



Matrox® **PowerStream Plus**

User Guide

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www.matrox.com/video

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1 Matrox PowerStream Plus software



Matrox PowerStream Plus software enables you to remotely control, manage, and configure your Maeve encoders and decoders from a controller system in your Maeve environment.



Note: This guide describes all Matrox PowerStream Plus features and controls. However, the support and availability of some of the Matrox features and controls detailed in this document depends on your product and software version.

1.1 Before you begin

To get the most out of your product:

- Make sure you connect your product *before* configuring PowerStream Plus software. For more information on the connection setup of your product, see the user guide for your Matrox hardware.
- Make sure *all* of your Maeve devices are using the latest version of the Matrox Maeve firmware. Download and install the Matrox Maeve firmware package version that matches the latest Matrox PowerStream Plus software version (with the same release date). For more information, see the Matrox Maeve Series Firmware Updater document. **Note:** If the versions do not match, the device will not be detected.
- Install the latest version of the Matrox PowerStream Plus software.
- You may need administrator rights to install or uninstall certain software. For more information, see Windows documentation or contact your system administrator.
- To assign an initial IP address to your encoders and decoders, a DHCP (Dynamic Host Configuration Protocol) server is required.
- Windows Server 2019, Server 2016, and Server 2008 R2 – Make sure the SSDP Discovery service, network discovery, and file sharing options are enabled.

1.1.1 Match software and firmware versions

- The version of your firmware package must match the version of your PowerStream Plus software package. If not, a warning message displays, and your device won't be detected.

1.1.2 Supported operating systems

Matrox PowerStream Plus supports the following operating systems:

- Windows® Server® 2019
- Windows® Server® 2016
- Windows® 10 (64-bit)
- Windows® 7
- Windows® Server® 2008 R2

1.1.3 Supported Matrox hardware

Matrox PowerStream Plus supports the following Matrox hardware:

- Maevox 6100 Series
 - Maevox 6152 decoder
 - Maevox 6152 encoder
 - Maevox 6150 encoder
 - Maevox 6122 encoder
 - Maevox 6120 encoder
 - Maevox 6100 encoder
- Maevox 5100 Series
 - Maevox 5150 encoder
 - Maevox 5150 decoder

1.1.4 Obtaining Matrox PowerStream Plus

Matrox makes the latest PowerStream Plus software available on the Matrox web site (www.matrox.com/maevexsw).

1.2 Installing your software

To install the software for your Maevox product, run the installation program for your software package. Follow the on-screen instructions.

1.3 Accessing Matrox PowerStream Plus

Windows 10/7 – To access the main interface of PowerStream Plus:

- Windows 10 – Click **Start** → **All apps*** → **Matrox PowerStream Plus*** → **Matrox PowerStream Plus**. (* Depending on your configuration of Windows, this part may not be necessary.)
- Windows 7 – Click **Start** → **All Programs** (or **Programs**) → **Matrox PowerStream Plus*** → **Matrox PowerStream Plus**. (* Depending on your version and configuration of Windows, this part may not be necessary.)

1.4 More information

This guide assumes your Matrox product is properly connected. For more information on the connection setup of your product, see the user guide for your Matrox hardware.

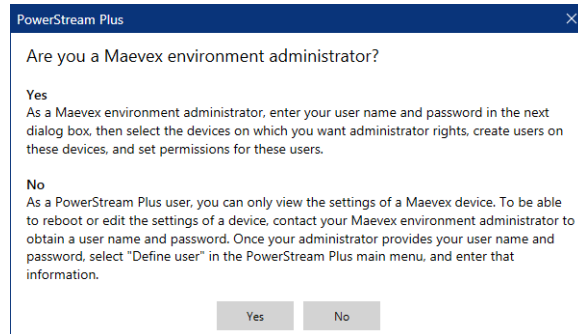
Be sure to check for any last-minute release notes included with your product. Also, check the Matrox web site (www.matrox.com/video) for the latest Matrox software, technical support, and product information.

2 Getting started

This section describes the main menu and basic functions of Matrox PowerStream Plus software. It also provides an overview of your Maevox environment and devices.

2.1 Starting Matrox PowerStream Plus for the first time

Maevox 6100 Series only – When you install and start PowerStream Plus software for the first time, you'll be asked if you're a Maevox environment administrator.



- If you're a Maevox environment administrator, click **Yes**. You'll be prompted to enter your user name and device password.
- If you're not a Maevox environment administrator, click **No**. Contact your Maevox environment administrator to obtain a user name and device password. Once you've obtained a user name and password, go to the main menu, click **Log in**, and enter that information.

2.2 PowerStream Plus main interface



A	Main menu	The PowerStream Plus main menu contains options for managing users and passwords. For more information see “2.3 - PowerStream Plus main menu”, page 10.
B	Device groups	The Maevox devices (encoders and decoders) in your Maevox environment are depicted as colored tiles and sorted into groups. For more information, see “2.6 - Understanding your Maevox devices”, page 13.
C	Device tiles	The Maevox devices (encoders and decoders) in your Maevox environment are depicted as colored tiles. For more information, see “2.6 - Understanding your Maevox devices”, page 13.
D	Information dashboard	The dashboard provides information for a device (such as the device type, serial number, firmware version, name, IP address, date, time, and status). For more information, see “2.7 - Information dashboard”, page 15.
E	Device filtering	The devices are filtered by status, permissions, and type. For more information, see “2.6.3 - Filtering your device tiles”, page 15.
F	Basic functions	These buttons provide the basic functions for PowerStream Plus software. For more information, see “2.4 - PowerStream Plus basic functions”, page 11.

2.3 PowerStream Plus main menu

The main menu of PowerStream Plus contains the following options.

Manual device discovery	PowerStream Plus automatically detects and adds new devices to your Maevox environment. If devices aren't automatically detected, you can manually add devices to your Maevox environment. For more information, see “3.2 - Manual device discovery”, page 20.
Maevox 5100 Series	<ul style="list-style-type: none">▪ Change password – Change the password for your Maevox 5100 Series products. For more information, see “4 - Managing users and passwords”, page 21.
Maevox 6100 Series	<ul style="list-style-type: none">▪ Change password – Change the password for your Maevox 6100 Series products. For more information, see “4 - Managing users and passwords”, page 21.▪ Log in/Log out – Log local or domain user credentials into PowerStream Plus for the Maevox 6100 Series devices on your network. For more information, see “4.4.4 - Logging in and out”, page 23.▪ Manage users – Manage the users for your Maevox 6100 Series products. For more information, see “4.4.5 - Managing your Maevox 6100 Series users”, page 24.
About	Provides information specific to your PowerStream Plus software (such as the version).

2.3.1 PowerStream Plus shortcut menu

To access the shortcut menu, right-click your device tile. The menu items available will vary depending on your product and setup. The menu items include:

Reboot	Click this to reboot your device (for the 6100 Series devices, you can select and reboot a group of devices of the same type). This keeps all of your device settings, including the IP address and password. After rebooting your device, allowed connections are restored.
Multi-device settings	Select multiple device tiles of the same type (for example, only 5100 Series devices or only 6100 Series devices), then click this to see the settings for those devices.
Wake-on-LAN control	6152 / 6150 / 6122 / 6120 encoder and 6152 decoder only – Click this to remotely reboot your Maevox device if it's unresponsive.
Open settings	Click this to see the settings for your device. This opens the last page accessed.
Remove lost devices	Click this to remove a device that's listed as Lost (dark grey) or Undetected (black).

Move to group	To create a new tile group, right-click a tile, select Move to group → Create a new device group , then enter a new Name . The tile used to create the new group moves to that new group. For more information, see “2.6.1 - Device groups”, page 14.
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2.4 PowerStream Plus basic functions

The following buttons provide basic functions for managing your PowerStream Plus software.

Reboot	Click this to reboot your device. This keeps all of your device settings, including the IP address and password. After rebooting a device already encoding or decoding, the device automatically restarts that process.
Apply / Cancel	Click Apply for your changes to take effect. Click Cancel to discard any changes that weren't applied.
Back	Click this to return to the Maevox environment.
Open settings	Click this to see the settings for your device. This opens the last page accessed.
Multi-device settings	Select multiple device tiles of the same type (for example, only 5100 Series devices or only 6100 Series devices), then click this to see the settings for those devices.

2.4.1 Modify settings

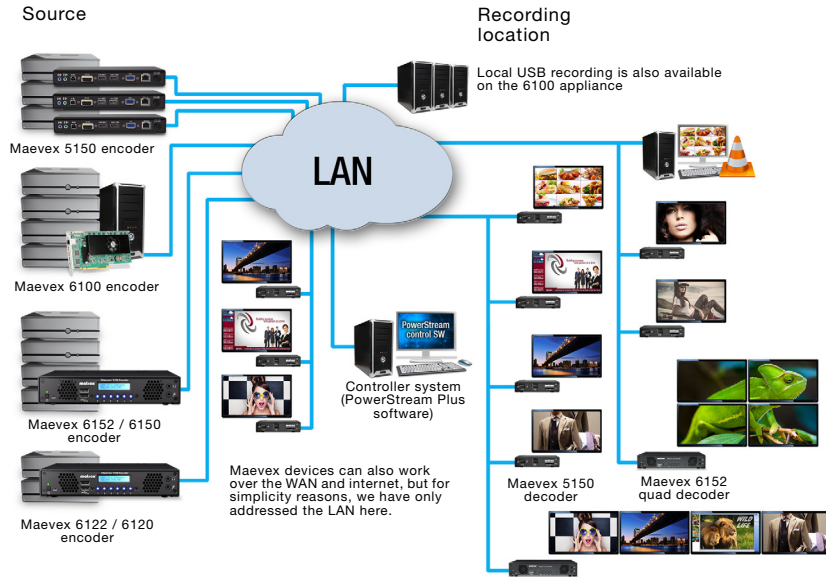
To modify the settings for multiple devices at the same time:

- 1 From the PowerStream Plus main interface, press the [Ctrl] key, select the tiles of the devices you want to modify, then click **Multi-device settings**. The device tiles you select must be of the same type.
- 2 Select your preferred device.
- 3 Enable the **Modify settings** option, then make your changes. **Note:** You need to select your device first before you enable the **Modify settings** option, otherwise an error message will display and your changes will not be saved.
- 4 When you're done, click **Apply**. This applies the settings from the preferred device to the other selected devices.

2.5 Understanding your Maevox environment

Matrox Maevox devices work together to provide unicast (one-to-one) or multicast (one-to-many) streaming over an IP network. Using Matrox PowerStream Plus software, you can manage your entire Maevox network from a single system or multiple systems.

A Matrox Maevox environment can be made up of the following elements connected to a network:



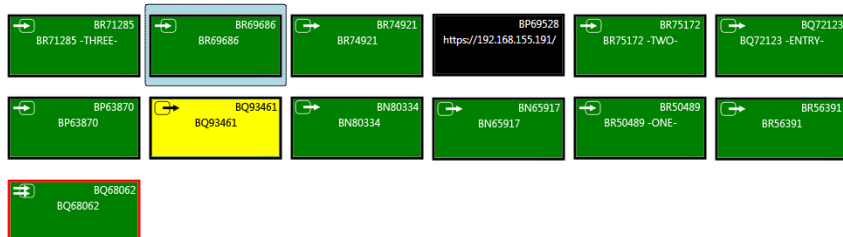
Source	A video source connected to the input of an encoder. A controller system can be used as a source.
Maevox 6152 decoder	A quad-output 4K decoder appliance that works with the entire Maevox product line as well as third-party encoders. Efficiently decodes up to four 4K streams, or many more lower resolution streams.
Maevox 6152 encoder	An encoder appliance that supports four (4) 4K60 inputs with HDCP and can generate multiple streams and recordings. A Maevox 6152 encoder can stream to one or more decoders.
Maevox 6150 encoder	An encoder appliance that supports four (4) inputs and can generate multiple streams and recordings. An encoder can stream to one or more decoders.

Maevox 6122 encoder	An encoder appliance that supports two (2) 4K60 inputs with HDCP and can generate multiple streams and recordings. An encoder can stream to one or more decoders.
Maevox 6120 encoder	An encoder appliance that supports two (2) inputs and can generate multiple streams and recordings. An encoder can stream to one or more decoders.
Maevox 6100 encoder	An encoder with four (4) inputs support that can generate multiple streams and recordings. An encoder can stream to one or more decoders.
Maevox 5150 encoder	An encoder with single input support that can generate a single stream or recording. An encoder can stream to one or more decoders.
Maevox 5150 decoder	A decoder with a single Full HD output that decodes and displays any Maevox or third-party encoder's RTSP HD stream that is available on the network. A decoder is needed for each stream from an encoder in your environment.
Third-party decoder	Third-party video players (such as VideoLAN® VLC® media player) can also be used to decode the signal from an encoder.
Recording location	The location (such as a Network Attached Storage (NAS) device or a network shared folder) used by a Maevox encoder to record a file.
Controller system	A system connected to the network and running Matrox Maevox PowerStream Plus. A controller system can be used as a source and as a recording location.

2.6 Understanding your Maevox devices

In PowerStream Plus, the Maevox devices (encoders and decoders) in your Maevox environment are depicted as colored tiles and sorted into groups.

⌵ New devices 13 items





⌵ Group 1 5 items



2.6.1 Device groups

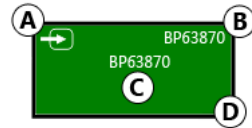
When PowerStream Plus is started for the first time, or whenever a new device is detected, the device or devices are added to the **New devices** group. These devices can then be sorted into *groups*.







Managing your device groups

- To collapse or expand the tile list under a group, click the arrow ( / ).
- To create a new tile group, right-click a tile, select **Move to group** → **Create a new device group**, then enter a new **Name**. The tile used to create the new group moves to that new group.
- To reorder your groups, right-click next to the group name, then select a location for that group in the group list.
- To rename a group, click the group name, then enter a new name for the group.
- To remove a group, move all the tiles out of a group.

2.6.2 Device tiles

The tile provides the following information about your device.



A	Device type identified by icon: <ul style="list-style-type: none">▪  – Maevox 6152 quad decoder▪  – Maevox 6152 / 6150 quad encoder▪  – Maevox 6122 / 6120 dual encoder▪  – Maevox 6100 quad encoder▪  – Maevox 5150 encoder▪  – Maevox 5150 decoder
B	Device serial number.
C	Device name, device serial number, or IP address, depending on the status of the Maevox device.
D	Device status (tile color and border color). For more information, see “2.8 - Understanding the status of your devices”, page 17.

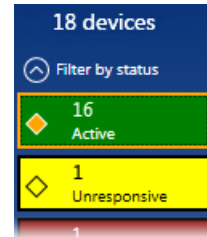
Managing your device tiles

- To reorder your tiles, drag a tile to a new location.
- To move a tile to a different group, drag the tile to a new group. You can also right-click the tile, and select a group.
- To access the settings of a device, select a device, then click **Open settings**.
- To rename a device, click **Open settings**, then enter a new **Name** for that device.
- To delete a device, click the **Delete** (✕) icon.

2.6.3 Filtering your device tiles

You can filter your devices by *status*, *permissions*, and *device type*. The number at the top indicates the total number of devices. The number in the colored tiles indicate the number of devices with that status.

To filter your devices, click the appropriate tile. You can select multiple tiles to view devices with a different status. While filtering is in effect, at least one tile is highlighted.



2.7 Information dashboard

The information dashboard provides the current status and information of a device. The dashboard also enables you to copy the addresses of your streams to the clipboard.

2.7.1 Opening the information dashboard

Select the device, then click the expand icon (⌵) at the bottom of the PowerStream Plus main interface. This opens the information dashboard.

CBS7895		192.168.2.20 fe80::220:cfff:fe32:f24		
Identity & Version Mavees 6150 Quad Encoder Firmware version: 3.00.00341	Telemetry 2021-07-05 10:34:38 AM Device temperature: 68.0°C Max. temperature supported: 100.0°C	Inputs Digital A/V Input 1: 1920 x 1080p @ 60.00 Hz No audio Digital A/V Input 2: 1920 x 1080p @ 59.94 Hz Audio connected Digital A/V Input 3: 1920 x 1080p @ 59.94 Hz No audio Digital A/V Input 4: No video No audio Analog Audio Input 1: No audio Analog Audio Input 2: No audio Analog Audio Input 3: No audio Analog Audio Input 4: No audio Microphone: No audio	Local output (preferred mode) HDMI 1: I05 LG TV 1920 x 1080p @ 60.00 Hz HDMI 2: I6C V404 1920 x 1080p @ 60.00 Hz HDMI 3: No monitor HDMI 4: No monitor	Streams RTSP on port 1027 rtsp://192.168.2.20:3040/S1 1920 x 1080 @ 59.94 Hz 59.94 frames/s 2.86 Mbit/s RTSP on port 1030 rtsp://192.168.2.20:3040/S2 1280 x 720 @ 60.00 Hz 60 frames/s 2.86 Mbit/s SRT on port 1026 srt://192.168.2.20:3040/S2 1920 x 1080 @ 59.94 Hz 59.94 frames/s 2.86 Mbit/s



The information displayed for the device includes the following:

- Device type

- Serial number (displayed when the device is not active), or the friendly name of the active device (the default friendly name for the device is its serial number)
- Firmware version
- Name
- IP address
- Date and Time
- Status
- Telemetry details such as device temperature and maximum temperature supported

2.7.2 Maevox 6152 decoder details

For the Maevox 6152 decoder, additional telemetry details displayed are CPU usage, memory, video decoding, and video processing.

Telemetry	Outputs	Streams
12/15/2020 3:04:23 PM	HDMI 1 Goldstar Company Ltd LG Ultra HD 1920x1080p @ 59.94 Hz Latency 47.940 ms HDCP not supported HDMI Rev 2.0	VCTeam Encoder -> RTSP, on port 1030 rtsp://192.168.154.186:3049/52  Playing, 1680 x 1050, 59.95 fps, YUV 4:2:0 8 bits, 8.24 Mb/s, 44 kHz, 2 Channels, LC (Maevox source)
CPU: 4.96% Video decoding: 20.21% Video processing: 12.00% Memory: 28.05% Device temperature: 58.40°C Max. temperature supported: 100.00°C	HDMI 2 Dell Inc. DELL U2718Q 1680x1050p @ 59.95 Hz Latency 42.882 ms HDCP not supported HDMI Rev 2.0	154.66 -> RTSP, on port 15000 rtsp://192.168.154.66:3049/51  Playing, 1920 x 1080, 59.99 fps, YUV 4:2:0 8 bits, 16.83 Mb/s, 44 kHz, 2 Channels, LC (Maevox source)
	HDMI 3: No monitor HDMI 4: No monitor Output 5: disconnected audio	

Other details you can see are:

- **Outputs** - All four video outputs and the audio output details, including whether they are HDCP protected, and the current latency information (displayed when there is a low latency setup between the encoder and the decoder). **Note:** Latency information will not appear when the low latency mode is inactive (disabled either manually or automatically), for example, when latency-inducing options like compositing and scaling are required.
- **Streams** - Stream details for every stream used.

2.7.2.1 Latency details

Latency is the time delay between when a video is captured and when it is displayed on a viewing surface. For the Maevox 6152 decoder, the glass-to-glass latency detail is displayed in the information dashboard when it is set up in a low-latency configuration with the encoder. The number represents the encoder, network, and decoder latencies together (HDMI capture to HDMI display).

When a fixed latency is set in **Latency (ms)** in the **Layout** settings page, the latency value is displayed here. If the value set is not sufficient, a warning appears.

When the stream or streams are displayed on an output in synchronized mode, the latency is displayed. **Note:** The stream or streams must come from the same Maevox encoder, via a private communications channel between a Maevox 6100 series encoder and a Maevox 6152 decoder, and have the same latencies set.

2.7.2.2 Low-latency configuration

For a low-latency configuration, you need to set up the encoder and decoder as detailed below.

Encoder:



- The encoder should be a Maevox 6100 Series running version 3.00.00 or later.
- The encoder must be set up to encode the captured stream without video scaling, composition, or modification in the color ProcAmps, and the **Encoding mode** should be set to either **Optimized for low latency**, or **Optimized for desktop** in the PowerStream Plus software.





Decoder:

- The decoder has to be set up to decode the video stream without video scaling, composition, or modification in the color ProcAmps, and display it directly onto the monitor, which has to be set at the same resolution and refresh rate as the stream.
- Select a 1 x 1 (single stream) panel canvas.
- Select audio and video from the same stream.
- Do not select any of the **Overlay** options - **Enable to display the media names over the screen** or **Enable to display the audio icons over the screen**.




2.8 Understanding the status of your devices

Depending on the status of a device, the color of the tile changes:

Active (Green) 	Device is active and working properly.
Unresponsive (Yellow) 	Device is unresponsive.

Error detected (Red) 	Device has encountered an error. The status and information of the device can't be updated by PowerStream Plus. To fix this, try rebooting your device.
Detected (Light grey) 	Device is present on the network but not initialized. When a device is present on the network, the IP address appears on the tile.
Lost (Dark grey) 	Device was once detected, but can no longer be detected by PowerStream Plus. When a device is no longer detected, the tile lists the last known IP address of that device.
Undetected (Black) 	Device can't be detected by PowerStream Plus. When a device is no longer detected, the tile lists the last known IP address of that device. To remove the tile of a device that's no longer needed, select the tile and click the Delete (✕) icon.

Depending on the write accesses to a device, the color of the tile border changes.

View only (Red border) 	Device can be accessed, and the settings of the device can be viewed but not modified. To modify the settings, you need a valid password and user name, depending on your Maevex product. Maevex 5100 Series devices must all use the same password. Maevex 6100 Series devices must be configured with your user name and password. For more information, see “4 - Managing users and passwords” , page 21.
Unknown (Grey border) 	Device can be accessed but no password was created. You're prompted for a password when you click Apply . Once a password is provided, the status becomes View only or Modify settings .
Modify settings (Black border) 	Device can be accessed and the settings can be modified. A valid password is provided.

3 Adding devices to your environment

PowerStream Plus automatically detects and adds new devices to your Maevox environment. If devices aren't detected, PowerStream Plus can scan one or more specific IP addresses or a range of IP addresses for Maevox devices.

3.1 Network discovery



Note: When the IP address or the method of assigning an IP address to an encoder or a decoder changes, you need to reboot the device for the changes to take effect.

3.1.1 Dynamic IP addressing

PowerStream Plus automatically detects all the Maevox products in the same subnet as your controller system through the UPnP (Universal Plug and Play) protocol.

3.1.2 Static IP addressing

Once PowerStream Plus has detected an encoder or a decoder, you can manually assign a static IP address to your device through the **Network** settings of your Maevox product.

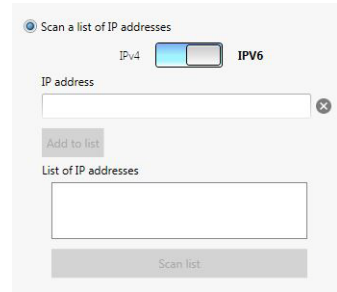
For more information on assigning a static IP address, contact your network administrator.

3.2 Manual device discovery

If PowerStream Plus doesn't automatically detect the encoders and decoders on the same subnet as your controller system, you can add them manually.

3.2.1 Scanning one or more IP addresses

- 1 From the PowerStream Plus menu, select **Manual device discovery**.
- 2 Select **Scan a list of IP addresses**, and then select the IP version to scan (**IPv4** or **IPv6**).
- 3 Enter the **IP address** of the device you want to add.
- 4 Click **Add to scan list**.
- 5 Repeat steps 3 and 4 for all the addresses you want to add to the list.
- 6 When you're done, click **Scan list**.



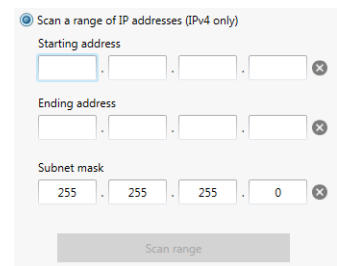
If a new device is found at an IP address provided, that device is added to the **New devices** group.

3.2.2 Scanning a range of IP addresses (IPv4 only)



Note: This option is supported only with IPv4.

- 1 From the PowerStream Plus menu, select **Manual device discovery**.
- 2 Select **Scan a range of IP addresses (IPv4 only)**.
- 3 Enter the starting and ending IP addresses of the range you want to scan.
- 4 Enter the subnet mask to use when scanning for IP addresses. For more information on the subnet mask to use, contact your network administrator.
- 5 Click **Scan range**. If the starting or ending addresses are invalid, the **Scan range** button is disabled.



If a new device is found, that device is added to the **New devices** group.

4 Managing users and passwords

In a Maevox environment, your Matrox PowerStream Plus software, Maevox encoder, and Maevox decoder use passwords for secure communication.

4.1 Environment password

A Maevox environment has a single password that allows PowerStream Plus to access the encoders and decoders in that environment.

When you start PowerStream Plus for the first time, you need to provide the environment password.

- In a *new environment*, the environment password is used for all the encoders and decoders detected by PowerStream Plus.
- In an *established environment*, use the password already entered for that environment.

4.2 Device password

Each device has a unique password. When a new encoder or decoder is added to the environment, the device password needs to be updated to match the environment password.

If the environment password doesn't match a device password, that device is listed as **View only**. Also, you won't be able to access the settings of that device.



4.3 Maevox 5100 Series



Note: Maevox 5100 Series – Passwords are case-sensitive and can be between 6 and 8 alphanumeric characters long.

To manage your Maevox 5150 encoder and decoder, PowerStream Plus uses two types of passwords: “Environment password” and “Device password”.

4.3.1 Changing your environment password


If an encoder or a decoder in your environment is listed as **View only** (), you need to update the device password to the environment password. To change the password for one device, click the **Change password** icon () in the upper margin of the device tile.

If all the encoders and decoders in your environment are listed as **View only**, you need to change your environment password. To change the password for all of your devices, open the **Settings** panel, then click **Change password**.

For **active** encoders and decoders, changing the environment password also updates the device password to the new environment password.

4.3.2 Changing your Maevox 5100 Series device password

If the status of a device is **View only**, you need to update its password to match the environment password.

To update a device password, select the device tile and click the **Change password** () icon on the tile. If a device doesn't have a password (for example, new devices or devices reset to factory default), you must enable **Update devices that have no password**. If a device has a password, you need to enable **Update devices that have an existing password** and provide the current device password for the change to take effect.

After the device password is changed, the status of the device is updated to **Modify settings**. For more information, see “2.8 - Understanding the status of your devices”, page 17.

4.4 Maevox 6100 Series



Note: Maevox 6100 Series – Passwords are case-sensitive and must be at least six (6) alphanumeric characters long.

To access or modify the settings of your Maevox 6152, 6150, 6122, 6120, or 6100 device, you need to define a user name for a device, and the device password for that user must match the password used in PowerStream Plus. Your *Maevox environment administrator* creates an environment password and assigns that password to the Maevox 6152, 6150, 6122, 6120, or 6100 devices. The *Maevox environment administrator* can then add users to a device and give them permissions for a given device.



Note: To obtain a user name and device password (or if you've forgotten your user name or device password) contact your *Maevox environment administrator*.

4.4.1 Adding local users

Local users are defined by the *Maevox administrator* and managed through PowerStream Plus.

To obtain a local user name and device password for a *local user* (or if you've forgotten your user name or device password), contact your *Maevox administrator*. To change your current password, see “4.4.3 - Changing your Maevox 6100 Series password”, page 23.

4.4.2 Adding domain users

Domain users are defined by your *network administrator* and managed through an *Active Directory®* network. Maevox software and hardware use *Active Directory* to authenticate the user name and password of domain users.

PowerStream Plus supports *user groups*. Instead of specifying *domain users* individually, an existing *Active Directory user group* can be specified as *domain users* for easy set up.

A domain user who's also part of a user group is granted the highest privilege available (as a user group member or as an individual user). For more information, contact your *network administrator*.

To obtain a user name and password for a domain user (or if you've forgotten your domain user name or password), contact your *network administrator*.

4.4.3 Changing your Maevox 6100 Series password



Note: Maevox 6100 Series – Passwords are case-sensitive and must be at least 6 alphanumeric characters long.

If the status of a device is **View only**, you need to change the device password to match the environment password. To update a device password, click **Change password** from the PowerStream Plus main menu.

After the device password is changed, the status of the device is updated to **Modify settings**. For more information, see “2.8 - Understanding the status of your devices”, page 17.

4.4.4 Logging in and out

To modify the settings of your Maevox 6100 Series device, you need to log into PowerStream Plus:

- 1 From the PowerStream Plus main menu, click **Log in**.
- 2 Specify if you're a **Local user** or a **Domain user/active directory**:
 - **Local user** – Enter your user name and password. For more information, see “4.4.1 - Adding local users”, page 22.
 - **Domain user/active directory** – Enter your user name, the domain name of the server, and your network password. For more information, see “4.4.2 - Adding domain users”, page 23.
- 3 When you're done, click **Apply**.
































































To log out, click **Log out** from the main menu of PowerStream Plus.

4.4.5 Managing your Maevox 6100 Series users

Select the devices on which you want administrator rights.

<div>BQ68062 192.168.157.73</div>	Add device
---------------------------------------	------------

Add or remove users and edit their permissions.

	BR99430 BR99430	BR69686 BR69686	BR58719 BR58719	
swilson	  	  	  	
gwhitmore	  	  	  	
mtremblay	  	  	  	
gpatriano	  	  	  	
dkowalsky	  	  	  	
fleclerc	  	  	  	
pcheckov	  	  	  	

Add user

Delete user

Overwrite the existing password of the selected users.

Overwrite password

Permissions

☐ Administrator

☐ Apply changes

☐ Edit users

☐ Reboot device



4.4.5.1 Adding yourself as a device administrator

To add yourself as an administrator to a device:

- 1 Click **Manage users**.
- 2 Select the devices to which to add yourself as an administrator, then click **Add user**.
- 3 When you're done, click **Apply**.

4.4.5.2 Adding users

To add a user to a device:

- 1 Click **Add user**, then enter a user name. Specify if you're adding a **Local user** or a **Domain user/active directory**.
- 2 When you're done, click **OK**.
- 3 Click the **Add** () icon for each device you want to add a user to, then select the permissions (**Administrator**, **Apply changes**, **Edit users**, and **Reboot devices**) for each user.
- 4 Repeat steps 1 to 3 for each user you want to add.
- 5 When you're done, click **Apply**. This creates a **Summary of the users created** and generates a device password.
To copy the summary to the clipboard, click **Copy to clipboard** ().
- 6 To close the dialog box, click **OK**.
- 7 Repeat steps 2 to 4 for each user you want to add.

4.4.5.3 Deleting users

To delete a user from a device:

- 1 Select the user you want to delete, then click **Delete user**.
- 2 When you're done, click **Apply**.

4.4.5.4 Overwriting a password

To overwrite the existing password of a local user:

- 1 Select the user whose password you want to overwrite, then click **Overwrite password**.
- 2 Enter the new password, confirm the password entered, then click **Change**. (We recommend you take note of the new password.)
- 3 When you're done, click **Apply**.

5 Processing overview

This section provides an overview of the encoding and decoding processes.

5.1 Encoding process overview

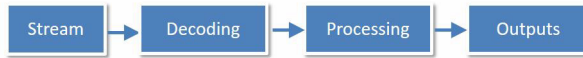
Maevox 6100 Series only – The following outlines the encoding process of your Maevox 6100 Series encoder.



1	Inputs	Enable the input signal to be captured and used as a source.
2	Processing	Specify one or more inputs as a source that are encoded to output a stream or record a file. You can add or remove processes. An encoder must have at least one process.
3	Sources	Add one or more sources to be able to generate an encoding.
4	Encoding	Define how the source is encoded to create a stream or a recording. By default, an encoding is created to use one stream. You can add or remove encoding processes.
5	Stream	Configure the settings of a stream. An encoding must have at least one stream. You can add or remove streams with different protocols. Only one stream with a particular protocol is supported for each encoding. To have multiple streams with the same protocol, the streams must be the output of separate encodings. These encodings may be generated from the same processing.
6	Recording	Enable recording and specify a recording location (such as to a Network Attached Storage (NAS) device or a network shared folder). You can add or remove recordings.

