# CONFIGURATION MANUAL

XS VIA

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# Table of Contents

# What's New?

In this Multicam Configuration manual, the icon **NEW !** has been added on the left margin to highlight information on new and updated features in release 20.1.

The changes linked to new features in release 20.1 are listed below:

**PTP profile is configurable in the LiveIP Configuration module.**

- See section "PTP Configuration" on page 319.

**RTP payload can be configured for the different essences (video, audio, ancillary data) in the LiveIP Configuration module.**

- See section "General Settings" on page 276.

**AES67 packet time can be configured in the LiveIP Configuration module.**

- See section "General Settings" on page 276.

**NMOS and Ember+ services can be enabled in the LiveIP Configuration module.**

- See section "General Settings" on page 276.

**Link status of ancillary data streams can be monitored.**

- See section "LiveIP Settings for Ancillary Data Streams" on page 303.

**When using a single IP address per SFP interface, Unicast is supported.**

- See section "LiveIP Settings for Video Streams" on page 282.
- See section "LiveIP Settings for Monitoring Streams" on page 312.
- See section "LiveIP Settings for Audio Streams" on page 292.
- See section "LiveIP Settings for Ancillary Data Streams" on page 303.
- See section "LiveIP Settings for Multiviewer Video Streams" on page 327.

**IP addresses of SFP+ interfaces can be configured automatically through DHCP.**

- See section "IP IO Configuration" on page 184.

**Up to 64,000 clips are supported in the XNet-VIA network.**

- See section "General Information Window" on page 336.

**Up to 34 servers are supported in the XNet-VIA network.**

- See section "XNet Settings" on page 175.
- See section "RS422 VarID Settings" on page 220.
- See section "General Information Window" on page 336.

**Input and output bandwidth can be monitored for each SFP+ interface.**

- See section "Input Monitoring" on page 343.

The following changes unrelated to new features, and therefore not highlighted with the **New** icon, have been brought to the configuration manual:

**Best Master Clock Algorithm is used to select the grandmaster clock.**

- See section "PTP Configuration" on page 319.

**Rules for controller combinations has been updated:**

**Parallel control of server channels by IPDirector and LinX is blocked.**

- ◦ See section "Rules for Controller Assignment" on page 132.

**Parallel control of server play channels by LSM remote panel and LinX is blocked.**

- ◦ See section "Rules for Controller Assignment" on page 132.

**Audio Track Mute Threshold corrected.**

- See section "Audio Settings" on page 256.

# 1.     Introduction

## 1.1.     Introduction to the Configuration of EVS Servers

### Configuration Module

The Multicam Setup application is used for configuration and maintenance operations on EVS video servers. It is also used to select which application to run, since EVS disk recorders have the ability to run various dedicated applications (Video Server, Slow Motion, …).
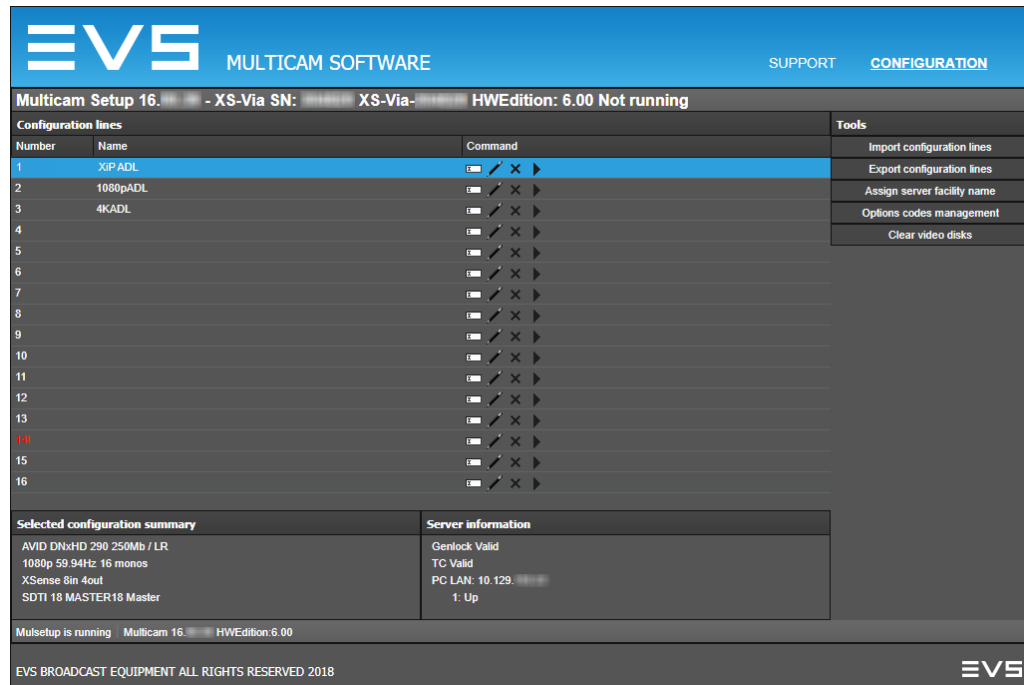
The configuration module has been developed along the lines presented in this section.

### Consolidation into a Single User Interface

The server can be fully configured from a single user interface.

The user interface includes:

- a setup section presented on one page with two main areas which give access to the configuration lines and the most used maintenance commands:

- a configuration section for each configuration line. It is presented in seven tabs which easily give access to all configuration parameters:
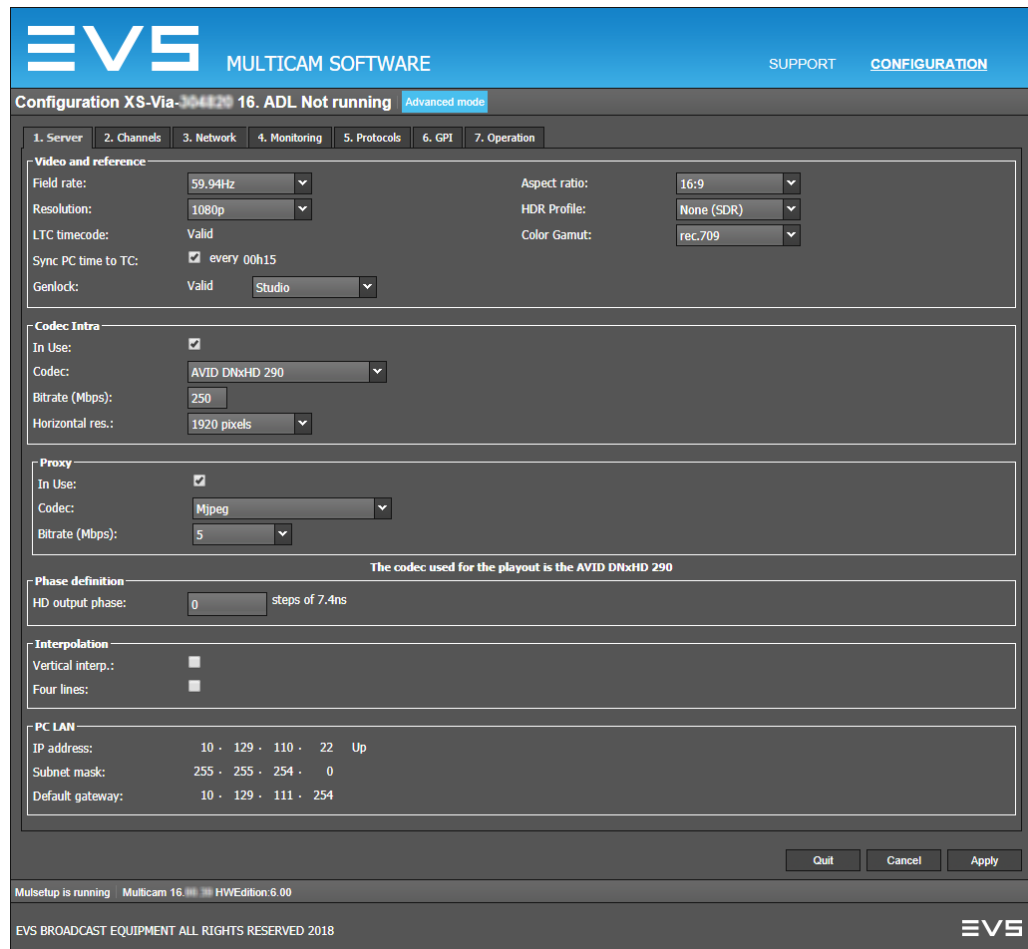


## Simple User Interface

The user interface is simple and clear thanks to:

- the separation of basic and advanced parameters

  The most commonly used parameters are displayed in a basic mode while more specific parameters are hidden, and can be displayed when you toggle to the advanced mode.

- the filtering of the parameters displayed

  The parameters are only displayed when they are applicable to the chassis type, the video standard and option codes.

## Parameter Changes While Server is Running

Changes to most parameters can be performed and are taken into account while the server is running.

Changing some parameters requires an application reboot. See section "Required Application Reboot" on page 103 for a detailed list of these parameters.

# Easy Audio Configuration

The audio configurations are open and easily configurable as it is possible to:

• modify the audio parameters while the server is running

• configure individual outputs for Embedded, Digital, audio.

• configure audio monitoring settings directly from the Remote Control panel.

# Configuration Available from Server, Web and Remote Panel

You can configure the EVS server using one of the three available tools:

• The server-based application (VGA) features all settings and commands for the setup and configuration.

• The web-based interface is equivalent to the server-based application and enables engineers to configure the EVS server remotely.

• The Remote Panel includes:

  ◦ a technical setup menu that gives access to the most commonly used technical settings.

  ◦ an operational setup menu that only provides operational settings.

The following table gives an overview on the features available in each user interface:

| | EVS Server Configuration | | |
| --- | --- | --- | --- |
| | **Setup Window** | **Configuration Window** | |
| | | **Technical Settings** | **Operational Settings** |
| **Server-Based Application** | Yes | Yes (tabs 1-6) | Yes (tabs 7-8) |
| **Web-Based Interface** | Yes (except some Tools commands) | Yes (tabs 1-6) | Yes (tabs 7-8) |
| **Remote Panel** | No | Yes (Technical Setup F0) | Yes (Setup Menu SHIFT+D) |

# 1.2.    Introduction to the Manual

## Documented User Interfaces

The Server Configuration manual deals with all user interfaces used to configure Multicam: server-based application, web-based interface, and Remote Panel.

- On the one hand, the information on navigability and editing commands, specific to the user interface, is described in clearly separated sections.

- On the other hand, the reference information on and the description of configuration parameters are described in common sections valid for all user interfaces. A clear overview shows whether and where the parameters are available in each user interface.

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**NOTE**

The web-base interface has undergone small cosmetic changes. The screenshots have not yet been updated in the configuration manual.

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## Configuration Manual Structure

The Server Configuration manual is organized in two sections:

- A section dedicated to the Multicam Setup window that mainly features:
  - the configurations lines and their management
  - the functions related to server administration and maintenance.
- A section dedicated to the Multicam Configuration window, organized in seven tabs, which describes all server configuration parameters that can be defined for each configuration line. The section includes:
  - the parameter description itself
  - other server-related information needed for the configuration

# 1.3.    Starting the EVS Server

## Introduction

When switching on the EVS server, the first step is the PC boot sequence, followed by the boot of the video I/O boards, and finally the Multicam Setup application is started.

### When Starting the EVS Server for the First Time

Before you first use your EVS server, you need to perform the following tasks:

- Define the configuration lines your EVS server should run.

    For more information, see section "Configuration Lines" on page 11.

- Define the configuration parameters for each configuration line you will need.

    In this step, you will define, among others, the channel configuration for the selected configuration line, as well as audio and video parameters for the EVS server.

    For more information, see section "Multicam Configuration" on page 93.

### When Starting the EVS Server After Initial Configuration

After the initial configuration, you will select a configuration line and press **ENTER** to run the server in this configuration. See section "Launching a Configuration" on page 12. As soon as the EVS server is launched in a configuration, it starts the loop recording process.

# 1.4.    Accessing the Web-Based Interface

### Prerequisite

When the EVS server is started, you can access the web-based interface of the Multicam Setup application for that EVS server from any computer on the same network range as the EVS server. You can use any browser to open the web-based interface.

### How to Access the Multicam Web Homepage

To open the homepage of the web-based interface in a browser, type the IP address of the PC LAN of the EVS server: `http://<PCLAN IP Address>`, for example `http://10.129.59.80`

See section "Setting the Server PC LAN Connection" on page 25 for more information on .

The Multicam Web homepage gives access to:

- the configuration and technical reference manuals
- a QR code to download the EVS Server Configuration application from the Google Play store or the Apple store.

### How to Access the Multicam Web Setup Window

To open the Multicam Setup window of the EVS server, type this URL: `http://<PCLAN IP Address>/cfgweb/`.

# 2.      Multicam Setup

## 2.1.      Overview of User Interfaces

### 2.1.1.      Overview of the Setup Areas

**General Description**

The Multicam Setup window is the window that opens first when the Multicam Setup application is launched. It is displayed when the EVS server is started but does not run a given configuration yet.

The Multicam Setup window allows users to:

- view and manage the various configuration lines.

- perform some administration and maintenance tasks on the EVS server.

- view summary information on the EVS server and the selected configuration line.

This is available in both server-based and web-based Multicam Setup applications.

Both user interfaces include the same features, except that the Tools menu offers fewer commands in the web-based user interface.

# User Interfaces

The Multicam Setup window contains six areas highlighted and described below.

These areas contain similar information in both web-based and server-based applications.

The following screenshot presents the Multicam Setup window in the server-based application:
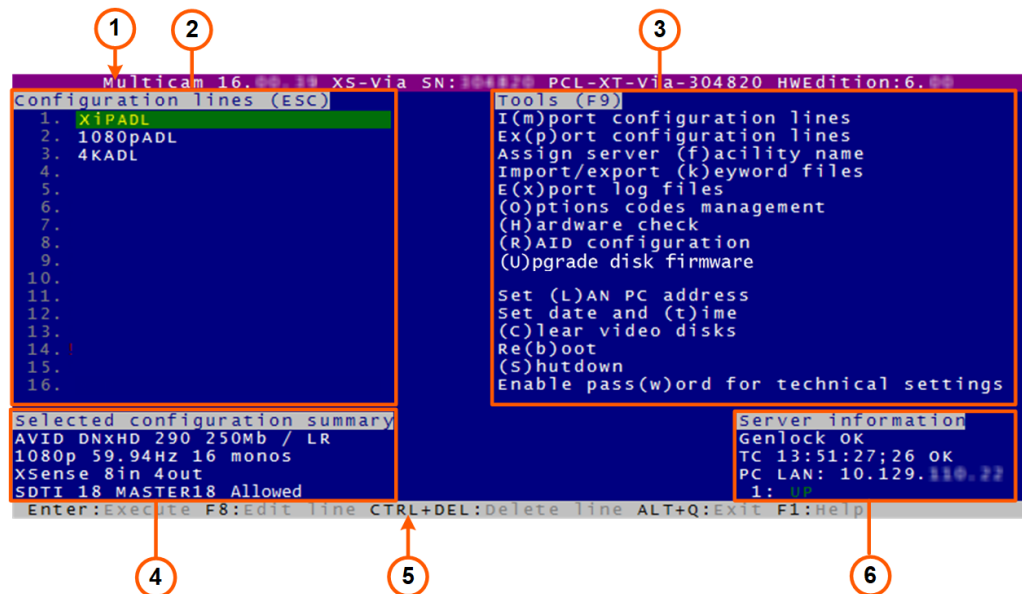


The following screenshot presents the Multicam Setup window in the web-based interface:
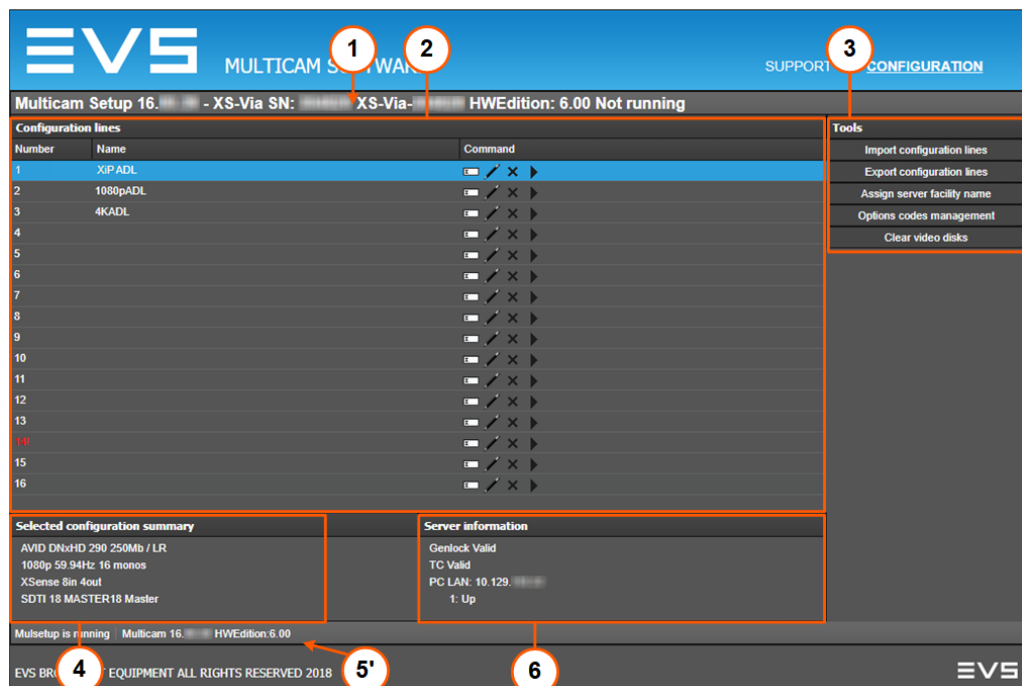
# Description of the Areas

