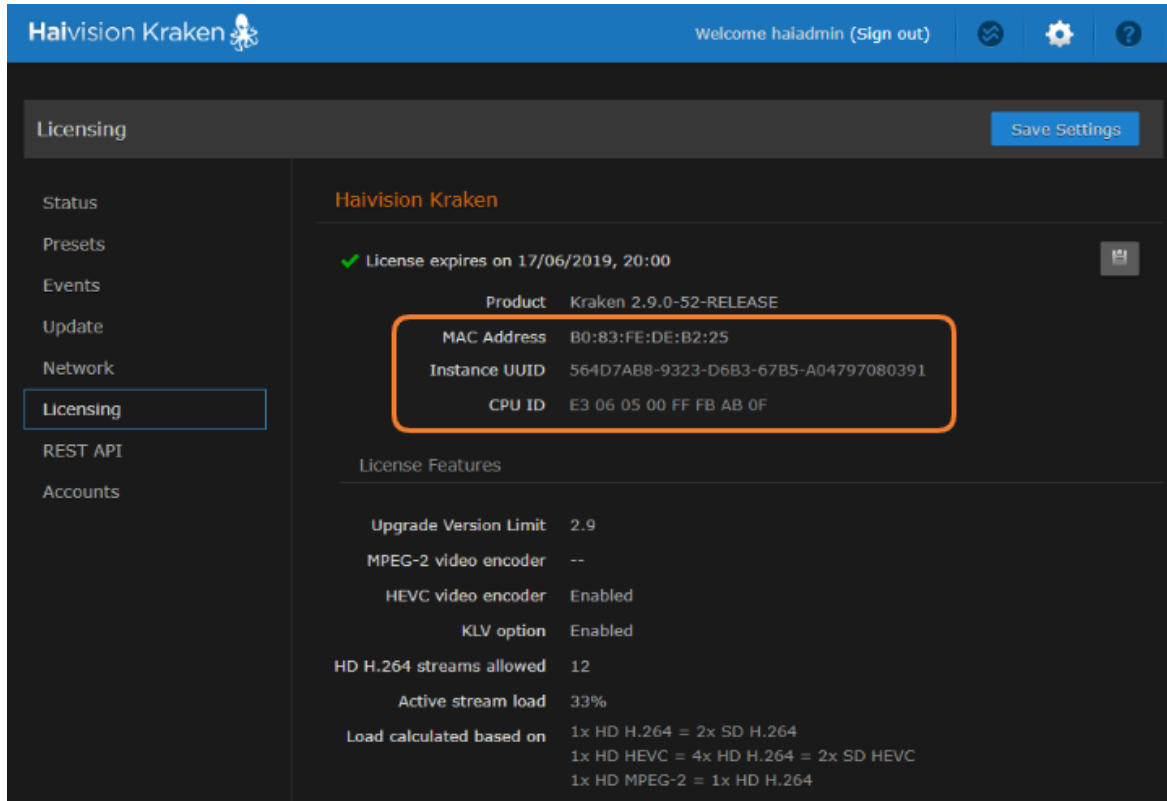
   The Licensing page provides three pieces of information required to generate the license:
   - MAC Address
   - Instance UUID
   - CPU ID
3. Click the 📋 icon to copy the current product details to the clipboard for use in the following step.
4. To request a license for your product:
   a. Log in to the Haivision Support Portal (https://support.haivision.com).
   b. After logging in, click **License Requests**.
   c. Click the **New** button.
   d. Select the appropriate device type and click the **Next** button.
   e. Fill in the form with the appropriate information, and click **Save**.
   Your license request is submitted and you will be contacted by a Haivision representative shortly with a license key for your product.
5. After you receive a license key, paste the license string in the License text box.
6. Click **Save Settings** to load the license.

The License Status is updated to show the new license information.

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Testing the Installation

At this point, the installation is complete and can be tested.