5.2 Decoding process overview

Maevox 6152 decoder only – The following outlines the decoding process of your Maevox 6152 quad-output 4K decoder appliance.



1	Stream	<p>You need to configure the video and audio streams that have to be decoded. For decoding, you must have at least one stream for each output.</p> <p>Note: Video and audio streams from connected encoders are automatically detected by PowerStream Plus and appear in the Streams list in the Decoding page. You can also add streams manually to the stream list.</p>
2	Decoding	<p>Define how the streams have to be decoded to create the outputs. For this, you have to first select a layout (made up of single or multiple panels) and its settings including resolution and pixel format from the Layout page. Then, from the Decoding page add a stream to each panel of the layout. Streams with different protocol and format can be added in a layout.</p> <p>Note: 4Kp60 in YUV 4:4:4 pixel format can only be transferred to HDMI Outputs 1 and 3 (HDMI Outputs 2 and 4 remain unused in this case).</p> <p>Note: It is highly recommended to maintain the processing power under 100% at all times. The Video decoding percentage is displayed in the Telemetry section of the Information dashboard. For example, selecting 2x2 panel layouts on all four outputs could push the processing to over its maximum.</p>

3	Processing	<p>Based on the settings selected, PowerStream Plus either matches the stream resolution with the display resolution or converts resolution according to settings, selects the output pixel format depending on the pixel format of the streams or a user-set pixel format, composites multiple streams, scales, optimizes performance when two or more outputs have the same configuration, synchronizes streams, and carries out other processing tasks.</p> <p>Note: It is highly recommended to maintain the processing power under 100% at all times. The Video processing percentage is displayed in the Telemetry section of the Information dashboard. Do not overload the processing capacity of the device when decoding, compositing, scaling, or otherwise transforming multiple streams.</p>
4	Outputs	<p>Outputs are displayed on the monitors based on the set layout, resolution, refresh rate, pixel format, scaling, and background color.</p>

6 Maevox 6152 decoder settings



This enables you to view, configure, and manage settings specific to a Maevox 6152 decoder.

6.1 Decoding

These settings define how the streaming signals are processed by your decoder.

The screenshot shows the Maevox 6152 decoder settings interface. The left sidebar contains navigation options: Decoding (selected), Layouts (4), Messaging overlay, Network, RS232, Date and time, Local storage, and Other. The main area displays a list of streams under the 'New stream' tab. The list has columns for Type, Name, and Filters. Streams include RTSP, MP2TS, and SRT protocols, mostly from A546838-BLACMTX. A preview window on the right shows a network diagram and an audio waveform. At the bottom, there is a checkbox for 'Display streams information' and an audio volume slider set to 50.

Type	Name	Filters
RTSP	A546838-BLACMTX -> RTSP, on port 1028 rtsp://192.168.157.57:3048/52	
MP2TS	A546838-BLACMTX -> MPEG-2 TS, on port 1037 mpeg2ts://239.2.157.57:1037/	
MP2TS	A546838-BLACMTX -> MPEG-2 TS, on port 1032 mpeg2ts://239.1.157.57:1032/	
MP2TS	A546838-BLACMTX -> MPEG-2 TS, on port 1026 mpeg2ts://239.0.157.57:1026/	
SRT	VCTeam encoder(HDCP) -> SRT, on port 1026 srt://192.168.154.209:1026/	
RTSP	VCTeam encoder(HDCP) -> RTSP, on port 1031 rtsp://192.168.154.209:3048/54	
RTSP	VCTeam encoder(HDCP) -> RTSP, on port 1027 rtsp://192.168.154.209:3048/53	
RTSP	KC6122E -> RTSP, on port 15006 rtsp://192.168.178.192:3048/52	

Streams list	<p>Set up your Maevex streams. The list of streams the decoder can decode is on the left of the screen. This is a list from all the encoders discovered by PowerStream Plus automatically as well as manually added streams. Each network protocol icon is in a different color for easy identification. For RTSP streams that require authentication, streams that have been authenticated and usable are identified with a key  icon, but they are greyed out when they are blocked due to not being authenticated. RTSP streams that require authentication have to be added manually (create a custom stream) by entering their details including authentication. For more information, see “6.1.1.1 - Add a RTSP stream”, page 34. Video from a USB is also displayed in the streams list and has the type assigned as USB. You can also upload JPEG and PNG static images from a USB. If a stream has protected content (is HDCP secured), it has a lock sign in the stream list (). If the HDCP secured stream is blocked (this can happen in different scenarios), the stream is greyed out.</p> <p>Note: Non-authenticated HDCP streams can be dragged and dropped into a panel like regular streams, without having to create custom streams for them.</p> <ul style="list-style-type: none"> ▪ Type – You can sort the list by stream type by clicking on the Type column label. The stream types are: RTSP, RTP, MP2TS, SRT, Local storage, and USB. ▪ Name – You can sort the list by stream name by clicking on the Name column label. ▪ New stream – Manually add a stream if you cannot find it in the list. ▪ Search bar – Use the search bar to search on the friendly names in the streams list. ▪ Streams being used (checkbox) – Filter the list to display only the streams being used currently. This is useful when you have multiple encoders.
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<p>Preview thumbnails</p>	<p>The thumbnails on top provide a preview of the selected video and audio streams for each monitor (or layout).</p> <p>Note: The video preview is based on the input video stream and not a true representation of the monitor output. Since it is only a simulation of what is displayed, there could be some differences between the preview and what is actually displayed on the monitor in terms of the aspect ratio or the time the content appears on the screen.</p> <ul style="list-style-type: none"> ▪ Monitors – Click one of the thumbnails to see if a stream, or multiple streams, are assigned to the monitor or layout. If assigned, the details of the streams will display in the video layout below. If a stream is not yet assigned, you can drag a stream from the streams list on the left to the video layout below where “Drag and drop a video source here” is displayed. ▪ Audio line out – Click to see the audio stream assigned. If an audio stream is not yet assigned, you can drag an audio stream from the streams list on the left onto the audio layout below where “Drag and drop an audio source here” is displayed. For multi-stream layouts, you can have up to five Audio line out assigned (one for each monitor and one headphone or speaker out).
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Video layout	<p>The single-panel or multi-panel video layout on the right represents the video and how the stream is going to be displayed on the output surface (single monitor). The connection can use MP2TS, RTSP, RTP, or SRT network protocols.</p> <p>You can select a video stream and drag it onto the video layout if it is a single-panel layout, or onto one of the panels if it is a multi-panel layout. Temporarily, the video layout shows the encoder name, the protocol, the URL, and the port used. Click the Apply button to apply the video decoding configuration to the decoder. A video thumbnail is captured and displayed in the video layout. Note: If you want to use the same stream for the audio, you can drag and drop the stream from the video layout to the audio layout.</p> <ul style="list-style-type: none"> ▪ Settings – To set the scaling, and/or ProcAmp (processing amplifiers) options (adjust the image brightness, contrast, hue, and saturation), right click on the panel and select Settings (or, double click) to bring up the PowerStream Plus - Panel settings screen. For scaling, the options are Center in display, Stretch in display, and Fit in display. For more information, see “Scaling”, page 128 and “Image appearance”, page 129 topics. <p>Note: The settings are available for each panel and allow you to set different scaling and/or color space options for each stream independently.</p> <ul style="list-style-type: none"> ▪ Remove stream from panel – To remove a video stream from the video layout, right click and select Remove stream from panel.
Audio layout	<p>Below the video layout is the audio layout representing what the device will decode as audio for the same layout. Supports High-Efficiency Advanced Audio Coding standards (AAC-HE v1 and AAC-HE v2).</p> <p>You can select the audio stream and drag it onto the audio layout and click the Apply button to apply the audio decoding configuration to the decoder. Note: If you want to use the same stream for the video, you can drag and drop the stream from the audio layout to the video layout.</p> <ul style="list-style-type: none"> ▪ Remove stream from panel – To remove an audio stream from the audio panel, right click and select Remove stream from panel.

Display streams information	<p>To view the information of the streams on the layout, select Display streams information. The stream information is displayed on the video as well as the audio layout as the information could be different for both.</p> <p>The information is displayed on three lines:</p> <ul style="list-style-type: none"> ▪ The first line contains the friendly name of the video. ▪ The second line contains the stream URL. ▪ The third line contains the resolution, frames per second, pixel format, and the bit rate. Also indicates if the stream is synchronized. Note: Synchronization is maintained by the decoder if the source signals connected to the Maevox encoder running on version 3.00.00 or later are frame-synchronous. A private communications channel with the Maevox encoder enables a more accurate synchronization between multiple streams.
Audio control bar	<p>You can adjust the audio by dragging the audio control bar as required, or click the audio icon to mute the audio.</p>

6.1.1 Add a stream to the list manually

PowerStream Plus detects streams available for decoding automatically and displays them in the streams list. Streams requiring authentication may not automatically appear on the streams list. You need to manually add streams (also referred to as “custom streams”) that are required for decoding but are not automatically detected and displayed in the streams list. The details you need to enter differ depending on the streaming protocol you select. The streaming protocols you can select are: **RTSP**, **MPEG-2 TS**, and **SRT**.

To decode a RTSP or SRT stream with authentication, you must create a corresponding custom stream in the decoder and enter the appropriate stream credentials. You need to do this for each stream requiring authentication, for each device.



Note: The stream you enter manually is initially available only on that instance of PowerStream Plus. When you use this custom stream in a panel of the decoding layout, then click **Apply**, if this stream doesn’t require authentication (a user and password for RTSP, or a passphrase for SRT), then it will be available in the **Streams** list when another instance of PowerStream Plus connects to the same device. If the custom stream is not used in any decoding layout, it won’t be available for another instance of PowerStream Plus connecting to the same device, even when you click **Apply**. In this case, you have to add the custom stream manually to the new instance of PowerStream Plus.



Note: A stream entered manually with credentials (a user and password for RTSP, or a passphrase for SRT) by one user and enabled in a layout cannot be enabled in a new layout by another user. The second user can only drag the stream to another video or audio panel in the same layout. If the second user removes the stream from the layout created by the first user, the second user will not be able to re-enable the stream in the layout after that.

6.1.1.1 Add a RTSP stream

If there are any RTSP streams from the Maevox encoder that are needed for decoding but they are not automatically detected by PowerStream Plus, you need to add them manually. Do the following to add a RTSP stream manually.

- 1 From the Decoding screen, select **New stream**.
- 2 In the **PowerStream Plus - Stream item** dialog box, select **RTSP** from the **Stream protocol** drop-down list.
- 3 Enter a friendly name for the stream in **Name**.
- 4 Select **Unicast**, **Multicast**, or **TcpInterleave** from the **Routing scheme** drop-down list. **Note:** If you want to use the RTSP over TCP Interleave routing scheme between a Maevox 6100 Series encoder and Maevox 6100 Series decoder, you have to create a unicast RTSP stream on the encoder, then create a custom stream on the decoder using the RTSP over TCP Interleave routing scheme (**TcpInterleave**).
- 5 Enter the URI name or location of the stream in **URI**.
- 6 If the RTSP stream in the Maevox encoder is set to use stream credentials and protected with encryption, then select **Use authentication** to enter the *same* stream credentials for this RTSP stream being manually added in the Maevox 6152 decoder.
- 7 Enter the user name and password in the **User name** and **Password** fields. **Note:** Any name and password combination can be used for the stream credentials in the Maevox encoder. The stream credentials could either be different for each RTSP stream, or the same for all the RTSP streams. You *must* ensure that you use the same stream credentials here.
- 8 Click **Save** to save this RTSP stream to the list.

6.1.1.2 Add a MPEG-2 TS stream

Do the following to add a MPEG-2 TS stream manually.

- 1 From the Decoding screen, select **New stream**.
- 2 In the **PowerStream Plus - Stream item** dialog box, select **MPEG-2 TS** from the **Stream protocol** drop-down list.
- 3 Enter a friendly name for the stream in **Name**.
- 4 Select **Unicast** or **Multicast** from the **Routing scheme** drop-down list. For **Multicast** routing, enter the address in **Multicast address**.
- 5 Enter the port number, between 1 and 65535, in **Port**.
- 6 Enter the IP address of the encoder in **Encoder address**.
- 7 Click **Save** to save the stream to the list.

The screenshot shows the 'PowerStream Plus - Stream item' dialog box. The 'Stream protocol' is set to 'MPEG-2 TS'. The 'Name' field has a red 'X' icon and the text 'Enter the stream name'. The 'Routing Scheme' is set to 'Multicast'. The 'Multicast address' field has a red 'X' icon and the text 'Multicast address. Ex.: 224.0.0.10'. The 'Port' field has a red 'X' icon and the text 'Encoder base port (between 1 and 65535)'. The 'Encoder address' field has the text 'Encoder address. Ex.: 192.168.157.10'. A 'Save' button is at the bottom right.

6.1.1.3 Add a SRT stream

Do the following to add a SRT stream manually.




- 1 From the Decoding screen, select **New stream**.
- 2 In the **PowerStream Plus - Stream item** dialog box, select **SRT** from the **Stream protocol** drop-down list.
- 3 Enter a friendly name for the stream in **Name**.
- 4 Select **Default**, **Listener**, **Caller**, or **RendezVous** in **Connection type**.
- 5 Enter the IP address of the encoder in **Encoder address**.
- 6 Enter the port number, between 1 and 65535, in **Port**.
- 7 Enter a value between 20 and 300 ms in **Latency (ms)**. The default is 40 ms.

The screenshot shows the 'PowerStream Plus - Stream item' dialog box. The 'Stream protocol' is set to 'SRT'. The 'Name' field has a red 'X' icon and the text 'Enter the stream name'. The 'Connection type' is set to 'Default'. The 'Encoder address' field has the text 'Encoder address. Ex.: 192.168.157.10'. The 'Port' field has a red 'X' icon and the text 'Encoder base port (between 1 and 65535)'. The 'Latency (ms)' field has the text 'Value between 20 and 300 (default = 40ms)'. The 'Encryption' is set to 'Unencrypted'. A 'Passphrase' field is empty. A 'Save' button is at the bottom right.

- 8 To define a SRT stream without encryption, select **Unencrypted** in the **Encryption** drop-down list. To define a SRT stream with encryption, select the encryption method used in **Encryption** (**AES-128**, **AES-192**, or **AES-256**) and enter a passphrase between 10 to 79 characters in **Passphrase**. **Note:** The encryption method and passphrase *must* be the same as defined for the stream in the Maevox encoder or third-party encoder settings.
- 9 Click **Save** to save the stream to the list.


6.1.2 Edit a manually added stream

You can edit (or delete) a stream that was manually entered.

- 1 In the stream list, move your mouse over the manually added stream that needs to be edited. Edit () and delete () icons appear.
- 2 Click the edit () icon.
- 3 Make your changes for the stream.
- 4 Click **Apply** for the changes to take effect.

6.1.3 Change the name of a custom stream (on the device)

You can change the friendly name of a stream if it is a custom stream that you created.

- 1 Select the stream from the stream list in the Decoding page and click the edit () icon.
- 2 Enter a new friendly name for the custom stream.
- 3 Drag and drop the stream in a video or audio panel of a layout. PowerStream Plus detects the name change and the **Apply** button is now enabled.
- 4 Click **Apply** for the stream name to be changed in the originating device as well.

6.2 Layouts

Use the **Layouts** page to enable the physical output layouts for the monitor. You can also choose your display mode and pixel format options for your monitors. You can set the panel schemes to apply to the output layout.

You can select a single-panel single-output layout or a multi-panel single-output layout. You can have up to four layouts for a single device.

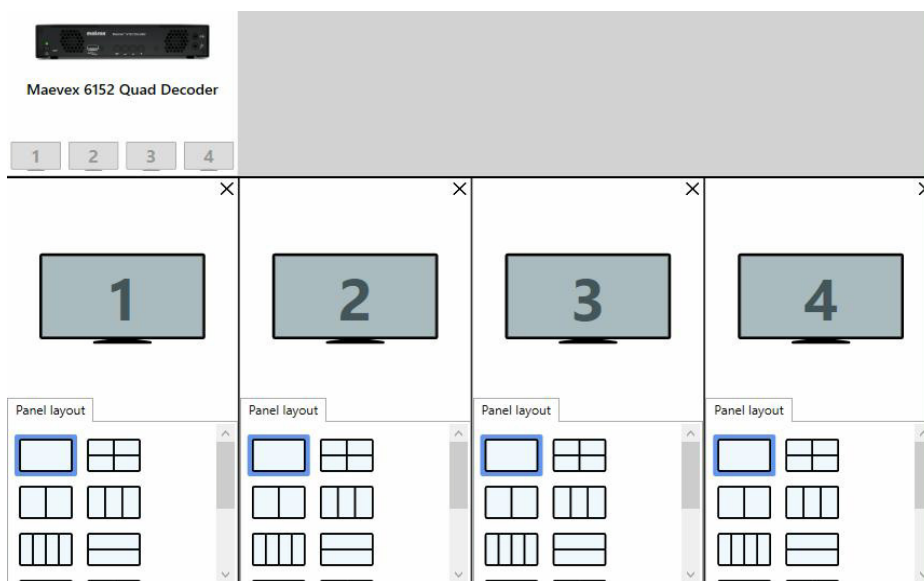
You could also have a single layout with a single panel displaying content synchronously on multiple outputs (monitors or other physical displays). For example, you can play a 4K video on a single layout containing four HD monitors. You can have different monitor models in the same layout, as long as they share the same display mode and refresh rate. However, we recommend using the same model

monitors for a better experience as there could be tearing between the monitors if they don't have the same display timing. If audio is configured on the layout, the audio is sent to HDMI 1 in the layout. The synchronization tolerance is 40 ms.

Note: The number within brackets beside the **Layout** menu option indicates the number of layouts currently in use.



Note: At an initial boot, or after a factory reset, the default configuration is four independent layouts containing one monitor each, and a single stream per output.

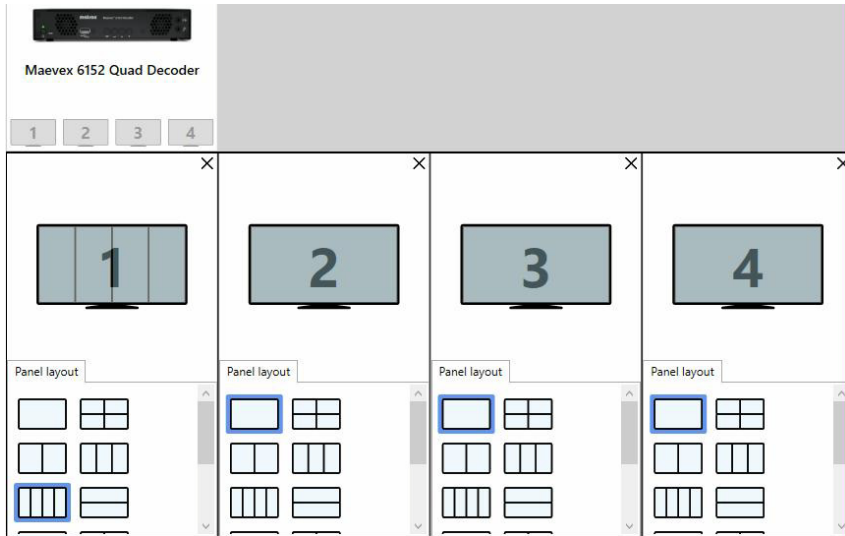


Panel layout	<p>Choose a panel scheme for the layout from the Panel layout options. The selected option is highlighted.</p> <p>The following are the default Panel layout options:</p> <ul style="list-style-type: none"> ▪ Single output ▪ 2 x 1 ▪ 1 x 2 ▪ 1 x 3 ▪ 1 x 4 ▪ 3 outputs, with a single output on the top ▪ 3 outputs, with a single output on the bottom ▪ 2 x 2 ▪ Picture in picture, the small picture on the top left ▪ Picture in picture, the small picture on the top right ▪ Picture in picture, the small picture on the bottom left ▪ Picture in picture, the small picture on the bottom right
User layout	<p>You can choose a panel scheme for the layout from the User layout options if you did not select an option from Panel layout.</p> <p>Note: Default panel layout options provided with the PowerStream Plus software display under Panel layout. OEM integrators can customize the panel layout options by adding new panel layouts with specific panel schemes. There can be a maximum of 16 custom panel layouts. These customized panel layouts are listed alphabetically and display under User layout. For more information, contact the Matrox Technical Support team.</p>
Configuration tab	<p>The Configuration tab displays when you have two or more monitors in the same layout. The monitor boundary border is highlighted. You can double click to define the gap between the monitors' boundaries.</p> <ul style="list-style-type: none"> ▪ Monitor position – You can select a monitor layout from the Monitor position pre-defined options (1 x 4, 4 x 1, 1 x 3, 3 x 1, and 2 x 2). <p>Note: Depending on the monitor layout you select, the Horizontal bezel (pixel) and/or Vertical bezel (pixel) option is available for you to set the values for making bezel adjustments.</p> <ul style="list-style-type: none"> ▪ Horizontal bezel (pixel) – Define the gap between the monitor boundaries (in pixels) for bezel management. ▪ Vertical bezel (pixel) – Define the gap between the monitor boundaries (in pixels) for bezel management.

Settings	<p>To access the layout options, right click and select Settings, (or double click). In the Layout settings dialog box, select your display mode and pixel format options. Note: The monitor options are applicable for the whole layout. When multiple monitors are used in a layout, all the monitors will be set to the same resolution and their destination set to the same pixel format. When a single monitor is used in each layout, you can set a different mode on each layout independently.</p> <ul style="list-style-type: none"> ▪ Select Force the display mode on the monitors if you want to use the default display mode of the monitor, if not, choose a resolution and refresh rate from the list of options provided under Display mode. For a layout with bound monitors, only the display modes common to all the monitors are available for selection in the Display mode drop-down list. When the preferred resolution of a monitor is UHD 60 Hz, the refresh rate defaults to 30 Hz instead of 60 Hz. If you would like the monitor to follow the stream resolution, select Automatically match video stream resolution when possible. Click OK to save your changes.
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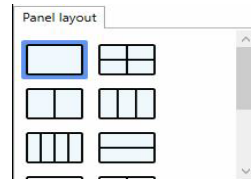
	<ul style="list-style-type: none"> ▪ Select Force the pixel format on the layout if you want the pixel format for the layout to be selected automatically based on the pixel format of the stream(s). If there is a single stream, the pixel format coming from that stream is used (except when it is 4:0:0 8 bits, 4:2:0 8 bits is used as there is no automatic support for 4:0:0 8 bits). If there are multiple streams, this sets the pixel format automatically to the highest input pixel format coming from the streams. <p>The default is 4:2:0 8 bits, but if there is at least one stream with 10 bits, then it is set to 4:2:0 10 bits. If there is at least one stream in 4:4:4, it is set to 4:4:4 8 bits. If there is at least one stream in 4:2:2, it is set to 4:2:2 8 bits. For example, if one stream is 4:2:0 8 bits, another is 4:2:2 8 bits, and another is 4:2:0 10 bits, it will be set to 4:2:0 10 bits automatically. HDMI output stage will automatically convert to 8-bit RGB in all cases.</p> <p>Note: 4Kp60 in YUV 4:4:4 pixel format selected in PowerStream Plus at the compositing or layout stage can only be transferred to HDMI Outputs 1 and 3 (HDMI Outputs 2 and 4 cannot be used in this case). If you would like to set the pixel format, you can choose it from the Pixel format list - YUV 4:2:0 8 bits, YUV 4:2:2 8 bits, YUV 4:4:4 8 bits, YUV 4:2:0 10 bits. Click OK to save your changes.</p> <p>Note: The outgoing (HDMI) pixel format is always 8-bit RGB 4:4:4(automatically converted by the HDMI output stage), but it is better to set the appropriate pixel format for the destination based on the pixel format of the streams displayed. This will reduce the processing load on the device.</p> <ul style="list-style-type: none"> ▪ If you would like to have a fixed latency between a Maevox encoder and a Maevox 6152 decoder, you need to select the Force the latency between the source and the monitor option. The default fixed latency is 200 ms. You can override this by setting a value between 200 and 400 ms under Latency (ms). This option is useful when you want multiple Maevox 6152 decoders to play the same content frame synchronously. <p>Note: This option can be used only when there is a private communications channel in place between a Maevox encoder and a Maevox 6152 decoder.</p>
Remove output from layout	To remove the current monitor from the layout, right click and select Remove output from layout .

6.2.1 Add a multiple-layout decoding configuration (independent-output layouts with single panel and/or multi panels)



To add a multiple-layout decoding configuration with the audio and video streams, and the corresponding layouts:

- 1 From the **Layout** page, select a panel scheme for each layout from **Panel layout** and click **Apply**.
- 2 From the **Decoding** page, click on a thumbnail.
- 3 From the streams list on the left, drag and drop a stream into the video panel to the right. The stream name and URI are displayed immediately together with a background. Repeat step if this is a multi-panel layout, until all the panels have a video stream associated with them.
- 4 From the streams list on the left, drag and drop an audio stream into the audio layout that is below the video layout. **Note:** If you want to use a same video stream for the audio, you can drag and drop the stream from the video panel to the audio layout.
- 5 Adjust the audio bar as required, or click on the icon to mute the audio.
- 6 Repeat steps 2 to 5 until you have assigned streams for all the decoding layouts.
- 7 If you want to use an analog audio, click the **Audio line out** thumbnail and drag the audio source to the audio layout.



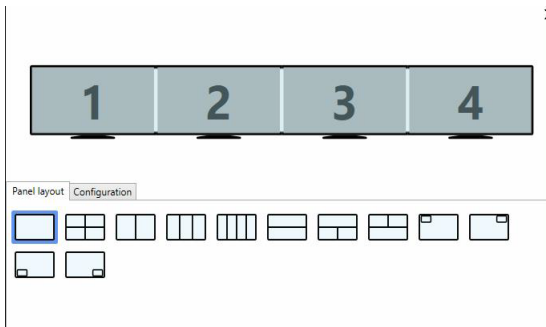
- 8 Click the **Apply** button to apply this video decoding configuration to the decoder. The streams will now display in the thumbnails.



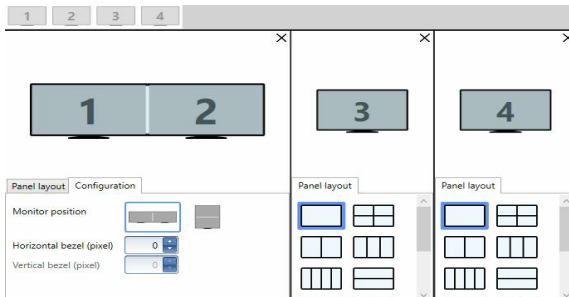
Note: The same configuration can be applied to two or more outputs. In this case, the performance is optimized by doing the decoding and compositions only once.

6.2.2 Add a single-layout decoding configuration (one multi-output layout with a single panel) or combination layouts

Example 1: A single (1x4) layout configuration stretched across four bound monitors.

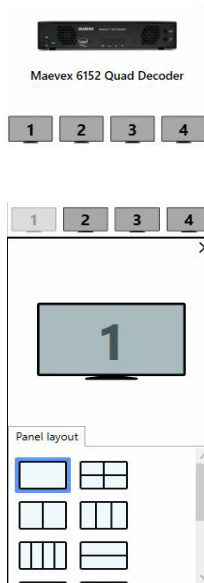


Example 2: Combination configuration with bound (1x2) layout and independent monitor layouts.

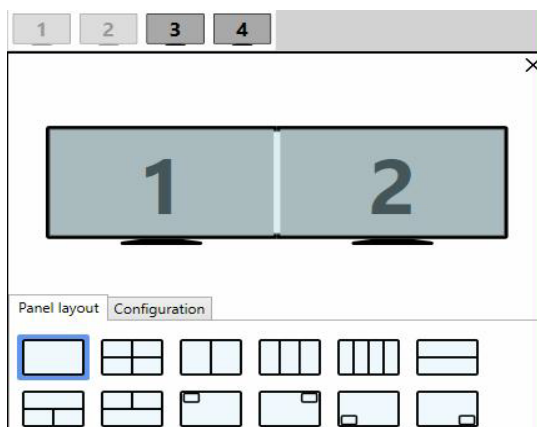


To add a single layout or combination layout decoding configuration, and the audio and video stream(s), do the following:

- 1 From the **Layout** page, drag the monitor thumbnail **1** from top and drop it into the layout section below.

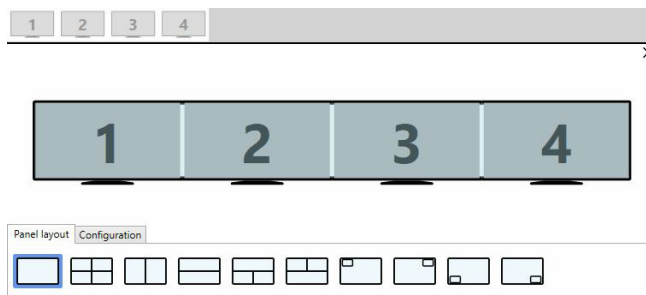


- 2 If you would like to bind monitors **1** and **2** together, drag the monitor thumbnail **2** from the top of the screen and drop it into monitor **1** in the layout section below. The **Configuration** tab displays now.

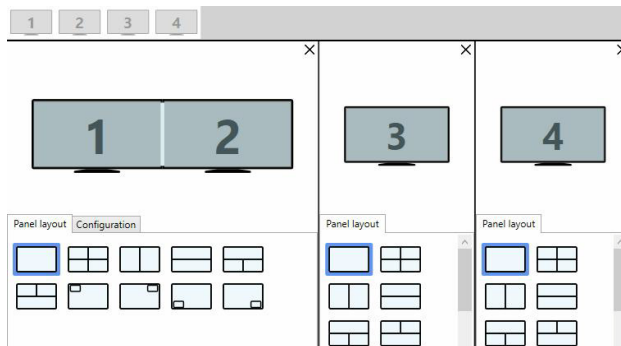


Note: If you try to drag and bind a monitor that doesn't share even a single display mode with the layout where it is dropped, then a warning displays and the monitor cannot be dropped because it doesn't have an output mode compatible with the layout.

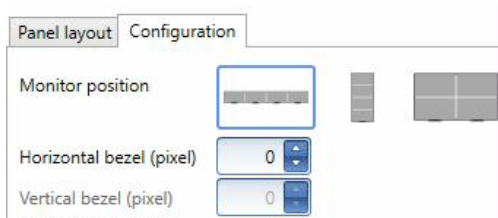
- 3 Repeat for monitors **3** and **4** if you would like to bind all four monitors together.



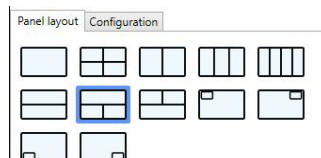
- **Note:** You can also choose to have a combination configuration with a mix of joined and independent monitors in layouts. For example, monitors **1** and **2** joined, and monitors **3** and **4** being independent. In this case, you can drag monitor **3** thumbnail from top and drop it into the new layout section below. Repeat for monitor **4**.



- 4 For a layout with joined monitors, from the **Configuration** tab, select a monitor layout option from **Monitor position** and set the bezel value(s). **Note:** For a 1 x 4 configuration, you can set only the horizontal bezel value in **Horizontal bezel (pixel)**. For a 4 x 1 configuration, you can set only the vertical bezel value in **Vertical bezel (pixel)**. For a 2 x 2 configuration, you can set both the horizontal and vertical bezel values.

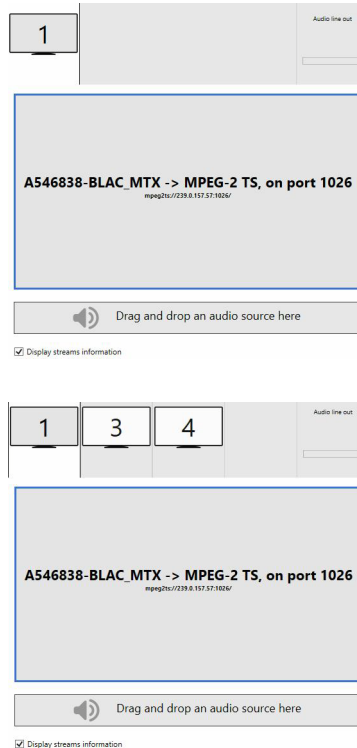


- 5 Select any option from **Panel layout**.