The table below describes the various parts of Multicam Setup window:

| # | Name of area | Description |
|---|---|---|
| 1. | **Title bar** | The title bar displays the following information:<br>• Multicam version<br>• chassis type<br>• server serial number<br>• server facility name (if any)<br>• hardware edition |
| 2. | **Configuration Lines** | This area shows all configurations the EVS server can run:<br>• 16 configurations lines are available on an EVS server. A default configuration is defined behind all configuration lines, even if no name is assigned to the configuration line.<br>• Each configuration line contains all configuration parameters, which allow a very flexible configuration of the EVS server.<br>See section "Configuration Lines" on page 11 for more information. |
| 3. | **Tools** | This area provides the main commands for server administration and maintenance.<br>For more information, click the **Tools** command below to go to the dedicated sections in the Multicam Setup chapter:<br>• Import/export configuration lines<br>• Assign server facility name<br>• Export log files<br>• Options code management<br>• Hardware check<br>• RAID Configuration<br>• Upgrade disk firmware<br>• Set LAN PC address<br>• Set date and time<br>• Clear video disks<br>• Reboot<br>• Enable password for technical settings |
| 4. | **Configuration Summary** | This area shows a summary of the server parameters for the configuration line selected in the Configuration Lines area.<br>The summary displays the following information:<br>1. codec type - bitrate - video standard (for each active codec)<br>2. based config - INs/OUTs - No. audios<br>3. XNet No. - server name - XNet server (Preferred, Allowed, Forbidden) |

| # | Name of area | Description |
|---|---|---|
| **5.** | **Task bar** | The Task bar (Server-based application) displays commands for the main actions in the window. See section "Navigability and Commands" on page 9 for more information. |
| **5'.** | **Status bar** | The Status bar (web-based interface) displays:<br>• the Multicam process status<br>• the Multicam software version<br>• the Hardware Edition |
| **6.** | **Server Information** | This area displays the following information on the EVS server:<br>• genlock status (OK or bad)<br>• timecode and timecode status (OK or bad)<br>• IP address of the PC LAN (if DHCP off) or **DHCP** (if DHCP on)<br>• Status of the PC LAN connection(s): **Up** or **Down** |

# 2.1.2.    Navigability and Commands

## In the Server-Based Application

### General Navigability

The following table presents the general commands to navigate in the Multicam Setup window:

| Command description | Command key |
|---|---|
| Moving the cursor to the first item of the Tools menu | **F9** |
| Moving the cursor to the first configuration line | **ESC** |
| Moving down in the list of editable items (configuration lines and Tools commands) | **TAB** |
| Moving up in the list of editable items | **SHIFT**+**TAB** |
| Displaying a Help window that gives a summary of the commands | **F1** |

### Configuration Lines

In the Configuration Lines area, a configuration line is highlighted when it is selected.

The main commands for configuration line management are presented below:

| Command description | Command key |
| --- | --- |
| Moving up in the list of configuration lines | **UP ARROW** |
| Moving down in the list of configuration lines | **DOWN ARROW** |
| Starting the server with a given configuration line | **ENTER** on selected line. |
| Entering the Configuration window to edit the settings related to a selected line | **F8** |
| Renaming a configuration line | **CTRL** + **F1** |
| Deleting a configuration line | **CTRL** + **DELETE** |

See section "Configuration Lines" on page 11 for more commands on configuration lines.

### Tools Menu

| Command description | Command key |
| --- | --- |
| Selecting a tool command | Pressing the shortcut key (between brackets in the command name) |
| Calling a tool command | **ENTER** on the selected command |

## In the Web-Based Interface

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
> **NOTE**
>
> To be sure that changes have been taken into account in the web-based
>
> interface, refresh regularly the page by clicking the **Refresh** button  in the status bar.

---

**Configuration Lines**

| Command description | Command icon |
|---|---|
| Renaming the configuration line | ⊡ |
| Entering the Configuration window to edit the settings related the configuration line | ✎ |
| Deleting the configuration line | ✕ |
| Starting the server with the corresponding configuration line | ▶ |

**Tools Menu**

To call a Tools command, simply click on the command in the Tools menu. This will open the corresponding window.

# 2.2.     Configuration Lines

## 2.2.1.     Chapter Contents

The table below presents the topics of this section and shows whether the feature described is available from the web-based interface and/or from the server-based interface.

| Section | Page | Server-Based | Web-Based |
|---|---|---|---|
| "Launching a Configuration" | 2.2.2 | Yes | Yes |
| "Editing a Configuration" | 2.2.3 | Yes | Yes |
| "Renaming Configuration Lines" | 2.2.4 | Yes | Yes |
| "Importing and Exporting Configuration Lines" | 2.2.5 | Yes | Yes (one by one) |
| "Changing the Position of Configuration Lines" | 2.2.6 | Yes | Yes (indirectly) |
| "Copying, Pasting and Deleting Configuration Lines" | 2.2.7 | Yes | Yes (indirectly) |

# 2.2.2.    Launching a Configuration

## Introduction

When the EVS server has initialized, the Multicam Setup window stays open, by default, until the operator selects the requested configuration line and launches it.

Multicam can encode the video signal simultaneously in a low-res and hi-res essences, and grant a seamless access to the video material in all active essences. The material ingested on an EVS server must therefore, as much as possible, be and remain available on this server in both active essences. For this reason, some restrictions or checks are applied when you launch a configuration.

## How to Manually Launch a Configuration

### In the Server-Based Application

To start a configuration in the server-based application, proceed as follows:

1.  Press the **UP ARROW** or **DOWN ARROW** key to respectively move up and down in the list of configuration lines until the requested line is highlighted.

2.  Press **ENTER** to run the configuration line on the EVS server.

### In the Web-Based Interface

To start a configuration in the web-based interface, click the **Launch** icon ▶ next to the configuration line you want to launch.

## Automatic Launch

From the server-based application, it is possible to set the server so that the last used configuration line is automatically launched when the Multicam Setup window has stayed open for five seconds.

To activate the automatic launch, press **F7** on the requested configuration line in the Multicam Setup menu before launching this configuration. This configuration line is then highlighted in black (no longer in green) to indicate the automatic launch is active. The last used configuration line will then be launched automatically after a five seconds' delay the next time the EVS server will be restarted.

If you want to change the configuration line to be launched, you need to rapidly hit a key on the keyboard connected to the EVS server within five seconds after the Multicam Setup window has been displayed. Then, the Multicam Setup window will stay open and let you select another configuration.

# 2.2.3.    Editing a Configuration

## How to Edit a Configuration

### Introduction

When the operator hits a key on the keyboard connected to the EVS server (within five seconds if the automatic launch of a configuration is active), the Multicam Setup window stays open, and the operator can select and enter the selected configuration to edit it.

16 configurations lines are available on an EVS server. A default configuration is defined behind all configuration lines, even if no name is assigned to the configuration line.

Each configuration line contains all configuration parameters, which allow a very flexible configuration of the EVS server.

### In the Server-Based Application

To edit a configuration line in the server-based application, proceed as follows:

1. Press the **UP ARROW** or **DOWN ARROW** key to respectively move up and down in the list of configuration lines until the requested line is highlighted.

2. Press **F8**.

   The Configuration window opens. See section "Multicam Configuration" on page 93 to edit the configuration parameters.

3. When the configuration is defined for a given line, press **ALT+A** in the Configuration window to validate the changes

4. Press **ESC** to come back to the Setup window.

### In the Web-Based Interface

To edit a configuration line in the web-based interface, proceed as follows:

1. Click the **Edit** icon  for the configuration line you want to configure.

   The Configuration window opens. See section "Multicam Configuration" on page 93 to edit the configuration parameters.

2. When the configuration is defined for the given line, click **Apply** to validate, and then **Quit** to come back to the Setup window.

## Invalid Configuration

Invalid configuration lines are easily detected in the server-based application:

• When a configuration line becomes invalid, a red exclamation mark <!> is displayed next to the configuration line in both server-based and web-based interfaces:

• When the operator presses **F8** to edit the configuration line in the server-based application, a popup window indicates the line is invalid. When the operator acknowledges the message, the pages including the invalid parameters are displayed with the invalid parameters selected.

# 2.2.4.  Renaming Configuration Lines

## Introduction

When the EVS server is delivered, default names are assigned to the configuration lines. You can change them as explained below.

### In the Server-Based Application

To rename the configuration line in the server-based application, proceed as follows:

1.  Press the **UP ARROW** or **DOWN ARROW** key to respectively move up and down in the list of configuration lines until the requested line is highlighted.

2.  Press **CTRL+F1**.

    The line if highlighted in pink and the cursor blinks on the first character.

3.  Type the new name for the configuration line taking the following into account:

    ◦  The space bar allows you to delete the selected character.

    ◦  The **LEFT ARROW** and **RIGHT ARROW** keys allow you to move the cursor position on the line.

4.  Press **ENTER** to validate the new name.

The new name is assigned to the configuration line and reflected in all user interfaces.

### In the Web-Based Interface

To rename the configuration line in the web-based interface, proceed as follows:

1.  Click the **Rename** button  next to the configuration line you want to rename.

2.  In the **Rename** dialog box, type the new configuration name.

3.  Click **OK**.

The new name is assigned to the configuration line and reflected in all user interfaces.

## 2.2.5.   Importing and Exporting Configuration Lines

### How to Export Configuration Lines

> ✏️ **NOTE**
>
> The screenshots in this section features configuration names which are examples, and may not reflect configurations supported on your EVS server.

### In the Server-Based Application

To export configuration lines from an EVS server in the server-based application, proceed as follows:

1. In the Multicam Setup window, press **P** to call the **Export Configuration Lines** command. The Export Configuration Lines window opens:

   ◦ The left pane allows the selection of the configuration lines to be exported

   ◦ The right pane allows the selection of the location where the export folder will be created on the USB key, or on the local drive folder `/mnt/apps/data/setup/user` (`/setup/user` via FTP) or on a subfolder.

```
┌───────────────────EXPORT CONFIGURATION FILES────────────────────┐
│        SERVER CONFIGURATION LINES    │ Copy configuration lines in new folder │
│                                      │   4K-1-181010                          │
│   [X]   1. Custom                    │ Select where new folder is created     │
│   [X]   2. 4K PAL                    │ Local drive                            │
│   [X]   3. Test3                     │ /mnt/APPS/data/setup/user              │
│   [ ]   4.                           │                                        │
│   [ ]   5.                           │                                        │
│   [ ]   6.                           │                                        │
│   [ ]   7.                           │                                        │
│   [ ]   8.                           │                                        │
│   [ ]   9.                           │                                        │
│   [ ]  10.                           │                                        │
│   [ ]  11.                           │                                        │
│   [ ]  12.                           │                                        │
│   [ ]  13.                           │                                        │
│   [ ]  14.                           │                                        │
│   [ ]  15.                           │                                        │
│   [ ]  16.                           │                                        │
└──────────────────────────────────────┴────────────────────────────────────────┘
```
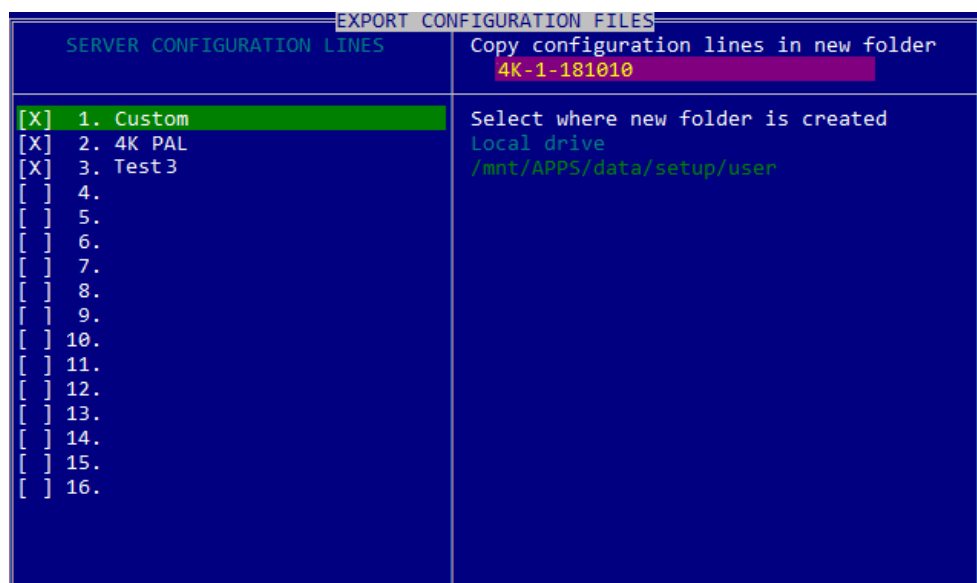
2. If requested, change the name of the folder the configuration lines will be exported to:

   ◦ By default, the folder name, displayed in the upper right corner, follows the pattern: <server facility name_current date> where the date has the YYMMDD format.

   ◦ To change the export folder name, type the requested name. You can do this any time in the procedure.

3.  If requested, change the selection of configuration lines selected for export on the left pane:

    ◦  By default, a cross is displayed in front of all configuration lines, which means they are all selected for export.

    ◦  To deselect a line, use the **UP ARROW** or **DOWN ARROW** key to highlight the requested line, and press **SPACEBAR**. The cross is removed, and the deselected lines turn light gray.

4.  Press **TAB** to shift the focus to the right pane.

5.  If requested, change the location where the export folder will be created:

    ◦  By default, the export folder is created on the USB key root or on the local drive folder the local drive folder `/mnt/apps/data/setup/user`.

    ◦  To change the folder where the export folder will be created, highlight the requested folder. The last highlighted folder will be considered as the requested location.

6.  To start the export process, press **ENTER**.

7.  When the selected lines are exported (as a .lin file), a message opens to confirm the export. Click **OK** to acknowledge the message.

## In the Web-Based Interface

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**NOTE**

In the web-based interface, it is only possible to export configuration lines one by one.

---

To export configuration lines from an EVS server in the web-based interface, proceed as follows:

1.  From the Multicam Setup window, click **Export configuration lines** in the Tools menu.

    The Export configuration lines window opens.

2.  Click **Export** next to the configuration line you want to export.

3.  In the File Download dialog box, click **Save**.

4.  Select the location where you will save the export configuration file (.lin file) and, if requested, change the file name.

5.  Click **Save**.

The export file is saved at the requested location.

If you want to export several configuration lines, repeat this operation for all requested configuration lines.

# How to Import Configuration Lines

## In the Server-Based Application

> ⚠ **WARNING**
>
> If the EVS server is password-protected, you should deactivate the password protection. Otherwise, you will only be able to import the operational settings of the configuration lines selected for import.

1.  In the Multicam Setup window, press **M** to call the Import Configuration Lines command.

2.  The Import Configuration Files window opens:

    ◦  The left pane allows the selection of the folder containing the configuration files to be imported.