1. Click the ⚙ **Streaming** icon on the toolbar, and then click **Inputs** on the sidebar.
2. From the Inputs List view, click the ➕ **Add** button to add an input.
3. For the Source, select either "DeckLink Micro Recorder 1" or "Analog Capture 1" as applicable for your system.
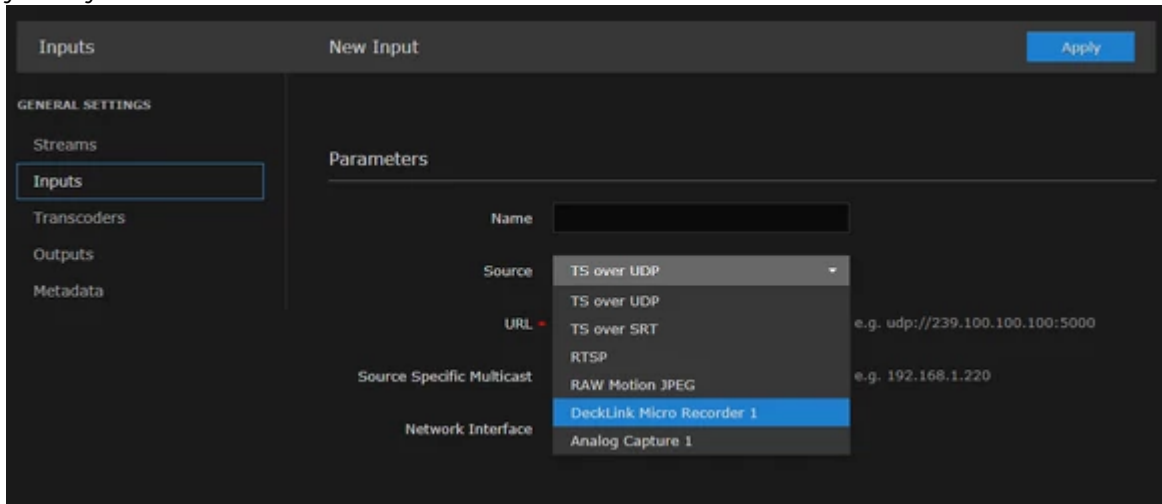
4. Click **Apply**.
5. Click **Transcoders** on the sidebar.
6. From the Transcoders List view, click the ➕ **Add** button to add a transcoder.
7. On the "Encoder" drop-down, select either "Software" or the "Hardware (QSV)" encoder.
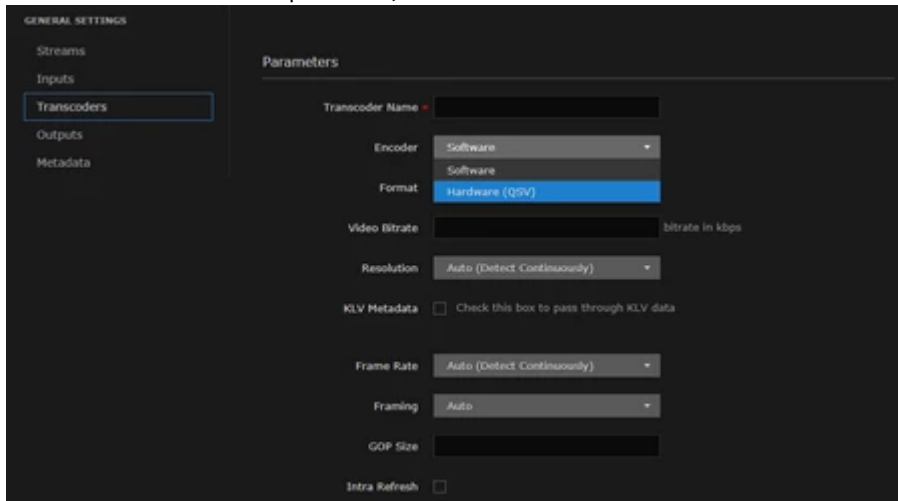
8. Set up and start a transcoding session with the device of interest to test it.

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Fax	1 (514) 334-0088
Support Portal	https://support.haivision.com
Product Information	info@haivision.com