- 6 Right click and select **Settings**. Set the options in the **Layout settings** screen. **Note:** For a layout with joined monitors, only the display modes common to all the joined monitors display. Click **Apply**.
- 7 From the **Decoding** page, click on a layout thumbnail on top.

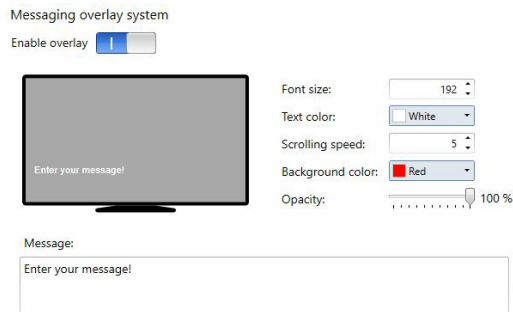
- 8 From the streams list on the left, drag and drop a stream into the video panel to the right.
Note: For a layout with joined monitors, a single video panel is shown. The stream name and URI are displayed immediately together with a background.





- 9 From the streams list on the left, drag and drop an audio stream into the audio layout that is below the video layout. **Note:** If you want to use a same video stream for the audio, you can drag and drop the stream from the video panel to the audio layout.
- 10 Adjust the audio bar as required, or click on the icon to mute the audio.
- 11 For a combination configuration, repeat steps 7 to 10 until you have assigned the video and audio stream for all the panels/outputs in the layout(s).
- 12 If you want to use an analog audio, click the **Audio line out** thumbnail and drag the audio source to the audio layout.
- 13 Click the **Apply** button to apply this video decoding configuration to the decoder. The stream will now display in the thumbnail(s).

6.3 Messaging overlay

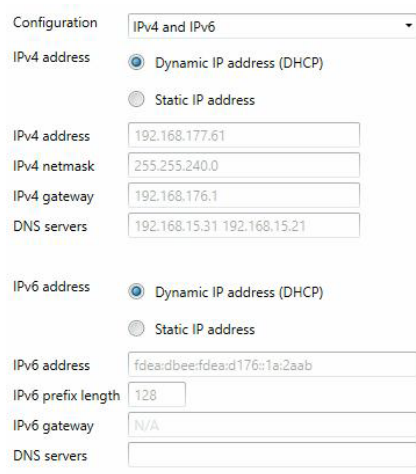
You can have an emergency message or notification displayed at the bottom of each monitor.



Enable overlay	Set it to the on () or off () position. Setting it on starts the messaging broadcast. The Messaging overlay tab label appears in red as Messaging overlay (on) when the Enable overlay option is set to on.
Message	Enter your message in the box using up to 1000 characters. Note: If you enter more than 1000 characters, the overflowing characters will not be displayed on the monitor even if you are able to see them in the Message box. You can set the Font size and Text color , the Background color for the textbox and its Opacity , and the Scrolling speed for the message. Scrolling can be disabled by setting Scrolling speed to 0. You can see the preview of the message as it would be displayed in the Messaging overlay panel.

6.4 Network

This contains the network settings for the connection and the IP address of your decoder.



The screenshot shows a network configuration window with a dropdown menu set to 'IPv4 and IPv6'. It contains two sections: IPv4 and IPv6. Each section has radio buttons for 'Dynamic IP address (DHCP)' and 'Static IP address'. The IPv4 static fields are filled with '192.168.177.61', '255.255.240.0', '192.168.176.1', and '192.168.15.31 192.168.15.21'. The IPv6 static fields are filled with 'fdea:dbef:fdea:d176:1a:2aab', '128', 'N/A', and an empty field.

Configuration	IPv4 and IPv6
IPv4 address	<input checked="" type="radio"/> Dynamic IP address (DHCP) <input type="radio"/> Static IP address
IPv4 address	<input type="text" value="192.168.177.61"/>
IPv4 netmask	<input type="text" value="255.255.240.0"/>
IPv4 gateway	<input type="text" value="192.168.176.1"/>
DNS servers	<input type="text" value="192.168.15.31 192.168.15.21"/>
IPv6 address	<input checked="" type="radio"/> Dynamic IP address (DHCP) <input type="radio"/> Static IP address
IPv6 address	<input type="text" value="fdea:dbef:fdea:d176:1a:2aab"/>
IPv6 prefix length	<input type="text" value="128"/>
IPv6 gateway	<input type="text" value="N/A"/>
DNS servers	<input type="text"/>



Note: The device will reboot if you make a change and apply it. We recommend you to remove any active streams before making any change to the network configuration.

6.4.1 Configuration

Select if you want to configure your device to support **IPv4**, **IPv6**, or **IPv4 and IPv6**. The default is **IPv4 and IPv6**.

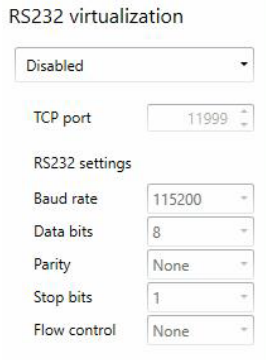
6.4.2 IP address

Select how to assign an IP address to your decoder.

By default, **Dynamic IP address (DHCP)** is used. For information on manually assigning a **Static IP address**, see “3.1 - Network discovery”, page 19.

6.5 RS232

The decoder can receive RS232 commands over the network and transfer RS232 commands to the third-party RS232 device (for example a display) connected to the decoder. This allows the user to control the RS232 device from remote over IP through the Maevox decoder, eliminating the need for RS232 cabling and its associated cable length limitations. The **RS232** option allows you to change the RS232 settings.



The screenshot shows a web-based configuration interface for RS232 virtualization. At the top, the title "RS232 virtualization" is displayed. Below it is a dropdown menu currently set to "Disabled". Underneath is a "TCP port" field with a numeric input set to "11999" and up/down arrow icons. A section titled "RS232 settings" follows, containing five rows of settings, each with a label and a dropdown menu: "Baud rate" is set to "115200", "Data bits" is set to "8", "Parity" is set to "None", "Stop bits" is set to "1", and "Flow control" is set to "None".

RS232 virtualization	
	Disabled
TCP port	11999
RS232 settings	
Baud rate	115200
Data bits	8
Parity	None
Stop bits	1
Flow control	None

RS232 settings can be done for multiple devices simultaneously using the **Multi-device settings** option. For more information, see “[6.9 - Modify settings](#)”, page 56.

RS232 virtualization	<p>To enable RS232 virtualization (RS 232 over IP), select the type of RS232 connection to use.</p> <ul style="list-style-type: none"> ▪ Disabled – Disable RS232 to close the TCP port used for virtualization. ▪ Relayed serial over IP – In a relayed connection, the RS232 controller must be connected to your encoder to send commands to an RS232 device that’s connected to a decoder. The RS232 connection is independent of any other connection between an encoder and a decoder. Note: When using this option, the RS232 settings of your encoder are sent to the decoder. To establish a relayed connection, the encoder and the decoder must both use Relayed serial over IP. ▪ Direct serial over IP – In a direct connection, an IP-based RS232 controller application can send commands directly to the RS232 device connected to your decoder. The RS232 controller isn’t physically connected to a device. Any decoder that uses direct serial over IP receives the RS232 commands through an opened TCP port (for example, from a telnet session) and sends these commands to the RS232 device connected to it.
TCP port	<p>If Direct serial over IP is selected, select which port will receive the RS232 commands. (Make sure the port number is available and not used by another service on your network.) The default is 11999.</p> <p>This setting isn’t available if Relayed serial over IP is selected.</p>
RS232 settings	<p>If Relayed serial over IP is selected, the following settings are used by the encoder and the selected decoder.</p> <p>If Direct serial over IP is selected, the following settings are used only for the device connected to your encoder.</p> <ul style="list-style-type: none"> ▪ Baud rate – The speed, in bits per seconds (or baud), used for the RS232 connection. The default is 115200. ▪ Data bits – The number of bits per block of data transmitted. The default is 8. ▪ Parity – The type of parity bits (None, Odd, or Even) used for the data transmitted. The default is None. ▪ Stop bits – The number of bits used to identify the end of a data block. The default is 1. ▪ Flow control – The signal type (None or RTS/CTS) used to pause and resume data transmission. The default is None.

6.6 Date and time

Use this to update the date, time, NTP server URL, and time zone of your MaeveX device. For more information on these settings, see “[13 - Adjusting the date and time of your device](#)”, page 135.

The current status/selection for the following is displayed in a section with a grey background:

- Synchronization
- NTP server URL
- Time zone

Date and time

Set a time zone

(UTC-5:00) Toronto

Set an NTP (Network Time Protocol) server URL

time.matrox.com

Current synchronization status Synchronized.

Current NTP server URL time.matrox.com

Current time zone (UTC-5:00) Toronto



Note: It is strongly advised to have a valid NTP server to ensure that all time-related features work properly.

6.7 Local storage

You can manage your local storage using **Local storage**. You can upload files to the local storage, download files from the local storage, and also delete files. Failsafe content can be stored under local storage. The following file formats can be used in your local storage: MP4, FMP4, JPG, and PNG.

Disk Usage

Total size : 4.01 GB

Used size : 2.02 GB Remaining size : 1.99 GB

	Name	size
<input type="checkbox"/>	The Runaways - Cherry Bomb file://localhost/failsafe/media/The Runaways - Cherry Bomb.mp4	45.64 MB
<input type="checkbox"/>	testrc_1280x720_60fps_yuv422_1hr_no_audio file://localhost/failsafe/media/testrc_1280x720_60fps_yuv422_1hr_no_audio.mp4	72.28 MB
<input type="checkbox"/>	St. Vincent - Birth In Reverse file://localhost/failsafe/media/St. Vincent - Birth In Reverse.mp4	53.58 MB
<input type="checkbox"/>	Peter Gabriel - Sledgehammer (HD version) file://localhost/failsafe/media/Peter Gabriel - Sledgehammer (HD version).mp4	129.41 MB
<input type="checkbox"/>	Maeve6020_Panopto_Remote_Recorder_Teacher_4K file://localhost/failsafe/media/Maeve6020_Panopto_Remote_Recorder_Teacher_4K.mp4	214.73 MB
<input type="checkbox"/>	Maeve6020_Panopto_Remote_Recorder_Enterprise_4K file://localhost/failsafe/media/Maeve6020_Panopto_Remote_Recorder_Enterprise_4K.mp4	152.89 MB
<input type="checkbox"/>	Maeve_6100Series_4K file://localhost/failsafe/media/Maeve_6100Series_4K.mp4	159.93 MB

- **Disk usage** - Shows the **Total size**, the **Used size**, and the **Remaining size** of the local storage.
- **Search** - You can search for a file using the name of the file.
- **Upload** - Use this to upload files to the local storage.
- **Download** - Use this to download files from the local storage.
- **Delete** - Use this to delete a file.
- **Name** - Displays the name and path of each file in the local storage.
- **Size** - Displays the file size.

6.8 Other

Power recovery policy

Never start

Power button control

☐ Disable shutdown

Reboot control

☐ Enable force reboot

Wake-on-LAN control

☒ Enable Wake-on-LAN

DNS update

☐ Update DNS with friendly name

Overlay

☐ Enable to display the media names over the screen

☐ Enable to display the audio icon over the screen

Failsafe

[No failsafe]

Background color

Black

Logs

Download device logs

Erase device logs

Audits

Download device audits

Security

☐ Enable copy protection (HDCP) support

Troubleshooting

Debug configurations

Power recovery policy	<p>Set up your Maevox device to start up after a power loss.</p> <ul style="list-style-type: none"> ▪ Never start – Never start your Maevox device after a power loss. ▪ Always start – Always start your Maevox device after a power loss. ▪ Restore last state – Always start and restore the last state of your Maevox device after a power loss.
Power button control	To prevent your device from shutting down, enable the Disable shutdown option.
Reboot control	To force a reboot of your device if it stops responding, enable the Enable force reboot option.
Wake-on-LAN control	To remotely reboot an unresponsive Maevox device, enable the Enable Wake-on-LAN option.
DNS update	To update your DNS (Domain Name System) to use a friendly name instead of the device serial number, enable the Update DNS with friendly name option.

Overlay	<ul style="list-style-type: none"> ▪ Enable to display the media names over the screen – Select this option to display the media name on the monitor. ▪ Enable to display the audio icon over the screen – Select this option to display the audio icon on the monitor. The icon will show whether the audio is present or not, or whether the audio is muted. <p>Note: Displaying the media name or the audio icon has a direct impact on the video processing performance of the device. For example, if a device is close to its maximum performance, adding the media name or the audio icon might make the streams non-real time.</p>
Failsafe	Defaults to the No failsafe option. You can select the failsafe content to be played from the local storage (listed under Local files), or from the USB (USB files). MP4, FMP4, JPG, and PNG file formats can be used. The system considers a stream as lost if there is no stream for five (5) seconds, then triggers and plays the failsafe content. A single failsafe content is played for all the streams.
Background color	<p>Enable Background color to select the background color to display when:</p> <ul style="list-style-type: none"> ▪ Borders are required around the stream ▪ A stream is lost, or ▪ A video stream is not defined in a panel.
Logs	<ul style="list-style-type: none"> ▪ Download device logs – Download the log files. This file contains information on your Maevox devices. This information is useful for troubleshooting purposes. ▪ Erase device logs – Erase the log files created for your Maevox devices.
Audits	Download the audit file. This file contains information on the user interactions with your Maevox devices. This information is used by your Maevox environment administrator.

Security	<p>Only a Maevox 6152 decoder with the Enable copy protection (HDCP) support option enabled will decode protected content from a Maevox 6100 Series encoder. It will also receive and decode non-protected content from a Maevox 6100 Series encoder with the Enable copy protection (HDCP) support option disabled, or from any other third-party encoder source.</p> <ul style="list-style-type: none"> ▪ The decoder will only provide HDMI signal and content to HDCP-capable devices. ▪ Protected content streamed by a Maevox 6100 Series encoder can only be decoded by a Maevox 6100 Series decoder. ▪ The decoder will support and enable HDCP over ALL of its HDMI outputs irrespective of the decoded content, protected or unprotected. All decoded streams can only be displayed through HDMI outputs that are connected to a device with HDCP support; non-HDCP displays or devices will not receive any content or signal from such a protected decoder (displays will remain black). ▪ When a protected source content is already displayed on a maximum of 32 displays (could be across multiple Maevox 6152 decoders), mapping the protected source content to be displayed on the 33rd remote display will have the effect for this last decoder to block this content from being displayed through ANY of its 4 outputs (and therefore any displays directly or indirectly connected to this decoder). If failsafe is enabled on this decoder, the failsafe content will replace the protected content that can no longer be displayed through this decoder. Other decoders already displaying the same protected content will not be affected. ▪ The protocol used <i>must be</i> RTSP or RTP (MPEG-2 TS, HLS, RTMP, and SRT protocols don't support streaming of protected content). ▪ If a stream is secured but the device is not set for protected content support (the Enable copy protection (HDCP) support option is not enabled), the stream has a lock sign in the stream list and it cannot be used. In this case, you need to enable the Enable copy protection (HDCP) support option. <p>Note: When you select Enable copy protection (HDCP) support and click Apply, you will receive a confirmation message saying that you need to reboot the device for the change to take effect. Every output with a non-HDCP display or device connected will be automatically disabled.</p>
Troubleshooting	<ul style="list-style-type: none"> ▪ Debug configurations – Get help and troubleshooting information for your configuration. For more information, contact Matrox Technical Support.

6.9 Modify settings

To modify the settings for multiple devices at the same time:

- 1 From the PowerStream Plus main interface, press the [Ctrl] key, then select the tiles of the devices you want to modify. The device tiles you select must be of the same type.
- 2 From the PowerStream Plus main menu, click **Multi-device settings**.
- 3 Enable the **Modify settings** option.
- 4 Select your preferred device, then make your changes.
- 5 When you're done, click **Apply**. This applies the settings from the preferred device to the other selected devices.

6.10 Managing your Maevox 6152 Decoder configurations

For information on managing your Maevox 6152 Decoder configurations, see [“12 - Managing your configurations”, page 133](#).

6.11 Warning messages for a 6152 decoder

A warning sign (🚩) appears on the tile of the decoder when there is a warning or multiple warnings for the device. .



Note: The messages also appear in the decoding section under the **Other** option.

When you hover your cursor over the warning sign on the tile, one or more of the following warning messages will appear:

- Some of your monitors are not copy protection compliant.
- The device has exceeded its maximum video processing capability.
- The device has exceeded its maximum video decoding capability.
- A source is running under its target frame rate.
- A requested forced latency could not be enforced.
- The Messaging overlay text is too big to be fully displayed.
- The selected failsafe file could not be found.

6.11.1 Maximum video decoding and processing capabilities

When the device exceeds its maximum video decoding capability, a warning message “The device has exceeded its maximum video decoding capability” displays on the left when a device is selected.



Note: Make sure that you do not overload the processing capacity of the device. It is highly recommended to watch the **Video decoding** percentage and the **Video processing** percentage in the **Information dashboard** and maintain them under 100% at all times.

The processing capacity could get overloaded when decoding multiple streams, especially when using layouts to composite them onto a given output. When selecting the layouts, streams, and the settings, keep in mind that the maximum capabilities of the decoder are 2 x 4Kp60, 4 x 4Kp30, or 8 x HDp60, all at 4:2:0 8-bit. The same maximums apply for multi-region layouts with multi-stream compositing.

Try to limit or eliminate unnecessary scaling by setting the proper stream resolution on the encoder, or when generating or selecting the failsafe content. You could also avoid scaling due to display resolution by matching the stream resolution with the output resolution.

7 Maevox 6152 / 6150 encoder settings

This enables you to view, configure, and manage settings specific to a Maevox 6152 / 6150 Quad encoder.

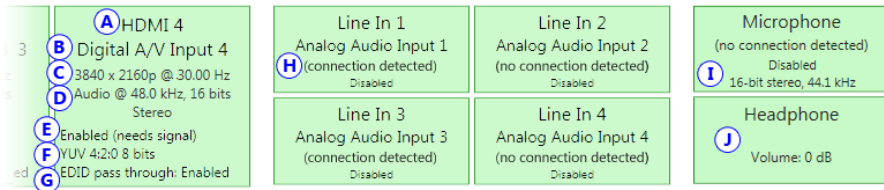


Note: Don't change input or network connections while your Maevox device is turned on. If connections are changed while your Maevox device is turned on, your video sources or recordings will be lost.

7.1 Processing

7.1.1 Inputs/Outputs

An input box contains the following information about the video and audio signal detected by your encoder.



A	Input number	Identifies the input (1, 2, 3, and 4).
B	Input name	Lists the name of the input, as specified by the user.
C	Video signal	Detects the resolution and refresh rate of the video signal. If no signal is detected, this reads as (no video) .
D	Audio signal	Detects the HDMI audio signal. If no signal is detected, this reads as (no audio) . If audio is disabled, this reads as (audio disabled) .
E	Status	Indicates if the input is enabled or disabled for capture.
F	Pixel format	Defines the quality of the image captured.
G	EDID pass through	Outputs the video and audio signals of your source directly to your monitor and audio output device.
H	Connection status	Detects if an analog audio device is connected. If no device is connected, this reads as (no connection detected) .
I	Sample rate	Lists the sample rate of the analog audio signal.
J	Volume	Detects the volume level of your device.

You can configure the following settings for your inputs and outputs.

Enable input	To use an input as a source, you need to enable it. HDMI inputs are enabled by default.
Assign button	Assign a module (HDMI input , Streams , Local preview , or Recordings) to a button on your Maevex 6152 or 6150 device (Button 1 , Button 2 , Button 3 , or Button 4). Note: Before assigning a module, make sure that module is set to Enable . If you don't want to assign a button, select None .
Input name	Enter a name for each input.
Pixel format	The pixel format defines the quality of the image captured. YUV refers to the color format used to receive each block of bits in the video signal. The format is followed by the pixel depth used for each color in the image format. A higher YUV format and pixel depth provides a higher quality image and requires more resources to process.
Continue streaming on signal loss	Enable this option if you would like streaming to continue when signal is lost. Select an option under Audio format for the audio quality expected for your stream after a signal loss. If the audio is missing, or not in the format you select here, silence is generated. Note: When enabling this option, make sure to also select Continue streaming on signal loss for your stream under Processing (see “7.1.2 - Processing”, page 60).
Disable EDID pass through	Output the video and audio signals of your source directly to your monitor and audio output device. To disable this feature, enable the Disable EDID pass through option.
Sample format	Specify the sampling rate, in kHz, and bit depth for your analog audio device.
Gain	Increase or decrease the amplitude, in dB (decibels), of your microphone.
Continue streaming when microphone is inserted or removed	Enable this option if the microphone analog audio signal is selected for your stream and you would like to have continuous streaming irrespective of microphone signal interruptions or disconnects. You need to also make sure that the Continue streaming on signal loss option is selected under Inputs/Outputs as well as Processing .
Volume	Increase or decrease the volume, in dB (decibels), of your headphones.

7.1.2 Processing

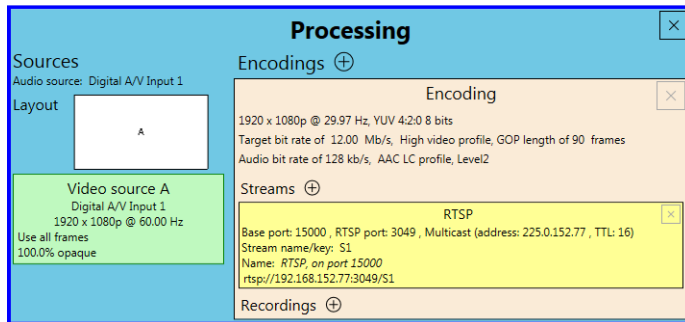


Note: To view and edit the settings of a processing module, click that module. The information appears on the right side of the panel.



Note: Depending on your configuration (for example, if you're using a single source layout), certain settings may not be available.

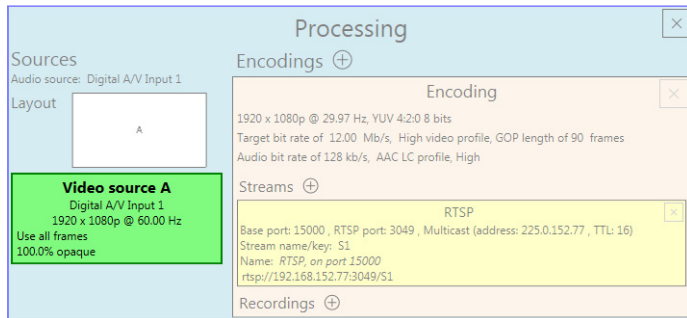
Select a processing to configure its source.



Audio source	The source of the audio signal to use.
Layout	The layout (picture in picture or picture by picture) and the number of sources to use.
Synchronize framelocked video input signal	Enable this to maintain frame synchronization when compositing from multiple sources (inputs).
Continue streaming on signal loss	Enable this to make sure streaming isn't interrupted if the source signal is switched or the connection to the device is lost. You can also set a background fill color for your composite layout. Note: When enabling this option, make sure to also select the Continue streaming on signal loss option for your stream under Inputs/Outputs (see “7.1.1 - Inputs/Outputs”, page 58).
Frame size	The width and height, in pixels, of the source. If the layout of your sources uses a height or width that's smaller than your frame size, black borders may appear on both sides, or on the top and bottom, of the frame. The width ranges from 64 to 4096 and must be a multiple of 16. The height ranges from 64 to 4096 and must be an even number.
Frame rate	The frame rate, in FPS (frames per second), for the source.



Background color	The background color for your source. If the layout of your sources uses less height or width than your frame size, the borders will use the background color. If no video is captured for your source, the background color is shown instead.
Pixel format	The pixel format to define the quality of your image, and the pixel depth for each color in the image format. A higher YUV format and pixel depth provides a higher quality image and requires more resources to process. Only certain pixel formats may be available.




7.1.3 Source



Note: Depending on your configuration (for example, if you're using a single source layout), certain settings may not be available.

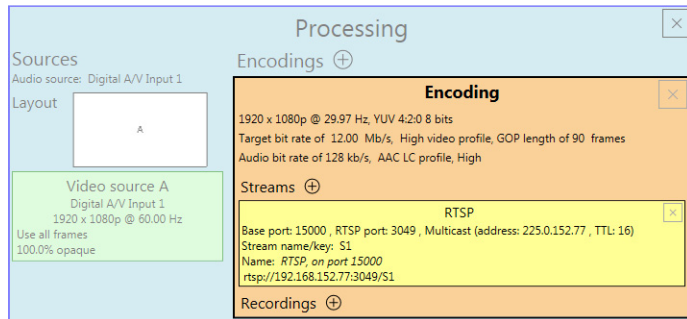
Input	Select the input to use for your source.
Capture rate	Select the frame rate for video capture. Reducing the frame rate also reduces the frame rate of the stream or recording. Note: When the incoming signal is at 4K60, the maximum is 4:2:2 encoding on a Maeve 6152 or 6122 encoder and 4:2:0 on a Maeve 6150 or 6120 encoder.

Scaling	<p>Select how to scale your video:</p> <ul style="list-style-type: none"> ▪ Unscaled from top left – The video is unscaled and positioned in the top left corner of the display area. If the display resolution of the video is bigger than the display area, the video will be cropped. ▪ Unscaled centered – The video is unscaled and centered in the display area. If the display resolution of the video is bigger than the display area, the video will be cropped. ▪ Stretched to all edges – The video is stretched to fit the entire display area without respecting the aspect ratio of the original video. If the aspect ratio of the video and the display area don't match, the video may be distorted. ▪ Scaled to all edges – The video is scaled to fit the entire display area while respecting the aspect ratio of the original video. The video is centered in the display area. If the aspect ratio of the video and the display area don't match, the video will be cropped. ▪ Scaled to nearest edge – The video is scaled to fit to the display area while respecting the aspect ratio of the original video. The video is centered in the display area. If the aspect ratio of the video and the display area, black borders will appear on both sides of the video or above and below. The video isn't cropped.
Pivot	<p>Change the orientation of your source:</p> <ul style="list-style-type: none"> ▪ 0 degrees – No pivot is applied. ▪ 90 degrees clockwise – The source is rotated 90 degrees clockwise. ▪ 180 degrees – The source is rotated 180 degrees. ▪ 90 degrees counterclockwise – The source is rotated 90 degrees counterclockwise.
Flip	<p>Select the plane along which the source is flipped:</p> <ul style="list-style-type: none"> ▪ None – No flip is applied. ▪ Vertically – The source is flipped along the vertical plane. The top becomes the bottom. ▪ Horizontally – The source is flipped along the horizontal plane. The right side becomes the left. ▪ On both axes – The source is flipped along the vertical plane and the horizontal plane. This is visually similar to rotating 180 degrees.
Opacity	<p>Increase or decrease how opaque the source video appears. The default is 100%. </p>
Brightness	<p>Increase or decrease how light or dark the colors appear. The default is 500. </p>

Contrast	Change the difference in brightness between the lightest and darkest colors. The default is 500. 
Hue	Increase or decrease the tint or tone of colors. The default is 0. 
Saturation	Increase or decrease the depth of the colors. The default is 500. 

7.1.4 Encodings

These settings determine how your processor encodes, transmits, or records the video and audio signals.



7.1.4.1 Adding an encoding

To add an encoding:

- **Custom encoding** – Click the **Add (⊕)** icon, then click **To Custom**. Enter the information for the selected protocol. The default is **RTMP**.
- **Content delivery network (CDN)** – Click the **Add (⊕)** icon, then click a preset (**Facebook Live**, **YouTube**, **Restream**, **Twitch**, **IBM Video Streaming**, **Vimeo**, or **Wowza Cloud**). Enter the information for the selected protocol.

7.1.4.2 Include

Select the signals to include (**Audio only**, **Video only**, or **Audio and video**) in your encoding.

7.1.4.3 Force encoding size

Enable this to have PowerStream Plus increase or reduce the captured video size before it's encoded.

Frame size	<p>Specify the width and height, in pixels, of the video up to the width and height of the original video input. If your video source uses a different size, your encoder scales the video to the specified size (image may be distorted).</p> <p>The width ranges from 64 to 4096 and must be a multiple of 16. The height ranges from 64 to 4096 and must be an even number.</p>
Scaling	<p>Select how to scale your video:</p> <ul style="list-style-type: none">▪ Unscaled from top left – The video is unscaled and positioned in the top left corner of the display area. If the display resolution of the video is bigger than the display area, the video will be cropped.▪ Unscaled centered – The video is unscaled and centered in the display area. If the display resolution of the video is bigger than the display area, the video will be cropped.▪ Stretched to all edges – The video is stretched to fit the entire display area without respecting the aspect ratio of the original video. If the aspect ratio of the video and the display area don't match, the video may be distorted.▪ Scaled to all edges – The video is scaled to fit the entire display area while respecting the aspect ratio of the original video. The video is centered in the display area. If the aspect ratio of the video and the display area don't match, the video will be cropped.▪ Scaled to nearest edge – The video is scaled to fit to the display area while respecting the aspect ratio of the original video. The video is centered in the display area. If the aspect ratio of the video and the display area, black borders will appear on both sides of the video or above and below. The video isn't cropped.
Pivot	<p>Change the orientation of your source:</p> <ul style="list-style-type: none">▪ 0 degrees – No pivot is applied.▪ 90 degrees clockwise – The source is rotated 90 degrees clockwise.▪ 180 degrees – The source is rotated 180 degrees.▪ 90 degrees counterclockwise – The source is rotated 90 degrees counterclockwise.

Flip	<p>Select the plane along which the source is flipped:</p> <ul style="list-style-type: none"> ▪ None – No flip is applied. ▪ Vertically – The source is flipped along the vertical plane. The top becomes the bottom. ▪ Horizontally – The source is flipped along the horizontal plane. The right side becomes the left. ▪ On both axes – The source is flipped along the vertical plane and the horizontal plane. This is visually similar to rotating 180 degrees.
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7.1.4.4 Force pixel format

The pixel format defines the quality of the image encoded. YUV refers to the color format used to receive each block of bits in the video signal. The format is followed by the pixel depth used for each color in the image format. A higher YUV format and pixel depth provides a higher quality image and requires more resources to process.

7.1.4.5 Encoding profile

Encoding profile	<p>Select an encoding profile for your signal. Changing the encoding profile may prevent your decoder from streaming. Select one of the following:</p> <ul style="list-style-type: none"> ▪ Baseline ▪ Main ▪ High ▪ High, 10-bit ▪ High, YUV 4:2:2 ▪ High, YUV 4:4:4 Predictive ▪ High, YUV 4:4:4 CAVLC + Intra
Target bit rate	<p>The target bit rate, in Mb/s (Megabits per second), for encoding. The actual bandwidth used by your encoder varies according to your source and encoding method. The default is 15 Mb/s. A lower target bit rate may result in lower image quality. A higher target bit rate limit may result in lower performance, a higher bandwidth when streamed, and a larger file size when recorded.</p>
Bit rate control	<p>Select one of the following:</p> <ul style="list-style-type: none"> ▪ Use a variable bit rate ▪ Use a constant bit rate
Maximum bit rate	<p>The maximum bit rate for encoding. When encoding, the processor attempts to use the target bit rate but may use up to the maximum bit rate specified. The default is 22.5 Mb/s. The maximum bit rate is 120 Mb/s.</p>

Estimated H.264 level	The estimated level of support for a profile required from the decoder. For compatibility with the Maevox 5150 decoder, ensure that the stream is H.264 level 4.2 or below.
Quantization parameters	The range used to compress the various frames in your GOP. A high maximum increases the level of compression of the frame and should decrease the bit rate but may decrease the image quality.

7.1.4.6 Encoding mode

Optimized for low latency	Reduces the delay between the time the video is captured on the encoder and the time it's shown on a monitor connected to a decoder.
Optimized for desktop	Provides a better image quality for static images (such as a computer desktop). Note: It is recommended to use the Optimized for desktop mode with the Use a variable bit rate option, with the Maximum bit rate set to at least twice the Target bit rate .
Favor image quality	Favors image quality over latency, but may require more delay.

7.1.4.7 Force CAVLC entropy encoding

Enable this to force the use of context adaptive variable length coding (CAVLC) entropy encoding. Enabling this option overrides the default entropy encoding selection (CABAC).