    ◦  The right pane allows the selection of the configuration lines to be imported onto the EVS server.

```
                         IMPORT CONFIGURATION FILES
Local drive                          SERVER CONFIGURATION LINES

/mnt/APPS/data/setup/user (0)         1. Custom
                                      2. 4K PAL
                                      3. Test3
                                      4.
                                      5.
                                      6.
                                      7.
                                      8.
                                      9.
                                     10.
                                     11.
                                     12.
                                     13.
                                     14.
                                     15.
                                     16.
```
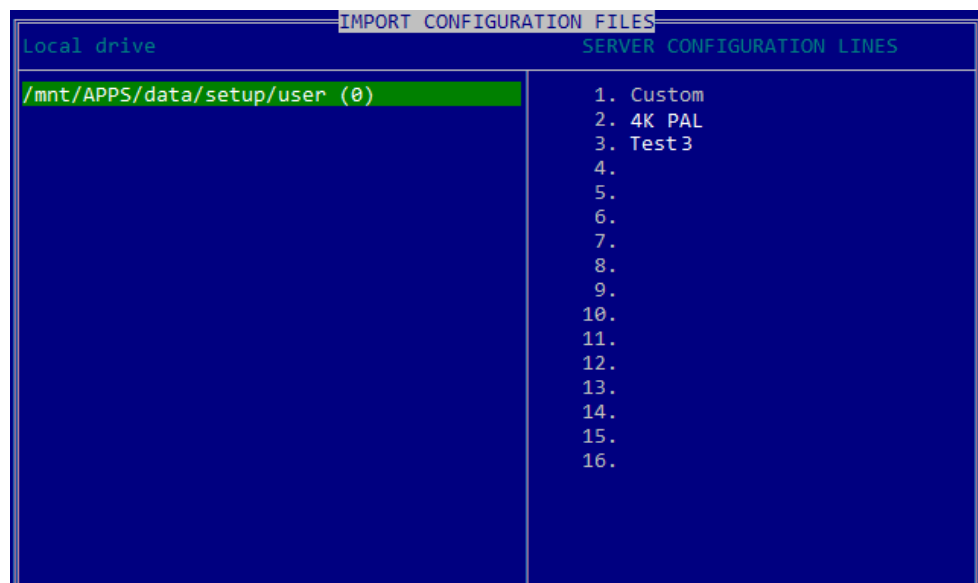
3.  On the left pane, use the **UP ARROW** or **DOWN ARROW** key to highlight the folder that contains the configuration file you want to import.

    When the folder is selected, the right pane shows:

    ◦  a cross in front of the configuration lines that will be imported.

    The lines are imported onto the same position and with the same name as in the export file.

4.  Press **TAB** to shift the focus to the right pane.

5. If requested, deselect lines you do not want to import:

   ◦ By default, all configuration lines present in the .lin file will be imported onto the EVS server.

   ◦ To deselect a line, use the **UP ARROW** or **DOWN ARROW** key to highlight the requested line, and press **SPACEBAR**. The deselected lines turn light gray and the cross is removed.

6. Press **ENTER** to validate the selection of configuration lines to import.

   A warning message informs you about which configuration lines will be imported, and tells the next screen will allow you to select which settings to replace.

7. Select 'Yes' using the **RIGHT ARROW**, and press **ENTER**.

8. In the Select settings to replace window, select the type of settings you want to import for the selected configuration lines:

   a. Press **SPACEBAR** to select or deselect a settings type.

   b. Press **TAB** to move to the next settings type.

   c. Repeat these steps for all settings types you want to import.

9. Press **ENTER** to start the import process.

## In the Web-Based Interface

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**NOTE**

In the web-based interface, it is only possible to import configuration lines one by one.

---

To import configuration lines onto an EVS server in the web-based interface, proceed as follows:

1. From the Multicam Setup window, click Import configuration lines in the Tools menu.

   The Import configuration line window opens.

2. Click **Select** next to the top field and select the configuration file you want to import.

3. Tick the configuration line to be replaced on the EVS server.

4. Click **Import**.

The configuration line is imported with its original name onto the selected configuration line on the EVS server.

## 2.2.6.   Changing the Position of Configuration Lines

### In the Server-Based Application

To move a configuration line up in the list in the server-based application, proceed as follows:

1.  Press the **UP ARROW** or **DOWN ARROW** key to respectively move up and down in the list of configuration lines until the requested line is highlighted.

2.  Do one of the following:

    ◦  To move the selected line up, press **CTRL** + **UP ARROW**.

    ◦  To move the selected line down, press **CTRL** + **DOWN ARROW**.

### In the Web-Based Interface

The feature to move configuration lines up and down in the list of configuration lines is not available as such in the web-based interface.

You can however use the import and export feature to change the position of lines in the list of configuration lines.

# 2.2.7.    Copying, Pasting and Deleting Configuration Lines

## How to Copy/Paste Configuration Lines

### In the Server-Based Application

---

⚠️  **WARNING**

Note that copying a line onto another position will overwrite the configuration on the selected position.

---

To copy and paste a configuration line in the server-based application, proceed as follows:

1. Press the **UP ARROW** or **DOWN ARROW** key to respectively move up and down in the list of configuration lines until the requested line is highlighted.

2. Press **CTRL+C** to copy the line to the clipboard.

3. With the **UP ARROW** and **DOWN ARROW** keys, move to the position where you want to copy the line.

4. Press **CTRL + V** to paste the line to the selected position.

5. Press **ENTER** to confirm that you agree to replace the former configuration line by the one copied on the selected position.

### In the Web-Based Interface

The feature to copy and paste configuration lines is not available as such in the web-based interface.

You can however use the import and export feature to change the position of lines in the list of configuration lines.

### How to Delete Configuration Lines

---

⚠️ **WARNING**

When you delete a configuration line, the line will automatically be deleted, without prior warning message.

---

### In the Server-Based Application

To delete a configuration line in the server-based application, proceed as follows:

1. Press the **UP ARROW** or **DOWN ARROW** key to respectively move up and down in the list of configuration lines until the requested line is highlighted.

2. Press **CTRL+DEL** to delete the line.

The line is directly deleted.

### In the Web-Based Interface

To delete a configuration line in the web-based interface, click the **Delete** icon ✖ next to the configuration line you want to delete.

The configuration line is directly deleted.

# 2.3. Server Parameters

## 2.3.1. Chapter Contents

The table below presents the topics of this section and shows whether the described features are available from the web-based interface and/or from the server-based interface.

| Commands | Page | Server-Based | Web-Based |
|---|---|---|---|
| "Assigning a Server Facility Name" | 2.3.2 | Yes | Yes |
| "Activating and Deactivating the Password Protection" | 2.3.3 | Yes | No |
| "Setting the Server PC LAN Connection" | 2.3.4 | Yes | No |
| "Configuring a DNS Server Connection" | 1 | Yes | No |
| "Setting the Server Date and Time" | 2.3.6 | Yes | No |
| "Configuring Server RAIDs" | 2.3.7 | Yes | No |

## 2.3.2. Assigning a Server Facility Name

### Introduction

You can assign a facility name to the EVS server. It allows the identification of the EVS server with a dedicated name, besides the server's serial number. This name is independent from any configuration.

The server facility name differs from the server net name, which can vary from a configuration to the other as it is defined in the configuration parameters.

The server facility name is displayed in the title bar of the Multicam setup and configuration windows, as well as on the OSD (on-screen display).

> **NOTE**
>
> Modifying the facility name requires the network service to be restarted. You will have to wait some seconds to be able to connect again to the EVS server.

### Naming Rules

The server facility name is also used as the hostname in the PC LAN settings. For this reason, it has to comply with the following rules for hostname format:

• Characters should belong to the following character ranges: A-Z, a-z, 0-9, -

• Hostnames cannot start by a number or an hyphen <->

• Hostnames cannot finish by an hyphen <->

• Hostnames can be segmented with a full stop <.>

### In the Server-Based Application

To assign a server facility name in the server-based application, proceed as follows:

1. In the Multicam Setup window, press **F** to call the **Assign server facility name** command. A dialog box opens:



2. Type the server facility name and press **ENTER**.

If the server facility name, also used as hostname for the PC LAN connections, does not comply with naming rules for hostnames, a warning will be displayed.

The facility name is directly assigned and displayed in the Title bar, as well as on the OSD.

### In the Web-Based Interface

To assign a server facility name in the web-based interface, proceed as follows:

1. From the Multicam Setup window, click **Assign server facility name** in the Tools menu. A dialog box opens:
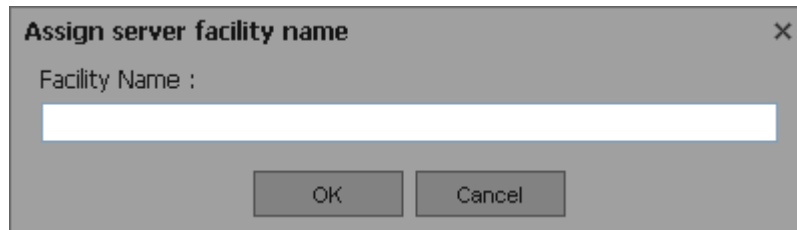


2. Type the server facility name and press **OK**.

If the server facility name, also used as hostname for the PC LAN connections, does not comply with naming rules for hostnames, a warning will be displayed.

The facility name is directly assigned and displayed in the Title bar, as well as on the OSD.

## 2.3.3.    Activating and Deactivating the Password Protection

### Activating the Password on the EVS Server

#### Introduction

The administrator can protect the EVS server with a password. This password protection prevents unauthorized users from changing configuration settings. It does not prevent from using operational commands.

The password protection can only be activated and deactivated from the server-based application.

The password protection has the following impact on the various user interfaces:

• The password is required to apply changes to configuration parameters in the server-based application and in the web-based interface.

• On the Remote Panel, the Technical Setup menu is not available.

### How to Activate the Password on the EVS Server

To activate a password on the EVS server, proceed as follows:

1.  In the Multicam Setup window, press **W** to call the Enable password command. A warning message opens.

2.  Read the warning message carefully. Press the **RIGHT ARROW** key to select 'Yes' and press **ENTER** to activate the password protection.

The password protection is directly active in all user interfaces, for all configuration parameters on all configuration lines.

## Enabling Changes to Configuration Parameters

### In the Server-Based Application

When the password protection is active, the following message is displayed in red at the top of each configuration tab in the Multicam Configuration window:
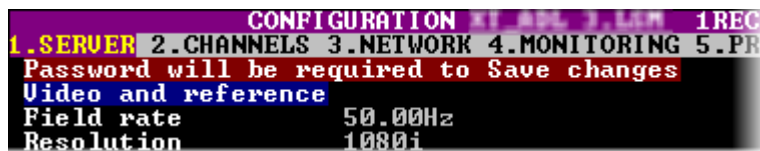


To enable changes in the configuration parameters during the session, you will be prompted for the password the first time you save changes to configuration parameters in a session.

### In the Web-Based Interface

When the password protection is active, the Multicam Configuration window is completely dimmed and a closed lock icon is displayed at the top of the window: 🔒

To enable changes in configuration parameters during the browser session, proceed as follows:

1.  Click the Lock icon 🔒.

2.  Enter the password on the dialog box that is displayed.

3.  Press **OK**.

The close lock icon changes to an open lock icon 🔓, and the parameters can be modified and saved for the browser session.

### Deactivating the Password on the EVS Server

Once the password protection is active, it can only be deactivated from the server-based application as follows:

1. In the Multicam Setup window, press **W** to call the Enable password command.

   A message opens to warn you that you are about to remove the password protection:



2. Press the **RIGHT ARROW** key to select 'Yes' and press **ENTER**

3. Type the password in the dialog box that opens, and press **ENTER** to validate:



The password protection is directly removed from all user interfaces.

## 2.3.4.    Setting the Server PC LAN Connection

### Introduction

The internal switch module of the H3XP board of an EVS server provides more features on the PC LAN network. Thanks to the switch, the server can offer a redundancy on the PC LAN and supports now the DHCP protocol.

You can define the Server PC LAN connection from the server-based application, in the Tools area, via the **Set LAN PC address and DNS** option.

The following window shows the Set LAN PC address and DNS dialog box with the redundancy set to ON and the DHCP to OFF:
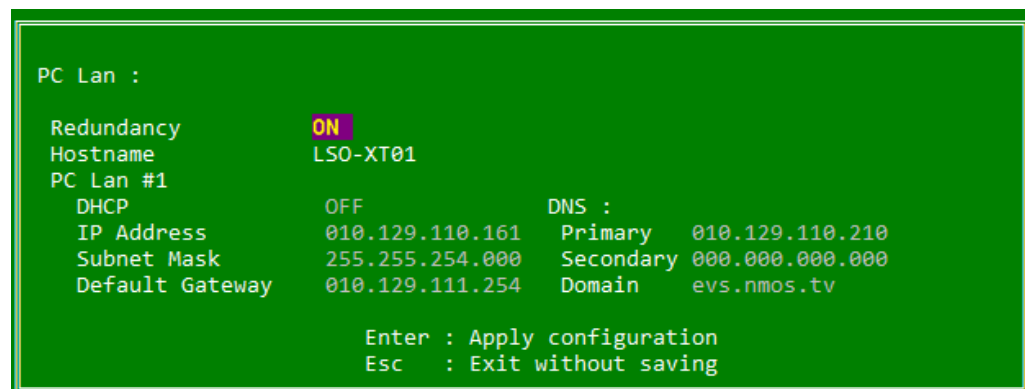
# How to Set the PC LAN Connection

1. In the Multicam Setup window, press **L** to call the **Set LAN PC address and DNS** command. A window such as the following one opens:

```
PC Lan :

 Redundancy            OFF
 Hostname              LSO-XT01
 PC Lan #1
   DHCP                OFF               DNS :
   IP Address          010.129.110.161   Primary   010.129.110.210
   Subnet Mask         255.255.254.000   Secondary 000.000.000.000
   Default Gateway     010.129.111.254   Domain    evs.nmos.tv

                       Enter : Apply configuration
                       Esc   : Exit without saving
```

2. In this window, click **TAB** to select the **Redundancy** field, and press the **Space** bar to enable or disable the redundancy.

   When the redundancy is enabled, the PC LAN #2 will automatically take over in case the PC LAN #1 fails.

3. Click **TAB** to select the **DHCP** field, and press the **Space** bar to enable the **DHCP**.

   If the DHCP is enabled, a DCHP server installed on your setup will automatically assign an IP address, subnet mask and default gateway to the PC LAN #1. Go to step 5.

   If the DHCP is disabled, you need to assign an IP address, subnet mask and default gateway for the PC LAN #1. Go to step 4.

4. Click **TAB** to select the IP address, subnet mask, and default gateway fields, and type the requested values.

   When the combination of IP address and subnet mask does not allow to reach the default gateway, the following error message will be displayed:

   'Default Gateway address not valid. It must be in the same subnet as the PC LAN.'

5. Press **ENTER** to apply the PC LAN configuration.

The PC LAN settings will automatically be applied to all configuration lines by default, and they will be available as read-only fields in the definition of the configuration lines. This is only configurable from the Multicam Setup module.

---

### NOTE

The **Hostname** is not editable. As it needs to be the same as the facility name, you can change it by editing the facility name via the **Assign server facility name** option, also available in the Multicam Setup module. It has to comply with the hostname format.

---
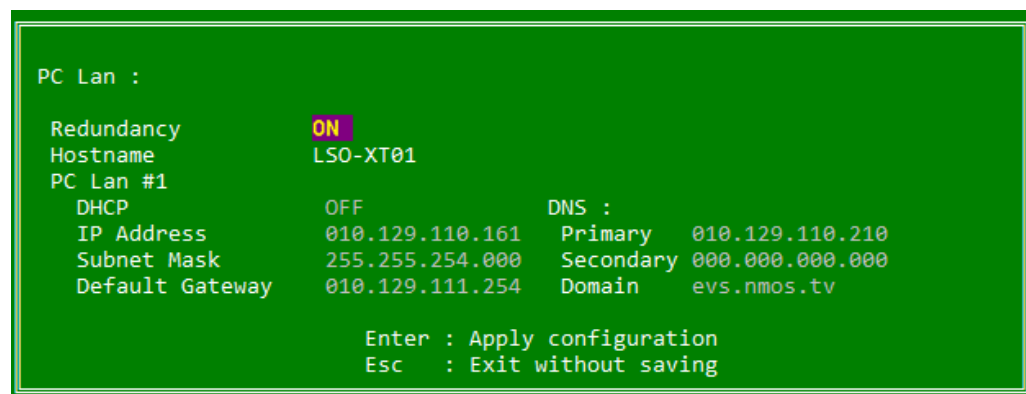
## 2.3.5. Configuring a DNS Server Connection

### Introduction

A connection with a DNS server in the same PC LAN network can be configured.

You can define the DNS server connection from the server-based application, in the Tools area, via the **Set LAN PC address and DNS** option.

The following window shows the Set LAN PC address and DNS dialog box:
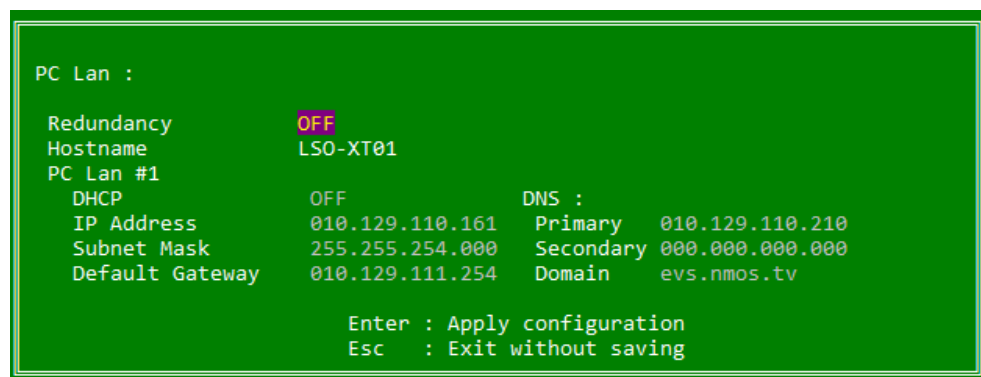
```
PC Lan :

Redundancy          ON
Hostname            LSO-XT01
PC Lan #1
   DHCP             OFF              DNS :
   IP Address       010.129.110.161  Primary   010.129.110.210
   Subnet Mask      255.255.254.000  Secondary 000.000.000.000
   Default Gateway  010.129.111.254  Domain    evs.nmos.tv

                    Enter : Apply configuration
                    Esc   : Exit without saving
```

### How to Set the DNS Server Connection

1. In the Multicam Setup window, press **L** to call the **Set LAN PC address and DNS** command. A window such as the following one opens:

```
PC Lan :

Redundancy          OFF
Hostname            LSO-XT01
PC Lan #1
   DHCP             OFF              DNS :
   IP Address       010.129.110.161  Primary   010.129.110.210
   Subnet Mask      255.255.254.000  Secondary 000.000.000.000
   Default Gateway  010.129.111.254  Domain    evs.nmos.tv

                    Enter : Apply configuration
                    Esc   : Exit without saving
```

2. Click **TAB** to select the **Primary**, **Secondary** and **Domain** fields, and type the requested values.

---

✎ **NOTE**

- If you leave the **Primary** or **Domain** field empty, and you press **ENTER** to apply your changes, an error message will appear.
- You cannot enter a secondary DNS server IP address without entering a primary one.
- For the search domain, you can use up to 24 characters.

---

3. Press **ENTER** to apply the DNS server configuration.

You can now switch to NMOS Unicast Mode. See section "Domain Name System Settings" on page 121 for more information.

# 2.3.6. Setting the Server Date and Time

## Introduction

The **Set Date and Time** command allows you to adjust the system time & date from the Multicam Setup window in the server-based application. This is not available in the web-based interface.

---

✎ **NOTE**

When you have just launched a configuration, a window displaying the system date and time gives you another opportunity to modify these parameters.

---

## Supported Formats

The supported date format is DD-MM-YYYY, as shown in the example below:

• 15-03-2011 for March 15, 2011

The supported time format is hh:mm:ss, as shown in the example below

• 22:58:00 for 22 h 58 min 00 sec (24-hour display)

A warning message will inform you if the format you try to use is not valid.

## How to Set the System Date and Time

To set up the system date and time from the Multicam Setup window, proceed as follows:

1. In the Multicam Setup window, press **T** to call the System date and time command. The following window opens:

```
          System Date & Time

   Date :  04/10/2011  (DD/MM/YYYY)
   Time :  07:40:09

   ENTER : apply
   ESC   : quit without saving
```

2. In this window, type:

   ◦ the date in the DD/MM/YYYY format

   ◦ the time in the hh:mm:ss format (24-hour display)

   using **TAB** to move from one field to the other.

3.   Press **ENTER** to apply the changes to the system date and time.

The date and time you have entered here will automatically be taken into account when you launch a configuration.

# 2.3.7.   Configuring Server RAIDs

## Introduction

When the EVS server is started, the server raids are automatically detected, and built based on the default settings described in the 'Default RAID Configuration' section below.

You can view the default raid configuration and modify it from the RAID Configuration window. This window is only available in the server-based application.

---

> **NOTE**
>
> Only hard disk drives from EVS can be used as they are specifically configured to work with EVS video servers.

---

> **NOTE**
>
> External disk arrays are not supported on Multicam version 16.00.

---

## Overview on the RAID Configuration Window

The RAID Configuration window is available from the Multicam Setup window, when pressing **R** to call the **RAID Configuration** command in the **Tools** menu.
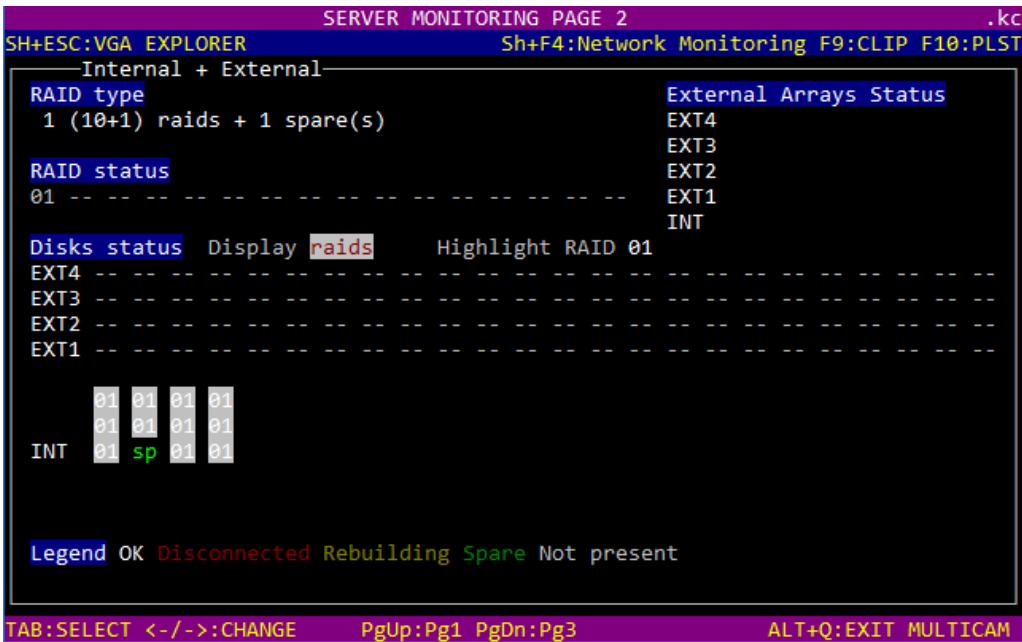
The Requested Configuration area, in the upper part of the window, displays the default raid configuration. You can modify the default raid configuration in this area. You will find more information on editable parameters below.

The Current Configuration area, in the lower part of the RAID Configuration window, provides raid and disk status information. This is dealt with in the section "RAID and Disk Status Window" on page 338.

## Default RAID Configuration

At the first start, the software builds the raids using the following settings:

- If internal and external storage are detected, both are used.

- First, all RAIDs are built. The remaining disks are used as spare disks. The construction of RAIDs starts with internal arrays and carries on with external arrays. A RAID can be created across several hardware arrays.

## Requested RAID Configuration

### Overview

In the Requested RAID Configuration, you can modify the following parameters in the default raid configuration:

- Use of internal and/or external storage.

- Use of spare disks.

- Number of RAIDs to be used.

To modify one of these parameters, press **TAB** to select the requested field, and **SPACE BAR** to select the requested value, or type the requested value.

### Field Description

The following table describes the fields editable in the Requested Configuration area in the RAID Configuration window. The fields are described in the sequence they appear. You can select them using the **TAB** key.

| Field Name | Description |
|---|---|
| **Storage type** | Specifies which storage type you will use. When both storage types are available, the following values are possible:<br>• Internal only<br>• External + Internal<br>• External only |
| **Number of RAIDs** | Specifies the number of raids you want to use.<br>Type the number of raids you want to use. |
| **RAID configuration type** | Specifies the RAID configuration type.<br>The software is able to handle three RAID organizations:<br>• (4+1) or (5+1): RAID of 6 disks with 1 or 0 spare<br>• (10+1): RAID of 11 disks with 1 spare |

## Current RAID Configuration

This area is used to display the raid status for the selected configuration when the EVS server is running a configuration. See section "RAID and Disk Status Window" on page 338 for more information.

# 2.4.    Licenses and Maintenance

## 2.4.1.    Overview on Options Codes Management

### Introduction

To run a software application and/or specific software options, not only the software itself is required but also a license key (called 'license code' in Multicam), which is unique for every option on every system.

This license keys can be temporary, be valid only until a defined deadline for demonstration purposes, or be permanent with no time limit.

The license keys are managed from the Options codes management window. This window is available in both the server-based application and the web-based interface.

---

✏️ **NOTE**

When a temporary license code will expire within the next two weeks or is expired, the system warns the operator when the Multicam Setup window opens.

---

### Accessing the Options Codes Management Window

To open the Options codes management window in the server-based application, press **O** from the Multicam Setup window.

To open the Option codes management window in the web-based interface, click **Options code management** in the Tools menu from the Multicam Setup window.

# 2.4.2.   Options Codes Management Window

### In the Server-Based Application

The window features three areas which contain the information mentioned below:

```
r=Key settings================================================================
| System ID    123456789      Serial number  ▓▓▓▓▓▓     User  ▓▓▓▓ ▓▓▓
| Chassis type XS-Via          PSU type       Hot Swap
| Key date and time are   01/10/18 13:21:46
|-Options--------------------------------------------------------------------
|   0                               Full options
|   3             Permanent    Authorize HD configurations
|   4             Permanent    Authorize video configuration changes
|   5             Permanent    Avid DNxHD HD Codec
|   6             Permanent    Apple ProRes 422 HD Codec
|  13             Permanent    AVC-Intra HD Codec
|  15             Permanent    XAVC-Intra HD Codec
|  19             Permanent    XAVC 4K Codec
|  22             Permanent    1080p 3G
|  27             Permanent    UHDTV-4K
|  28             Permanent    4-channel HD configurations
|  29             Permanent    6-channel HD configurations
|  30             Permanent    8-channel HD configurations
|  31             Permanent    Mix on 1 channel
|
|         Validation code  [   -     -     -   ]
|
| <ALT-F>Update from local file      <ALT-U>Update from USB key      <Esc>Quit
=============================================================================
```

| Area | Description |
|---|---|
| Upper area | List of key settings related to the EVS server:<br>• **System ID:** ID code of the hardware key, necessary for license code calculation.<br>• **Serial number:** Serial number of the mainframe, also written on the back plate of the mainframe.<br>• **User:** The user name is a label for information's sake only.<br>• **Chassis type:** Type of mainframe. If this value is wrong, audio and video routing inside the system will not work properly.<br>• **PSU type:** Type of PSU installed on the chassis: standard or hot swap.<br>• **Key date and time:** Expiration date & time for temporary license codes. Not available when the permanent codes are installed. |
| Central area | All codes **available for the given server chassis** for which a license key has been granted and is still valid.<br>Next to each code name, the code number, the type of license (permanent, temporary, demo, or 'not granted'), as well as the expiration date are mentioned. |
| Lower area | Area where you can enter new license codes manually.<br>The commands on how to import new license code from files are specified. |

## In the Web-Based Interface

The window features two areas which contain the information mentioned below:



| Area | Description |
|------|-------------|
| Central area | All codes **available for the given server chassis** for which a license key has been granted and is still valid.<br>Next to each code name, the code number is mentioned. |
| Lower area | Area where you can enter new license codes manually or upload a license code file. |

# 2.4.3.    Entering and Removing License Codes

## Introduction

When you request new license codes to activate one or more features, you can receive the license keys from EVS in the form of:

• a xxxxx.COD file (xxxxx = serial number of the server for which this file has been calculated). You need to apply this file to the EVS server from the Option codes management window.

• a license code that you can type in the Option codes management window.

Once the license codes have been entered, the corresponding options or features are automatically active when you launch a configuration, without having to reboot the server.

## How to Enter License Codes from a COD File

### In the Server-Based Application

To enter a new license code delivered via a COD file, proceed in one of the following ways:

1.  Copy the .COD file on a USB key that you connect to the USB port of the EVS server.

2.  From the Multicam Setup window, press **O** to open the Options codes management window.

3.  Press simultaneously **ALT**+ **U** keys.

OR

1.  Copy manually the .COD file to the `/mnt/apps/data/setup` folder of the EVS server (`/setup` folder when you connect to the EVS server using an FTP client).

2.  In the Multicam Setup menu, press **O** to open the Options codes management window.

3.  Press simultaneously **ALT**+ **F** keys.

The license codes will be read from the .COD file and updated into the system. Next to the line corresponding to the code, the license type, and the expiration date, if any, are displayed.

### In the Web-Based Interface

To enter a new license code delivered via a COD file, proceed as follows:

1. Copy the .COD file onto a drive available from your PC.

2. From the Multicam Setup window, click **Options code management** in the Tools menu to open the Options code management window.

3. Click the **Browse** button, select the .COD file and click **Open**.

4. Click **Submit**.

The license codes will be read from the local file and updated into the system.

The lines corresponding to the new codes area added to the code list.

## How to Enter License Codes with a Key Number

### In the Server-Based Application

To enter a new license code delivered via a key number, proceed as follows:

1. From the Multicam Setup window, press **O** to open the Options codes management window.

2. Type the code you have received. It will automatically be typed in the Validation Code field:



3. Press **ENTER**.

Next to the line corresponding to the activated codes, the license type and the expiration date (if any) are displayed.

### In the Web-Based Interface

To enter a new license code delivered via a key number, proceed as follows:

1. From the Multicam Setup window, click **Options code management** in the Tools menu to open the Options code management window.

2. Type the code number in the first field of the Add new code group box:
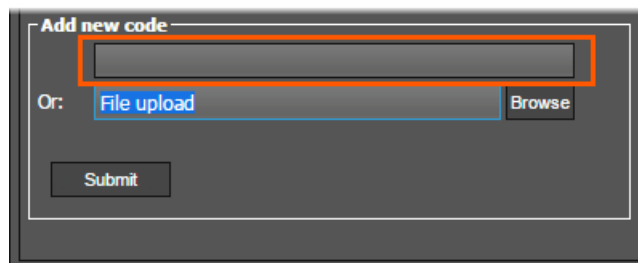


3. Click **Submit**.

The lines corresponding to the new codes are added to the code list.

### How to Remove a License Code

You can remove a license code from the server-based application. Proceed as follows:

1. Press the **UP ARROW** and **DOWN ARROW** keys to move inside the options list and select the option to be removed.

2. When the option is selected (highlighted in white), press simultaneously **CTRL+ DELETE** on the keyboard.

3. Confirm the deletion of the option with **ENTER**.

# 2.5. Server Maintenance

## 2.5.1. Chapter Contents

The table below presents the topics of this section and shows whether the described features are available from the web-based interface and/or from the server-based interface.

| Commands | Page | Server-Based | Web-Based |
|---|---|---|---|
| "Rebooting the EVS Server" | 37 | Yes | No |
| "Hardware Check" | 38 | Yes | No |
| "Upgrading the Disk Firmware" | 1 | Yes | No |
| "Clearing Video Disks" | 41 | Yes | Yes |
| "Record Train Maintenance" | 43 | Yes | No |
| "Importing and Exporting Keyword Files" | 46 | Yes | No |
| "Exporting Log Files" | 48 | Yes | No |

## 2.5.2. Rebooting the EVS Server

To reboot the EVS server when it is not running in a given configuration, press **B** from the Multicam Setup window, then **RIGHT ARROW** and **ENTER** to validate the action.

To reboot the EVS server when it is running in a given configuration, press **ALT+Q** when you are in the Clip or Playlist page, then press **ENTER** to confirm the action.

# 2.5.3.    Hardware Check

## Disk Errors and Disconnection

### Disconnection

When one disk of the video raid array has sustained errors, Multicam automatically disconnects that disk and uses the parity disk to rebuild the missing data and provide the video and audio data blocks to the application. The operator can thus continue working normally and the message "!RAID" appears on all monitoring outputs.