7.1.4.8 Group of pictures (GOP)

GOP length	The number of frames from one complete frame (I-frame) to another. A higher GOP length increases the compression level but may result in a lower quality image. The default is 90.
Insert P-frames every X frames	<p>Enter the interval at which a P-frame needs to be inserted. A P-frame (Predicted picture) contains only the changes from the previous frame. The frames between P-frames are B-frames. B-frames (Bidirectional predicted picture) contain the differences between the current frame and the previous frame as well as the subsequent frame.</p> <p>A higher number of B-frames before inserting a P-frame increases the quality of the image but may result in a loss of performance. The minimum and the default value in PowerStream Plus is 1 which represents zero B-frames between P-frames. The maximum value is 4 which inserts three B-frames between P-frames.</p> <p>Having a higher number of B-frames increases the motion distance between the P-frame and its references, hence the number of B-frames should be reduced for sports action sequences, and for very high resolution (UHD) or low frame rate requirements. You can use a higher number of B-frames for SD or HD resolutions.</p>

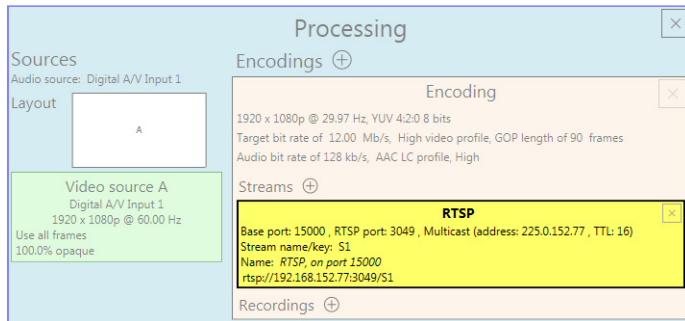
7.1.5 Audio

Bit rate	Select the audio bit rate, in kbps, for your audio transmission. A higher bit rate produces a sound quality closer to the source quality, but requires more bandwidth. The value ranges from 32 to 576. The default is 128.
AAC encoder	Select one of the following: <ul style="list-style-type: none">▪ AAC LC – Allowed bit rate range is 32 to 576 kbps.▪ AAC HEv1 – Allowed bit rate range is 32 to 288 kbps.▪ AAC HEv2 – Allowed bit rate range is 32 to 144 kbps.
AAC quality	Force the use of encoding complexity (low to high) to improve the quality of compressed audio. Adjusting these settings doesn't affect the audio sample rate, target bit rate, or latency. <ul style="list-style-type: none">▪ Low▪ Medium▪ High

Use temporal noise shaping	This reshapes the quantization noise over time to improve the quality of the audio signal. This option is enabled by default.
AAC format	Select one of the following: <ul style="list-style-type: none"> ▪ ADTS ▪ No container format

7.1.6 Streams

To add a stream (**RTP**, **RTMP**, **RTSP**, **SRT**, **MPEG-2 TS**, or **HLS**), click the **Add** (⊕) icon.



Note: If you configured your encoder to use **IPv4 and IPv6**, you must enable one stream for IPv4 and one stream for IPv6.



Note: To receive an RTP stream, you need to create an SDP file. For more information, contact Matrox Technical Support.



Note: When applying settings to multiple devices, make sure static IP addresses and multicast addresses aren't being duplicated. For more information, contact your network administrator.



Note: Depending on the stream selected, certain options aren't available.

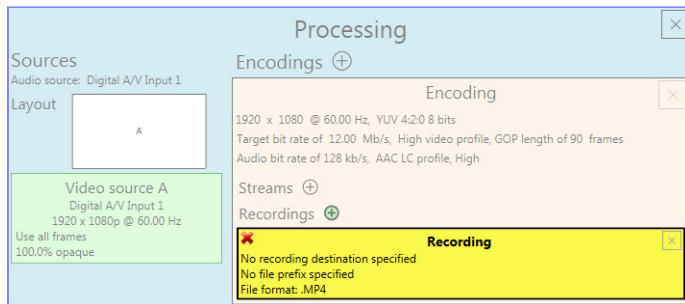
Enable stream	Enable or disable your stream.
Assign button	Assign a module (HDMI input , Streams , Local preview , or Recordings) to a button on your Maevex 6150 device (Button 1 , Button 2 , Button 3 , or Button 4). Note: Before assigning a module, make sure it's set to Enable . If you don't want to assign a button, select None .

Stream address	RTSP only – The URL (or stream address) of your RTSP stream.
Base port	The port number used to transmit your stream.
Destination location	RTMP only – The path of your RTMP stream.
Playlist file name	HLS only – Enter the name of your playlist file.
Name	Enter a name for your stream.
Network interface	The network interface (LAN1 or LAN2) to use for the stream. To use the first IP address the device finds, select Automatic IPv4 to use an IPv4 address or Automatic IPv6 to use an IPv6 address.
Encoding ladder configuration	<p>HLS only – Select how to configure the encoding ladder:</p> <ul style="list-style-type: none"> ▪ Manual – Specify the bit rate and FPS (frames per second) decimation, then select the ladder to Enable for the HLS stream. To show resolutions that are automatically generated, enable Show auto-generated resolutions from video signal. ▪ Automatic – Specify the Number of steps (1 to 6, with 1 being the highest bit rate) in the encoding ladder.
RTSP port	RTSP only – The RTSP port number used to transmit your stream.
Stream name/key	RTMP and RTSP only – Enter a suffix as part of your stream address. If you're using a media player to decode your stream, the media player may require this as part of the stream address to connect to a stream.
Use authentication	RTMP and RTSP only – Enable this if you're using an authentication server, then enter your credentials (User name and Password).
Encryption	SRT only – The encryption level to secure your stream. Options include: Unencrypted , AES-128 , AES-192 , or AES-256 .
Passphrase	The passphrase used to generate the encryption key. We recommend a passphrase length of 16 characters (AES-128), 24 characters (AES-192), and 32 characters (AES-256). If Unencrypted is selected, there's no passphrase to enter.
Connection type	SRT only – Run SRT in Caller , Listener , or Rendezvous mode.
Latency	SRT only – The target latency, in milliseconds (ms), for transmission. The default is 40 ms.
Time to live (TTL)	The number of hops or network nodes (such as network switches or routers) through which a multicast signal can travel. Once the TTL number is reached, the receiving network node prevents the signal broadcast further down the network. The value ranges from 1 to 255. The default is 16.

Type of service	Set a value between 0 and 255 for the type of service (priority level) for outgoing network packets (except for the RTMP and HLS protocols). The default value is 0.
Routing scheme	<ul style="list-style-type: none"> ▪ Unicast – When selecting unicast, you need to specify the destination IP address of the stream. You can enter a valid IP address or host name. ▪ Multicast – Enter a Multicast address. Using multicast may require additional network configuration to support the transmission protocol (some network switches and routers can block multicast signals). For more information, contact your network administrator. To also allow unicast connections, enable the Allow unicast connections option.

7.1.7 Recordings

Use this option to record your video files on a network attached storage (NAS) device or an external storage device. The video files created are encoded with an H.264 video and AAC audio codec.



Note: When HDCP protection is enabled on a Matrox MaeveX 6152 or 6122 encoder, the recording option is disabled.



Note: When starting a recording manually or through a scheduled recording, it may take a few seconds for your encoder to actually record video. When scheduling a recording, we recommend you start the recording earlier than the actual time required.



Note: If your network is slow, congested, or experiencing high traffic, your recording may fail. For more information, contact your network administrator.

7.1.7.1 Enable recording

Enable this to be able to record from your device.

If **Scheduled recording** is enabled, this option isn't available.

7.1.7.2 Assign button

Assign a module (**HDMI input**, **Streams**, **Local preview**, or **Recordings**) to a button on your Maevox 6150 device (**Button 1**, **Button 2**, **Button 3**, or **Button 4**).



Note: Before assigning a module, make sure it's set to **Enable**.

If you don't want to assign a button, select **None**.

7.1.7.3 File name prefix

The video file name is made up of two parts:

- **First part** – The name, which you enter.
- **Second part** – The timestamp of when the video file started, which your encoder defines.

The resulting file name is *Prefix[YYYY-MM-DD_HH-MM-SS].mp4*, where YYYY is the year, MM the month, DD the day, HH the hour (in a 24-hour format), MM the minutes, and SS the seconds.

A file name prefix can be up to 19 characters long.

7.1.7.4 File format

Select the format for your recording (MP4 or MOV).

To use fragmented MP4, enable the **Use fragmented MP4 (fMP4)** option. This option ensures your recorded file won't be corrupted in the event your network connection is disrupted.

7.1.7.5 Maximum file block duration

Enter the recording time for each video file recorded. Once the recording time for a file is reached, PowerStream Plus creates a new file. A file can hold up to 8 hours of recording.

If the sampling rate (audio or video) changes, a new file is created, regardless of the file duration.

7.1.7.6 Recording location

Under **Record to**, provide the path to the existing network shared folder or select the external storage device where your video files will be stored.



Note: To make sure the network path is properly recognized by your device, we recommend you provide the full computer name or the IP address of the system where the shared folder is located. The full computer name is part of the Windows properties of the system. For example, the full computer name of networkserver may be *networkserver.domain.com*. For more information, contact your network administrator.

7.1.7.6.1 Add network shared folder


Enter the path to the existing network shared folder, then select how to connect to the shared folder:

- **Connect as guest** – If your network drive doesn't require user identification, use this. When you're done, click **OK**.
- **Connect with credentials** – If your network drive requires user identification, enter a **User name** and **Password**. When you're done, click **OK**.

7.1.7.6.2 Manage network shared folders

Use this to review your list of credentials, and to remove user names and passwords that are no longer required.

7.1.7.6.3 Eject device

To safely remove an external storage device from your system, select the device you want to remove, then click the **Eject** () button.

7.1.7.7 Scheduled recording

Enable this to schedule a date, time, and duration for your encoder to record a video file.

Start recording at	Enter the date and time to start recording.
Stop recording at	Enter the date and time to stop recording.

7.2 Network

This contains the network settings for the connection and IP address of your encoder.

	LAN1	LAN2
Configuration	IPv4 and IPv6	IPv4 and IPv6
IPv4 address	<input checked="" type="radio"/> Dynamic IP address (DHCP) <input type="radio"/> Static IP address	<input type="radio"/> Dynamic IP address (DHCP) <input checked="" type="radio"/> Static IP address
IPv4 address	<input type="text" value="192.168.154.153"/>	<input type="text" value="192.168.154.67"/>
IPv4 netmask	<input type="text" value="255.255.255.0"/>	<input type="text" value="255.255.255.0"/>
IPv4 gateway	<input type="text" value="N/A"/>	<input type="text" value="192.168.154.1"/>
DNS servers	<input type="text" value="192.168.1.11 192.168.1.3"/>	<input type="text"/>
IPv6 address	<input checked="" type="radio"/> Dynamic IP address (DHCP) <input type="radio"/> Static IP address	<input checked="" type="radio"/> Dynamic IP address (DHCP) <input type="radio"/> Static IP address
IPv6 address	<input type="text" value="fdeadb0ee:fdeadd154::212:8ade"/>	<input type="text" value="fdeadb0ee:fdeadd154::a6cb52e"/>
IPv6 prefix length	<input type="text" value="64"/>	<input type="text" value="64"/>
IPv6 gateway	<input type="text" value="N/A"/>	<input type="text" value="N/A"/>
DNS servers	<input type="text" value="fdeadb0ee:fdeadd145::20"/>	<input type="text" value="fdeadb0ee:fdeadd145::20"/>

7.2.1 Configuration

Select if you want to configure your device to support **IPv4**, **IPv6**, or **IPv4 and IPv6**.

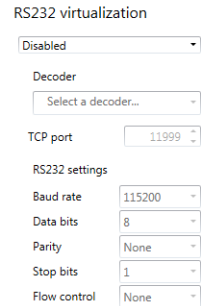
7.2.2 IP address

Select how to assign an IP address to your encoder.

By default, **Dynamic IP address (DHCP)** is used. For information on manually assigning a **Static IP address**, see “3.1 - Network discovery”, page 19.

7.3 RS232

Enable this to virtualize an RS232 (or serial) connection.



RS232 virtualization

Disabled

Decoder

Select a decoder...

TCP port

11999

RS232 settings

Baud rate

115200

Data bits

8

Parity

None

Stop bits

1

Flow control

None

7.3.1 Enabling RS232 virtualization

To enable RS232 virtualization, select the type of RS232 connection to use.

Disabled	Disable RS232 to close the TCP port used for virtualization.
Relayed serial over IP	In a relayed connection, the physical RS232 controller must be connected to your encoder to send commands to an RS232 device that's connected to a decoder. The RS232 connection is independent of any other connection between an encoder and a decoder. When using this option, the RS232 settings of your encoder are sent to the decoder. To establish a relayed connection, the encoder and the decoder must both use Relayed serial over IP .
Direct serial over IP	In a direct connection, an IP-based RS232 controller application can send commands directly to the RS232 device connected to your encoder. The RS232 controller isn't physically connected to a device. Any encoder that uses direct serial over IP receives the RS232 commands through an opened TCP port (for example, from a telnet session) and sends these commands to the RS232 device connected to it.
Local control	Select this to add local encoder device control through the RS232 interface.

7.3.2 Configuring RS232

Select decoder	If Relayed serial over IP is selected, select the decoder that's connected to the RS232 device you want to communicate with. The RS232 connection is virtualized only between your encoder and this decoder. This setting isn't available if Direct serial over IP is selected.
TCP port	If Direct serial over IP is selected, select which port will receive the RS232 commands. (Make sure the port number is available and not used by another service on your network.) The default is 11999. This setting isn't available if Relayed serial over IP is selected.
RS232 settings	If Relayed serial over IP is selected, the following settings are used by the encoder and the selected decoder. If Direct serial over IP is selected, the following settings are used only for the device connected to your encoder. <ul style="list-style-type: none">▪ Baud rate – The speed, in bits per seconds (or baud), used for the RS232 connection. The default is 115200.▪ Data bits – The number of bits per block of data transmitted. The default is 8.▪ Parity – The type of parity bits (None, Odd, or Even) used for the data transmitted. The default is None.▪ Stop bits – The number of bits used to identify the end of a data block. The default is 1.▪ Flow control – The signal type (None or RTS/CTS) used to pause and resume data transmission. The default is None.

7.4 Date and time

Use this to update the date, time, and time zone of your Maevox device. For more information on these settings, see “13 - Adjusting the date and time of your device”, page 135.

7.5 Other

This contains the settings for protected content support (security), local preview, power recovery policy, power button control, reboot control, Wake-on-LAN control, DNS update, audits, logs, and troubleshooting.

Local preview

☐ Enable local preview of input

Video source:

Title

Cycle duration: 3 seconds

Assign button: Button 1

Audio source:

None

Power recovery policy

Always start

Power button control

☐ Disable shutdown

Reboot control

☒ Enable force reboot

Wake-on-LAN control

☒ Enable Wake-on-LAN

DNS update

☐ Update DNS with friendly name

Logs

Download device logs

Erase device logs

Audits

Download device audits

Security

☐ Enable copy protection (HDCP) support

Troubleshooting

Audio

☐ Disable audio

Debug configurations

Local preview	<p>To preview your sources on your console display, enable the Enable local preview of input option, then select a Video source:</p> <ul style="list-style-type: none"> ▪ Input – Input stream appears full-screen. ▪ Tile – Input streams appear as a tile view. ▪ Cycle – Input streams cycle. Specify the Cycle duration, in seconds. <p>To assign the local preview to a button on your Maevex 6150 device (Button 1, Button 2, Button 3, or Button 4). If you don't want to assign a button, select None.</p> <p>If the option is enabled, select an Audio source from the list. If no input is available, None appears.</p>
Power recovery policy	<p>Set up your Maevex device to start up after a power loss.</p> <ul style="list-style-type: none"> ▪ Never start – Never start your Maevex device after a power loss. ▪ Always start – Always start your Maevex device after a power loss. ▪ Restore last state – Always start and restore the last state of your Maevex device after a power loss.

Power button control	To prevent your device from shutting down, enable the Disable shutdown option.
Recording control	To disable the recording module for a specific Maevox device, enable the Disable recording option. Your device will reboot for this change to take effect.
Reboot control	To remotely force a reboot of your device if it stops responding, enable the Enable force reboot option.
Wake-on-LAN control	6152 / 6150 / 6122 / 6120 encoder only – To remotely reboot an unresponsive Maevox device, enable the Enable Wake-on-LAN option.
DNS update	To update your DNS (Domain Name System) to use a friendly name instead of the device serial number, enable the Update DNS with friendly name option.
Logs	<ul style="list-style-type: none"> ▪ Download device logs – Download the log files. This file contains information on your Maevox devices. This information is useful for troubleshooting purposes. ▪ Erase device logs – Erase the log files created for your Maevox devices.
Audits	Download the audit file. When you click Download device audits , you'll be prompted to enter a password. The password entered encrypts the audit file. This file contains information on the user interactions with your Maevox devices. This information is used by your Maevox environment administrator.
Troubleshooting	<ul style="list-style-type: none"> ▪ Audio – To disable the audio on all of your Maevox 6100 Series devices, enable the Disable audio option. Your device will reboot for this change to take effect. ▪ Debug configurations – Get help and troubleshooting information for your configuration. For more information, contact Matrox Technical Support.

<p>Security</p>	<p>The Enable copy protection (HDCP) support option is applicable to the Maevox 6152 encoder (not the Maevox 6150 encoder). Select the checkbox to capture protected content over any of the HDMI inputs and decode it with the Maevox 6152 decoder.</p> <ul style="list-style-type: none"> ▪ When the Enable copy protection (HDCP) support option is enabled, the DisplayPort console output as well as the recording function are not supported. ▪ RTSP or RTP protocol must be used (HLS, SRT, RTMP, and MPEG-2 TS protocols are not supported for streaming of protected content). <p>Note: If the DisplayPort console output, an unsupported streaming protocol, or the recording function is currently in use, you will not be able to enable the Enable copy protection (HDCP) support option and the following error message will display <i>“There is a streaming protocol or a recording in the processing section that is not compatible with HDCP.”</i></p> <ul style="list-style-type: none"> ▪ All local displays connected must be HDCP capable, otherwise the sources will not send protected content to the Maevox device. ▪ Any source content can be displayed on a maximum of 32 remote displays with HDCP support. <p>Note: Third party HDMI / HDCP splitters connected to a Maevox 6152 decoder output will count as multiple display destinations, depending on the nature of the device and the number of displays connected to it. The use of such devices could quickly reduce the number of decoder outputs allowed to carry any given content originating from any encoder that is enabled for protected content support (with the Enable copy protection (HDCP) support option selected).</p> <ul style="list-style-type: none"> ▪ Any content streamed by a Maevox 6152 (or Maevox 6122) encoder with copy protection (HDCP) support enabled, including non-HDCP-protected content received from HDMI sources, can only be decoded by a Maevox 6152 decoder which also has the Enable copy protection (HDCP) support option enabled. <p>A Maevox 6152 encoder with the Enable copy protection (HDCP) support option disabled will not capture and process any protected content from any source.</p> <p>Note: When you select Enable copy protection (HDCP) support and click Apply, you will receive a confirmation message saying that you need to reboot the device for the change to take effect. Every output with a non-HDCP device connected will be disabled.</p>
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8 Maevox 6122 / 6120 encoder settings

This enables you to view, configure, and manage settings specific to a Maevox 6122 or 6120 Dual encoder.



Note: Don't change input or network connections while your Maevox device is turned on. If connections are changed while your Maevox device is turned on, your video sources or recordings will be lost.

8.1 Processing

8.1.1 Inputs/Outputs

An input box contains the following information about the video and audio signal detected by your encoder.

A	HDMI 1	HDMI 2	Line In 1	Microphone
B	Digital A/V Input 1	Digital A/V Input 2	Analog Audio Input 1	(no connection detected)
C	1920 x 1080p @ 59.99 Hz	1920 x 1080p @ 59.99 Hz	(no connection detected)	I Enabled (needs signal)
D	Audio @ 44.1 kHz, 16 bits Stereo	Audio @ 44.1 kHz, 16 bits Stereo	Enabled (needs signal)	44.1 kHz, 16-bit stereo
E	Enabled (needs signal)	Enabled (needs signal)	H	
F	YUV 4:2:0 8 bits	YUV 4:2:0 8 bits	Line In 2	J
G	EDID pass through: Enabled	EDID pass through: Enabled	Analog Audio Input 2	Headphone
			(no connection detected)	Volume: 0 dB
			Enabled (needs signal)	

A	Input number	Identifies the input (1 and 2).
B	Input name	Lists the name of the input, as specified by the user.
C	Video signal	Detects the resolution and refresh rate of the video signal. If no signal is detected, this reads as (no video) .
D	Audio signal	Detects the HDMI audio signal. If no signal is detected, this reads as (no audio) . If audio is disabled, this reads as (audio disabled) .
E	Status	Indicates if the input is enabled or disabled for capture.
F	Pixel format	Defines the quality of the image captured.
G	EDID pass through	Outputs the video and audio signals of your source directly to your monitor and audio output device.
H	Connection status	Detects if an analog audio device is connected. If no device is connected, this reads as (no connection detected) .
I	Sample rate	Lists the sample rate of the analog audio signal.
J	Volume	Detects the volume level of your device.

You can configure the following settings for your inputs and outputs.

Enable input	To use an input as a source, you need to enable it. HDMI inputs are enabled by default.
Assign button	Assign a module (HDMI input , Streams , Local preview , or Recordings) to a button on your Maevex 6122 or 6120 device (Button 1 , Button 2 , Button 3 , or Button 4). Note: Before assigning a module, make sure that module is set to Enable . If you don't want to assign a button, select None .
Input name	Enter a name for each input.
Pixel format	The pixel format defines the quality of the image captured. YUV refers to the color format used to receive each block of bits in the video signal. The format is followed by the pixel depth used for each color in the image format. A higher YUV format and pixel depth provides a higher quality image and requires more resources to process.
Continue streaming on signal loss	Enable this option if you would like streaming to continue when signal is lost. Select an option under Audio format for the audio quality expected for your stream after a signal loss. If the audio is missing, or not in the format you select here, silence is generated. Note: When enabling this option, make sure to also select Continue streaming on signal loss for your stream under Processing (see “8.1.2 - Processing”, page 80).
Disable EDID pass through	Output the video and audio signals of your source directly to your monitor and audio output device. To disable this feature, enable the Disable EDID pass through option.
Sample format	Specify the sampling rate, in kHz, and bit depth for your analog audio device.
Gain	Increase or decrease the amplitude, in dB (decibels), of your microphone.
Continue streaming when microphone is inserted or removed	Enable this option if the microphone analog audio signal is selected for your stream and you would like to have continuous streaming irrespective of microphone signal interruptions or disconnects. You need to also make sure that the Continue streaming on signal loss option is selected under Processing as well as Inputs/Outputs .
Volume	Increase or decrease the volume, in dB (decibels), of your headphones.

8.1.2 Processing

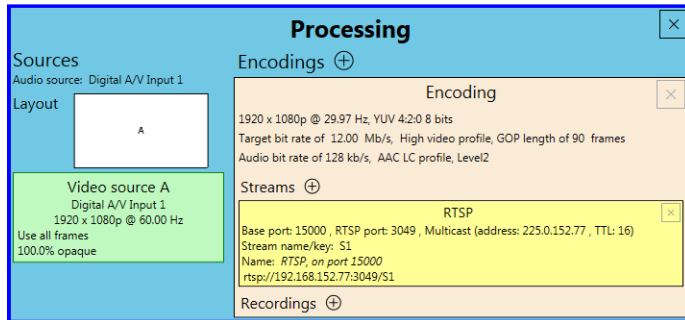


Note: To view and edit the settings of a processing module, click that module. The information appears on the right side of the panel.



Note: Depending on your configuration (for example, if you're using a single source layout), certain settings may not be available.

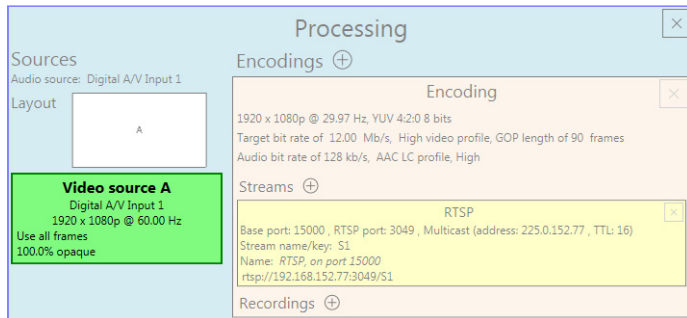
Select a processing to configure its source.



Audio source	The source of the audio signal to use.
Layout	The layout (picture in picture or picture by picture) and the number of sources to use.
Synchronize framelocked video input signal	Enable this to maintain frame synchronization when compositing from multiple sources (inputs).
Continue streaming on signal loss	Enable this to make sure streaming isn't interrupted if the source signal is switched or the connection to the device is lost. You can also set a background fill color for your composite layout. Note: When enabling this option, make sure to also select the Continue streaming on signal loss option for your stream under Inputs/Outputs (see “8.1.1 - Inputs/Outputs”, page 78).
Frame size	The width and height, in pixels, of the source. If the layout of your sources uses a height or width that's smaller than your frame size, black borders may appear on both sides, or on the top and bottom, of the frame. The width ranges from 64 to 4096 and must be a multiple of 16. The height ranges from 64 to 4096 and must be an even number.
Frame rate	The frame rate, in FPS (frames per second), for the source.



Background color	The background color for your source. If the layout of your sources uses less height or width than your frame size, the borders will use the background color. If no video is captured for your source, the background color is shown instead.
Pixel format	The pixel format to define the quality of your image, and the pixel depth for each color in the image format. A higher YUV format and pixel depth provides a higher quality image and requires more resources to process. Only certain pixel formats may be available.




8.1.3 Source



Note: Depending on your configuration (for example, if you're using a single source layout), certain settings may not be available.

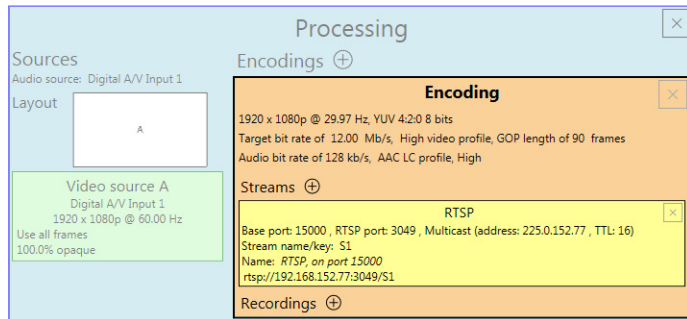
Input	Select the input to use for your source.
Capture rate	Select the frame rate for video capture. Reducing the frame rate also reduces the frame rate of the stream or recording.

Scaling	<p>Select how to scale your video:</p> <ul style="list-style-type: none"> ▪ Unscaled from top left – The video is unscaled and positioned in the top left corner of the display area. If the display resolution of the video is bigger than the display area, the video will be cropped. ▪ Unscaled centered – The video is unscaled and centered in the display area. If the display resolution of the video is bigger than the display area, the video will be cropped. ▪ Stretched to all edges – The video is stretched to fit the entire display area without respecting the aspect ratio of the original video. If the aspect ratio of the video and the display area don't match, the video may be distorted. ▪ Scaled to all edges – The video is scaled to fit the entire display area while respecting the aspect ratio of the original video. The video is centered in the display area. If the aspect ratio of the video and the display area don't match, the video will be cropped. ▪ Scaled to nearest edge – The video is scaled to fit to the display area while respecting the aspect ratio of the original video. The video is centered in the display area. If the aspect ratio of the video and the display area, black borders will appear on both sides of the video or above and below. The video isn't cropped.
Pivot	<p>Change the orientation of your source:</p> <ul style="list-style-type: none"> ▪ 0 degrees – No pivot is applied. ▪ 90 degrees clockwise – The source is rotated 90 degrees clockwise. ▪ 180 degrees – The source is rotated 180 degrees. ▪ 90 degrees counterclockwise – The source is rotated 90 degrees counterclockwise.
Flip	<p>Select the plane along which the source is flipped:</p> <ul style="list-style-type: none"> ▪ None – No flip is applied. ▪ Vertically – The source is flipped along the vertical plane. The top becomes the bottom. ▪ Horizontally – The source is flipped along the horizontal plane. The right side becomes the left. ▪ On both axes – The source is flipped along the vertical plane and the horizontal plane. This is visually similar to rotating 180 degrees.
Opacity	<p>Increase or decrease how opaque the source video appears. The default is 100%. </p>
Brightness	<p>Increase or decrease how light or dark the colors appear. The default is 500. </p>

Contrast	Change the difference in brightness between the lightest and darkest colors. The default is 500. 
Hue	Increase or decrease the tint or tone of colors. The default is 0. 
Saturation	Increase or decrease the depth of the colors. The default is 500. 

8.1.4 Encodings

These settings determine how your processor encodes, transmits, or records the video and audio signals.



8.1.4.1 Adding an encoding

To add an encoding:

- **Custom encoding** – Click the **Add (⊕)** icon, then click **To Custom**. Enter the information for the selected protocol. The default is **RTMP**.
- **Content delivery network (CDN)** – Click the **Add (⊕)** icon, then click a preset (**Facebook Live**, **YouTube**, **Restream**, **Twitch**, **IBM Video Streaming**, **Vimeo**, or **Wowza Cloud**). Enter the information for the selected protocol.

8.1.4.2 Include

Select the signals to include (**Audio only**, **Video only**, or **Audio and video**) in your encoding.

8.1.4.3 Force encoding size

Enable this to have PowerStream Plus increase or reduce the captured video size before it's encoded.

Frame size	<p>Specify the width and height, in pixels, of the video up to the width and height of the original video input. If your video source uses a different size, your encoder scales the video to the specified size (image may be distorted).</p> <p>The width ranges from 64 to 4096 and must be a multiple of 16. The height ranges from 64 to 4096 and must be an even number.</p>
Scaling	<p>Select how to scale your video:</p> <ul style="list-style-type: none">▪ Unscaled from top left – The video is unscaled and positioned in the top left corner of the display area. If the display resolution of the video is bigger than the display area, the video will be cropped.▪ Unscaled centered – The video is unscaled and centered in the display area. If the display resolution of the video is bigger than the display area, the video will be cropped.▪ Stretched to all edges – The video is stretched to fit the entire display area without respecting the aspect ratio of the original video. If the aspect ratio of the video and the display area don't match, the video may be distorted.▪ Scaled to all edges – The video is scaled to fit the entire display area while respecting the aspect ratio of the original video. The video is centered in the display area. If the aspect ratio of the video and the display area don't match, the video will be cropped.▪ Scaled to nearest edge – The video is scaled to fit to the display area while respecting the aspect ratio of the original video. The video is centered in the display area. If the aspect ratio of the video and the display area, black borders will appear on both sides of the video or above and below. The video isn't cropped.
Pivot	<p>Change the orientation of your source:</p> <ul style="list-style-type: none">▪ 0 degrees – No pivot is applied.▪ 90 degrees clockwise – The source is rotated 90 degrees clockwise.▪ 180 degrees – The source is rotated 180 degrees.▪ 90 degrees counterclockwise – The source is rotated 90 degrees counterclockwise.

Flip	<p>Select the plane along which the source is flipped:</p> <ul style="list-style-type: none"> ▪ None – No flip is applied. ▪ Vertically – The source is flipped along the vertical plane. The top becomes the bottom. ▪ Horizontally – The source is flipped along the horizontal plane. The right side becomes the left. ▪ On both axes – The source is flipped along the vertical plane and the horizontal plane. This is visually similar to rotating 180 degrees.
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8.1.4.4 Force pixel format

The pixel format defines the quality of the image encoded. YUV refers to the color format used to receive each block of bits in the video signal. The format is followed by the pixel depth used for each color in the image format. A higher YUV format and pixel depth provides a higher quality image and requires more resources to process.