A message is displayed each time a disk is disconnected:

• if the faulty disk is a spare disk:

```
 "Warning: a spare disk has been disconnected. The system will
           operate normally on the remaining disks.
                    At the next opportunity
please consider replacing the faulty disk. It can be identified
in the Shift-F5 screen or in the EVS - RAID configuration menu.
                    [Enter]=Continue"
```

• if the faulty disk is contained in a RAID:

```
"Warning: a disk has been disconnected. The system will operate
    normally on the remaining disks. At the next opportunity
please consider replacing the faulty disk. It can be identified
in the Shift-F5 screen or in the EVS - RAID configuration menu.
                    [Enter]=Continue"
```

### Exit

When exiting Multicam, a warning will appear to remind the operator that one disk was disconnected, and invite him to perform a hardware check to repair the video raid. This is displayed even if a spare disk is available:

• if the faulty disk is a spare disk:

```
   "Warning: a spare disk has been disconnected. At the next
 opportunity please consider replacing the faulty disk. It can
   be identified in the Shift-F5 screen or in the EVS - RAID
            configuration menu. [Enter]=Continue"
```

• if the faulty disk is contained in a RAID:

```
"Warning: a disk has been disconnected. At the next opportunity
please consider replacing the faulty disk. It can be identified
in the Shift-F5 screen or in the EVS - RAID configuration menu.
                    [Enter]=Continue"
```

## Restarting

If Multicam is restarted without the RAID being rebuilt, a message similar to the following one, and adapted to the disk type, is displayed during the bootwins:

• if a spare disk is OK:

```
[ Bad ] SEAGATE ST900MM0168   S401JQKR  NE04  900GB 00 07 512
```

• if no spare disk is OK and the RAID is no more complete:

```
[ Bad ] SEAGATE ST900MM0168   S401JQKR  NE04  900GB 00 07 512

WARNING !!! Tray XX is missing 1 disk(s) to be complete
```

Then when entering Multicam, another message appears, even if a spare disk is available:

• if the faulty disk is a spare disk:

```
"Warning: a spare disk has been disconnected. The system will
     operate normally on the remaining disks. At the next
opportunity please consider replacing the faulty disk. It can
  be identified in the Shift-F5 screen or in the EVS - RAID
            configuration menu. [Enter]=Continue"
```

• if the faulty disk is contained in a RAID:

```
"Warning: a disk has been disconnected. The system will operate
normally on the remaining disks. At the next opportunity please
consider replacing the faulty disk. It can be identified in the
    Shift-F5 screen or in the EVS - RAID configuration menu.
                    [Enter]=Continue"
```

The operator can press **ENTER** and operate normally on 4 disks (configuration "4+1") or on 5 disks (configuration "5+1") or exit the software and return to Multicam Setup window to run a hardware check.

# H4X_4S Version Check

If the H4X_4S board is not up-to-date, the following warning message will be displayed:

```
H4X_4S current revision: T80R00C00L01_0001
[Warning] >> H4X_4S Rear I/O Panel is not at last revision
[Warning] >> Latest revision: T80R00C00L01_0002
```

Reboot your server and access the **Multicam Maintenance > Hardware Maintenance** menu to perform an update of the board. See the Installation Manual for more information.

# Rebuild Process

## Introduction

The XS-VIA server is capable of performing a rebuild process of the RAID. This process can happen either while the Multicam application is not running (offline process – rebuild is faster) or while the Multicam application is running (online process – rebuild is slower).

## Disconnection Process

As explained in the section "Disk Errors and Disconnection" on page 38, the software will disconnect a disk that does not behave as expected.

Two options are available for the operator:

- Replace the disconnected disk and restart the server

    ◦ Start the Multicam application. The rebuild process will start automatically.

    ◦ Start a hardware check from the EVS menu and launch the rebuild. The process starts offline. The operator can wait for the rebuild to be completed or cancel it (that is to say postpone it) and start the Multicam application, in which case the rebuild carries on in online mode.

- The operator can also force the disk to be reconnected by starting the rebuild process in the hardware check. The process starts offline. The operator can wait for the rebuild to be completed or cancel it and start the Multicam application, in which case the rebuild carries on in online mode.

---

✎ **NOTE**

If errors are detected during the rebuild process, a message appears after the rebuild is complete to warn the operator, and the raid is not considered as properly rebuilt. In this state, the system will keep working on 4 disks (4+1 configuration) or on 5 disks (5+1 configuration). If you want to run on 5, or 6, disks again, you can try replacing the disk again and perform another rebuild, or clear all clips.

---

If you don't need to retrieve the clips or the record trains, you don't need to rebuild the RAID. In this case, select the 'Clear All Clips' answer when the message with this option appears in the hardware check.

If you don't rebuild the RAID array or if you don't clear clips, the EVS server will keep running on 4, or 5, disks only, and you will see a warning message appearing every time you start or close the Multicam application. Normal operation can be achieved on 4, or 5, disks, but then, if another disk fails, the system will hang and all video and audio data will be definitively lost.

---

⚠ **WARNING**

By default, the online rebuild process takes up 10% of the disk bandwidth. If you want to change this, contact EVS support.

---

## 2.5.4.    Upgrading the Disk Firmware

This tool will allow you to check the firmware version of the disks of the internal disk array and to upgrade if the version is not as expected.

In the Multicam Setup window, press **U** to start the upgrade procedure.

Once the upgrade procedure has finished, press **ALT + Q** to return to the Multicam Setup window.

## 2.5.5.    Clearing Video Disks

### Introduction

The function Clearing Video Disks is used to delete media from the RAID disk array.

It is accessible in the Clear Video Disks dialog box you can open from the Multicam Setup window:
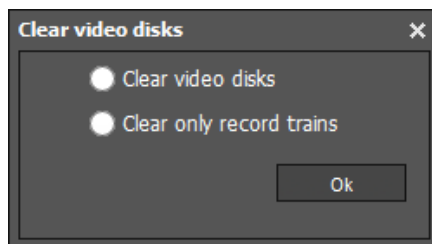


Depending on the option you select in the Clear Video Disks dialog box, you will delete:

- the clips and record trains on all video disks (Clear video disks)

- the record trains only (Clear only record trains)

### When and What for is a Clear Action Required?

> **NOTE**
>
> When a clear action is required, the operator will get a warning in Multicam.

The table below lists when you have to perform a clear action, and which clear action you need to perform in the given situation:

| Clearing action required when: | Clear Action |
|---|---|
| General Maintenance Decision | On request |
| Record Train Maintenance (See section "Record Train Maintenance" on page 43) | Clear Record Trains |
| Change in the multi-essence configuration from **Intra + Proxy** to **Intra only** | Clear Record Trains |

### How to Clear Clips and/or Trains in the Server-Based Application

To clear video disks in the server-based application, proceed as follows:

1. In the Multicam Setup window, press **C** to call the **Clear Video Disks** command.

2. Select one of the available options and press **ENTER**.

   A confirmation message is displayed.

3. Press **RIGHT ARROW**, and **ENTER** to select **Yes** and validate the deletion.

   OR

   Press **ENTER** to cancel the deletion.

---

**NOTE**

After a Clear Video Disks action, the command toggles to **Undo Clear Video Disks At Next Start** as long as your server has not been rebooted after the **Clear Video Disks** command. This allows you to cancel the **Clear Video Disks** request.

---

### How to Clear Clips/Trains in the Web-Based Interface

To clear video disks in the web-based interface, proceed as follows:

1. In the Multicam Setup window, click the **Clear video disks** command from the **Tools** area to open the **Clear Video Disks** window.

2. Select one of the available options and press **OK**.

   A confirmation message is displayed.

3. Click **Yes** to validate the deletion or **No** to cancel the deletion.

## 2.5.6. Overview on the Hardware Check

### Purpose

During the hardware check, the following actions are performed:

• Retrieving and checking relevant information related to the various boards installed on the EVS server

• Verifying the validity of the data recorded on the video disk array

The hardware check is only available in the server-based application.

---

**Tip**

Hardware check is also used to rebuild the video and audio information after replacing a faulty disk.

---

## Process

The hardware check runs the same steps and checks as the server boot process :

- MTPC check
- H4X check
- Video Codec check
- GbE download
- Disk check
- Data loading

After you have launched the hardware check by pressing **H** in the Multicam Setup window, the system automatically starts the test process.

One after the other, the various steps are displayed in the BOOT.H3X  window. The test process is completed when the H4X board is initialized.

At the end of the hardware check, the hardware revisions information is displayed. The information is logged in the `bootwins.log`.

# 2.5.7.    Record Train Maintenance

## Introduction

A Clear Record Train can be necessary in one of the following situations:

- To prevent the overflow of the record trains field counter.
- To align the current block size used in the internal cache for each record train with the optimal block size calculated for a configuration.

## Preventing the Overflow of the Record Trains Field Counter

### Introduction

The record train uses a counter to identify each field being encoded in the server. This counter will overflow after 2 years and 8 months at 50 Hz or 2 years and 3 months at 59.94 Hz when the server is in continuous use.

When the field counter reaches its limit, the recorder and the player stop. It is possible to close the current file and start a new one without the need to clear the video disks (as required in earlier versions of Multicam), nor to exit Multicam.

### How to Reset the Field Counter

You can reset the field counter from the Multicam Setup window, or from the Multicam Configuration window:

To reset the counter from the Multicam Setup window, proceed as follows:

1. Go to the **Clear video disk** dialog box.

2. Select **Clear only record trains**.

   See section "Clearing Video Disks" on page 41

To reset the counter from the Multicam Configuration window, proceed as follows:

1. In the VGA, press **SHIFT+F5** to open the **Server Monitoring** window.

2. In the **General Information** page (page 1), select the **Reset record train** command.

   See section "General Information Window" on page 336

### Impacts of the Field Counter Maintenance

During the field counter maintenance:

- The players that are using content from local clips are not be disturbed.

- The players that are using content from a remote (XNet) server are not disturbed.

- Playing out a record train of the server in field counter maintenance on a remote server will impact the playout.

After performing the field counter maintenance:

- All the trains are erased, but neither the clips nor the playlists are erased.

- Multicam restarts the recorders that were running before the maintenance operation.

- Multicam restarts the players that were running before the maintenance operation. The record train used by each player remains unchanged.

### Automatic Advance Warning

As the recorders and the players will stop if the field counter reaches its limit, warnings are automatically issued in advance:

- A message is displayed on the VGA 12 weeks before the counter overflow, then weekly from 8 to 4 weeks before the counter overflow.

- From 4 weeks to the day before the counter overflow, the message on the VGA is displayed daily, and the `!Rec` warning is displayed on all PGM OSD screens.

- On the last day, the OSD warning flashes.

### Field Counter Overflow

When the field counter reaches the overflow:

- Multicam stops the recorders and the players.

- Multicam issues error messages on the VGA, the OSD, and the LSM.

- The operator is still allowed to browse and make clips with all the content available on the disks.

## Align the Current Block Size with the Optimal Block Size

### Introduction

The internal cache of the XS-VIA Server server supports different block sizes (8MB, 16MB, 32MB) for the intra codec record trains. This makes it possible to use larger block sizes when operating with high-bitrate configurations (e.g. UHD-4K, UDH-8K, high SLSM) and results in an improvement of the server performance.

For each configuration, the optimal block size is calculated. When starting a configuration, the block size currently used in the internal cache for each record train is compared with this optimal block size.

If the optimal and currently used block size are not identical, you will be alerted, and you might have to clear all record trains.

### Optimal Block Size Calculation

For each record train the optimal block size to be used in the cache is calculated based on the following parameters:

- Bitrate of the intra codec

- Number of phases

- Framerate

- Maximum block size

See section 'Optimal Block Size' in the server's Technical Reference Manual for the optimal block size per intra codec.

### Performing a Clear Record Trains

When starting a configuration, the block size currently used in the internal cache for each record train is compared with the calculated optimal block size for the configuration.

If the current and optimal block size are:

- identical for all record trains, then the configuration is started without any additional messages.

- not identical for all record trains, the following two cases can be distinguished:

  ◦ The current block size used for one or more record trains is 8MB. A bigger block size, i.e. 16MB, is recommended.

The following message will appear:

'A block size of 16MB is recommended which requires a Clear Record Trains. Do you want to continue anyway with a block size of 8 MB?'

You will have the choice to start the configuration with the current (non-optimal) block size, or to perform a Clear Record Trains first and then start the configuration with the recommended block size.

◦ The current block size is smaller than the recommended block size. A bigger block size is mandatory.

The following message will appear:

'Clearing record trains is mandatory because this configuration requires a new block size (16 MB -> 8 MB).'

You will have no other option but to perform a Clear Record Trains first and then start the configuration with the recommended block size.

### Example

Consider the situation where the current block size of the internal cache is 8MB.

Start the following configurations:

- *DNxHD 242Mbps, 1080p @50Hz no SLMS*

  The current block size is big enough and can be kept. No Clear Record Trains is required.

- *DNxHD 242Mbps, 1080p @50Hz SLSM2x*

  The recommended block size is 16MB, but the current block size can be kept. You will have the choice to perform a Clear Record Trains and start the configuration with the recommended block size, or to continue with the non-optimal current block size.

- *DNxHD 242Mbps, 1080p @50Hz SLSM3x*

  The recommended block size is 16MB. A Clear Record Trains is required. The configuration is started with the recommended block size.

# 2.5.8.    Importing and Exporting Keyword Files

## Introduction

The keyword file is a simple text file with a name of 8 characters and a .KWD extension. All keyword files must be stored in the `/mnt/apps/data/kwd` folder of the EVS server (`/kwd` folder when you connect to the EVS server using an FTP client). A sample keyword file (SAMPLE.KWD) is provided by EVS when Multicam is installed.

You can also import and export keyword files to and from the EVS server via a USB key.

You can only perform this action in the server-based application.

## How to Import a Keyword File

To import a keyword file, proceed as follows:

1. Save the keyword file you want to import on a USB key, and plug it into the USB port of the EVS server as the Multicam Setup window is open.

2. In the Multicam Setup window, press **K** to call the **Import/export keyword file** command.

   The following dialog box opens:
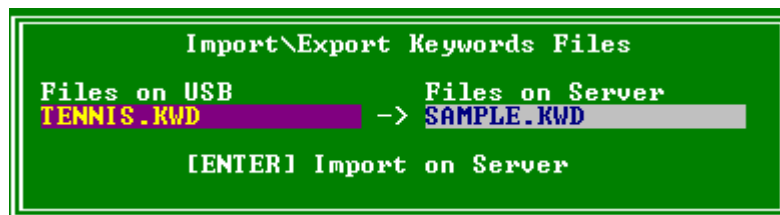


3. If several keyword files are stored on the USB key, press **SPACEBAR** until the requested file is selected on the left field.

4. Press **ENTER** to import the keyword file from the USB key to the EVS server.

5. Press **OK** to close the message box that appears when the keyword file has been imported.

6. Remove the USB key.

## How to Export a Keyword File

To export a keyword file, proceed as follows:

1. Plug a USB key into the USB port of the EVS server as the Multicam Setup window is open.

2. In the Multicam Setup window, press **K** to call the Import/export keyword file command.

   The following dialog box opens:
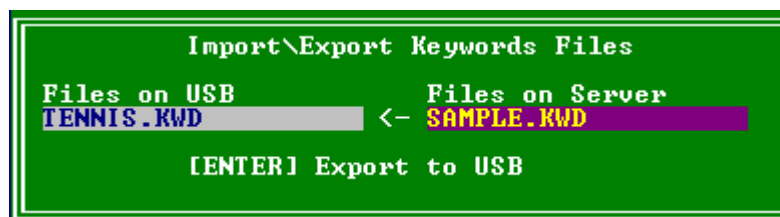


3. Press **ENTER** to export the keyword file from the EVS server to the USB key.

4. Press **OK** to close the message box that appears when the keyword file has been exported.

5. Remove the USB key.

## 2.5.9.  Exporting Log Files

When the EVS support team requests the log files to investigate an issue, you can export the log files to a plugged-in USB key by pressing the **X** shortcut key from the Multicam Setup window.

When you call the **Export log file** command, a .zip file is created on the root folder the USB key. It contains:

- all files and folders located on `/mnt/apps/data` folder of the EVS server (root folder when you connect to the EVS server using an FTP client).

- an Excel spreadsheet that contains the definition of your configuration lines

After the export action, a message box asks you whether you want to delete the logs on the EVS server. If you answer **Yes**, the content of the folders `/mnt/apps/data/log` (`/log` folder via FTP) and `/mnt/apps/data/dump` (`/dump` folder via FTP) are deleted.

You can also export log files from XNet Monitor. For more information, refer to the XNet Monitor user manual.

# 3. Supported Configurations

## 3.1. General Principles

### 3.1.1. About Supported Configurations

#### Generalities

On the Multicam web homepage of the EVS server (`http://<PCLAN IP Address>`), a QR code allows you to download the EVS Server Configuration application from Google Play or the App store.

This will help you define the desired configuration and display how the video connectors should be cabled.

The XS-VIA server supports the following configuration types:

- **HD** standard configurations
- **1080p** standard configurations
- **UHD-4K** standard configurations

The following configurations are available with the XS-VIA server:

- 4-Channel mode with license code 28

  including 2- and 4-channel configurations

- 6-Channel mode with license code 29
- 8-Channel mode with license code 30
- 10-Channel mode with license code 36
- 12-Channel mode with license code 35

#### Requirements and Limitations

- The **Mix on one channel** for play channels is available on all HD configurations without restrictions, but it is not available with UHD-4K.