8.1.4.5 Encoding profile

Encoding profile	<p>Select an encoding profile for your signal. Changing the encoding profile may prevent your decoder from streaming. Select one of the following:</p> <ul style="list-style-type: none"> ▪ Baseline ▪ Main ▪ High ▪ High, 10-bit ▪ High, YUV 4:2:2 ▪ High, YUV 4:4:4 Predictive ▪ High, YUV 4:4:4 CAVLC + Intra
Target bit rate	<p>The target bit rate, in Mb/s (Megabits per second), for encoding. The actual bandwidth used by your encoder varies according to your source and encoding method. The default is 15 Mb/s. A lower target bit rate may result in lower image quality. A higher target bit rate limit may result in lower performance, a higher bandwidth when streamed, and a larger file size when recorded.</p>
Bit rate control	<p>Select one of the following:</p> <ul style="list-style-type: none"> ▪ Use a variable bit rate ▪ Use a constant bit rate
Maximum bit rate	<p>The maximum bit rate for encoding. When encoding, the processor attempts to use the target bit rate but may use up to the maximum bit rate specified. The default is 22.5 Mb/s. The maximum bit rate is 120 Mb/s.</p>

Estimated H.264 level	The estimated level of support for a profile required from the decoder.
Quantization parameters	The range used to compress the various frames in your GOP. A high maximum increases the level of compression of the frame and should decrease the bit rate but may decrease the image quality.

8.1.4.6 Encoding mode

Optimized for low latency	Reduces the delay between the time the video is captured on the encoder and the time it's shown on a monitor connected to a decoder.
Optimized for desktop	Provides a better image quality for static images (such as a computer desktop). Note: It is recommended to use the Optimized for desktop mode with the Use a variable bit rate option, with the Maximum bit rate set to at least twice the Target bit rate .
Favor image quality	Favors image quality over latency, but may require more delay.

8.1.4.7 Force CAVLC entropy encoding

Enable this to force the use of context adaptive variable length coding (CAVLC) entropy encoding. Enabling this option overrides the default entropy encoding selection (CABAC).

8.1.4.8 Group of pictures (GOP)

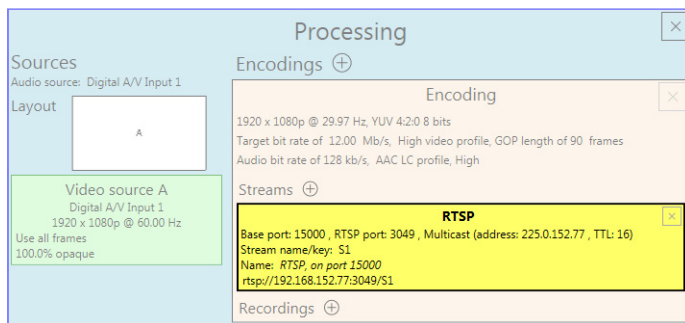
GOP length	The number of frames from one complete frame (I-frame) to another. A higher GOP length increases the compression level but may result in a lower quality image. The default is 90.
Insert P-frames every X frames	Enter the number of frames before a P-frame is inserted. All other frames are B-frames. A higher number of frames before inserting a P-frame increases the quality of the image but may result in a loss of performance. The minimum and default value is 1. The maximum value is 4.

8.1.5 Audio

Bit rate	Select the audio bit rate, in kbps, for your audio transmission. A higher bit rate produces a sound quality closer to the source quality, but requires more bandwidth. The value ranges from 32 to 576. The default is 128.
AAC encoder	Select one of the following: <ul style="list-style-type: none">▪ AAC LC – Allowed bit rate range is 32 to 576 kbps.▪ AAC HEv1 – Allowed bit rate range is 32 to 288 kbps.▪ AAC HEv2 – Allowed bit rate range is 32 to 144 kbps.
AAC quality	Force the use of encoding complexity (low to high) to improve the quality of compressed audio. Adjusting these settings doesn't affect the audio sample rate, target bit rate, or latency. <ul style="list-style-type: none">▪ Low▪ Medium▪ High
Use temporal noise shaping	This reshapes the quantization noise over time to improve the quality of the audio signal. This option is enabled by default.
AAC format	Select one of the following: <ul style="list-style-type: none">▪ ADTS▪ No container format

8.1.6 Streams

To add a stream (**RTP**, **RTMP**, **RTSP**, **SRT**, **MPEG-2 TS**, or **HLS**), click the **Add** (⊕) icon.



Note: If you configured your encoder to use **IPv4 and IPv6**, you must enable one stream for IPv4 and one stream for IPv6.



Note: To receive an RTP stream, you need to create an SDP file. For more information, contact Matrox Technical Support.



Note: When applying settings to multiple devices, make sure static IP addresses and multicast addresses aren't being duplicated. For more information, contact your network administrator.



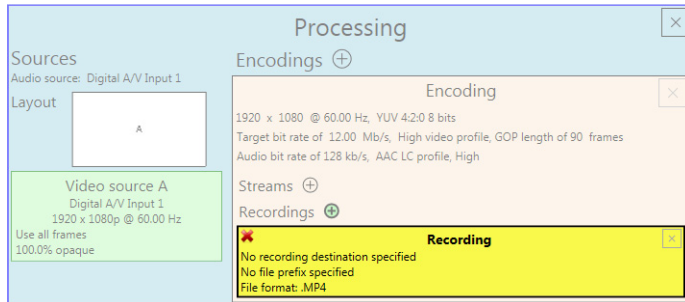
Note: Depending on the stream selected, certain options aren't available.

Enable stream	Enable or disable your stream.
Assign button	Assign a module (HDMI input, Streams , Local preview , or Recordings) to a button on your Maevex 6122 or 6120 device (Button 1 , Button 2 , Button 3 , or Button 4). Note: Before assigning a module, make sure it's set to Enable . If you don't want to assign a button, select None .
Stream address	RTSP only – The URL (or stream address) of your RTSP stream.
Base port	The port number used to transmit your stream.
Destination location	RTMP only – The path of your RTMP stream.
Playlist file name	HLS only – Enter the name of your playlist file.
Name	Enter a name for your stream.
Network interface	The network interface (LAN1 or LAN2) to use for the stream. To use the first IP address the device finds, select Automatic IPv4 to use an IPv4 address or Automatic IPv6 to use an IPv6 address.
Encoding ladder configuration	HLS only – Select how to configure the encoding ladder: <ul style="list-style-type: none"> ▪ Manual – Specify the bit rate and FPS (frames per second) decimation, then select the ladder to Enable for the HLS stream. To show resolutions that are automatically generated, enable Show auto-generated resolutions from video signal. ▪ Automatic – Specify the Number of steps (1 to 6, with 1 being the highest bit rate) in the encoding ladder.
RTSP port	RTSP only – The RTSP port number used to transmit your stream.
Stream name/key	RTMP and RTSP only – Enter a suffix as part of your stream address. If you're using a media player to decode your stream, the media player may require this as part of the stream address to connect to a stream.
Use authentication	RTMP and RTSP only – Enable this if you're using an authentication server, then enter your credentials (User name and Password).

Encryption	SRT only – The encryption level to secure your stream. Options include: Unencrypted , AES-128 , AES-192 , or AES-256 .
Passphrase	The passphrase used to generate the encryption key. We recommend a passphrase length of 16 characters (AES-128), 24 characters (AES-192), and 32 characters (AES-256). If Unencrypted is selected, there's no passphrase to enter.
Connection type	SRT only – Run SRT in Caller , Listener , or Rendezvous mode.
Latency	SRT only – The target latency, in milliseconds (ms), for transmission. The default is 40 ms.
Time to live (TTL)	The number of hops or network nodes (such as network switches or routers) through which a multicast signal can travel. Once the TTL number is reached, the receiving network node prevents the signal broadcast further down the network. The value ranges from 1 to 255. The default is 16.
Type of service	Set a value between 0 and 255 for the type of service (priority level) for outgoing network packets (except for the RTMP and HLS protocols). The default value is 0.
Routing scheme	<ul style="list-style-type: none"> ▪ Unicast – When selecting unicast, you need to specify the destination IP address of the stream. You can enter a valid IP address or host name. ▪ Multicast – Enter a Multicast address. Using multicast may require additional network configuration to support the transmission protocol (some network switches and routers can block multicast signals). For more information, contact your network administrator. To also allow unicast connections, enable the Allow unicast connections option.

8.1.7 Recordings

Use this option to record your video files on a network attached storage (NAS) device or an external storage device. The video files created are encoded with an H.264 video and AAC audio codec.



Note: When starting a recording manually or through a scheduled recording, it may take a few seconds for your encoder to actually record video. When scheduling a recording, we recommend you start the recording earlier than the actual time required.



Note: If your network is slow, congested, or experiencing high traffic, your recording may fail. For more information, contact your network administrator.

8.1.7.1 Enable recording

Enable this to be able to record from your device.

If **Scheduled recording** is enabled, this option isn't available.

8.1.7.2 Assign button

Assign a module (**HDMI input**, **Streams**, **Local preview**, or **Recordings**) to a button on your MaeveX 6120 device (**Button 1**, **Button 2**, **Button 3**, or **Button 4**).



Note: Before assigning a module, make sure it's set to **Enable**.

If you don't want to assign a button, select **None**.

8.1.7.3 File name prefix

The video file name is made up of two parts:

- **First part** – The name, which you enter.
- **Second part** – The timestamp of when the video file started, which your encoder defines.

The resulting file name is *Prefix[YYYY-MM-DD_HH-MM-SS].mp4*, where YYYY is the year, MM the month, DD the day, HH the hour (in a 24-hour format), MM the minutes, and SS the seconds.

A file name prefix can be up to 19 characters long.

8.1.7.4 File format

Select the format for your recording (MP4 or MOV).

To use fragmented MP4, enable the **Use fragmented MP4 (fMP4)** option. This option ensures your recorded file won't be corrupted in the event your network connection is disrupted.

8.1.7.5 Maximum file block duration

Enter the recording time for each video file recorded. Once the recording time for a file is reached, PowerStream Plus creates a new file. A file can hold up to 8 hours of recording.

If the sampling rate (audio or video) changes, a new file is created, regardless of the file duration.

8.1.7.6 Recording location

Under **Record to**, provide the path to the existing network shared folder or select the external storage device where your video files will be stored.



Note: To make sure the network path is properly recognized by your device, we recommend you provide the full computer name or the IP address of the system where the shared folder is located. The full computer name is part of the Windows properties of the system. For example, the full computer name of network server may be *networkserver.domain.com*. For more information, contact your network administrator.

8.1.7.6.1 Add network shared folder


Enter the path to the existing network shared folder, then select how to connect to the shared folder:

- **Connect as guest** – If your network drive doesn't require user identification, use this. When you're done, click **OK**.
- **Connect with credentials** – If your network drive requires user identification, enter a **User name** and **Password**. When you're done, click **OK**.

8.1.7.6.2 Manage network shared folders

Use this to review your list of credentials, and to remove user names and passwords that are no longer required.

8.1.7.6.3 Eject device

To safely remove an external storage device from your system, select the device you want to remove, then click the **Eject** () button.

8.1.7.7 Scheduled recording

Enable this to schedule a date, time, and duration for your encoder to record a video file.

Start recording at	Enter the date and time to start recording.
Stop recording at	Enter the date and time to stop recording.

8.2 Network

This contains the network settings for the connection and IP address of your encoder.

	LAN1	LAN2
Configuration	IPv4 and IPv6	IPv4 and IPv6
IPv4 address	<input checked="" type="radio"/> Dynamic IP address (DHCP) <input type="radio"/> Static IP address	<input type="radio"/> Dynamic IP address (DHCP) <input checked="" type="radio"/> Static IP address
IPv4 address	<input type="text" value="192.168.154.153"/>	<input type="text" value="192.168.154.67"/>
IPv4 netmask	<input type="text" value="255.255.255.0"/>	<input type="text" value="255.255.255.0"/>
IPv4 gateway	<input type="text" value="N/A"/>	<input type="text" value="192.168.154.1"/>
DNS servers	<input type="text" value="192.168.1.11 192.168.1.3"/>	<input type="text"/>
IPv6 address	<input checked="" type="radio"/> Dynamic IP address (DHCP) <input type="radio"/> Static IP address	<input checked="" type="radio"/> Dynamic IP address (DHCP) <input type="radio"/> Static IP address
IPv6 address	<input type="text" value="fde4db0efde4d154:212:8ade"/>	<input type="text" value="fde4db0efde4d154:a6cb52e"/>
IPv6 prefix length	<input type="text" value="64"/>	<input type="text" value="64"/>
IPv6 gateway	<input type="text" value="N/A"/>	<input type="text" value="N/A"/>
DNS servers	<input type="text" value="fde4db0efde4d145::20"/>	<input type="text" value="fde4db0efde4d145::20"/>

8.2.1 Configuration

Select if you want to configure your device to support **IPv4**, **IPv6**, or **IPv4 and IPv6**.

8.2.2 IP address

Select how to assign an IP address to your encoder.

By default, **Dynamic IP address (DHCP)** is used. For information on manually assigning a **Static IP address**, see “3.1 - Network discovery”, page 19.

8.3 RS232

Enable this to virtualize an RS232 (or serial) connection.

RS232 virtualization

Disabled

Decoder
Select a decoder...

TCP port
11999

RS232 settings

Baud rate
115200

Data bits
8

Parity
None

Stop bits
1

Flow control
None

8.3.1 Enabling RS232 virtualization

To enable RS232 virtualization, select the type of RS232 connection to use.

Disabled	Disable RS232 to close the TCP port used for virtualization.
Relayed serial over IP	<p>In a relayed connection, the physical RS232 controller must be connected to your encoder to send commands to an RS232 device that's connected to a decoder. The RS232 connection is independent of any other connection between an encoder and a decoder.</p> <p>When using this option, the RS232 settings of your encoder are sent to the decoder. To establish a relayed connection, the encoder and the decoder must both use Relayed serial over IP.</p>
Direct serial over IP	<p>In a direct connection, an IP-based RS232 controller application can send commands directly to the RS232 device connected to your encoder. The RS232 controller isn't physically connected to a device. Any encoder that uses direct serial over IP receives the RS232 commands through an opened TCP port (for example, from a telnet session) and sends these commands to the third-party RS232 device connected to it.</p>
Local control	Select this to add local encoder device control through the RS232 interface.

8.3.2 Configuring RS232

Select decoder	<p>If Relayed serial over IP is selected, select the decoder that's connected to the RS232 device you want to communicate with. The RS232 connection is virtualized only between your encoder and this decoder.</p> <p>This setting isn't available if Direct serial over IP is selected.</p>
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TCP port	<p>If Direct serial over IP is selected, select which port will receive the RS232 commands. (Make sure the port number is available and not used by another service on your network.) The default is 11999.</p> <p>This setting isn't available if Relayed serial over IP is selected.</p>
RS232 settings	<p>If Relayed serial over IP is selected, the following settings are used by the encoder and the selected decoder.</p> <p>If Direct serial over IP is selected, the following settings are used only for the device connected to your encoder.</p> <ul style="list-style-type: none"> ▪ Baud rate – The speed, in bits per seconds (or baud), used for the RS232 connection. The default is 115200. ▪ Data bits – The number of bits per block of data transmitted. The default is 8. ▪ Parity – The type of parity bits (None, Odd, or Even) used for the data transmitted. The default is None. ▪ Stop bits – The number of bits used to identify the end of a data block. The default is 1. ▪ Flow control – The signal type (None or RTS/CTS) used to pause and resume data transmission. The default is None.

8.4 Date and time

Use this to update the date, time, and time zone of your Maevox device. For more information on these settings, see [“13 - Adjusting the date and time of your device”, page 135.](#)

8.5 Other

This contains the settings for protected content support (security), local preview, power recovery policy, power button control, reboot control, Wake-on-LAN control, DNS update, audits, logs, and troubleshooting.

Local preview

☐ Enable local preview of input

Video source:
 Tile

Cycle duration: 3 seconds

Assign button: Button 1

Audio source:
 None

Power recovery policy

Always start

Power button control

☐ Disable shutdown

Reboot control

☒ Enable force reboot

Wake-on-LAN control

☒ Enable Wake-on-LAN

DNS update

☐ Update DNS with friendly name

Logs

Download device logs

Erase device logs

Audits

Download device audits

Security

☐ Enable copy protection (HDCP) support

Troubleshooting

Audio

☐ Disable audio

Debug configurations

Local preview	<p>To preview your sources on your console display, enable the Enable local preview of input option, then select your Video source:</p> <ul style="list-style-type: none"> ▪ Input – Input stream appears full-screen. ▪ Tile – Input streams appear as a tile view. ▪ Cycle – Input streams cycle. Specify the Cycle duration, in seconds. <p>To assign the local preview to a button on your Maevex 6120 device (Button 1, Button 2, Button 3, or Button 4). If you don't want to assign a button, select None.</p> <p>If the option is enabled, select an Audio source from the list. If no input is available, None appears.</p>
Power recovery policy	<p>Set up your Maevex device to start up after a power loss.</p> <ul style="list-style-type: none"> ▪ Never start – Never start your Maevex device after a power loss. ▪ Always start – Always start your Maevex device after a power loss. ▪ Restore last state – Always start and restore the last state of your Maevex device after a power loss.

Power button control	To prevent your device from shutting down, enable the Disable shutdown option.
Recording control	To disable the recording module for a specific Maevox device, enable the Disable recording option. Your device will reboot for this change to take effect.
Reboot control	To remotely force a reboot of your device if it stops responding, enable the Enable force reboot option.
Wake-on-LAN control	To remotely reboot an unresponsive Maevox device, enable the Enable Wake-on-LAN option.
DNS update	To update your DNS (Domain Name System) to use a friendly name instead of the device serial number, enable the Update DNS with friendly name option.
Logs	<ul style="list-style-type: none"> ▪ Download device logs – Download the log files. This file contains information on your Maevox devices. This information is useful for troubleshooting purposes. ▪ Erase device logs – Erase the log files created for your Maevox devices.
Audits	Download the audit file. When you click Download device audits , you'll be prompted to enter a password. The password entered encrypts the audit file. This file contains information on the user interactions with your Maevox devices. This information is used by your Maevox environment administrator.
Troubleshooting	<ul style="list-style-type: none"> ▪ Audio – To disable the audio on all of your Maevox 6100 Series devices, enable the Disable audio option. Your device will reboot for this change to take effect. ▪ Debug configurations – Get help and troubleshooting information for your configuration. For more information, contact Matrox Technical Support.

<p>Security</p>	<p>The Enable copy protection (HDCP) support option is applicable to the Maevox 6122 encoder (not the Maevox 6120 encoder). Select the checkbox to capture protected content over any of the HDMI inputs and decode it with the Maevox 6152 decoder.</p> <ul style="list-style-type: none"> ▪ All local HDMI outputs must use HDCP-capable displays, otherwise they are blank. ▪ When the Enable copy protection (HDCP) support option is enabled, the DisplayPort console output as well as the recording function are not supported. ▪ RTSP or RTP protocol must be used (HLS, SRT, RTMP, and MPEG-2 TS protocols are not supported for streaming of protected content). <p>Note: If the DisplayPort console output, an unsupported streaming protocol, or the recording function is currently in use, you will not be able to enable the Enable copy protection (HDCP) support option and the following error message will display “<i>There is a streaming protocol or a recording in the processing section that is not compatible with HDCP.</i>” Any source content can be displayed on a maximum of 32 remote displays with HDCP support.</p> <p>Note: Third party HDMI / HDCP splitters connected to a Maevox 6122 decoder output will count as multiple display destinations, depending on the nature of the device and the number of displays connected to it. The use of such devices could quickly reduce the number of decoder outputs allowed to carry any given content originating from any encoder that is enabled for protected content support (Enable copy protection (HDCP) support option is enabled).</p> <ul style="list-style-type: none"> ▪ Any content streamed by a Maevox 6122 (or Maevox 6152) encoder with copy protection (HDCP) support enabled, including non-HDCP-protected content received from HDMI sources, can only be decoded by a Maevox 6152 decoder which also has the Enable copy protection (HDCP) support option enabled and the protocol used is RTSP or RTP (MPEG-2 TS, HLS, RTMP, and SRT protocols don't support streaming of protected content). <p>A Maevox 6122 encoder with the Enable copy protection (HDCP) support option disabled will not capture and process any protected content from any source.</p> <p>Note: When you select Enable copy protection (HDCP) support and click Apply, you will receive a confirmation message saying that you need to reboot the device for the change to take effect. Every output with a non-HDCP device connected will be disabled.</p>
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9 Maevex 6100 encoder settings

This enables you to view, configure, and manage settings specific to a Maevex 6100 Quad encoder.



Note: Don't change input or network connections while your Maevex device is turned on. If connections are changed while your Maevex device is turned on, your video sources or recordings will be lost.

9.1 Processing

9.1.1 Inputs

An input box contains the following information about the video and audio signal detected by your encoder.

HDMI 1 Digital A/V Input 1 1920 x 1080p @ 60.01 Hz Audio @ 48.0 kHz, 16 bits Stereo Enabled YUV 4:2:0 8 bits	HDMI 2 Digital A/V Input 2 3840 x 2160p @ 60.01 Hz Audio @ 48.0 kHz, 16 bits Stereo Enabled YUV 4:2:0 8 bits	HDMI 3 Digital A/V Input 3 1920 x 1080i @ 30.00 Hz Audio @ 48.0 kHz, 16 bits Stereo Enabled YUV 4:2:0 8 bits	HDMI 4 Digital A/V Input 4 720 x 480p @ 59.94 Hz (no audio) Enabled YUV 4:2:0 8 bits
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A	Input number	Identifies the input (1, 2, 3, and 4).
B	Input name	Lists the name of the input, as specified by the user.
C	Video signal	Detects the resolution and refresh rate of the video signal. If no signal is detected, this reads as (no video) .
D	Audio signal	Detects the audio signal. If no signal is detected, this reads as (no audio) . If audio is disabled, this reads as (audio disabled) .
E	Status	Indicates if the input is enabled or disabled for capture.
F	Pixel format	Defines the quality of the image captured.

You can configure the following settings for each input.

Enable input	To use an input as a source, you need to enable it. Inputs are enabled by default.
Input name	Enter a name for each input.

Pixel format	The pixel format defines the quality of the image captured. YUV refers to the color format used to receive each block of bits in the video signal. The format is followed by the pixel depth used for each color in the image format. A higher YUV format and pixel depth provides a higher quality image and requires more resources to process.
Expected audio quality	The audio quality expected for your stream. Note: When enabling this option, make sure to also select Continue streaming on signal loss for your stream (see “9.1.2 - Processing”, page 99).

9.1.2 Processing

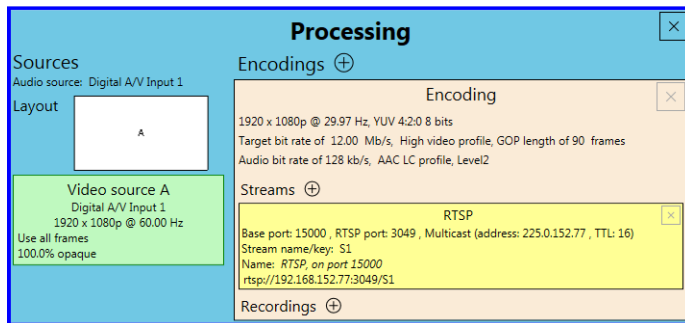


Note: To view and edit the settings of a processing module, click that module. The information appears on the right side of the panel.



Note: Depending on your configuration (for example, if you’re using a single source layout), certain settings may not be available.

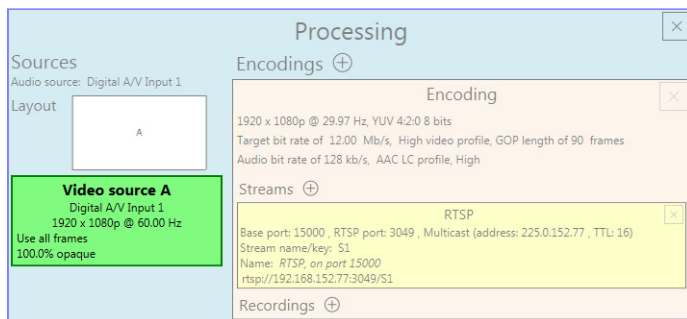
Select a processing to configure its source.



Audio source	The source of the audio signal to use.
Layout	The layout (picture in picture or picture by picture) and the number of sources to use.
Synchronize framelocked video input signal	Enable this to maintain frame synchronization when compositing from multiple sources (inputs).



Continue streaming on signal loss	Enable this to make sure streaming isn't interrupted if the source signal is switched or the connection to the device is lost. You can also set a background fill color for your composite layout. Note: When enabling this option, make sure to also select Expected audio quality for your stream (see "9.1.1 - Inputs", page 98).
Frame size	The width and height, in pixels, of the source. If the layout of your sources uses a height or width that's smaller than your frame size, black borders may appear on both sides, or on the top and bottom, of the frame. The width ranges from 64 to 4096 and must be a multiple of 16. The height ranges from 64 to 4096 and must be an even number.
Frame rate	The frame rate, in FPS (frames per second), for the source.
Background color	The background color for your source. If the layout of your sources uses less height or width than your frame size, the borders will use the background color. If no video is captured for your source, the background color is shown instead.
Pixel format	The pixel format to define the quality of your image, and the pixel depth for each color in the image format. A higher YUV format and pixel depth provides a higher quality image and requires more resources to process. Only certain pixel formats may be available.




9.1.3 Source



Note: Depending on your configuration (for example, if you're using a single source layout), certain settings may not be available.

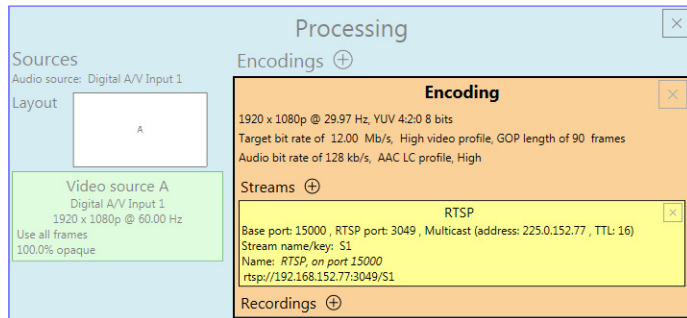
Input	Select the input to use for your source.
Capture rate	Select the frame rate for video capture. Reducing the frame rate also reduces the frame rate of the stream or recording.

Scaling	<p>Select how to scale your video:</p> <ul style="list-style-type: none"> ▪ Unscaled from top left – The video is unscaled and positioned in the top left corner of the display area. If the display resolution of the video is bigger than the display area, the video will be cropped. ▪ Unscaled centered – The video is unscaled and centered in the display area. If the display resolution of the video is bigger than the display area, the video will be cropped. ▪ Stretched to all edges – The video is stretched to fit the entire display area without respecting the aspect ratio of the original video. If the aspect ratio of the video and the display area don't match, the video may be distorted. ▪ Scaled to all edges – The video is scaled to fit the entire display area while respecting the aspect ratio of the original video. The video is centered in the display area. If the aspect ratio of the video and the display area don't match, the video will be cropped. ▪ Scaled to nearest edge – The video is scaled to fit to the display area while respecting the aspect ratio of the original video. The video is centered in the display area. If the aspect ratio of the video and the display area, black borders will appear on both sides of the video or above and below. The video isn't cropped.
Pivot	<p>Change the orientation of your source:</p> <ul style="list-style-type: none"> ▪ 0 degrees – No pivot is applied. ▪ 90 degrees clockwise – The source is rotated 90 degrees clockwise. ▪ 180 degrees – The source is rotated 180 degrees. ▪ 90 degrees counterclockwise – The source is rotated 90 degrees counterclockwise.
Flip	<p>Select the plane along which the source is flipped:</p> <ul style="list-style-type: none"> ▪ None – No flip is applied. ▪ Vertically – The source is flipped along the vertical plane. The top becomes the bottom. ▪ Horizontally – The source is flipped along the horizontal plane. The right side becomes the left. ▪ On both axes – The source is flipped along the vertical plane and the horizontal plane. This is visually similar to rotating 180 degrees.
Opacity	<p>Increase or decrease how opaque the source video appears. The default is 100%. </p>
Brightness	<p>Increase or decrease how light or dark the colors appear. The default is 500. </p>

Contrast	Change the difference in brightness between the lightest and darkest colors. The default is 500. 
Hue	Increase or decrease the tint or tone of colors. The default is 0. 
Saturation	Increase or decrease the depth of the colors. The default is 500. 

9.1.4 Encodings

These settings determine how your processor encodes, transmits, or records the video and audio signals.



9.1.4.1 Adding an encoding

To add an encoding:

- **Custom encoding** – Click the **Add** (+) icon, then click **To Custom**. Enter the information for the selected protocol. The default is **RTMP**.
- **Content delivery network (CDN)** – Click the **Add** (+) icon, then click a preset (**Facebook Live**, **YouTube**, **Restream**, **Twitch**, **IBM Video Streaming**, **Vimeo**, or **Wowza Cloud**). Enter the information for the selected protocol.

9.1.4.2 Include

Select the signals to include (**Audio only**, **Video only**, or **Audio and video**) in your encoding.

9.1.4.3 Force encoding size

Enable this to have PowerStream Plus increase or reduce the captured video size before it's encoded.

Frame size	<p>Specify the width and height, in pixels, of the video up to the width and height of the original video input. If your video source uses a different size, your encoder scales the video to the specified size (image may be distorted).</p> <p>The width ranges from 64 to 4096 and must be a multiple of 16. The height ranges from 64 to 4096 and must be an even number.</p>
Scaling	<p>Select how to scale your video:</p> <ul style="list-style-type: none">▪ Unscaled from top left – The video is unscaled and positioned in the top left corner of the display area. If the display resolution of the video is bigger than the display area, the video will be cropped.▪ Unscaled centered – The video is unscaled and centered in the display area. If the display resolution of the video is bigger than the display area, the video will be cropped.▪ Stretched to all edges – The video is stretched to fit the entire display area without respecting the aspect ratio of the original video. If the aspect ratio of the video and the display area don't match, the video may be distorted.▪ Scaled to all edges – The video is scaled to fit the entire display area while respecting the aspect ratio of the original video. The video is centered in the display area. If the aspect ratio of the video and the display area don't match, the video will be cropped.▪ Scaled to nearest edge – The video is scaled to fit to the display area while respecting the aspect ratio of the original video. The video is centered in the display area. If the aspect ratio of the video and the display area, black borders will appear on both sides of the video or above and below. The video isn't cropped.
Pivot	<p>Change the orientation of your source:</p> <ul style="list-style-type: none">▪ 0 degrees – No pivot is applied.▪ 90 degrees clockwise – The source is rotated 90 degrees clockwise.▪ 180 degrees – The source is rotated 180 degrees.▪ 90 degrees counterclockwise – The source is rotated 90 degrees counterclockwise.

Flip	<p>Select the plane along which the source is flipped:</p> <ul style="list-style-type: none"> ▪ None – No flip is applied. ▪ Vertically – The source is flipped along the vertical plane. The top becomes the bottom. ▪ Horizontally – The source is flipped along the horizontal plane. The right side becomes the left. ▪ On both axes – The source is flipped along the vertical plane and the horizontal plane. This is visually similar to rotating 180 degrees.
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9.1.4.4 Force pixel format

The pixel format defines the quality of the image encoded. YUV refers to the color format used to receive each block of bits in the video signal. The format is followed by the pixel depth used for each color in the image format. A higher YUV format and pixel depth provides a higher quality image and requires more resources to process.

9.1.4.5 Encoding profile

Encoding profile	<p>Select an encoding profile for your signal. Changing the encoding profile may prevent your decoder from streaming. Select one of the following:</p> <ul style="list-style-type: none"> ▪ Baseline ▪ Main ▪ High ▪ High, 10-bit ▪ High, YUV 4:2:2 ▪ High, YUV 4:4:4 Predictive ▪ High, YUV 4:4:4 CAVLC + Intra
Target bit rate	<p>The target bit rate, in Mb/s (Megabits per second), for encoding. The actual bandwidth used by your encoder varies according to your source and encoding method. The default is 15 Mb/s. A lower target bit rate may result in lower image quality. A higher target bit rate limit may result in lower performance, a higher bandwidth when streamed, and a larger file size when recorded.</p>
Bit rate control	<p>Select one of the following:</p> <ul style="list-style-type: none"> ▪ Use a variable bit rate ▪ Use a constant bit rate
Maximum bit rate	<p>The maximum bit rate for encoding. When encoding, the processor attempts to use the target bit rate but may use up to the maximum bit rate specified. The default is 22.5 Mb/s. The maximum bit rate is 120 Mb/s.</p>

Estimated H.264 level	The estimated level of support for a profile required from the decoder.
Quantization parameters	The range used to compress the various frames in your GOP. A high maximum increases the level of compression of the frame and should decrease the bit rate but may decrease the image quality.