- When working in SDI with the XIP rear panel, the connectors C and D cannot be used for discrete SDI monitoring for the play channels cables onto connectors A and B. The monitoring is only possible using the multiviewer.

  This limitation does not apply when working in IP with the XIP rear panel. In such a case, monitoring is available:

  ◦ in IP over the two SFP interfaces (C and D)

  ◦ in SDI through the OUT A and OUT B connectors

# 3.1.2. About Record and Play Channels

## Number of Record and Play Channels

The number of record and play channels for a given configuration is defined in the Channels tab, in the Base settings. See section "Base Settings" on page 125.

The number of play and record channels available may differ depending on the installed license codes, and on the configurations running on the XS-VIA server:

- XSense mode, when the EVS server is controlled by the Remote Panel.

- Spotbox or Server modes, when the EVS server is controlled by the industry-standard protocols.

The following table shows the minimum and maximum number of channels that can be operated in both modes:

|  | XSense | Spotbox/ Server |
|---|---|---|
| **Max. # channels** | 12 | 12 |
| **Min. # REC** | 1 | 0 |
| **Max. # REC** | 10 | 12 |
| **Min. # PLAY** | 1 | 0 |
| **Max. # PLAY** | 6 | 6 |

> **NOTE**
>
> Based on the above-mentioned limitations, among others, some configurations described in the section Supported Configurations are only available in Server/Spotbox mode or in XSense mode.

## Clip and Record Train Compatibility

- Clips are compatible across all Multicam configurations.

- Record trains are also compatible as long as the number of record channels (cameras) is not increased in XSense mode.

  Example

  ◦ 2 REC ==> 4 REC: Record trains are lost.

  ◦ 6 REC ==> 4 REC: Record trains are kept.

- Record trains are always kept in Spotbox mode, even when the number of record trains is increased.

# 3.1.3.   Channel Assignment Principles

## General Principles

The following general principles apply to all configurations on the XS-VIA server:

- The connectors within a codec module are only able to work in play or record mode.

- The **play channels** (OUT connectors) are assigned from left to right and from top to bottom, in other words from the lowest to the highest number of codec module.

- The **record channels** (IN connectors) are assigned from right to left and from bottom to top, in other words from the highest to the lowest number of codec module.

# Cabling Procedure for UHD-4K

When using the **3G-SDI** interfaces, cable the UHD-4K input or output on the connectors A to D of the codec module.

Cabling of IN 1 is shown below as an example:
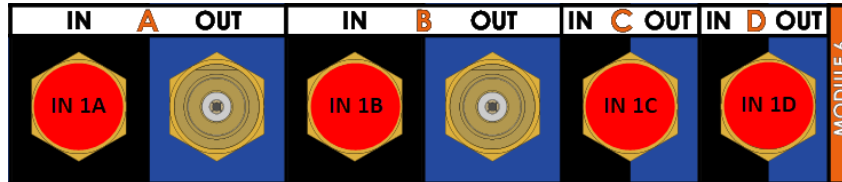


When using a **12G-SDI** interface, cable the UHD-4K input on the IN A connector of the codec module, and the UHD-4K output on the OUT A connector of the codec module.

Cabling of IN 1 is shown below as an example with SDI and XIP panels:
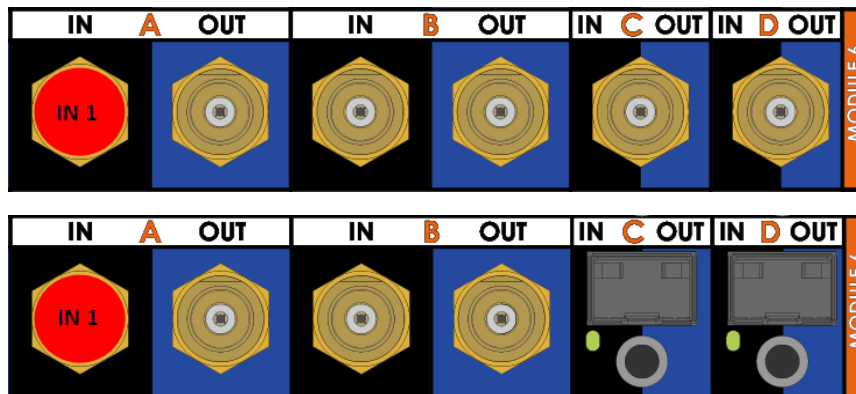




When using a **XIP** interface in UHD-4K 2SI or SQD, the IN/OUT C and D connectors of the codec module are cabled:

• The phases of UHD-4K input (1, 2, 3, 4) can either be sent to the IN C or IN D connector of the codec module. A maximum of 3 streams are allowed per connector. See section "LiveIP Settings for Video Streams" on page 282.

The same principle has to be applied to the UHD-4K output.

When using an **XIP** interface in UHD-4K single stream, cable the UHD-4K input on the IN C or IN D connector of the codec module. Cable the UHD-4K output on the OUT C or OUT D connector of the codec module.

# Cabling Procedure for IP

- All I/O configurations that are supported for SDI are also supported for IP.

- The general channel assignment principles for SDI also apply to IP.

- When cabling the play and record channels, the physical SFP connector can be freely chosen.

  For example, in case there are 4 play and 4 record channels, the first 2 play channels can be cabled either on the OUT1 C or on the OUT1 D SFP connector of the codec module 1. The next 2 play channels can be cabled either on the OUT2 C or OUT2 D connector of the codec module 2.

  The same principle applies to the record channels. The first 2 record channels can be cabled either on the IN1 C or the IN1 D SFP connector codec module 6, etc.

# 3.2.　HD Standard Configurations

## 3.2.1.　General Information on HD Standard Configurations

The tables below show the available HD configurations (720p, 1080i) with an XS-VIA server, and how the BNC connectors should be cabled.

The 4-channel, 6-channel, 8-channel, 10-channel and 12-channel configurations can be purchased separately. Each configuration mode incorporates the configurations with less channels.

---

> **NOTE**
>
> The HD base configurations without any recorder or player are only supported in Spotbox and Server modes. They are preceded by **Sp**.
> The configurations preceded by **NoSp** are **not** available in Spotbox and Server modes.

---

## 3.2.2. HD Standard Configurations

### Configurations in 4-Channel Mode

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sp** | 1 | 0 | Mod. 1 | | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN1 | | | | Mod. 6 |
| **Sp** | 2 | 0 | Mod. 1 | | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN1 | IN2 | | | Mod. 6 |
| | 1 | 1 | Mod. 1 | OUT1 | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN1 | | | | Mod. 6 |
| **Sp** | 0 | 1 | Mod. 1 | OUT1 | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | | | | | Mod. 6 |
| **Sp** | 0 | 2 | Mod. 1 | OUT1 | OUT2 | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | | | | | Mod. 6 |

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sp | 3 | 0 | Mod. 1 | | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | IN3 | | | | IN1 | IN2 | | | Mod. 6 |
| Sp | 4 | 0 | Mod. 1 | | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 2 | 1 | Mod. 1 | OUT1 | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN1 | IN2 | | | Mod. 6 |
| | 3 | 1 | Mod. 1 | OUT1 | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | IN3 | | | | IN1 | IN2 | | | Mod. 6 |
| | 1 | 2 | Mod. 1 | OUT1 | OUT2 | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN1 | | | | Mod. 6 |
| | 2 | 2 | Mod. 1 | OUT1 | OUT2 | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN1 | IN2 | | | Mod. 6 |

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sp** | 0 | 3 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | | | | | Mod. 6 |
| | 1 | 3 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN1 | | | | Mod. 6 |
| **Sp** | 0 | 4 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | | | | | Mod. 6 |

# Configurations in 6-Channel Mode

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sp** | 5 | 0 | Mod. 1 | | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | IN5 | | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| **Sp** | 6 | 0 | Mod. 1 | | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |

| IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 1 | Mod. 1 | OUT1 | | | | | | | | Mod. 2 |
| | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| 5 | 1 | Mod. 1 | OUT1 | | | | | | | | Mod. 2 |
| | | Mod. 3 | | | | | IN5 | | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| 3 | 2 | Mod. 1 | OUT1 | OUT2 | | | | | | | Mod. 2 |
| | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | Mod. 5 | IN3 | | | | IN1 | IN2 | | | Mod. 6 |
| 4 | 2 | Mod. 1 | OUT1 | OUT2 | | | | | | | Mod. 2 |
| | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| 2 | 3 | Mod. 1 | OUT1 | OUT2 | | | | | | | Mod. 2 |
| | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | Mod. 5 | IN3 | | | | IN1 | IN2 | | | Mod. 6 |
| 3 | 3 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | | | | Mod. 2 |
| | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | Mod. 5 | IN3 | | | | IN1 | IN2 | | | Mod. 6 |

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 4 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN1 | | | | Mod. 6 |
| | 2 | 4 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN1 | IN2 | | | Mod. 6 |
| | 1 | 5 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | | Mod. 3 | OUT5 | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN1 | | | | Mod. 6 |
| Sp | 0 | 5 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | | Mod. 3 | OUT5 | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | | | | | Mod. 6 |
| Sp | 0 | 6 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | | Mod. 3 | OUT5 | OUT6 | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | | | | | Mod. 6 |

## Configurations in 8-Channel Mode

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sp** | 7 | 0 | Mod. 1 | | | | | | | | | Mod. 2 |
| | | | Mod. 3 | IN7 | | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| **Sp** | 8 | 0 | Mod. 1 | | | | | | | | | Mod. 2 |
| | | | Mod. 3 | IN7 | IN8 | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 6 | 1 | Mod. 1 | OUT1 | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 7 | 1 | Mod. 1 | OUT1 | | | | | | | | Mod. 2 |
| | | | Mod. 3 | IN7 | | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 5 | 2 | Mod. 1 | OUT1 | OUT2 | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | IN5 | | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |

| IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 2 | Mod. 1 | OUT1 | OUT2 | | | | | | | Mod. 2 |
| | | Mod. 3 | | | | | IN5 | IN6 | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| 4 | 3 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | | | | Mod. 2 |
| | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| 5 | 3 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | | | | Mod. 2 |
| | | Mod. 3 | | | | | IN5 | | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| 3 | 4 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | Mod. 5 | IN3 | | | | IN1 | IN2 | | | Mod. 6 |
| 4 | 4 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| 2 | 5 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | Mod. 3 | OUT5 | | | | | | | | Mod. 4 |
| | | Mod. 5 | | | | | IN1 | IN2 | | | Mod. 6 |

| IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 6 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | Mod. 3 | OUT5 | OUT6 | | | | | | | Mod. 4 |
| | | Mod. 5 | | | | | IN1 | IN2 | | | Mod. 6 |

## Configurations in 10-Channel Mode

The configurations preceded by **Sp** are only available in Spotbox and Server modes.

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sp** | 9 | 0 | Mod. 1 | | | | | IN9 | | | | Mod. 2 |
| | | | Mod. 3 | IN7 | IN8 | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| **Sp** | 10 | 0 | Mod. 1 | | | | | IN9 | IN10 | | | Mod. 2 |
| | | | Mod. 3 | IN7 | IN8 | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 9 | 1 | Mod. 1 | OUT1 | | | | IN9 | | | | Mod. 2 |
| | | | Mod. 3 | IN7 | IN8 | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 8 | 2 | Mod. 1 | OUT1 | OUT2 | | | | | | | Mod. 2 |
| | | | Mod. 3 | IN7 | IN8 | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |

| IN | OUT | | A | B | C | D | A | B | C | D | |
|----|-----|--------|------|------|---|---|------|------|---|---|--------|
| 6 | 3 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | | | | Mod. 2 |
| | | Mod. 3 | | | | | IN5 | IN6 | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| 7 | 3 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | | | | Mod. 2 |
| | | Mod. 3 | IN7 | | | | IN5 | IN6 | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| 6 | 4 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | Mod. 3 | | | | | IN5 | IN6 | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| 4 | 5 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | Mod. 3 | OUT5 | | | | | | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| 4 | 6 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | Mod. 3 | OUT5 | OUT6 | | | | | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| 5 | 5 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | Mod. 3 | OUT5 | | | | IN5 | | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |

## Configurations in 12-Channel Mode

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sp** | 11 | 0 | Mod. 1 | IN11 | | | | IN9 | IN10 | | | Mod. 2 |
| | | | Mod. 3 | IN7 | IN8 | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| **Sp** | 12 | 0 | Mod. 1 | IN11 | IN12 | | | IN9 | IN10 | | | Mod. 2 |
| | | | Mod. 3 | IN7 | IN8 | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 10 | 1 | Mod. 1 | OUT1 | | | | IN9 | IN10 | | | Mod. 2 |
| | | | Mod. 3 | IN7 | IN8 | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 10 | 2 | Mod. 1 | OUT1 | OUT2 | | | IN9 | IN10 | | | Mod. 2 |
| | | | Mod. 3 | IN7 | IN8 | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 8 | 4 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | | Mod. 3 | IN7 | IN8 | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 6 | 6 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | | Mod. 3 | OUT5 | OUT6 | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |

# 3.3.    1080p Configurations

## 3.3.1.    General Information on 1080p Configurations

### Introduction

The EVS video server working in 1080p encodes or decodes natively the full 1080p video on the EVS server. This provides file interoperability, without requiring transcoding.

### Requirements

The 1080p is available when the following software requirements are met:

- The license code 22 is activated on the EVS server.
- The **Interface** parameter is set to a proper value.

  See section "Base Settings" on page 125.

### Introduction to Configuration Tables

The tables below show the available 1080p configurations with an XS-VIA server, and how the BNC connectors should be cabled.

These configurations can be purchased separately in 1080p for a given codec.

The 4-channel, 6-channel, 8-channel, 10-channel and 12-channel configurations can be purchased separately. Each configuration mode incorporates the configurations with less channels.

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✎ **NOTE**

The HD base configurations without any recorder or player are only supported in Spotbox and Server modes. They are preceded by **Sp**.
The configurations preceded by **NoSp** are **not** available in Spotbox and Server modes.

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# 3.3.2.  1080p Standard Configurations

## Configurations in 4-Channel Mode

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sp | 1 | 0 | Mod. 1 | | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN1 | | | | Mod. 6 |
| Sp | 2 | 0 | Mod. 1 | | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN1 | IN2 | | | Mod. 6 |
| | 1 | 1 | Mod. 1 | OUT1 | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN1 | | | | Mod. 6 |
| Sp | 0 | 1 | Mod. 1 | OUT1 | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | | | | | Mod. 6 |
| Sp | 0 | 2 | Mod. 1 | OUT1 | OUT2 | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | | | | | Mod. 6 |

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sp** | 3 | 0 | Mod. 1 | | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | IN3 | | | | IN1 | IN2 | | | Mod. 6 |
| **Sp** | 4 | 0 | Mod. 1 | | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 2 | 1 | Mod. 1 | OUT1 | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN1 | IN2 | | | Mod. 6 |
| | 3 | 1 | Mod. 1 | OUT1 | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | IN3 | | | | IN1 | IN2 | | | Mod. 6 |
| | 1 | 2 | Mod. 1 | OUT1 | OUT2 | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN1 | | | | Mod. 6 |
| | 2 | 2 | Mod. 1 | OUT1 | OUT2 | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN1 | IN2 | | | Mod. 6 |

|  | IN | OUT |  | A | B | C | D | A | B | C | D |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sp | 0 | 3 | Mod. 1 | OUT1 | OUT2 |  |  | OUT3 |  |  |  | Mod. 2 |
|  |  |  | Mod. 3 |  |  |  |  |  |  |  |  | Mod. 4 |
|  |  |  | Mod. 5 |  |  |  |  |  |  |  |  | Mod. 6 |
|  | 1 | 3 | Mod. 1 | OUT1 | OUT2 |  |  | OUT3 |  |  |  | Mod. 2 |
|  |  |  | Mod. 3 |  |  |  |  |  |  |  |  | Mod. 4 |
|  |  |  | Mod. 5 |  |  |  |  | IN1 |  |  |  | Mod. 6 |
| Sp | 0 | 4 | Mod. 1 | OUT1 | OUT2 |  |  | OUT3 | OUT4 |  |  | Mod. 2 |
|  |  |  | Mod. 3 |  |  |  |  |  |  |  |  | Mod. 4 |
|  |  |  | Mod. 5 |  |  |  |  |  |  |  |  | Mod. 6 |

## Configurations in 6-Channel Mode

|  | IN | OUT |  | A | B | C | D | A | B | C | D |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sp | 5 | 0 | Mod. 1 |  |  |  |  |  |  |  |  | Mod. 2 |
|  |  |  | Mod. 3 |  |  |  |  | IN5 |  |  |  | Mod. 4 |
|  |  |  | Mod. 5 | IN3 | IN4 |  |  | IN1 | IN2 |  |  | Mod. 6 |
| Sp | 6 | 0 | Mod. 1 |  |  |  |  |  |  |  |  | Mod. 2 |
|  |  |  | Mod. 3 |  |  |  |  | IN5 | IN6 |  |  | Mod. 4 |
|  |  |  | Mod. 5 | IN3 | IN4 |  |  | IN1 | IN2 |  |  | Mod. 6 |

| IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 1 | Mod. 1 | OUT1 | | | | | | | | Mod. 2 |
| | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| 5 | 1 | Mod. 1 | OUT1 | | | | | | | | Mod. 2 |
| | | Mod. 3 | | | | | IN5 | | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| 3 | 2 | Mod. 1 | OUT1 | OUT2 | | | | | | | Mod. 2 |
| | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | Mod. 5 | IN3 | | | | IN1 | IN2 | | | Mod. 6 |
| 4 | 2 | Mod. 1 | OUT1 | OUT2 | | | | | | | Mod. 2 |
| | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| 2 | 3 | Mod. 1 | OUT1 | OUT2 | | | | | | | Mod. 2 |
| | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | Mod. 5 | IN3 | | | | IN1 | IN2 | | | Mod. 6 |
| 3 | 3 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | | | | Mod. 2 |
| | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | Mod. 5 | IN3 | | | | IN1 | IN2 | | | Mod. 6 |

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 4 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN1 | | | | Mod. 6 |
| | 2 | 4 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN1 | IN2 | | | Mod. 6 |
| | 1 | 5 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | | Mod. 3 | OUT5 | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN1 | | | | Mod. 6 |
| **Sp** | 0 | 5 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | | Mod. 3 | OUT5 | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | | | | | Mod. 6 |
| **Sp** | 0 | 6 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | | Mod. 3 | OUT5 | OUT6 | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | | | | | Mod. 6 |

## Configurations in 8-Channel Mode

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sp** | 7 | 0 | Mod. 1 | | | | | | | | | Mod. 2 |
| | | | Mod. 3 | IN7 | | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| **Sp** | 8 | 0 | Mod. 1 | | | | | | | | | Mod. 2 |
| | | | Mod. 3 | IN7 | IN8 | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 6 | 1 | Mod. 1 | OUT1 | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 7 | 1 | Mod. 1 | OUT1 | | | | | | | | Mod. 2 |
| | | | Mod. 3 | IN7 | | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 5 | 2 | Mod. 1 | OUT1 | OUT2 | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | IN5 | | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |

| IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 2 | Mod. 1 | OUT1 | OUT2 | | | | | | | Mod. 2 |
| | | Mod. 3 | | | | | IN5 | IN6 | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| 4 | 3 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | | | | Mod. 2 |
| | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| 5 | 3 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | | | | Mod. 2 |
| | | Mod. 3 | | | | | IN5 | | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| 3 | 4 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | Mod. 5 | IN3 | | | | IN1 | IN2 | | | Mod. 6 |
| 4 | 4 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| 2 | 5 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | Mod. 3 | OUT5 | | | | | | | | Mod. 4 |
| | | Mod. 5 | | | | | IN1 | IN2 | | | Mod. 6 |

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | 6 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | | Mod. 3 | OUT5 | OUT6 | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN1 | IN2 | | | Mod. 6 |

## Configurations in 10-Channel Mode

The configurations preceded by **Sp** are only available in Spotbox and Server modes.

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sp** | 9 | 0 | Mod. 1 | | | | | IN9 | | | | Mod. 2 |
| | | | Mod. 3 | IN7 | IN8 | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| **Sp** | 10 | 0 | Mod. 1 | | | | | IN9 | IN10 | | | Mod. 2 |
| | | | Mod. 3 | IN7 | IN8 | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 9 | 1 | Mod. 1 | OUT1 | | | | IN9 | | | | Mod. 2 |
| | | | Mod. 3 | IN7 | IN8 | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 8 | 2 | Mod. 1 | OUT1 | OUT2 | | | | | | | Mod. 2 |
| | | | Mod. 3 | IN7 | IN8 | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 6 | 3 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | | | | Mod. 2 |
| | | | Mod. 3 | | | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 7 | 3 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | | | | Mod. 2 |
| | | | Mod. 3 | IN7 | | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 6 | 4 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | | Mod. 3 | | | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 4 | 5 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | | Mod. 3 | OUT5 | | | | | | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 4 | 6 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | | Mod. 3 | OUT5 | OUT6 | | | | | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 5 | 5 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | | Mod. 3 | OUT5 | | | | IN5 | | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |

## Configurations in 12-Channel Mode

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sp** | 11 | 0 | Mod. 1 | IN11 | | | | IN9 | IN10 | | | Mod. 2 |
| | | | Mod. 3 | IN7 | IN8 | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| **Sp** | 12 | 0 | Mod. 1 | IN11 | IN12 | | | IN9 | IN10 | | | Mod. 2 |
| | | | Mod. 3 | IN7 | IN8 | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 10 | 1 | Mod. 1 | OUT1 | | | | IN9 | IN10 | | | Mod. 2 |
| | | | Mod. 3 | IN7 | IN8 | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 10 | 2 | Mod. 1 | OUT1 | OUT2 | | | IN9 | IN10 | | | Mod. 2 |
| | | | Mod. 3 | IN7 | IN8 | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 8 | 4 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | | Mod. 3 | IN7 | IN8 | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 6 | 6 | Mod. 1 | OUT1 | OUT2 | | | OUT3 | OUT4 | | | Mod. 2 |
| | | | Mod. 3 | OUT5 | OUT6 | | | IN5 | IN6 | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |

# 3.4.    UHD-4K Configurations

## 3.4.1.    General Information on UHD-4K Configurations

### Description

The UHD-4K format available on the EVS server is called UHDTV (Ultra-High Definition TV). It is activated by setting the **UHDTV-4K** value for the **Resolution** parameter.

In UHD-4K, the image resolution is 3840 x 2160. An UHD-4K image can consist of four 1080p frames transported via four 3G-SDI links or a single 12G-SDI link. Such an UHD-4K image therefore requires 4 3G-SDI (BNC) connectors, or 1 12G-SDI (BNC) connector or 2 IP (SFP+) connectors on the XS-VIA Server.

---

> **NOTE**
>
> With a XIP rear panel, the UHD-4K configurations are possible in IP, in 12G-SDI or in 3G-SDI using the EVS small form-factor pluggable SFP+ to SDI adapters.

---

### Requirements

The UHD-4K is available when the following software requirements are met:

- The license code 27 is active on the EVS server, in combination with the code for the configuration mode (37 or 38).

- The **Resolution** parameter is set to **UHDTV-4K**.

  See section "Video and Reference Settings" on page 105.

- The **Intra Codec** parameter is an UHD-4K codec.

  See section "Codec Settings" on page 110.

- The **Interface** parameter is set to a **3G**, **12G** or **XIP** value.

  See section "Base Settings" on page 125.

# Limitations

### Feature Limitations

- UHD-4K does not support the Mix on one channel feature.

- UHD-4K does not provide discrete OSD.

- UHD-4K supports up to 16 embedded audio tracks.

- UHD-4K is only supported in ST2022-7 with the XHub-VIA IP Aggregator.

### Bitrate-Related Limitations

The following table presents which configurations are supported for which codecs and codec flavors taking the codec bitrate and the hardware configuration into account:

|  | (4+1) RAID array | (5+1) RAID array | (10+1) RAID array |
|---|---|---|---|
| 4-channel config | XAVC 300 all<br>XAVC 480 all<br>DNxHR SQ all | XAVC 300 all<br>XAVC 480 all<br>DNxHR SQ all<br>DNxHR HQ 50Hz<br>DNxHR HQX 50Hz | All UHD-4K codecs, bitrates and frame rates |
| 3-channel config | XAVC 300 all<br>XAVC 480 all<br>DNxHR SQ all<br>DNxHR HQ 50Hz<br>DNxHR HQX 50Hz | All UHD-4K codecs, bitrates and frame rates | All UHD-4K codecs, bitrates and frame rates |

# Assignment Principles with SDI Connectivity

An UHD-4K image consists of four 1080p frames which are transported via four 3G-SDI links or via a single 12G-SDI link.

## 3G-SDI Connectivity

When the **square division** UHD format is selected (see "Base Settings" on page 125), the UHD-4K image is transported as four 1080p image quadrants.

Each image quadrant is assigned to its corresponding 3G-SDI link in the following sequence:



When the **two-sample interleave** UHD format is selected, the UHD-4K image is transported as four 1080p images at 1/4 of the original 4K resolution:

Each 1080p image is assigned to a 3G-SDI link in the following sequence:
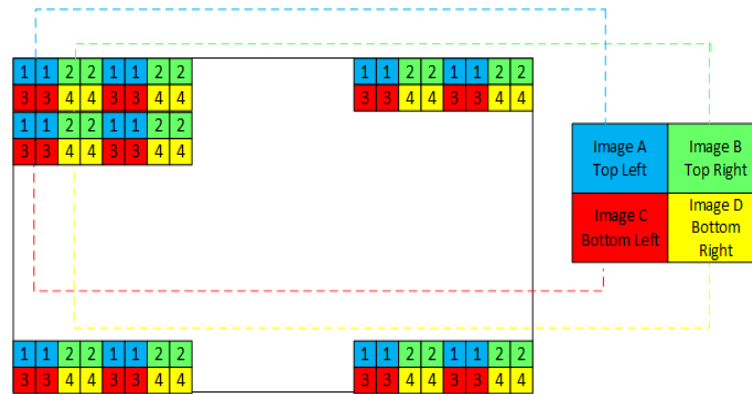
The four 3G-SDI connectors of an UHD-4K channel are always cabled on the connectors A to D of a codec module.

## 12G-SDI Connectivity

With 12G-SDI connectivity, the UHD-4K image (made up of four 1080p images) are transported via a single 12G-SDI link.

This is always cabled on the A connector of a codec module.

# Introduction to Configuration Tables

The tables below show the available 4K configurations on a XS-VIA server.

For each configuration, the connectors assigned on the back panel are displayed without distinction between 3G and 12G cabling as the connectors are assigned the same way:

- With 3G connectivity, each of the four connectors are cabled on all connectors (IN or OUT) of a given codec module.

- With 12G connectivity, the single connector is cabled on the A connector (IN or OUT) of the codec module.

# 3.4.2.  UHD-4K Configurations

⚠ **WARNING**

- The configurations without any play or record channel are **only** available in Spotbox and Server modes.
  They are preceded with **Sp**.

## Configurations 2 Channels 4K

The 8-channel mode includes the 4- and 8-channel configurations.

The configurations preceded by **Sp** are only available in Spotbox and Server modes.

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sp** | 1 | 0 | Mod. 1 | | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN 1 | | | | Mod. 6 |
| **Sp** | 2 | 0 | Mod. 1 | | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | IN 2 | | | | IN 1 | | | | Mod. 6 |
| | 1 | 1 | Mod. 1 | OUT 1 | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN 1 | | | | Mod. 6 |
| **Sp** | 0 | 1 | Mod. 1 | OUT 1 | | | | | | | | Mod. 2 |

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | | | | | Mod. 6 |

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sp | 0 | 2 | Mod. 1 | OUT 1 | | | | OUT 2 | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | | | | | Mod. 6 |

## Configurations 4 Channels 4K

The configurations preceded by **Sp** are only available in Spotbox and Server modes.

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sp | 3 | 0 | Mod. 1 | | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | IN 3 | | | | Mod. 4 |
| | | | Mod. 5 | IN 2 | | | | IN 1 | | | | Mod. 6 |
| Sp | 4 | 0 | Mod. 1 | | | | | | | | | Mod. 2 |
| | | | Mod. 3 | IN 4 | | | | IN 3 | | | | Mod. 4 |
| | | | Mod. 5 | IN 2 | | | | IN 1 | | | | Mod. 6 |
| | 2 | 1 | Mod. 1 | OUT 1 | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | IN 2 | | | | IN 1 | | | | Mod. 6 |
| | 3 | 1 | Mod. 1 | OUT 1 | | | | | | | | Mod. 2 |
| | | | Mod. 3 | | | | | IN 3 | | | | Mod. 4 |
| | | | Mod. 5 | IN 2 | | | | IN 1 | | | | Mod. 6 |

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | Mod. 1 | OUT 1 | | | | OUT 2 | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN 1 | | | | Mod. 6 |
| | 2 | 2 | Mod. 1 | OUT 1 | | | | OUT 2 | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | IN 2 | | | | IN 1 | | | | Mod. 6 |
| | 1 | 3 | Mod. 1 | OUT 1 | | | | OUT 2 | | | | Mod. 2 |
| | | | Mod. 3 | OUT3 | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN 1 | | | | Mod. 6 |
| Sp | 0 | 3 | Mod. 1 | OUT 1 | | | | OUT 2 | | | | Mod. 2 |
| | | | Mod. 3 | OUT3 | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | | | | | Mod. 6 |
| Sp | 0 | 4 | Mod. 1 | OUT 1 | | | | OUT 2 | | | | Mod. 2 |
| | | | Mod. 3 | OUT3 | | | | OUT4 | | | | Mod. 4 |
| | | | Mod. 5 | | | | | | | | | Mod. 6 |

## Configurations 6 Channels 4K

The configurations preceded by **Sp** are only available in Spotbox and Server modes.

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sp** | 5 | 0 | Mod. 1 | | | | | IN 5 | | | | Mod. 2 |
| | | | Mod. 3 | IN 4 | | | | IN 3 | | | | Mod. 4 |
| | | | Mod. 5 | IN 2 | | | | IN 1 | | | | Mod. 6 |
| **Sp** | 6 | 0 | Mod. 1 | IN 6 | | | | IN 5 | | | | Mod. 2 |
| | | | Mod. 3 | IN 4 | | | | IN 3 | | | | Mod. 4 |
| | | | Mod. 5 | IN 2 | | | | IN 1 | | | | Mod. 6 |
| | 4 | 1 | Mod. 1 | OUT 1 | | | | | | | | Mod. 2 |
| | | | Mod. 3 | IN 4 | | | | IN 3 | | | | Mod. 4 |
| | | | Mod. 5 | IN 2 | | | | IN 1 | | | | Mod. 6 |
| | 5 | 1 | Mod. 1 | OUT 1 | | | | IN 5 | | | | Mod. 2 |
| | | | Mod. 3 | IN 4 | | | | IN 3 | | | | Mod. 4 |
| | | | Mod. 5 | IN 2 | | | | IN 1 | | | | Mod. 6 |
| | 3 | 2 | Mod. 1 | OUT 1 | | | | OUT 2 | | | | Mod. 2 |
| | | | Mod. 3 | | | | | IN 3 | | | | Mod. 4 |
| | | | Mod. 5 | IN 2 | | | | IN 1 | | | | Mod. 6 |

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 | 2 | Mod. 1 | OUT 1 | | | | OUT 2 | | | | Mod. 2 |
| | | | Mod. 3 | IN 4 | | | | IN 3 | | | | Mod. 4 |
| | | | Mod. 5 | IN 2 | | | | IN 1 | | | | Mod. 6 |
| | 2 | 3 | Mod. 1 | OUT 1 | | | | OUT 2 | | | | Mod. 2 |
| | | | Mod. 3 | OUT3 | | | | | | | | Mod. 4 |
| | | | Mod. 5 | IN 2 | | | | IN 1 | | | | Mod. 6 |
| | 3 | 3 | Mod. 1 | OUT 1 | | | | OUT 2 | | | | Mod. 2 |
| | | | Mod. 3 | OUT3 | | | | IN 3 | | | | Mod. 4 |
| | | | Mod. 5 | IN 2 | | | | IN 1 | | | | Mod. 6 |
| | 1 | 4 | Mod. 1 | OUT 1 | | | | OUT 2 | | | | Mod. 2 |
| | | | Mod. 3 | OUT3 | | | | OUT 4 | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN 1 | | | | Mod. 6 |
| | 2 | 4 | Mod. 1 | OUT 1 | | | | OUT 2 | | | | Mod. 2 |
| | | | Mod. 3 | OUT3 | | | | OUT 4 | | | | Mod. 4 |
| | | | Mod. 5 | IN 2 | | | | IN 1 | | | | Mod. 6 |

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 5 | Mod. 1 | OUT 1 | | | | OUT 2 | | | | Mod. 2 |
| | | | Mod. 3 | OUT3 | | | | OUT 4 | | | | Mod. 4 |
| | | | Mod. 5 | OUT 5 | | | | IN 1 | | | | Mod. 6 |
| Sp | 0 | 5 | Mod. 1 | OUT 1 | | | | OUT 2 | | | | Mod. 2 |
| | | | Mod. 3 | OUT3 | | | | OUT 4 | | | | Mod. 4 |
| | | | Mod. 5 | OUT 5 | | | | | | | | Mod. 6 |
| Sp | 0 | 6 | Mod. 1 | OUT 1 | | | | OUT 2 | | | | Mod. 2 |
| | | | Mod. 3 | OUT3 | | | | OUT 4 | | | | Mod. 4 |
| | | | Mod. 5 | OUT 5 | | | | OUT 6 | | | | Mod. 6 |

# 3.5.    Mixed 1080p and UHD-4K Configurations

## 3.5.1.    Upscale of 1080p into UHD-4K

### Prerequisite

It is possible to upscale 1080p content on an XS-VIA server and play it out as UHD-4K in two different ways, as presented in this section.