9.1.4.6 Encoding mode

Optimized for low latency	Reduces the delay between the time the video is captured on the encoder and the time it's shown on a monitor connected to a decoder.
Optimized for desktop	Provides a better image quality for static images (such as a computer desktop). Note: It is recommended to use the Optimized for desktop mode with the Use a variable bit rate option, with the Maximum bit rate set to at least twice the Target bit rate .
Favor image quality	Favors image quality over latency, but may require more delay.

9.1.4.7 Force CAVLC entropy encoding

Enable this to force the use of context adaptive variable length coding (CAVLC) entropy encoding. Enabling this option overrides the default entropy encoding selection (CABAC).

9.1.4.8 Group of pictures (GOP)

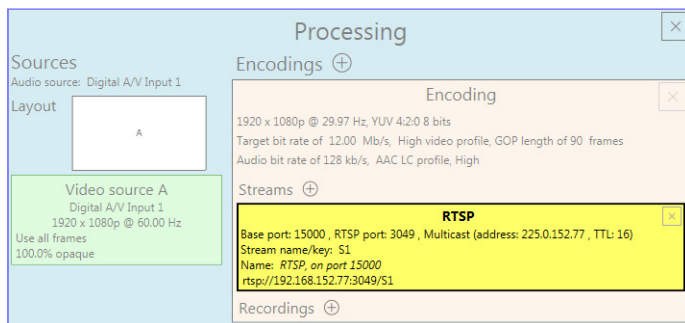
GOP length	The number of frames from one complete frame (I-frame) to another. A higher GOP length increases the compression level but may result in a lower quality image. The default is 90.
Insert P-frames every X frames	Enter the number of frames before a P-frame is inserted. All other frames are B-frames. A higher number of frames before inserting a P-frame increases the quality of the image but may result in a loss of performance. The minimum and default value is 1. The maximum value is 4.

9.1.5 Audio

Bit rate	Select the audio bit rate, in kbps, for your audio transmission. A higher bit rate produces a sound quality closer to the source quality, but requires more bandwidth. The value ranges from 32 to 576. The default is 128.
AAC encoder	Select one of the following: <ul style="list-style-type: none">▪ AAC LC – Allowed bit rate range is 32 to 576 kbps.▪ AAC HEv1 – Allowed bit rate range is 32 to 288 kbps.▪ AAC HEv2 – Allowed bit rate range is 32 to 144 kbps.
AAC quality	Force the use of encoding complexity (low to high) to improve the quality of compressed audio. Adjusting these settings doesn't affect the audio sample rate, target bit rate, or latency. <ul style="list-style-type: none">▪ Low▪ Medium▪ High
Use temporal noise shaping	This reshapes the quantization noise over time to improve the quality of the audio signal. This option is enabled by default.
AAC format	Select one of the following: <ul style="list-style-type: none">▪ ADTS▪ No container format

9.1.6 Streams

To add a stream (**RTP**, **RTMP**, **RTSP**, **SRT**, **MPEG-2 TS**, or **HLS**), click the **Add** (⊕) icon.



Note: If you configured your encoder to use **IPv4 and IPv6**, you must enable one stream for IPv4 and one stream for IPv6.



Note: To receive an RTP stream, you need to create an SDP file. For more information, contact Matrox Technical Support.



Note: When applying settings to multiple devices, make sure static IP addresses and multicast addresses aren't being duplicated. For more information, contact your network administrator.



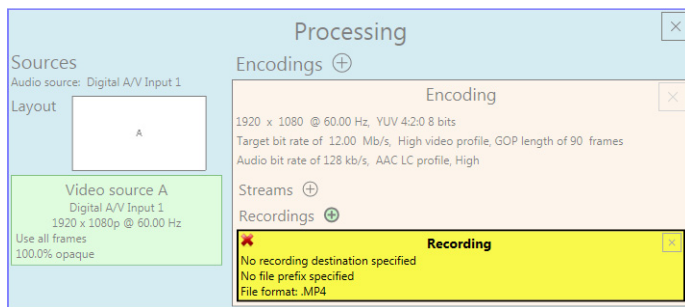
Note: Depending on the stream selected, certain options aren't available.

Enable stream	Enable or disable your stream.
Stream address	RTSP only – The URL (or stream address) of your RTSP stream.
Base port	The port number used to transmit your stream.
Destination location	RTMP only – The path of your RTMP stream.
Playlist file name	HLS only – Enter the name of your playlist file.
Name	Enter a name for your stream.
Network interface	The network interface (LAN) to use for the stream. To use the first IP address the device finds, select Automatic IPv4 to use an IPv4 address, or Automatic IPv6 to use an IPv6 address.
Encoding ladder configuration	<p>HLS only – Select how to configure the encoding ladder:</p> <ul style="list-style-type: none"> ▪ Manual – Specify the bit rate and FPS (frames per second) decimation, then select the ladder to Enable for the HLS stream. To show resolutions that are automatically generated, enable Show auto-generated resolutions from video signal. ▪ Automatic – Specify the Number of steps (1 to 6, with 1 being the highest bit rate) in the encoding ladder.
RTSP port	RTSP only – The RTSP port number used to transmit your stream.
Stream name/key	RTMP and RTSP only – Enter a suffix as part of your stream address. If you're using a media player to decode your stream, the media player may require this as part of the stream address to connect to a stream.
Use authentication	RTMP and RTSP only – Enable this if you're using an authentication server, then enter your credentials (User name and Password).
Encryption	SRT only – The encryption level to secure your stream. Options include: Unencrypted , AES-128 , AES-192 , or AES-256 .

Passphrase	The passphrase used to generate the encryption key. We recommend a passphrase length of 16 characters (AES-128), 24 characters (AES-192), and 32 characters (AES-256). If Unencrypted is selected, there's no passphrase to enter.
Connection type	SRT only – Run SRT in Caller , Listener , or Rendezvous mode.
Latency	SRT only – The target latency, in milliseconds (ms), for transmission. The default is 40 ms.
Time to live (TTL)	The number of hops or network nodes (such as network switches or routers) through which a multicast signal can travel. Once the TTL number is reached, the receiving network node prevents the signal broadcast further down the network. The value ranges from 1 to 255. The default is 16.
Routing scheme	<ul style="list-style-type: none"> ▪ Unicast – When selecting unicast, you need to specify the destination IP address of the stream. You can enter a valid IP address or host name. ▪ Multicast – Enter a Multicast address. Using multicast may require additional network configuration to support the transmission protocol (some network switches and routers can block multicast signals). For more information, contact your network administrator. To also allow unicast connections, enable the Allow unicast connections option.

9.1.7 Recordings

Use this option to record your video files on a network attached storage (NAS) device. The video files created are encoded with an H.264 video and AAC audio codec.



Note: When starting a recording manually or through a scheduled recording, it may take a few seconds for your encoder to actually record video. When scheduling a recording, we recommend you start the recording earlier than the actual time required.



Note: If your network is slow, congested, or experiencing high traffic, your recording may fail. For more information, contact your network administrator.

9.1.7.1 Enable recording

Enable this to be able to record from your device.

If **Scheduled recording** is enabled, this option isn't available.

9.1.7.2 File name prefix

The video file name is made up of two parts:

- **First part** – The name, which you enter.
- **Second part** – The timestamp of when the video file started, which your encoder defines.

The resulting file name is *Prefix[YYYY-MM-DD_HH-MM-SS].mp4*, where YYYY is the year, MM the month, DD the day, HH the hour (in a 24-hour format), MM the minutes, and SS the seconds.

A file name prefix can be up to 19 characters long.

9.1.7.3 File format

Select the format for your recording (MP4 or MOV).

To use fragmented MP4, enable the **Use fragmented MP4 (fMP4)** option. This option ensures your recorded file won't be corrupted in the event your network connection is disrupted.

9.1.7.4 Maximum file block duration

Enter the recording time for each video file recorded. Once the recording time for a file is reached, PowerStream Plus creates a new file. A file can hold up to 8 hours of recording.

If the sampling rate (audio or video) changes, a new file is created, regardless of the file duration.

9.1.7.5 Recording location

Under **Record to**, provide the path to the existing network shared folder or select the external storage device where your video files will be stored.



Note: To make sure the network path is properly recognized by your device, we recommend you provide the full computer name or the IP address of the system where the shared folder is located. The full computer name is part of the Windows properties of the system. For example, the full computer name of network server may be *networkserver.domain.com*. For more information, contact your network administrator.

9.1.7.5.1 Add network shared folder

Enter the path to the existing network shared folder, then select how to connect to the shared folder:

- **Connect as guest** – If your network drive doesn't require user identification, use this. When you're done, click **OK**.
- **Connect with credentials** – If your network drive requires user identification, enter a **User name** and **Password**. When you're done, click **OK**.

9.1.7.5.2 Manage network shared folders

Use this to review your list of credentials, and to remove user names and passwords that are no longer required.

9.1.7.6 Scheduled recording

Enable this to schedule a date, time, and duration for your encoder to record a video file.

Start recording at	Enter the date and time to start recording.
Stop recording at	Enter the date and time to stop recording.

9.2 Network

This contains the network settings for the connection and IP address of your encoder.

The screenshot shows a network configuration interface. At the top, there is a 'Configuration' dropdown menu set to 'IPv4 and IPv6'. Below this, the 'IPv4 address' section has two radio buttons: 'Dynamic IP address (DHCP)' (which is selected) and 'Static IP address'. Under the static option, there are input fields for 'IPv4 address' (192.168.163.143), 'IPv4 netmask' (255.255.255.0), 'IPv4 gateway' (192.168.163.1), and 'DNS servers'. The 'IPv6 address' section also has two radio buttons: 'Dynamic IP address (DHCP)' (selected) and 'Static IP address'. Under the static option, there are input fields for 'IPv6 address' (fddeadbeefdead163:5a4a:88ef), 'IPv6 prefix length' (64), and 'IPv6 gateway' (N/A).

9.2.1 Configuration

Select if you want to configure your device to support **IPv4**, **IPv6**, or **IPv4 and IPv6**.

9.2.2 IP address

Select how to assign an IP address to your encoder.

By default, **Dynamic IP address (DHCP)** is used. For information on manually assigning a **Static IP address**, see “3.1 - Network discovery”, page 19.

9.3 Date and time

Use this to update the date, time, and time zone of your Maevox device. For more information on these settings, see “13 - Adjusting the date and time of your device”, page 135.

9.4 Other

Reboot control	To remotely force a reboot of your device if it stops responding, enable the Enable force reboot option.
Logs	<ul style="list-style-type: none">▪ Download device logs – Download the log files. This file contains information on your Maevox devices. This information is useful for troubleshooting purposes.▪ Erase device logs – Erase the log files created for your Maevox devices.
Audits	Download the audit file. When you click Download device audits , you'll be prompted to enter a password. The password entered encrypts the audit file. This file contains information on the user interactions with your Maevox devices. This information is used by your Maevox environment administrator.
Troubleshooting	<ul style="list-style-type: none">▪ Audio – To disable the audio on all of your Maevox 6100 Series devices, enable the Disable audio option. Your device will reboot for this change to take effect.▪ Debug configurations – Get help and troubleshooting information for your configuration. For more information, contact Matrox Technical Support.

10 Maevox 5150 encoder settings

This enables you to view, configure, and manage settings specific to a Maevox 5150 encoder.

10.1 Processing

Enable processing ☒

Capture

☒ Stop capture if no HDMI input after seconds

Video

Input 1920 x 1080, 59.99 Hz

Use all frames

Audio

From HDMI

Sampling rate 48.0 kHz

Encoding

Video

☐ Use specific video size x

Target bit rate Mb/s

Strategy Favor speed

Group of pictures (GOP)

GOP length

☐ Use constant bit rate (CBR)

☐ Allow filling bits to sustain bit rate

☒ Use variable bit rate (VBR)

Insert P-frame every frames

Quantization parameters

Audio

Bit rate 192 kbps

Streaming / Recording

☒ Stream to network

Stream address (Unicast and Multicast)

rtsp://192.168.154.184:3049/S0

Port

Folder S0

Multicast

Group address 224.2.0.1

Time to live

☐ Record to network storage

Network shared folder

Change credentials...

File name prefix

File duration h m s

☐ Schedule recording

Start recording 2018.06.22 11:00

Total duration h m s

10.1.1 Modify settings

To modify the settings for multiple devices at the same time:

- 1 From the PowerStream Plus main interface, press the [Ctrl] key, select the tiles of the devices you want to modify, then click **Multi-device settings**. The device tiles you select must be of the same type.
- 2 Enable the **Modify settings** option.
- 3 Select your preferred device, then make your changes.
- 4 When you're done, click **Apply**. This applies the settings from the preferred device to the other selected devices.

10.1.2 Enable processing

Click this to start or stop processing on your encoder.

10.1.3 Capture

These settings provide information for the video and audio signal received by your encoder and determine how these signals are processed for encoding.

10.1.3.1 Stop capture if no HDMI input

Enable this to stop capturing if a HDMI signal is no longer detected on the **HDMI In** connector of your encoder. When this feature is enabled, enter the minimum amount of time, in seconds, before the capture stops. Capture may take up to five (5) more seconds to stop once the HDMI signal is lost.

When capture stops, your encoder also stops streaming. The decoder connected to this encoder no longer receives a stream. The decoder can use the failsafe option (if enabled), or it can stop outputting to allow a monitor to enter power saving mode.

If this feature is disabled and the HDMI signal is lost, your encoder transmits a blank screen (blue) while no HDMI signal is received. The decoder connected to this encoder continues to receive a stream. In this case, the decoder can't use the failsafe option, so it will show a blank screen (blue), preventing a monitor from entering power saving mode.

Capture and streaming resume once the HDMI input is re-established.

10.1.3.2 Video

Input source display mode	The display mode received by the encoder. A display mode is a combination of display resolution and vertical refresh.
Capture rate	Select the frame rate for video capture. Reducing the frame rate also reduces the frame rate of the stream or recording. For interlaced input source display modes, your encoder captures all frames, regardless of the specified Capture rate .

10.1.3.3 Audio

Select the audio source to use for audio capture (**From HDMI** or **From analog input**). You can also disable audio capture. By default, audio capture is set to **From HDMI**.

If you select analog audio, you also need to select the **Sampling rate** used to receive audio. By default, the audio sampling rate is 48.0 kHz.

10.1.4 Encoding

These settings determine how your encoder compresses and transmits the video and audio signals.

10.1.4.1 Use specific video size

Enable this to have PowerStream Plus reduce the size of the captured video before the video is encoded.

Specify the width and height, in pixels, of the video up to the width and height of the original video input. If your video source uses a different size, your encoder scales the video to the specified size (image may be distorted).

The width ranges from 128 to 1920 and must be a multiple of 16. The height ranges from 96 to 1200 and must be an even number.

10.1.4.2 Target bit rate

The bit rate in Mb/s (Megabits per second) at which your encoder should transmit the streaming signal. The actual bandwidth used by your encoder varies according to your source and encoding method.

The default is 15 Mb/s. The maximum bit rate is 25 Mb/s. A lower target bit rate may result in lower image quality. A higher target bit rate limit may result in lower performance.

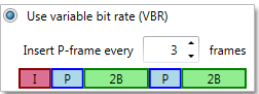
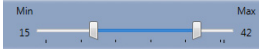
10.1.4.3 Strategy

To determine the proper compression method, select if you want to favor speed or quality.

Favor speed	Minimizes the bandwidth required. This is the default setting.
Favor quality	Maximizes the quality of the image transmitted.

10.1.4.4 Group of pictures (GOP)

GOP length	The number of frames from one complete frame (I-frame) to another. A higher GOP length increases the compression level but may result in a lower quality image. The default is 90.
Use constant bit rate (CBR)	Enable this to limit the bit rate used to the target bit rate. Using a constant bit rate may result in dropped frames if the complexity of the source is high. When using constant bit rate, your actual bit rate may be lower than the target bit rate. Enable Allow filling bits to sustain bit rate to maintain the target bit rate even if the simplicity of the source image would reduce the bit rate.

Use variable bit rate (VBR)	<p>Enable this to use a variable bit rate. When using a variable bit rate, the actual bit rate may be significantly different from the target bit rate. Using a variable bit rate may result in a high bit rate if the complexity of the source is high.</p> <p>In Insert P-frame every X frames, enter the number of frames before a P-frame is inserted. All other frames are B-frames. A higher number of frames before inserting a P-frame increases the quality of the image but may result in a loss of performance. The minimum and default value is 1. The maximum value is 6. When selecting the number of P-frames, a preview of the GOP format is shown.</p> 
Quantization parameters (For advanced users)	<p>The range used to compress the various frames in your GOP. A high maximum increases the level of compression of the frame and should decrease the bit rate but may decrease the image quality. We recommend increasing the maximum values from I-frames to B-frames. The default values are between 10 and 36 for I-frames, 10 and 40 for P-frames, and 10 and 44 for B-frames.</p> 

10.1.4.5 Audio bit rate

Select the audio bit rate, in kbps, for your audio transmission (96, 128, 192, or 256 kbps). A higher bit rate produces a sound quality closer to the source quality, but requires more bandwidth. The default is 192 kbps.

10.1.5 Streaming/Recording

These settings determine if the stream is transmitted on the network or saved to a file.

10.1.5.1 Stream to network

Enable this option to transmit the stream of your encoder on the network.

10.1.5.1.1 Stream address (Unicast and Multicast)

The URL of the stream for this encoder. This stream address is used for unicast and multicast connections.

Port	<p>The port number used to transmit your stream. The default is 8554. For more information, see your network administrator.</p>
Folder	<p>Enter a subfolder as part of your stream address. If you're using a media player to decode your stream, the media player may require this to connect to a stream.</p>

10.1.5.1.2 Multicast



Note: When applying settings to multiple devices, make sure static IP addresses and multicast addresses aren't being duplicated. For more information, contact your network administrator.

Multicast address	<p>The IP address used to transmit the multicast stream. The IP address and corresponding port are transmitted by the encoder to a decoder requesting a multicast stream and any network switches or routers between the encoder and any connected decoder.</p> <p>To ensure that each decoder receives a single stream, each encoder should have a unique multicast address. IP addresses may range from 224.0.0.0 to 239.255.255.255. We recommend using an IP address between 224.2.0.1 and 224.2.255.255. The default is 224.2.0.1.</p>
Time to live (TTL)	<p>The number of network nodes (such as network switches or routers) through which a multicast signal can travel. Once the TTL number is reached, the receiving network node prevents the signal broadcast further down the network. The value ranges from 1 to 255. The default is 16.</p>



Note: Multicast may require additional network configuration to support the transmission protocol (some network switches and routers can block multicast signals). For more information, see your network administrator.

10.1.5.2 Record to network storage

Use this to record your capture to video files on a network drive. The video files created are encoded with an H.264 video and AAC audio codec in MP4 container format.



Note: When starting a recording manually or through a scheduled recording, it may take a few seconds before your encoder actually starts recording the video. When scheduling a recording, we recommend you start the recording earlier than the actual time required.



Note: If your network is slow, congested, or experiencing high traffic, your recording may fail. For more information, contact your network administrator.

10.1.5.2.1 Network shared folder

Provide the path to the existing network shared folder where your video files will be stored.



Note: To make sure the network path is properly recognized by your device, we recommend you provide the full computer name or the IP address of the system where the shared folder is located. The full computer name is part of the Windows properties of the system. For example, the full computer name of 'networkserver' may be *networkserver.domain.com*. For more information, see your network administrator.

If your network drive requires user identification, click **Change credentials** to provide a user name and password. You can also use this to remove user names and passwords that are no longer required.

10.1.5.2.2 File name prefix

The video file name is made up of two parts:

- **First part** – The name of the file, which you enter.
- **Second part** – The timestamp of when the video file started, which your encoder defines.

The resulting file name is *Prefix[YYYY-MM-DD_HH-MM-SS].mp4*, where YYYY is the year, MM the month, DD the day, HH the hour (in a 24-hour format), MM the minutes, and SS the seconds.

10.1.5.2.3 File duration

Enter the recording time for each video file recorded. Once the recording time for a file is reached, the encoder creates a new file.

If the sampling rate (audio or video) changes, a new file is created, regardless of the file duration.

10.1.5.2.4 Schedule recording

Enable this to schedule a date, time, and duration for your video recording.

Start recording	Enter the date and time to start recording.
Total duration	Enter the length of time to record video files.

When the recording starts, the encoder is listed as **Recording** for the total duration of the recording. When the recording ends, the encoder changes back to **Ready**.

10.2 Local output (for encoder)

This tab contains the local output settings of your encoder.

The screenshot shows the 'Local output' settings tab. At the top, there are two radio buttons: 'Use pass through' (unselected) and 'Use confidence preview' (selected). Below this, the 'Video' section has a dropdown menu set to 'HDMI + VGA'. Under 'Size and transformations', the 'Force display mode' checkbox is checked, and the dropdown is set to '1920 x 1080, 60 Hz'. The 'Scaling' dropdown is set to 'Center in display'. The 'Image appearance' section contains four sliders: 'Brightness' (set to 750), 'Contrast' (set to 10000), 'Hue' (set to 0), and 'Saturation' (set to 10000). To the right, the 'Audio' section shows two sliders for 'HDMI channel' and 'Analog channel', both with 'Mute' buttons and a value of 50.

10.2.1 Selecting an output method

10.2.1.1 Use pass through

Output the video and audio signals of your source directly to your monitor and audio output device. You can use this option to see how your source video looks at the preferred display mode for your monitor and without transformations by the encoder.

While this is enabled:

- The source uses the EDID of the DVI or HDMI digital monitor connected to the **HDMI OUT** connector of your encoder to determine which display mode to use. If no EDID is detected, the source may disable its video output and capture is impossible.
- The encoder must support the display mode used by the source for capture, encoding, streaming, or recording to work.
- The output settings (such as **Size and transformations** and **Image appearance**) for your encoder have no effect and are disabled.
- If capture isn't working on your encoder, the source video still plays on your monitor.
- No analog video signal is received, so there's no video output on the VGA connector (analog video output).
- If the HDMI output device connected to your encoder doesn't support audio output, your HDMI source may disable its audio output. Because no audio is received at input, there's no audio for the encoder and all decoders connected to this encoder.

10.2.1.2 Use confidence preview (default)

Output the video signal as it's captured and transformed using the **Capture** and **Local output** (video and audio) settings of the encoder to your monitor and audio output device. Use confidence preview if no monitor is connected to your encoder. You can use this option to see the transformations configured through the output settings of your encoder.

While this is enabled:

- No monitor needs to be connected to your encoder. The source uses the EDID of the encoder to determine which display mode to use. The preferred display mode of the encoder is 1920 × 1080 @ 60 Hz.
- The output settings (such as **Size and transformation** and **Image appearance**) are used to output the video to the monitors.
- The transformations are done directly to the display mode received from the source, which may be different from the display mode of the encoded stream. For more information, see “10.1.4 - Encoding”, page 113.
- Your encoder can output to a DVI or HDMI digital monitor connected to the **HDMI Out** connector, to an analog monitor connected to the **VGA** connector, or to both.
- Your encoder outputs the same display mode to both the **HDMI Out** and **VGA** connector.
- For its output display mode, you can force a display mode, or you can let the encoder use the EDID of the monitor detected to determine which display mode to use. For more information, see “10.2.2.2.1 - Force display mode”, page 119.

10.2.2 Video

10.2.2.1 Video output type

Select the video type for your output (**HDMI + VGA**, **HDMI**, **VGA**, or **No outputs**). By default, video output is set to **HDMI + VGA**.

Selecting **No outputs** or **VGA** disables HDMI audio.

10.2.2.2 Size and transformations

This defines how the local output displays video.

10.2.2.2.1 Force display mode

When this option is enabled, the encoder uses the selected display mode for your monitor. The display mode is the combination of display resolution and refresh rate. Depending on your monitor and the display mode selected, black borders may appear above and below, on each side of, or around your video.







When this option is disabled:

- If a DVI or HDMI monitor is connected to the **HDMI Out** connector of your encoder, the encoder uses the EDID of that monitor to output. Each monitor has a preferred display mode defined in its EDID. If your device supports that display mode, both the encoder and the monitor use that mode. If the encoder doesn't support that display mode, the encoder selects a display mode that both devices support. For more information, see your monitor documentation or contact your monitor manufacturer.
- If no monitor is connected to the **HDMI Out** connector, or if **Video output type** is set to **VGA**, the encoder uses its preferred display mode of 1920 × 1080 @ 60 Hz. If your analog monitor doesn't support 1920 × 1080 @ 60 Hz, we recommend you enable **Force a display mode** and select a display mode your analog monitor supports.

This option is disabled by default.


10.2.2.2.2 Scaling




Select how the video appears in your display area.

Center in display	The video appears in the center of the display area. If the video resolution is smaller than the output resolution, the video isn't scaled. If the video resolution is larger than the output resolution, the video is scaled as if it was set to Fit in display . Black borders may appear around your video. By default, scaling is set to Center in display .	 
Stretch to display	The video is scaled to fit the entire display area. If the display area has a different aspect ratio than the display area, the image may be distorted.	 
Fit in display	The video is scaled to fit the display area without distorting the image. If the display area has a different aspect ratio than the display area, black borders appear either above and below or on each side of your video.	 

10.2.2.3 Image appearance

This enables you to adjust the color settings of your video output.

Brightness	Increase or decrease how light or dark the colors appear. The default is 750.	
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Contrast	Change the difference in brightness between the lightest and darkest colors. The default is 10000. 
Hue	Increase or decrease the tint or tone of colors. The default is 0. 
Saturation	Increase or decrease the depth of the colors. The default is 10000. 

10.2.3 Audio

The volume for the **HDMI channel** and **Analog channel** of your device. The default is 50.


Click **Mute** to disable audio output.

10.3 Network

This contains the network settings for the connection and IP address of your device.

Network

Connection settings

Up to 1 Gbps/Full duplex 

IP address

☐ Dynamic IP address (DHCP)

☒ Static IP address

IPv4 address 192.168.154.184

IPv4 netmask 255.255.255.0

IPv4 gateway 192.168.154.1

For this change to take effect, the device will be rebooted.

10.3.1 Connection settings

Select the link speed and duplex mode used by your device. The connection settings you select depend on your network configuration. For more information, see your network administrator.

Up to 1 Gbps / Full duplex	Device establishes the maximum link speed and the duplex mode to use on your network. This is the default setting.
100 Mbps / Full duplex	Device uses a link speed of 100 Mbps (Megabits per second) and a full-duplex mode. Some network configurations only support this setting.
100 Mbps / Half duplex	Device uses a link speed of 100 Mbps (Megabits per second) and a half-duplex mode. Some network configurations support only this setting.

10.3.2 IP address



Note: When the IP address or the method of assigning an IP address to a device changes, you need to reboot the device for the changes to take effect.

Select how to assign an IP address to your device.

By default, **Use a dynamic IP address (DHCP)** is used. For information on manually assigning a **Static IP address**, see “3.1 - Network discovery”, page 19.

10.4 RS232

Enable this to virtualize an RS232 (or serial) connection.

RS232 virtualization

Disabled

Decoder

Select a decoder...

TCP port 11999

RS232 settings

Baud rate 115200

Data bits 8

Parity None

Stop bits 1

Flow control None

10.4.1 Enabling RS232 virtualization

To enable RS232 virtualization, select the type of RS232 connection to use.

Disabled	Disable RS232 to close the TCP port used for virtualization.
Relayed serial over IP	In a relayed connection, the RS232 controller must be connected to your encoder to send commands to an RS232 device that's connected to a decoder. The RS232 connection is independent of any other connection between an encoder and a decoder. When using this option, the RS232 settings of your encoder are sent to the decoder. To establish a relayed connection, the encoder and the decoder must both use Relayed serial over IP .
Direct serial over IP	In a direct connection, an RS232 controller can send commands directly to the RS232 device connected to your encoder. The RS232 controller isn't physically connected to a device. Any encoder that uses direct serial over IP receives the RS232 commands through an opened TCP port (for example, from a telnet session) and sends these commands to the RS232 device connected to it.

10.4.2 Configuring RS232

Select decoder	If Relayed serial over IP is selected, select the decoder that's connected to the RS232 device you want to communicate with. The RS232 connection is virtualized only between your encoder and this decoder. This setting isn't available if Direct serial over IP is selected.
TCP port	If Direct serial over IP is selected, select which port will receive the RS232 commands. (Make sure the port number is available and not used by another service on your network.) The default is 11999. This setting isn't available if Relayed serial over IP is selected.
RS232 settings	If Relayed serial over IP is selected, the following settings are used by the encoder and the selected decoder. If Direct serial over IP is selected, the following settings are used only for the device connected to your encoder. <ul style="list-style-type: none">▪ Baud rate – The speed, in bits per seconds (or baud), used for the RS232 connection. The default is 115200.▪ Data bits – The number of bits per block of data transmitted. The default is 8.▪ Parity – The type of parity bits (None, Odd, or Even) used for the data transmitted. The default is None.▪ Stop bits – The number of bits used to identify the end of a data block. The default is 1.▪ Flow control – The signal type (None or RTS/CTS) used to pause and resume data transmission. The default is None.

10.5 Date and time

Use this to update the date, time, and time zone of your Maevox device. For more information on these settings, see [“13 - Adjusting the date and time of your device”](#), page 135.

11 Maevox 5150 decoder settings

This enables you to view, configure, and manage settings specific to a Maevox 5150 decoder.

11.1 Decoding

These settings define how the streaming signal is processed by your decoder.

The screenshot shows the 'Decoding' settings panel. On the left, there is a section for 'Decoding' with an 'Enable' toggle set to '1'. Below it is a 'Source' dropdown menu set to 'Manual'. The 'Stream address' field contains the text 'rtsp://192.168.154.50:3049/522'. Under 'Stream display mode', it says 'Not available'. At the bottom left, there is a 'Crop video' checkbox and four input fields for 'Left', 'Top', 'Width', and 'Height', all set to '0' or '64'. On the right side, there is a 'Routing scheme' dropdown set to 'UDP unicast'. Below that are two sliders: 'Network latency' and 'Maximum decoding lateness', both set to '160 ms'. At the bottom right, there is an 'Extra delay' input field set to '0 ms'.

11.1.1 Modify settings

To modify the settings for multiple devices at the same time:





- 1 From the PowerStream Plus main interface, press the [Ctrl] key, select the tiles of the devices you want to modify, then click **Multi-device settings**. The device tiles you select must be of the same type.
- 2 Enable the **Modify settings** option.
- 3 Select your preferred device, then make your changes.
- 4 When you're done, click **Apply**. This applies the settings from the preferred device to the other selected devices.


11.1.2 Enable decoding

Click this to start or stop decoding the streaming signal. This button is disabled until a **Stream address** is entered. If the **Stream address** is invalid, or if the stream isn't transmitted, clicking **Enable** results in an error.

When you start decoding, it may take a few seconds before the video appears on your monitor.

11.1.3 Source

Select an encoder to use as a source. The icon next to the encoder name represents its current status. You can only select encoders listed as **Ready** (, **Awaiting connection** (, **Recording** (, or **Encoding** ().

When a stream is selected, PowerStream Plus uses the current URL as the stream address. When the source is set to **Manual**, PowerStream Plus uses the URL in **Stream address** to connect to a stream. If a stream isn't compatible with your device, an () icon appears.

To connect to a stream outside the subnet and not listed as a source, you need to manually enter the stream address for the encoder stream.

11.1.3.1 Maevox 6150 encoder streams for Maevox 5150 decoder

The following is a list of Maevox 6150 encoder configurations that is required for compatibility with a Maevox 5150 decoder.

- Protocol - RTSP only
- Audio encoding - AAC-LC only
- Maximum resolution - 1920 x 1080p60
- Maximum bit rate - 25 Mbps
- Color space - YUV 4:2:0, 8-bit only



Note: For the Maevox 6150 encoded stream to be compatible with the Maevox 5150 decoder, the **Estimated H.264 Level** should be **4.2** or below.

11.1.4 Stream address

This is the URL of the stream to be decoded. When you select a **Source**, PowerStream Plus automatically adds the stream address.

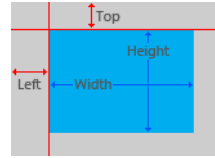
This control is disabled when the decoder is decoding.

11.1.5 Stream display mode

This is the display mode of the stream received by the decoder. A display mode is a combination of display resolution and vertical refresh rate.

11.1.6 Crop video

Enable this to define which area of the video is visible after decoding. To define the video area, adjust the following:



Left	The number of pixels removed from the left side of the original video area. The value must be an even number. The default is 0.
Top	The number of pixels removed from the top of the original video area. The default is 0.
Width	The width, in pixels, of the resulting video area. The value must be an even number. The default is 64.
Height	The height, in pixels, of the resulting video area. The default is 64.

11.1.7 Routing scheme

Select the type of signal received by your decoder:



Note: When applying settings to multiple devices, make sure static IP addresses and multicast addresses aren't being duplicated. For more information, contact your network administrator.

UDP unicast	A stream is created for each decoder connected to an encoder. No additional network configuration is required, because unicast establishes a direct connection between an encoder and a decoder. Since each decoder connected to an encoder increases the bandwidth used by that encoder, unicast may use more bandwidth. This is the default.
UDP multicast	A single stream is created by the encoder and all decoders connected to the same multicast group as the encoder receive that stream. When transmitting to multiple decoders, an encoder that's properly configured for multicast transmission uses less bandwidth.



Note: The stream address for the encoder is the same, regardless of the routing scheme.

11.1.8 Network latency

Network latency is the number of milliseconds (ms) before your decoder discards an improperly received frame and moves on to the next frame. With slow networks or high-traffic networks, a high network latency is recommended to reduce the possibility of dropping frames.

Latency and lateness are the delay between the time a frame is received and the time it's ready to be shown.

The default is 160 ms.

11.1.9 Maximum decoding lateness

Maximum decoding lateness is the number of milliseconds (ms) your decoder has to decode a frame before it discards that frame. Lateness varies depending on how difficult a frame is to decode. When setting this value, consider that a stream with only audio is easier to decode than one with only video, and a stream with only video is easier to decode than one with both video and audio.

Latency and lateness are the delay between the time a frame is received and the time it's ready to be shown.

The default is 160 ms.

11.1.10 Extra delay

Extra delay is the number of milliseconds (ms) between the moment a frame is ready to be shown and the moment it's actually shown on screen. For example, extra delay enables you to configure multiple decoders connected to the same encoder to display a video at the same time regardless of their location.

The maximum value is 60000 ms. The default is 0 ms.

11.2 Local output (for decoder)

Decoders use the local output settings to output to a monitor.

Your decoder follows these guidelines:

- It uses the display mode of the video stream received by an encoder as its input.
- The display resolution of the video stream can be reduced by using the **Crop video** option in PowerStream Plus.
- The **Output settings** (such as **Size and transformation** and **Image appearance**) are used to send the video signal to the monitor connected to the decoder.

- It can force a display mode, or it can use the EDID of the monitor detected to determine which display mode to use.

11.2.1 Video

11.2.1.1 Video output type

Select the video type for your output (**HDMI** or **No outputs**).

Selecting **No outputs** disables HDMI audio.

11.2.1.2 Size and transformations

This defines how the local output displays video.

11.2.1.2.1 Force display mode

Enable this option to have the decoder use the selected display mode to output the video signal. A display mode is the combination of display resolution and refresh rate.


If this option is disabled, your decoder uses the EDID of the digital monitor (DVI or HDMI) connected to its HDMI connector to determine which display mode to use to output the video signal. To determine the best display mode to use, each monitor has a preferred display mode defined in its EDID. If your decoder supports that display mode, both the decoder and the monitor use that mode. If the decoder doesn't support that display mode, the decoder selects a display mode that both the decoder and the monitor support. For more information, see your monitor documentation or contact your monitor manufacturer.

Depending on your monitor and the display mode used, black borders may appear (on the top and bottom of, on the right and left of, or around your video).

This option is disabled by default.

11.2.1.2.2 Scaling

Select how the video appears in your display area.

<p>Center in display</p>	<p>The video appears in the center of the display area. If the video resolution is smaller than the output resolution, the video isn't scaled. If the video resolution is larger than the output resolution, the video is scaled as if it was set to Fit in display. Black borders may appear around your video. By default, scaling is set to Center in display.</p> <div data-bbox="888 1198 1115 1274">  </div>
---------------------------------	--

Local output

Video

HDMI

Size and transformations

☒ Force display mode

1920 x 1080, 60 Hz

Scaling

Stretch to display





Image appearance

Brightness 750

Contrast 10000





Hue 0

Saturation 10000

Stretch to display	The video is scaled to fit the entire display area. If the video stream has a different aspect ratio than the display area, the image may be distorted.	 
Fit in display	The video is scaled to fit the display area without distorting the image. If the video stream has a different aspect ratio than the display area, black borders appear either above and below or on each side of your video.	 

11.2.1.3 Image appearance

This enables you to adjust the color settings of your video output.

Brightness	Increase or decrease how light or dark the colors appear. The default is 750.	
Contrast	Change the difference in brightness between the lightest and darkest colors. The default is 10000.	
Hue	Increase or decrease the tint or tone of colors. The default is 0.	
Saturation	Increase or decrease the depth of the colors. The default is 10000.	

11.2.2 Audio

The volume for the **HDMI channel** and **Analog channel** of your device. The default is 50.

Click **Mute** to disable an audio output.

11.3 Network

This contains the network settings for the connection and IP address of your device.

Network

Connection settings

Up to 1 Gbps/Full duplex

IP address

☐ Dynamic IP address (DHCP)

☒ Static IP address

IPv4 address 192.168.154.138

IPv4 netmask 255.255.255.0

IPv4 gateway 192.168.154.1

For this change to take effect, the device will be rebooted.

11.3.1 Connection settings

Select the link speed and duplex mode used by your device. The connection settings selected depend on your network configuration. For more information, see your network administrator.

Up to 1 Gbps / Full duplex	Device establishes the maximum link speed and the duplex mode to use on your network. This is the default setting.
100 Mbps / Full duplex	Device uses a link speed of 100 Mbps (Megabits per second) and a full-duplex mode. Some network configurations only support this setting.
100 Mbps / Half duplex	Device uses a link speed of 100 Mbps (Megabits per second) and a half-duplex mode. Some network configurations support only this setting.

11.3.2 IP address



Note: When the IP address or the method of assigning an IP address to a device changes, you need to reboot the device for the changes to take effect.

Select how to assign an IP address to your device.

By default, **Use a dynamic IP address (DHCP)** is used. For information on manually assigning a **Static IP address**, see [“3.1 - Network discovery”](#), page 19.

11.4 RS232

Enable this to virtualize an RS232 (or serial) connection.

RS232 virtualization

Disabled

Decoder

Select a decoder...

TCP port 11999

RS232 settings

Baud rate 115200

Data bits 8

Parity None

Stop bits 1

Flow control None

11.4.1 Enabling RS232 virtualization

To enable RS232 virtualization, select the type of RS232 connection to use.

Disabled	Disable RS232 to close the TCP port used for virtualization.
-----------------	--

Relayed serial over IP	<p>A relayed connection requires the RS232 controller to be connected to your Maevex 5150 encoder to send commands to an RS232 device connected to a decoder. The RS232 connection is independent of any other connection between an encoder and a decoder. When using relayed serial over IP, the RS232 settings of your encoder are sent to the decoder. To establish a relayed connection, the encoder and the decoder must both use relayed serial over IP.</p> <p>While using Relayed serial over IP, the TCP port setting isn't available.</p>
Direct serial over IP	<p>A direct connection allows an RS232 controller to send commands directly to the RS232 device connected to your decoder. The RS232 controller isn't physically connected to a decoder. A decoder that uses direct serial over IP receives the RS232 commands through an opened TCP port (for example, from a telnet session) and sends these commands to the RS232 device connected to it.</p> <p>While using Direct serial over IP, select the TCP port that will receive the RS232 commands. When selecting a port, make sure the port number is available and not used by another service on your network.</p>

11.4.2 Configuring RS232

For more information on the RS232 settings to use, see the documentation for your RS232 devices.

TCP port	<p>While using Direct serial over IP, select which port will receive the RS232 commands. When selecting a port, make sure the port number is available and not used by another service on your network. The default is 11999.</p> <p>While using Relayed serial over IP, this setting isn't available.</p>
RS232 settings	<p>While using Relayed serial over IP, these settings are used by the Maevex 5150 encoder and the selected decoder. While using Direct serial over IP, these settings are used only for the device connected to your encoder.</p> <ul style="list-style-type: none"> ▪ Baud rate – The speed in bits per seconds (or baud) used for the RS232 connection. The default is 115200. ▪ Data bits – The number of bits per block of data transmitted. The default is 8. ▪ Parity – The type of parity bits (None, Odd, or Even) used for the data transmitted. The default is None. ▪ Stop bits – The number of bits used to identify the end of a data block. The default is 1. ▪ Flow control – The signal type (None or RTS/CTS) used to pause and resume data transmission. The default is None.

11.5 Date and time

Use this to update the date, time, and time zone of your Maevox device. For more information on these settings, see [“13 - Adjusting the date and time of your device”, page 135.](#)

11.6 Failsafe

This feature enables you to show an image or a video file stored on your decoder when the decoder isn't receiving a stream.

Local failsafe file	The name of your failsafe file.
Disable failsafe	This disables failsafe on your decoder. To delete an image or a video file currently on your decoder, enable Remove failsafe file from decoder . If your decoder doesn't have a failsafe file, this option is disabled.
Enable failsafe	This enables failsafe on your decoder. <ul style="list-style-type: none">▪ Activate failsafe – Adjust the amount of time, in seconds (up to 300), it will take to display the failsafe file on your decoder <i>after</i> the decoder stops receiving a stream.▪ Upload the failsafe file – Browse to the video (mp4) or image (jpg) file you want to upload to your decoder. This failsafe file is stored on your decoder and appears when the decoder isn't receiving a stream. For more information, see “11.6.1 - Failsafe requirements”, page 132.

11.6.1 Failsafe requirements

The video or image files supported require the following:

- The width ranges from 128 to 1920 and must be a multiple of 16.
- The height ranges from 96 to 1200 and must be an even number.
- A video file must be encoded with the H.264 video codec and the AAC audio codec in MP4 container format.
- A video file can only use mono or stereo audio format.
- The maximum size for the failsafe file is 3.4 GB.

12 Managing your configurations

Maevox 6100 Series Encoders and Maevox 6152 Decoder only – To save, export, and edit the configurations of your Maevox 6100 Series Encoders and Maevox 6152 Decoder devices, select a device, then click **Manage Configurations**.



Note: This option is available only with all the Maevox 6100 Series Encoders and the Maevox 6152 Decoder products.

12.0.1 Saving a configuration

To save a configuration:

- 1 Click **Manage Configurations**, then click **Save**.
- 2 Enter a **Name** and **Description** for your configuration, then click **Save**.



Note: For naming the file, use alphabets and numbers avoiding special characters as some special characters are not supported.

12.0.2 Selecting a configuration

To select a configuration:

- 1 Click **Manage Configurations**, then click **Select**.
- 2 From the list select the **Default** configuration or a **User Defined** configuration.
- 3 Choose how to affect the settings (**Processing**, **Decoding**, **Network**, and **Date and time**).
- 4 When you're done, click **Select**.

12.0.3 Editing a saved configuration

12.0.3.1 Renaming

To rename a configuration:

- 1 Click **Manage Configurations**, then click **Edit**.
- 2 From the list, select a configuration, then click **Rename**.
- 3 Enter a new **Name** or **Description**, then click **Save** → **Close**.

12.0.3.2 Deleting

To delete a configuration:

- 1 Click **Manage Configurations**, then click **Edit**.
- 2 From the list, select a configuration, then click **Delete**.

12.0.3.3 Opening file location

To open the configuration file (.fav) in Explorer:

- 1 Click **Manage Configurations**, then click **Edit**.
- 2 From the list, select a configuration, then click **Open file location**.

12.0.4 Importing and exporting configurations

12.0.4.1 Importing

To import a configuration:

- 1 Click **Manage Configurations**, then click **Import → Select folder**.
- 2 When prompted, browse to the folder where your .fav file was saved, select that folder, then click **Select Folder**.
- 3 From the list, select the configuration, then click **Import**.

12.0.4.2 Exporting

To export a configuration:

- 1 Click **Manage Configurations**, then click **Export → Folder**.
- 2 When prompted, browse to the folder where you want to save your .fav file, then click **Select Folder**.
- 3 From the list, select the configuration, then click **Export**.

13 Adjusting the date and time of your device

Use this to update the date, time, and time zone of your Maevox device.

NTP server: Enabled

NTP server URL: time.nrc.ca

Time zone: (GMT-5:00) Eastern Time (US and Canada)

Date and time

☒ Use current date and time settings of the device

☐ Use date and time of the current system

☐ Use the following date and time

Friday, June 22, 2018 10:50:32

☐ Enable synchronization with an NTP (Network Time Protocol) server

NTP server URL

☐ Disable synchronization with an NTP server

Time zone

☒ Use current time zone of the device

☐ Use the following time zone

The current time settings are listed in the grey box. PowerStream Plus updates this information every two (2) seconds.



Note: After applying new settings, it may take some time for the changes to take effect.

13.1 Setting the date and time

Select how to set the date and time for your device.

Use current date and time settings of the device	Keep the current date, time, and NTP (Network Time Protocol) synchronization settings for your devices. This is the default.
Use date and time of the current system	Use the date and time of your controller system to update your devices. This setting uses the time zone of the controller system. If your controller system and your device are using different time zones, the date and time will differ. This setting disables synchronization with an NTP server.
Use the following date and time	Use the date and time specified to update your devices. This setting doesn't use the time zone of your controller system. You can use the arrow keys to change the date and time specified. This setting disables synchronization with an NTP server.

Enable synchronization with an NTP server	Use an NTP server to update the date and time for your device at regular intervals. For the Matrox Maevox 6152 decoder, an NTP time server is required on all networks, including secluded networks, so this Enable synchronization with an NTP (Network Time Protocol) server option must be selected. When used in IPv6 only mode, the time server has to use an IPv6 address. You must provide the NTP server URL , even if one is already stored on your device. For more information on using NTP, contact your network administrator.
Disable synchronization with an NTP server	Stop using an NTP server to update the date and time for your device. Disabling NTP keeps the current date and time of the device, but it won't update the devices at regular intervals.

13.2 Setting the time zone

Select the time zone to use for your device. When using an NTP server, we recommend setting the time zone of your device.

Use current time zone of the device	Use the time zone currently set for your devices. This is the default.
Use the following time zone	Change the time zone for your devices to the one selected. Changing the time zone may adjust the date and time for a device.

14 Troubleshooting

14.1 What to do if you have a problem

If you experience problems with your Matrox product:

- Make sure you're using the correct connectors, and that all connectors are properly fastened. For more information on the connection setup of your product, see the user guide for your Matrox hardware.
- Review the documentation provided with your Matrox product, including the information in this section, to see if your problem is already addressed. For information on Matrox PowerStream Plus software features and options, see the help file included with your PowerStream Plus software.

If your problem persists, contact Matrox. For more information, see [“17 - Customer support”, page 159](#).

14.2 Common problems and solutions

This section addresses common problems that could prevent you from using your devices.

Problem **Maevox device not discovered on the network**

Cause You may not be using the latest version of Matrox PowerStream Plus software, or your Matrox firmware may be out of date.

Solution For your Maevox devices to be properly detected, make sure all Matrox software is up to date.

Cause Your Matrox product may not be properly connected or may be on a different subnet.

Solution Verify the connection and status LEDs on your Matrox product. Also, make sure your Matrox product is properly connected and that all connectors are properly fastened. For more information, see your Matrox Maevox Series User Guide.

Cause **Windows Server 2019/20016/2008 R2 only** – The Windows SSDP Discovery service may be disabled on your system.

Solution Make sure the SSDP Discovery service is enabled on your system.

- 1** **Windows Server 2008 R2** – From the **Start** screen, click **All Programs → Administrative Tools → Services***. (* You may need administrator rights to access Windows services.)

Windows Server 2019/2016 – Click **Start** → **Administrative tools** → **Services***. (* You may need administrator rights to access Windows services.)

- 2** Double-click **SSDP Discovery**.
- 3** Next to **Startup type**, select **Manual** or **Automatic**.
- 4** Click **OK**.

Cause Network discovery and file sharing may not be enabled on your system.

Solution Enable network discovery and file sharing on your system.

Windows 10/7

- 1** Windows 10 – Click **Start** → **Settings** → **Network & Internet** → **Ethernet**.
Windows 7 – Click **Start** → **Settings*** → **Control Panel** → **Network and Internet***.
(* Depending on your version and configuration of Windows, this part of the step may not be necessary.)
- 2** Click **Network and Sharing Center** → **Change advanced sharing settings**. (* Depending on your version and configuration of Windows, this part of the step may not be necessary.)
- 3** Under your current profile, make sure the following options are selected:
 - **Turn on network discovery**
 - **Turn on file and printer sharing**
- 4** If you make changes to your current profile settings, click **Save changes**.

Cause The firewall for your controller system or for your network may be enabled and may prevent communication with your Maevex devices.

Solution Make sure your firewall is properly configured to allow the necessary communication between your controller system and your Maevex devices. For more information, see “16 - Appendix – Firewall requirements”, page 155.

Problem **Can't access Maevex device through PowerStream Plus**
(listed as ‘View only’)

Cause The device may be a recent addition to your environment and has no password.

Solution Try changing the password for that device (see “4 - Managing users and passwords”, page 21).

Cause **Maevox 5150 encoder or 5150 decoder** – The device password doesn't match your environment password.

Solution Try a configuration reset of your Maevox device. For more information, see your Matrox Maevox Series User Guide.

Solution Contact your Maevox environment administrator to obtain your device password, then change the device password to match your environment password in PowerStream Plus. For more information, see [“4 - Managing users and passwords”](#), page 21.

Problem **No picture or output at all**

Cause The device may not have started encoding or decoding.

Solution In PowerStream Plus, make sure the encoding or decoding process has started:

- **Maevox 6150/6120/6100 encoder** – Listed as **Active**. The stream you're trying to connect to needs to be enabled.
- **Maevox 5150 encoder** – Listed as **Awaiting connection** or **Encoding**.
- **Maevox 5150 decoder** – Listed as **Decoding**. If the decoder isn't decoding, verify that the correct URL is being used in the **Stream address** box. If the URL in **Stream address** doesn't match the URL of an encoder, or if the encoder isn't encoding, attempting to start decoding results in an error.

For more information, see [“2.8 - Understanding the status of your devices”](#), page 17.

Cause **Maevox 5150 encoder** – The **Use pass through** option is enabled, but your monitor is connected to the **VGA** connector on your encoder.

Solution If the **Use pass through** option is enabled, make sure your monitor is connected to the **HDMI Out** connector.

Solution In PowerStream Plus, change the local output of your encoder to **Use confidence preview**.

Cause **Maevox 5150 encoder** – The local output settings of your device may be improperly set.

Solution If the **Use confidence preview** option is enabled, adjust the following settings under the **Output** tab in PowerStream Plus:

- Make sure the video output type selected is valid (**HDMI + VGA**, **HDMI**, or **VGA**).
- Disable the **Force display mode** option.
- Check your **Image appearance** settings (brightness, contrast, and so on). Image appearance values that are too high or too low may cause the image to disappear.

Solution **Decoder** – In PowerStream Plus, adjust your local output settings:

- Disable the **Force display mode** option.
- Check your **Image appearance** settings (brightness, contrast, and so on). Image appearance values that are too high or too low may cause the image to disappear.

Cause Your monitor video controls may be improperly set.

Solution Adjust your monitor controls (brightness, contrast, and so on). For more information, see your monitor manual.

Cause Your monitor may not be properly connected (the connectors aren't properly fastened or the monitor power cable isn't firmly in place) or may have been disconnected.

Solution Make sure you're using the correct connectors, that all connectors are properly fastened, and that all power cables are firmly in place.

Cause If your monitor supports multiple input sources (analog/digital), it may be configured to use the wrong source.

Solution Make sure your monitor is using the correct input source. For more information on selecting the input source for your monitor, see your monitor documentation.

Cause The HDMI cable may have been connected to your encoder or decoder output *after* the encoding or decoding process started.

Solution Stop, then start the encoding or decoding process again.

Problem **Recording starts, then stops**
(red dot blinks and then disappears)

Cause The path to the recording destination may be incorrect (for example, the network path is incorrect or unrecognized).

Solution Make sure the network path is correct and the full computer name is specified.

Problem Storage path error message when specifying a network shared folder for recording

Cause The path for the network shared folder may be incorrect.

Solution Make sure you're using the full computer name of the system where the shared folder is located. The full computer name is part of the Windows properties of the system. For example, the full computer name of *networkserver* may be *networkserver.domain.com*. For more information, contact your network administrator.

Cause The file sharing configuration for the system hosting the shared folder may prevent writing operations.

Solution Make sure file sharing is enabled on your host system and that writing is permitted on that folder.

Cause The credentials provided to your encoder may not have writing permissions on the system hosting the shared folder.

Solution Make sure you're using the proper user credentials (user name and password) for your encoder.

Solution Make sure the permissions of the shared folder allow writing.

Cause The firewall may be enabled on the system that hosts the shared folder.

Solution Add rules to your Windows Firewall settings. For more information, see [“16.5 - Adding rules to your Windows Firewall settings”, page 157.](#)

Problem Wrong color balance

Cause The local output settings of your encoder or decoder may be improperly set.

Solution Adjust your PowerStream Plus settings. Check your **Image appearance** settings (brightness, contrast, and so on).

Cause Your monitor video controls may be improperly set.

Solution Adjust your monitor controls (brightness, contrast, and so on). For more information, see your monitor manual.

Cause Your monitor may not be properly connected (the connectors aren't properly fastened or the monitor power cable isn't firmly in place) or may have been disconnected.

Solution Make sure you're using the correct connectors, that all connectors are properly fastened, and that all power cables are firmly in place.

Problem Screen image is cropped, appears off-center, or uses a portion of the screen

Cause You may be using a lower display resolution than what your monitor supports. If your monitor supports display scaling, the image on your screen may appear blurry. If display scaling isn't supported, the display may use only a portion of your screen.

Solution In PowerStream Plus, adjust **Force display mode** to use the highest display resolution available. This generally results in better image quality.

Cause PowerStream Plus may be configured to modify the size of the video source.

Solution Adjust your PowerStream Plus settings:

- **Maevox 6152 decoder** - Make sure the settings for scaling and target display or sub-panel are set to properly show the video.
- **Maevox 6150/6120/6100 encoder** – Click the **Processing** tab, then make sure the width and height specified in the **Processing** or **Encoding** settings match the aspect ratio of your source.
- **Maevox 5150 encoder** – Click the **Processing** tab, enable the **Use specific video size** option, then specify the width and height of your video to match the aspect ratio of your source.
- **Maevox 5150 decoder** – Make sure the settings for **Crop video** are set to properly show the video.

Problem Using 'pass through', the screen is unusable (Maevox 5150 encoder only)
(blank or blinking screen)

Cause Your monitor may be incompatible with the display mode used by your source.

Solution Make sure your monitor and your source support similar display modes. To validate the quality of your source, see your Matrox Maevox Series User Guide.

Solution Change the display mode used by your source.

Solution Try using a different monitor.

Cause If your monitor and source aren't properly synching, your screen may go blank for a few seconds.

Solution In PowerStream Plus, change the local output of your encoder to **Use confidence preview**.

Solution Try using a different monitor.

Solution Make sure all Matrox software is up to date.

Problem Decoder loses connection to the encoder

Cause The encoder's settings may have changed (for example, the streaming address or IP address). A change may occur dynamically or after a power failure.

Solution Adjust your PowerStream Plus settings:

- **Maevox encoder** – Manually change the IP address to the previous address used by your encoder.
- **Maevox 5150 decoder** – Reselect the encoder in your **Source** box.
- **Maevox 5150 decoder** – If **Source** is set to **Manual**, make sure the URL used in the **Stream address** box matches the stream address used by the encoder.

For more information, see [“2.8 - Understanding the status of your devices”, page 17.](#)

Cause The encoder may have stopped transmitting.

Solution Make sure your encoder is transmitting.

Problem PowerStream Plus may be slow to start (several minutes)

Cause Your controller system may not have access to a DNS (Domain Name System) server.

Solution Configure your system to use a fixed IP address (such as local host – 127.0.0.1) as the DNS server.

Windows 10/7

- 1** Windows 10 – Click **Start** → **Settings** → **Network & Internet** → **Ethernet**.
Windows 7 – Click **Start** → **Settings*** → **Control Panel** → **Network and Internet*** → **Network and Sharing Center**. (* Depending on your version and configuration of Windows, this part of the step may not be necessary.)
- 2** Click **Change adapter settings**.
- 3** Double-click the icon for your network adapter (such as **Local Area Connection** or **Ethernet**).
- 4** Click **Properties** → **Yes***. (* Depending on your version and configuration of Windows, this part of the step may not be necessary.)
- 5** Double-click **Internet Protocol Version 4 (TCP/IPv4)**.
- 6** Select **Use the following DNS server addresses**.

7 Next to **Preferred DNS server**, enter **127.0.0.1**.

8 Click **OK** → **OK** → **Close**.

Problem PowerStream Plus stops responding

Cause Your PowerStream Plus software or Maevox device may have encountered an error.

Solution Try closing, then restarting Matrox PowerStream Plus software.

Solution Restart your controller system.

Problem Maevox device tile is listed as unresponsive (yellow device tile)

Cause Your network may be slow, causing a delay in the response time from your Maevox device.

Solution Wait a few minutes, then make sure the status of the device was properly updated.

Cause Your PowerStream Plus software or device may have encountered an error.

Solution Try closing, then restarting Matrox PowerStream Plus software.

Solution If your device status is still listed as initializing, click **Reboot** to reboot your device.

Solution Try a configuration reset of your device. For more information, see your Matrox Maevox Series User Guide.

Problem 'Web services fails' message appears after attempting to change decoder settings

Cause The decoding process may take all the decoder's resources.

Solution Stop the decoding process, make your changes, and restart the decoding process.

Solution When making changes to multiple decoders connected to the same encoder, stop the encoder, make the changes on your decoders, then restart the encoder.

Problem Black border appears around the video

Cause The aspect ratio of your video source may not match the aspect ratio of your monitor.

Solution Use PowerStream Plus software to adjust your **Video** settings (such as enabling **Force display mode** and selecting a **Scaling** option).

Cause The border may be part of your video.

Solution Crop your video source:

- 1 Under your decoder settings, enable the **Crop video** option.
- 2 Enter values to remove the borders.
- 3 Click **Apply** for your changes to take effect.

Cause Your source uses a display resolution that's higher than the resolution used to show the video.

Solution Try configuring your source to use a different display resolution.

Cause Your monitor doesn't support display scaling.

Solution Adjust your video settings:

- 1 Under **Size and Transformation** of the **Local output** settings of your Maevex device, try selecting **Stretch to display** for scaling.
- 2 Click **Apply** for your changes to take effect.

Problem Video appears stretched or squished

Cause There may be a problem with your video source.

Solution Verify the quality of your source. For more information, see your Matrox Maevex Series User Guide.

Cause You may be encoding at a resolution that has a different aspect ratio than what your source or output is using.

Solution Try selecting a video size with the same aspect ratio as your source.

- Solution**
- Maevex 6150/6120/6100 encoder – Make sure **Force encoding size** is disabled.
 - Maevex 5150 encoder – Make sure **Use specific video size** is disabled.

Cause The aspect ratio of your source may not match the aspect ratio of your monitor.

Solution Adjust your video settings:

- 1 Under **Size and Transformation** of the local output settings of your Maevex device, try selecting **Stretch to display** for scaling.
- 2 Click **Apply** for your changes to take effect.

Solution If possible, set the display resolution of your source to match the aspect ratio of your monitor.

Cause You may be using a lower display resolution than what your monitor supports.

Solution In PowerStream Plus, make sure **Force display mode** is disabled to use the highest display resolution supported by your monitor. This generally results in better image quality.

Cause PowerStream Plus may be configured to modify the size of the video source.

Solution Adjust your PowerStream Plus settings:

- **Maevex 6150/6120/6100 encoder** – Enable the **Force encoding size** option, then specify the width and height of your video to match the aspect ratio of your source.
- **Maevex 5150 encoder** – Enable the **Use specific video size** option, then specify the width and height of your video to match the aspect ratio of your source.
- **Maevex 5150 decoder** – Make sure the settings for **Crop video** are set to properly show the video.

Problem Image appears blurry

Cause You may be encoding at a different resolution than what your source is using.

Solution Try selecting a video size with the same aspect ratio as your source.

Solution If **Use specific video size** is enabled, try disabling it to avoid scaling by the encoder.

Cause You may be using a lower display resolution than what your monitor supports, or your monitor supports display scaling.

Solution In PowerStream Plus, adjust **Force display mode** to use the highest display resolution available. This generally results in better image quality.

Problem Poor video quality or video is jerky (skipping or dropping frames)



Note: Jerky video may be the result of slow recording. Slow recording causes frames to be dropped (frames aren't recorded). If jerky video is caused by frames that were dropped during recording, the problem can only be fixed by recapturing the video under better conditions or with different video settings. For more information, see your Matrox Maevex Series User Guide.

Cause PowerStream Plus may not be configured to optimize video or audio quality.

Solution When adjusting your encoder or decoder settings, we recommend starting with the default values for all of your settings and modifying the settings as necessary.

Cause High network traffic may be degrading the quality of your stream.

Solution Make sure your network equipment supports the bandwidth required.

Solution Try using a dedicated network for your Maevox environment. For more information, contact your network administrator.

Solution Try using Matrox PowerStream Plus to increase the **Network latency** of your decoder.

Cause There may be too many video devices between your video source and destination, or one or more of the video devices may be degrading the quality of the stream. Adapters, long cables, cable extensions, and improper connections can all affect video signal quality.

Solution If possible, use fewer connections. For example, don't use cable extensions.

Problem **Unstable audio detection**
(audio signal undetected or unstable)

Cause Your audio driver may not be enabled to pass through HDMI.

Solution Test your playback devices:

- 1** In your Windows taskbar, right-click **Playback devices**.
- 2** Right-click each Maevox device listed, then click **Test**.

Problem **No sound or sound is distorted or too loud**

Cause Your capture settings may not match your audio input.

Solution Make sure your capture settings are set to capture the proper audio source.

Cause Audio cables may be loose, or the audio output device may not be properly connected.

Solution Make sure you're using the correct connectors, all connectors are properly fastened, and that all power cables are firmly in place.

Cause There may be a problem with your audio source.

Solution Verify the quality of your source. For more information, see your Matrox Maevox Series User Guide.

Cause The PowerStream Plus **Audio** setting of your Maevox device may be too low, too high, or muted.

Solution Adjust your audio settings for the best performance.

Cause **Maevox 6150/6120/6100 encoder** – You may not be using an audio source, or your audio source may not be included in your encoding process.

Solution Adjust your audio settings:

- **Processing** – Make sure an **Audio source** is selected.
- **Encoding** – Make sure your signals is set to include audio (**Audio only** or **Audio and video**) in your encoding.

Cause **Maevox 5150 encoder** – If you're using pass through, your HDMI source may disable its audio output if the HDMI output device connected to your encoder doesn't support audio output. This disables the audio output for the encoder and all decoders connected to this encoder.

Solution Make sure the HDMI output device connected to your encoder supports audio output.

Solution In PowerStream Plus, change the local output of your encoder to **Use confidence preview**.

Cause **Maevox 5150 encoder** – If you're using pass through, your audio output device may be connected to a connector that has no corresponding input.

Solution Make sure your audio output device is connected to the proper corresponding audio input connector (for example, **HDMI** to **HDMI in**, and **Line out** to **Line in**).

Solution In PowerStream Plus, change the local output of your encoder to **Use confidence preview**.

Cause **Maevox 5150 encoder** – Your source may disable its HDMI audio output when switching from confidence preview to pass through, or vice versa.

Solution To re-enable the audio signal, try disconnecting and reconnecting your HDMI connector.

Problem Inconsistent sound quality between video files

Cause The audio level for the original video sources differs.

Solution Resample the original video sources to normalize the audio output between sources.

Solution Your source may be able to normalize audio levels automatically. For more information, see your source documentation.

Problem Unable to record to LAN2

Cause A unique IP address may not be specified for the recording location.

Solution Create a unique IP address for the recording location. For more information, contact your network administrator.

Problem Unable to decode a multicast stream using VLC media player

Cause While using RTSP, the VLC media player defaults to using unicast.

Solution Change your VLC configuration to force multicast.

- 1** Open VLC media player.
- 2** Click **Tools** → **Preferences**, then select **Show settings for all**.
- 3** Under **Input/Codecs**, select **Demuxers settings**.
- 4** Select **RTP/RTSP**, then enable **Force multicast RTP via RTSP**.
- 5** When you're done, save your changes.

Problem Unable to record to network shared folder or Network Attached Storage (NAS)

Cause An incorrect network path or IP address was specified.

Solution To make sure the network path is properly recognized by your device, we recommend you provide the full computer name or the IP address of the system where the shared folder is located.

- The full computer name is part of the Windows properties of the system. For example, the full computer name of networkserver may be *networkserver.domain.com*.
- An IP address between 192.168.0.0 and 192.168.255.255 (recommended). Also, we recommend you assign an IP address within the subnet of your network.

For more information, contact your network administrator.

15 Notes and limitations

In this section you will find the notes and limitations for the Matrox PowerStream Plus software and the associated Maevox devices. For more release-specific information, refer to the Matrox Maevox Release Notes document.

15.1 General

- A maximum of ten (10) instances of Matrox PowerStream Plus software can be running simultaneously.
- **Windows 10/7** – If the settings window of a device is open when your controller system returns from sleep mode, you may receive an error message that a device is no longer active. Close and reopen the settings window of that device to view the device properties.
- **Windows Server 2019, Server 2016, and Server 2008 R2** – Make sure the SSDP Discovery service, network discovery, and file sharing are enabled.

15.1.1 Maevox 6150, 6120, and 6100 encoders

- While using a resolution of 3840×2160 at 60 Hz, capture and encoding are supported only in YUV 4:2:0.
- 10-bit capture is supported only with source resolutions up to 1920×1200p60.
- Capture, encoding, and streaming of High-Bandwidth Digital Content Protection (HDCP) content is not supported.

15.1.2 Maevox 6152 decoder

- 4Kp60 in YUV 4:4:4 pixel format selected in PowerStream Plus at the compositing or layout stage can only be transferred to HDMI Outputs 1 and 3 (HDMI Outputs 2 and 4 cannot be used in this case).
- Frame synchronization between multiple streams is maintained by the decoder only if the streams are displayed within the same layout (could be on one output, or across multiple joined outputs), and only if the source signals connected to the Maevox encoder are frame-synchronous. A private communications channel with a Maevox 6100 series encoder enables this synchronization between multiple streams.

- If protected content support is enabled in PowerStream Plus, the respective devices will protect all their outgoing streams, which can only be decoded and displayed by Maevox 6152 decoders that are also enabled for protected content support. Protocols that can carry protected content are restricted to RTSP and RTP only. Other streaming protocols are not supported in this mode. The local DisplayPort monitoring output, as well as the recording function will be inaccessible (unsupported) in this mode. A warning message will be displayed if any of these options are in use and have to be disabled before enabling protected content support.
- For low latency, the Maevox 6100 Series encoder must be set up to encode the captured stream without video scaling, composition, or modification in the color procAmps, and the **Encoding mode** should be set to either **Optimized for low latency**, or **Optimized for desktop** in the PowerStream Plus software. The decoder has to be set up to decode the video stream without video scaling, composition, or modification in the color procAmps, and display it directly onto the monitor, which has to be set at the same resolution and refresh rate as the stream. The decoder must have a single stream, single output configuration, and the audio and video should be from the same stream. The **Overlay** options (**Enable to display the media names over the screen** and **Enable to display the audio icons over the screen**) should not be selected.
- Custom streams with credentials (RTSP with authentication or SRT with a passphrase) cannot be reused by a different user, or from a PowerStream Plus that runs on another PC. The other PowerStream Plus users must create their own custom stream pointing to the same source with the appropriate stream credentials.
- For 4k60 resolution, a certified premium high-speed HDMI cable is highly recommended.
- If a Maevox 6152 decoder is configured with four (4) times the same output resolution, for example, 1920 x 1080 or 3840 x 2160, and the failsafe feature is used, it is recommended to select a failsafe video file that has the same resolution as the outputs, that is, 1920 x 1080 or 3840 x 2160. In the case of a resolution mismatch, scaling will occur, and depending on the output configuration, the failsafe content may have dropped frames or reduced frame rate. Alternatively, a still image can be used as a failsafe content.
- The maximum decoding, scaling, and compositing capability of the device is 4x 4k30 or 2x 4k60 (or equivalent). The **CPU**, **Video decoding**, and **Video processing** percentages are displayed in the **Telemetry** section of the device information dashboard in PowerStream Plus. In order to avoid potential frame drop and/or image stutter, it is highly recommended to maintain all processing under 100% at all times. This can be accomplished by defining configurations that are within the processing capabilities of the device. For example, unnecessary scaling can be avoided by trying to match the stream resolutions (including that of the failsafe content) to the resolutions of the various output surfaces.

15.1.3 Maevox 6100 Series (6152 / 6150 / 6122 / 6120 / 6100) encoders

- Interlaced video input is converted to progressive mode before encoding. Only the local pass through output will be interlaced (same as input signal).

15.1.4 Maevox 5150 encoder

- Changing the display resolution of your monitors while your encoder or decoder are outputting to your monitors may cause your devices to fail.
- If an encoder isn't properly disconnected, decoders connected to this encoder device may still attempt to connect to it.
- The analog audio volume on the decoder device may be higher than on the encoder device, even though the volume on both devices is set to the same level.
- An encoder supports up to 8 simultaneous streams (1080p at 15Mb/s). When counting streams, a multicast stream is a unique stream (equivalent to an unicast stream) regardless of the number of decoders receiving that stream.

15.2 Protected content

- Video capture and streaming or decoding of protected content is only supported with the Maevox 6152 and 6122 encoders and the Maevox 6152 decoder.
- A decoder with the protected content support enabled will also decode non-protected content from a Maevox 6100 Series encoder with protected content unsupported or turned off, or from any other third-party encoder source. Such a decoder will only provide HDMI signal and content to HDCP-capable devices.

15.2.1 Maevox 6152 and 6122 encoders

- Protected content streamed by a Maevox 6100 Series encoder can only be decoded by a Maevox 6100 Series decoder and the protocol must be RTSP or RTP (MPEG-2 TS, HLS, RTMP, and SRT protocols don't support streaming of protected content).
- Streaming over WAN of HDCP protected content is not supported.

15.2.2 Maevox 6152 decoder

- If protected content support is enabled in PowerStream Plus on a given device:
 - All HDMI outputs will be HDCP protected and non-HDCP display devices will not receive any signal. Such a decoder will decode protected streams originating from Maevox 6152 and 6122 encoders enabled for protected content support, as well as unprotected streams from any Maevox or compatible third-party encoders.
 - If any protected source content is mapped to be displayed on a 33rd display device, the corresponding decoder will stop decoding this content and will replace it with a blank surface if used on any of its outputs (or with failsafe content if failsafe is enabled).
- If protected content support is disabled on a given device (turned Off in PowerStream Plus), the Maevox decoder will **not** decode any streams originating from Maevox 6152 or 6122 encoders with protected content support enabled.

15.3 Audio

- **Maevox 6100 Series encoder appliances** – Using analog and digital (HDMI) audio simultaneously from the same input channel isn't supported.
- **Maevox 5150 encoder** – Audio cuts out briefly when enabling or disabling the **Use pass through** option.
- Playback of content with different audio sampling rates may cause issues with third-party players (such as VLC).

15.4 Recording

- **All Maevox encoder appliances** – When recording, make sure there's enough available space on the destination device (USB memory or network drive) before starting to record. If the recorded file becomes larger than the available space, the recording file won't be able to close and the data won't be readable.
- **Maevox 6152 and 6122 encoder appliances** – When the device is enabled for protected content (HDCP) support, the recording function will be inaccessible (not supported).

15.5 Date and time

- PowerStream Plus updates the date and time information of your device every two (2) seconds.
- **Maevex 6152 decoder** – It is strongly advised to have a valid NTP server. If a valid NTP server is not available, PowerStream Plus uses the clock on the PC to update the device, which may cause some features to not work properly.

15.6 Network

- If your network is slow, congested, or experiencing high traffic, your recording may fail. For more information, contact your network administrator.
- If a decoder uses a stream from an encoder located on a different subnet, the quality of the video output from the decoder may be degraded.
- When transmitting in multicast on a large network, we recommend using a router with multicast addressing support and switches with IGMP v2 support.
- Slow response from certain routers may cause a slow device detection in PowerStream Plus.
- **Windows 10/7** – If your controller system doesn't have access to a DNS (Domain Name System) server, or if response from its DNS server is slow, PowerStream Plus may take a long time to start up (several minutes). To avoid this delay, configure your controller system to use a fixed IP address (such as local host 127.0.0.1) as its DNS server. For more information, see “PowerStream Plus may be slow to start”, [page 143](#).

16 Appendix – Firewall requirements

The following are the firewall requirements for your controller system and for a network with a Maevox environment.

16.1 PowerStream Plus software

The following are the firewall requirements for your controller system.

Network Ports	Type	Inbound	Outbound	Functionality
20, 21	TCP	—	✓	FTP: Failsafe file upload*
53	TCP	—	✓	DNS: DNS requests
443†	TCP	—	✓	HTTPS: PowerStream Plus commands
1900, 1910†	UDP	✓	✓	UPnP: Microsoft SSDP for discovery of UPnP devices

Note: ICMP must be enabled (ping)

* Maevox 6152 and 5150 decoders only.

† Minimum requirements.

16.2 Firmware updater

The following are the firewall requirement for a system running the Matrox Firmware Updater.

Network Ports	Type	Inbound	Outbound	Functionality
20, 21	TCP	—	✓	FTP: Firmware file transfer to devices
22*	TCP	✓	✓	SSH: Firmware update commands
443*	TCP	—	✓	HTTPS: Authentication and firmware update commands
1900, 1910*	UDP	✓	✓	UPnP: Microsoft SSDP for discovery of UPnP devices

* Minimum requirements.

16.3 Maevox devices

The following are the requirements for a network firewall present on a network with a Maevox environment.

Network Ports	Type	Inbound	Outbound	Functionality
20, 21	TCP	✓	—	FTP: Failsafe file upload
22*	TCP	✓	✓	SSH: Firmware update commands
69	UDP	—	✓	DHCP: DHCP client
123	UDP	✓	✓	NTP: Network Time Protocol
161	UDP	✓	✓	SNMP: Network management (public community string)
443*	TCP	✓	—	HTTPS: PowerStream Plus commands, and authentication and firmware update
1900*	UDP	✓	✓	UPnP: Microsoft SSDP for discovery of UPnP devices
Ephemeral*	UDP	✓	✓	RTP/RTCP: Audio and video streams and control
8554 (Maevox 5150), 3049 (Maevox 6100)*	TCP	✓	✓	RTSP: Streaming (configurable) [†]
12000‡	TCP	✓	✓	RS232: RS232 virtualization [§]

* Minimum requirements.

† For more information, see [“10.1.5.1 - Stream to network”](#), page 115.

‡ Fixed value when using the **Relayed serial over IP** feature in PowerStream Plus. User defined when using the **Direct serial over IP** feature in PowerStream Plus.

§ Not applicable to the Maevox 6100 encoder card.

16.4 Accessing your Windows Firewall settings



Note: You may need administrator rights to modify your Windows Firewall settings. For more information, see Windows documentation or contact your system administrator.

To access your Windows Firewall settings:

Windows 10/7 –

- 1 Windows 10 – Click **Start** → **Settings** → **Network & Internet** → **Ethernet** → **Windows Firewall**.

Windows 7 – Click **Control Panel** → **Network and Internet*** → **Network and Sharing Center***. (* Depending on your configuration, these steps may be unnecessary.)

- 2 Windows 10 – In the left panel, click **Advanced Settings**.

Windows 7 – In the left panel, click **Windows Firewall** → **Advanced Settings**.

16.5 Adding rules to your Windows Firewall settings



Note: You may need administrator rights to modify your Windows Firewall settings. For more information, see Windows documentation or contact your system administrator.

Windows 10/7

- 1 Windows 10 – Click **Start** → **Settings** → **Network & Internet** → **Ethernet** → **Windows Firewall**.

Windows 7 – Click **Control Panel** → **Network and Internet*** → **Network and Sharing Center***. (* Depending on your configuration, these steps may be unnecessary.)

- 2 Windows 10 – In the left panel, click **Advanced Settings**.

Windows 7 – In the left panel, click **Windows Firewall** → **Advanced Settings**.

- 3 Click **Inbound Rules**.

- 4 In the **Actions** panel, click **New Rule**. Configure the new rule with the following settings:

- **Rule** – Select **Custom**.
- **Program** – Select **All programs**.
- **Protocol and Ports** – Next to **Protocol**, select **TCP**. Next to **Local port**, select **Specific ports**. For the port number, enter **445**. Next to **Remote port**, select **All Ports**.
- **Scope** – Under the remote IP address, add the IP range you want to use for your encoders. You can use a range (such as *192.168.1.0/24*) or a single IP address (such as *192.152.168.62*).
- **Action** – Select **Allow the connection**.
- **Profile** – Select the network location of your system (**Domain**, **Private**, or **Public**).
- **Name** – Enter the name for your rule (such as *Maevex Encoder Recording – TCP rule*).

- 5 In the **Actions** panel, click **New Rule**. Configure the new rule with the following settings:

- **Rule type** – Select **Custom**.
- **Program** – Select **All programs**.

- **Protocol and Ports** – Under **Protocol type**, select **ICMPv4**.
- **Scope** – Under the remote IP address, add the IP range you want to use for your encoders. You can use a range (such as *192.168.1.0/24*) or a single IP address (such as *192.152.168.62*).
- **Action** – Select **Allow the connection**.
- **Profile** – Select the network location of your system (**Domain**, **Private**, or **Public**).
- **Name** – Enter the name for your rule (such as *Maevex Encoder Recording – ICMPv4 rule*).

For more information, see your network administrator.

17 Customer support

17.1 Matrox web

Our web site has product literature, press releases, technical material, a sales office list, trade show information, and other relevant material. Visit the Matrox Graphics Web site at

www.matrox.com/en/video.

17.2 Technical support

Matrox values your business and offers professional support for your Matrox product.

If your product was purchased through a Matrox dealer, contact your dealer for product support. This is the quickest and most effective method of technical assistance. Your dealer is familiar with your complete system.

If your product was purchased through Matrox, contact your Matrox representative or visit our technical support Web site at www.matrox.com/en/video/support.

17.2.1 Information we need

Please give a complete description of the problem, and include:

- Matrox product serial number, model number, revision number, and firmware number.
- Source specifications.
- Controller system (system running PowerStream) specifications.
- Specific PowerStream Plus options and features used.
- Decoding software and/or hardware.

17.3 Firmware package

A more recent firmware package may support more features and may offer increased capabilities. To obtain the latest firmware package, see the Matrox Web site (www.matrox.com/maevxsw).

17.4 View your warranty information

Matrox makes warranty information available on the Matrox site (www.matrox.com/en/video/support/warranty/).

17.5 View the third party software notices

Matrox makes third party software notices and/or additional terms and conditions available on the Matrox site (<https://thirdpartylicenses.matrox.com>).

17.6 Register your Matrox product

Please register online (www.matrox.com/en/video/support/product-registration) to be eligible for customer support, new product announcements, and information on special offers and upcoming events.

USA

FCC Compliance Statement

Remark for the Matrox hardware products supported by this guide This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING Changes or modifications to this unit not expressly approved by the party responsible for the compliance could void the user's authority to operate this equipment. The use of shielded cables for connection of the monitor to the card is required to meet FCC requirements.

CANADA

(English) Innovation, Science and Economic Development Canada

Remark for the Matrox hardware products supported by this guide These digital apparatus does not exceed the Class A limits for radio noise emission from digital devices set out in the Radio Interference Regulation of Industry Canada.

(Français) Innovation, Sciences et Développement économique Canada

Remarque sur les produits matériels Matrox couverts par ce guide Ce présent appareil numérique n'émet aucun bruit radioélectrique dépassant les limites applicables aux appareils numériques de Classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par Industrie Canada.

JAPAN

VCCI Compliance Statement

Remark for the Matrox hardware products supported by this guide This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may occur, in which case, the user may be required to take corrective actions.

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI-A

KOREA

A 급 기기 (업무용 방송통신기자재)

이 기기는 업무용 (A 급) 전자파적합기기로서 판 매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

EUROPE

(English) European user's information – Declaration of Conformity

Remark for the Matrox hardware products supported by this guide These devices comply with EC Directive 2014/30/EU for a Class A digital device. They have been tested and found to comply with EN55032/CISPR32 and EN55024/CISPR24. In a domestic environment these products may cause radio interference in which case the user may be required to take adequate measures. To meet EC requirements, shielded cables must be used to connect the monitor and other peripherals to the card. These products have been tested in a typical class A compliant host system. It is assumed that these products will also achieve compliance in any class A compliant system.



(Français) Informations aux utilisateurs Européens – Déclaration de conformité

Remarque sur les produits matériels Matrox couverts par ce guide Ces unités sont conformes à la directive communautaire 2014/30/EU pour les unités numériques de classe A. Les tests effectués ont prouvé qu'elles sont conformes aux normes EN55032/CISPR32 et EN55024/CISPR24. Le fonctionnement de ces produits dans un environnement résidentiel peut causer des interférences radio, dans ce cas l'utilisateur peut être amené à prendre les mesures appropriées. Pour respecter les impératifs communautaires, les câbles de connexion entre le moniteur ou autres périphériques et la carte doivent être blindés. Ces produits ont été testés dans un système hôte typique compatible classe A. On suppose qu'ils présenteront la même compatibilité dans tout système compatible classe A.

(Deutsch) Information für europäische Anwender – Konformitätserklärung

Anmerkung für die Matrox Hardware-Produktunterstützung durch dieses Handbuch Diese Geräte entsprechen EC Direktive 2014/30/EU für ein digitales Gerät Klasse A. Sie wurden getestet und entsprechen demnach EN55032/CISPR32 und EN55024/CISPR24. In einer Wohnumgebung können diese Produkte Funkinterferenzen erzeugen, und der Benutzer kann genötigt sein, entsprechende Maßnahmen zu ergreifen. Um EG-Anforderungen zu entsprechen, müssen zum Anschließen des Monitors und anderer Peripheriegeräte an die Karte abgeschirmte Kabel verwendet werden. Diese Produkte wurden in einem typischen, der Klasse A entsprechenden, Host-System getestet. Es wird davon ausgegangen, daß diese Produkte auch in jedem Klasse A entsprechenden System entsprechend funktionieren.

(Italiano) Informazioni per gli utenti europei – Dichiarazione di conformità

Nota per i prodotti hardware Matrox supportati da questa guida Questi dispositivi sono conformi alla direttiva CEE 2014/30/EU relativamente ai dispositivi digitali di Classe A. Sono stati provati e sono risultati conformi alle norme EN55032/CISPR32 e EN55024/CISPR24. In un ambiente domestico, questi prodotti possono causare radiointerferenze, nel qual caso all'utente potrebbe venire richiesto di prendere le misure adeguate. Per soddisfare i requisiti CEE, il monitor e le altre periferiche vanno collegati alla scheda grafica con cavi schermati. Questi prodotti sono stati provati in un tipico sistema host conforme alla classe A. Inoltre, si dà per scontato che questi prodotti acquisiranno la conformità in qualsiasi sistema conforme alla classe A.

(Español) Información para usuarios europeos – Declaración de conformidad

Observación referente a los productos de hardware de Matrox apoyados por este manual Estos dispositivos cumplen con la directiva de la CE 2014/30/EU para dispositivos digitales de Clase A. Dichos dispositivos han sido sometidos a prueba y se ha comprobado que cumplen con las normas EN55032/CISPR32 y EN55024/CISPR24. En entornos residenciales, estos productos pueden causar interferencias en las comunicaciones por radio; en tal caso el usuario deberá adoptar las medidas adecuadas. Para satisfacer las disposiciones de la CE, deberán utilizarse cables apantallados para conectar el monitor y demás periféricos a la tarjeta. Estos productos han sido sometidos a prueba en un típico sistema anfitrión que responde a los requisitos de la clase A. Se supone que estos productos cumplirán también con las normas en cualquier sistema que responda a los requisitos de la clase A.

EUROPE

(English) European user's information – Directive on Waste Electrical and Electronic Equipment (WEEE)

Please refer to the Matrox Web site (www.matrox.com/environment/en/weee) for recycling information.



(Français) Informations aux utilisateurs Européens – Règlementation des déchets d'équipements électriques et électroniques (DEEE)

Se référer au site Web de Matrox (www.matrox.com/environment/en/weee) pour l'information concernant le recyclage.

(Deutsch) Information für europäische Anwender – Europäische Regelungen zu Elektro- und Elektronikaltgeräten (WEEE)

Bitte wenden Sie sich an der Matrox-Website (www.matrox.com/environment/en/weee) für Recycling-Informationen.

(Italiano) Informazioni per gli utenti europei – Direttiva sui rifiuti di apparecchiature elettriche ed elettroniche (RAEE)

Si prega di riferirsi al sito Web Matrox (www.matrox.com/environment/en/weee) per le informazioni di riciclaggio.

Avertissement sur l'épilepsie

À lire avant toute utilisation d'un jeu vidéo par vous-même ou votre enfant Certaines personnes sont susceptibles de faire des crises d'épilepsie ou d'avoir des pertes de conscience à la vue de certains types de lumières clignotantes ou d'éléments fréquents dans notre environnement quotidien. Ces personnes s'exposent à des crises lorsqu'elles regardent certaines images télévisées ou qu'elles jouent à certains jeux vidéo. Ces phénomènes peuvent apparaître alors même que le sujet n'a pas d'antécédent médical ou n'a jamais été confronté à une crise d'épilepsie.

Si vous-même ou un membre de votre famille avez déjà présenté des symptômes liés à l'épilepsie (crise ou perte de conscience) en présence de stimulations lumineuses, veuillez consulter votre médecin avant toute utilisation.

Nous conseillons aux parents d'être attentifs à leurs enfants lorsqu'ils jouent avec des jeux vidéo. Si vous-même ou votre enfant présentez un des symptômes suivants: vertige, trouble de la vision, contraction des yeux ou des muscles, perte de conscience, trouble de l'orientation, mouvement involontaire ou convulsion, veuillez immédiatement cesser de jouer et consultez un médecin.

Précautions à prendre dans tous les cas pour l'utilisation d'un jeu vidéo Ne vous tenez pas trop près de l'écran.

- Jouez à bonne distance de l'écran de TV et aussi loin que le permet le cordon de raccordement.
- Utilisez de préférence les jeux de vidéo sur un écran de petite taille.
- Évitez de jouer si vous êtes fatigué ou si vous manquez de sommeil.
- Assurez-vous que vous jouez dans une pièce bien éclairée.
- En cours d'utilisation, faites des pauses de dix à quinze minutes toutes les heures.

USA

FCC Compliance Statement



Remark for the Matrox hardware products supported by this guide This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment causes harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: • Reorient or relocate the receiving antenna • Increase the separation between the equipment and receiver • Connect the equipment into an outlet on a circuit different from that to which the receiver is connected • Consult the dealer or an experienced radio/TV technician for help.

WARNING Changes or modifications to this unit not expressly approved by the party responsible for the compliance could void the user's authority to operate this equipment.

Declaration of conformity of a Class B digital device according to the FCC rules

We, the Responsible Party Matrox, 2002 Ridge Road, Champlain, NY 12919 • Telephone: (514) 822-6000 (extension 2026) • Attention: Conformity Group Matrox

Declaration The Matrox hardware products supported by this guide comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) these devices may not cause harmful interference, and (2) these devices must accept any interference received, including interference that may cause undesired operation. Any question regarding this declaration should be forwarded to the above coordinates.

CANADA

(English) Innovation, Science and Economic Development Canada

Remark for the Matrox hardware products supported by this guide These digital devices do not exceed the Class B limits for radio noise emission from digital devices set out in the Radio Interference Regulation of Industry Canada.

(Français) Innovation, Sciences et Développement économique Canada

Remarque sur les produits matériels Matrox couverts par ce guide Ces appareils numériques n'émettent aucun bruit radioélectrique dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le Règlement sur le brouillage radioélectrique édicté par Industrie Canada.

USA

FCC Compliance Statement

Remark for the Matrox hardware products supported by this guide This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING Changes or modifications to this unit not expressly approved by the party responsible for the compliance could void the user's authority to operate this equipment. The use of shielded cables for connection of the monitor to the card is required to meet FCC requirements.

CANADA

(English) Innovation, Science and Economic Development Canada

Remark for the Matrox hardware products supported by this guide These digital apparatus does not exceed the Class A limits for radio noise emission from digital devices set out in the Radio Interference Regulation of Industry Canada.

(Français) Innovation, Sciences et Développement économique Canada

Remarque sur les produits matériels Matrox couverts par ce guide Ce présent appareil numérique n'émet aucun bruit radioélectrique dépassant les limites applicables aux appareils numériques de Classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par Industrie Canada.

JAPAN

VCCI Compliance Statement

Remark for the Matrox hardware products supported by this guide This is a Class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.



この装置は、クラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。

取扱説明書に従って正しい取り扱いをして下さい。 VCCI-B

KOREA

B 급 기기 (가정용 방송통신기자재)

이 기기는 가정용 (B 급) 전자파적합기기로서 주 로 가정에서 사용하는 것을 목적으로 하며 , 모든 지역에서 사용할 수 있습니다 .

EUROPE

(English) European user's information – Information on Conformity

Remark for the Matrox hardware products supported by this guide These devices comply with EC Directive 2014/30/EU for a Class B digital device. They have been tested and found to comply with EN55032/CISPR32 and EN55024/CISPR24. In a domestic environment these products may cause radio interference in which case the user may be required to take adequate measures. These products have been tested in a typical class B compliant host system. It is assumed that these products will also achieve compliance in any class B compliant system.



(Français) Informations aux utilisateurs Européens – Informations sur la conformité

Remarque sur les produits matériels Matrox couverts par ce guide Ces unités sont conformes à la directive communautaire 2014/30/EU pour les unités numériques de classe B. Les tests effectués ont prouvé qu'elles sont conformes aux normes EN55032/CISPR32 et EN55024/CISPR24. Le fonctionnement de ces produits dans un environnement résidentiel peut causer des interférences radio, dans ce cas l'utilisateur peut être amené à prendre les mesures appropriées. Ces produits ont été testés dans un système hôte typique compatible classe B. On suppose qu'ils présenteront la même compatibilité dans tout système compatible classe B.

(Deutsch) Information für europäische Anwender – Konformitäts-Informationen

Anmerkung für die Matrox Hardware-Produktunterstützung durch dieses Handbuch Diese Geräte entsprechen EC Direktive 2014/30/EU für ein digitales Gerät Klasse B. Sie wurden getestet und entsprechen demnach EN55032/CISPR32 und EN55024/CISPR24. In einer Wohnumgebung können diese Produkte Funkinterferenzen erzeugen, und der Benutzer kann genötigt sein, entsprechende Maßnahmen zu ergreifen. Diese Produkt wurden in einem typischen, der Klasse B entsprechenden, Host-System getestet. Es wird davon ausgegangen, daß diese Produkte auch in jedem Klasse B entsprechenden System entsprechend funktionieren.

(Italiano) Informazioni per gli utenti europei – Informazioni sulla conformità

Nota per i prodotti hardware Matrox supportati da questa guida Questi dispositivi sono conformi alla direttiva CEE 2014/30/EU relativamente ai dispositivi digitali di Classe B. Sono stati provati e sono risultati conformi alle norme

EN55032/CISPR32 e EN55024/CISPR24. In un ambiente domestico, questi prodotti possono causare radiointerferenze, nel qual caso all'utente potrebbe venire richiesto di prendere le misure adeguate. Questi prodotti sono stati provati in un tipico sistema host conforme alla classe B. Inoltre, si dà per scontato che questi prodotti acquisiranno la conformità in qualsiasi sistema conforme alla classe B.

(Español) Información para usuarios europeos – Información sobre la conformidad

Observación referente a los productos de hardware de Matrox apoyados por este manual Estos dispositivos cumplen con la directiva de la CE 2014/30/EU para dispositivos digitales de Clase B. Dichos dispositivos han sido sometidos a prueba y se ha comprobado que cumplen con las normas EN55032/CISPR32 y EN55024/CISPR24. En entornos residenciales, estos productos pueden causar interferencias en las comunicaciones por radio; en tal caso el usuario deberá adoptar las medidas adecuadas. Se supone que estos productos cumplirán también con las normas en cualquier sistema que responda a los requisitos de la clase B.

EUROPE

(English) European user's information – Directive on Waste Electrical and Electronic Equipment (WEEE)

Please refer to the Matrox Web site (www.matrox.com/environment/en/weee) for recycling information.



(Français) Informations aux utilisateurs Européens – Règlementation des déchets d'équipements électriques et électroniques (DEEE)

Se référer au site Web de Matrox (www.matrox.com/environment/en/weee) pour l'information concernant le recyclage.

(Deutsch) Information für europäische Anwender – Europäische Regelungen zu Elektro- und Elektronikaltgeräten (WEEE)

Bitte wenden Sie sich an der Matrox-Website (www.matrox.com/environment/en/weee) für Recycling-Informationen.

(Italiano) Informazioni per gli utenti europei – Direttiva sui rifiuti di apparecchiature elettriche ed elettroniche (RAEE)

Si prega di riferirsi al sito Web Matrox (www.matrox.com/environment/en/weee) per le informazioni di riciclaggio.

FRANCE

Avertissement sur l'épilepsie

À lire avant toute utilisation d'un jeu vidéo par vous-même ou votre enfant Certaines personnes sont susceptibles de faire des crises d'épilepsie ou d'avoir des pertes de conscience à la vue de certains types de lumières clignotantes ou d'éléments fréquents dans notre environnement quotidien. Ces personnes s'exposent à des crises lorsqu'elles regardent certaines images télévisées ou qu'elles jouent à certains jeux vidéo. Ces phénomènes peuvent apparaître alors même que le sujet n'a pas d'antécédent médical ou n'a jamais été confronté à une crise d'épilepsie.

Si vous-même ou un membre de votre famille avez déjà présenté des symptômes liés à l'épilepsie (crise ou perte de conscience) en présence de stimulations lumineuses, veuillez consulter votre médecin avant toute utilisation.

Nous conseillons aux parents d'être attentifs à leurs enfants lorsqu'ils jouent avec des jeux vidéo. Si vous-même ou votre enfant présentez un des symptômes suivants: vertige, trouble de la vision, contraction des yeux ou des muscles, perte de conscience, trouble de l'orientation, mouvement involontaire ou convulsion, veuillez immédiatement cesser de jouer et consultez un médecin.

Précautions à prendre dans tous les cas pour l'utilisation d'un jeu vidéo Ne vous tenez pas trop près de l'écran.

- Jouez à bonne distance de l'écran de TV et aussi loin que le permet le cordon de raccordement.
- Utilisez de préférence les jeux de vidéo sur un écran de petite taille.
- Évitez de jouer si vous êtes fatigué ou si vous manquez de sommeil.
- Assurez-vous que vous jouez dans une pièce bien éclairée.
- En cours d'utilisation, faites des pauses de dix à quinze minutes toutes les heures.

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Matrox Graphics Inc.

1055 Saint Regis Boulevard
Dorval, Quebec, Canada H9P 2T4
(514) 822-6000

video@matrox.com
www.matrox.com/video

matrox®