The upscale feature is supported with 3G-SDI, 12G-SDI and XIP interface for the video connectors.

The upscale will only be possible, however it is implemented, when equivalent UHD-4K and 1080p codecs are used:

| HD Codec | UHD-4K Codec |
|---|---|
| XAVC- Intra 100 | XAVC-Intra 300 / 480 |
| DNxHD | DNxHR |

### Upscale with UHD-4K Configurations

### Description

1080p content has been transferred to the XS-VIA server from an external storage or from another EVS server via XNet or Gigabit network. The other EVS server runs an 1080p configuration.

When the 1080p content is present on the EVS server and all the requirements are fulfilled, it can be upscaled and played out in UHD-4K on an XS-VIA server running an UHD-4K configuration.
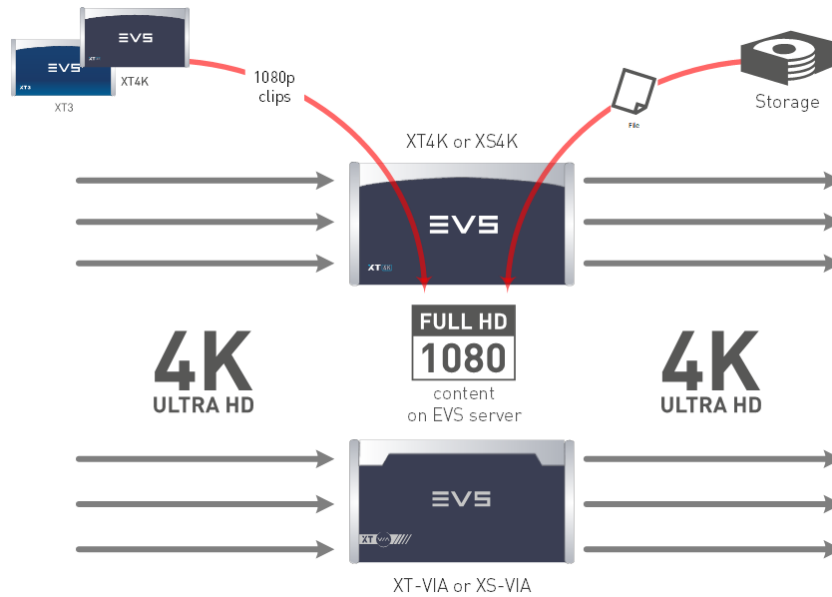
## Requirements

- The UHD-4K license (code #27) is active on the EVS server.

- The upscale license from 1080p to UHD-4K (code # 39) is active on the EVS server.

- The UHDTV-4K resolution is selected in the Server tab, Video and Reference settings, **Resolution** field.

- The UHD format is set to **two-sample interleave** in the Channels tab, Base settings, **UHD Format** field.

- The UHD-4K and 1080p codecs are equivalent (see Prerequisites section).

- This type of upscale feature is not tied to a fixed list of configurations.

## Upscale with 1080p Configurations

### Description

1080p content is ingested from the video feeds into the XS-VIA server running a 1080p configuration. The 1080p can also come from another EVS server or from an external storage.

When all requirements are fulfilled and the resolution of the player is set to **UHD-4K**, the 1080p content is upscaled and is played out in UHD-4K on the same XS-VIA server although it runs a 1080p configuration.
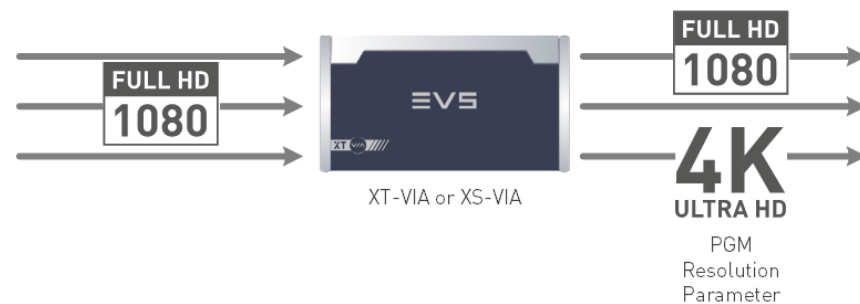
### Requirements

- The UHD-4K license (code #27) is active on the EVS server, alongside with the 1080p 3G license (code # 22).

- The upscale license from 1080p to UHD-4K (code # 39) is active on the EVS server.

- The **1080p** resolution is selected in Server tab, Video and Reference settings, **Resolution** field.

- The **UHD-4K PGM** resolution is selected in the Server tab, Video and Reference settings, **Player Resolution** field.

- The UHD-4K and 1080p codecs are equivalent (see Prerequisites section).

- This type of upscale feature is only available with the configurations specifed in the following section.

   - [Standard configurations](#)

- The corresponding license code is required according to the configuration mode :

   - code #29 for 6-channel mode

   - code #30 for 8-channel mode

   - code #36 for 10-channel mode

   - code #34 for 12-channel mode

### Limitations

- Mix on one channel is not supported with the upscale of 1080p into UHD-4K.

- The configurations supporting upscale are available in SDI on an XIP rear panel if you use SFP+ adapters.

---

✎ **NOTE**

You can mix 1080p and UHD-4K clips in playlists and in timelines when you use the upscale feature.
The split screen functionality is also supported with a mixed production.

---

# 3.5.2.    1080p / UHD-4K Standard Configurations

## 6-Channel Mode

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | 2 | Mod. 1 | OUT1 | | | | OUT2 | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN1 | IN2 | | | Mod. 6 |

## 8-Channel Mode

| | IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 | 2 | Mod. 1 | OUT1 | | | | OUT2 | | | | Mod. 2 |
| | | | Mod. 3 | | | | | | | | | Mod. 4 |
| | | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| | 2 | 3 | Mod. 1 | OUT1 | | | | OUT2 | | | | Mod. 2 |
| | | | Mod. 3 | OUT3 | | | | | | | | Mod. 4 |
| | | | Mod. 5 | | | | | IN1 | IN2 | | | Mod. 6 |

## 10-Channel Mode

| IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 2 | Mod. 1 | OUT1 | | | | OUT2 | | | | Mod. 2 |
| | | Mod. 3 | | | | | IN5 | IN6 | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| 4 | 3 | Mod. 1 | OUT1 | | | | OUT2 | | | | Mod. 2 |
| | | Mod. 3 | OUT3 | | | | | | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| 2 | 4 | Mod. 1 | OUT1 | | | | OUT2 | | | | Mod. 2 |
| | | Mod. 3 | OUT3 | | | | OUT4 | | | | Mod. 4 |
| | | Mod. 5 | | | | | IN1 | IN2 | | | Mod. 6 |

## 12-Channel Mode

| IN | OUT | | A | B | C | D | A | B | C | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | 2 | Mod. 1 | OUT1 | | | | OUT2 | | | | Mod. 2 |
| | | Mod. 3 | IN7 | IN8 | | | IN5 | IN6 | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| 6 | 3 | Mod. 1 | OUT1 | | | | OUT2 | | | | Mod. 2 |
| | | Mod. 3 | OUT3 | | | | IN5 | IN6 | | | Mod. 4 |

| IN | OUT | | A | B | C | D | A | B | C | D | |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |
| 4 | 4 | Mod. 1 | OUT1 | | | | OUT2 | | | | Mod. 2 |
| | | Mod. 3 | OUT3 | | | | OUT4 | | | | Mod. 4 |
| | | Mod. 5 | IN3 | IN4 | | | IN1 | IN2 | | | Mod. 6 |

# 4. Multicam Configuration

## 4.1. Overview on User Interfaces

### 4.1.1. Introduction

#### Preliminary Remarks

##### Configuration as Initial Step

Prior to using Multicam, the operator should set all necessary parameters in the Multicam Configuration window. If clips are stored with certain parameters and the operator wishes to change the parameter values afterwards, those clips and playlists will not change.

##### Configuration with Caution

Most parameters are factory preset, and should not be modified without advice of qualified EVS staff. Improper values for some parameters will prevent the proper operation of the system.

##### Parameter Availability

Only the parameters or parameter values valid for the given server type, server chassis, and active license codes are available for defining the various configurations.

#### General Comparison Between User Interfaces

You can configure the EVS server using one of the three available user interfaces:

- Multicam Configuration window in the server-based application
- Multicam Configuration window in the web-based interface
- Technical and Operational Setup menus in an EVS Remote Panel (if any)

The Multicam Configuration windows in the server-based and web-based interface are almost identical.

In the Remote Panel, however, only the most used technical settings are available in the Technical Setup menu, and all operational settings are available in the Operational Setup menu.

The following table provides an overview on the features available in each user interface:

| | Configuration Window | |
|---|---|---|
| | **Technical Settings** | **Operational Settings** |
| **Server-Based Application** | Yes (tabs 1-6) | Yes (tab 7-8) |
| **Web-Based Interface** | Yes (tabs 1-6) | Yes (tab 7-8) |
| **Remote Panel** | Yes (partly) (Technical Setup: F0) | Yes (Setup Menu: SHIFT+D) |

## Overview on Configuration Parameters

The first topic of each section in the Multicam Configuration chapter gives you an overview on the parameters available in this section, and specifies whether you will find the parameter:

- in the basic or advanced view in the server-based application and the web-based interface
- in the Technical Setup, Operational Setup, or not at all on the Remote Control panel

The following list provides a hyperlink to all overview topics in the various sections:

- Server settings
- Channels settings
- Network settings
- Monitoring settings
- Protocol settings
- GPI settings
- Operations settings

### Concurrent Modifications in the Remote Panel and the Server-Based Application

When a parameter is modified with the Remote Panel, and that parameter is not in conflict with the parameter modified in the Configuration page of the server-based application, the following message will be displayed on the VGA.

```
'The configuration has been modified by another user without any
 conflict. Your copy has been updated with these modifications.'
```

When a parameter is modified with the Remote Panel, and the parameter is in conflict with the parameter modified in the Configuration page of the server-based application, the following message will be displayed on the VGA or on the LCD display of the Remote Panel. The configuration will be updated if the user agrees.

```
    'The configuration has been modified by another user.
     Do you want to load it and lose your modification?'
```

> ⚠ **WARNING**
>
> When this message is displayed on the Remote Panel and the user answers 'No' to the message (**Clear** button), the modifications performed on the Remote Panel will be preserved. The changes applied on the VGA will however be loaded after the user leaves the operational setup menu, except if the specific fields modified on the VGA have been modified and validated on the Remote Panel after the message display.

# 4.1.2.   Overview of the Multicam Configuration Window

### Introduction

In the server-based and web-based interfaces, all server settings related to each configuration file are grouped in a single window: the Multicam Configuration window.

When the server is not running a given configuration, the Multicam Configuration window allows you to define any of the configurations available in the Multicam Setup window.

When the server is running a given configuration, the Multicam Configuration window allows you to modify the settings of the running configuration.

The Multicam Configuration window is organized in a similar way in both user interfaces:

• It consists of seven tabs.

• Each tab contains one or more pages in the server-based application.

• Each tab displays all settings on a single page in the web-based interface.

• The settings on page/tab are organized in field groups having a dedicated name.

## Accessing the Multicam Configuration Window

### In the Server-Based Application

To access the Multicam Configuration window from the Multicam Setup window when the server is not running, proceed as follows:

1. Press the **UP ARROW** or **DOWN ARROW** key to respectively move up and down in the list of configuration lines until the requested line is highlighted.

2. Press **F8**.

   The Multicam Configuration window opens.

To access the Multicam Configuration window from the Clips or Playlist window when the server is running, press **SHIFT+F2**.

### In the Web-Based Interface

To access the Multicam Configuration window from the Multicam Setup window when the server is not running, click the **Edit** icon  for the configuration line you want to configure. The Multicam Configuration window opens.

The Multicam Configuration window will directly be displayed on the web-based interface when the server is running a given configuration. You will directly be able to edit the settings for the running configuration.

## Display Mode

The settings in the Multicam Configuration window have been categorized as basic or advanced settings depending on whether they are commonly used or not.

Two display modes are consequently available:

• Basic mode

• Advanced mode

Selecting the basic mode will hide settings on some pages, or completely hide other pages.

To change the display mode in the server-based application, press **F3**.

To change the display mode in the web-based interface, click on the display mode label
 or  .

# User Interfaces

## Server-Based User Interface

The following screenshot presents the 1st tab, and 1st page of the Multicam Configuration window in the server-based application, shown in advanced mode:

- The title bar displays the selected configuration, and specifies whether the configuration has been launched (running) or not (not running).

- The selected tab is highlighted in pink.

- The current page and number of pages in the tab are specified in the top right corner.

- The display mode (basic or advanced) is specified in the top right corner.

## Web-Based User Interface

The following screenshot presents the 1st tab of the Multicam Configuration window of an XS-VIA server in the web-based interface, shown in advanced mode:

- The top line displays the name of the selected configuration, and specifies whether the configuration has been launched (running) or not (not running).

- The selected tab is displayed in a lighter gray color.

- The Display mode (basic or advanced) is specified on the top line.

# 4.1.3.   Navigating and Editing in the Multicam Configuration Window

## In the Server-Based Application

### Navigation Commands

The following table presents the commands to navigate in the Multicam Configuration window:

| Command description | Command key |
|---|---|
| Selecting a given tab | **CTRL** + tab number |
| Moving from one tab to the other<br>(when the tab is selected, i.e. rose highlighted) | **LEFT ARROW / RIGHT ARROW** |
| Moving down/up in the pages of the active tab | **PAGE DOWN** or **PAGE UP** |
| Moving down in the list of editable settings | **TAB** |
| Moving up in the list of editable settings | **SHIFT + TAB** |
| Toggling between Basic and Advanced display mode | **F3** |

### Editing Commands

The following table presents the commands to edit the configuration settings in the Multicam Configuration window when the field has been selected (using the **TAB** key).

In text fields, you can directly type the requested value for a selected field.

| Command description | Command key |
|---|---|
| Increasing the value<br>(or displaying the next value in the list) | **SPACEBAR** |
| Decreasing the value<br>(or displaying the previous value in the list) | **SHIFT+SPACEBAR** |
| Moving the cursor position within a text field | **SHIFT+ RIGHT ARROW / LEFT ARROW** |
| Resetting the value of the selected setting | **F5** |
| Resetting **all** values of **all** settings in the **current** tab for the selected configuration | **CTRL+F5** |
| Resetting all values of **all** settings in **all** tabs for the selected configuration | **CTRL+SHIFT+F5** |
| Applying changes | **ALT+A** |
| Leaving without applying changes | **ESC**, **ENTER** |

### Enabling Values in a List

For some settings, you need to enable values in a list of displayed values. This is, for example, the case with the selection of pages (receive pages, protect pages) in the Operation tab.

The enabled pages are highlighted in blue, and the disabled pages are not highlighted.
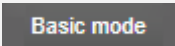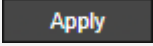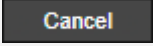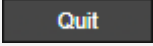
To enable a list of values for a given setting, proceed as follows:

1. Select the list of values with the **TAB** key.

   Once the list of values is selected, the enabled values stay highlighted in blue, and the disabled values are highlighted in pink.

2. On the keyboard, type the digit (numbers/letter) you want to enable. They become highlighted in blue.

3. Apply the changes with **ALT+A**, and confirm the action.

## In the Web-Based Interface

### Navigation and Editing Commands

The navigation and editing commands in the web-based interface are the commonly used commands in a web-based interface. The command buttons available are the following ones:

| Command description | Command key |
|---|---|
| Activating the Advanced display mode | Basic mode |
| Coming back to the Basic display mode | Advanced mode |
| Applying changes | Apply |
| Canceling changes | Cancel |
| Quit and return to the Setup module (when no configuration is running) | Quit |

### In Server- and Web-Based Interfaces

#### Display and Checks of Modified Values

Once modified, the field values are displayed in blue color as long as the changes have not been applied. No check on inconsistent or incompatible field values are performed at that stage.

When you apply the changes, the following occurs:

- The values you have modified are checked. If setting values are inconsistent, you will get an error message at that stage.

- The validated values return to the standard color.

- The inconsistencies are displayed as follows:

  ◦ Inconsistent values are displayed in red.

  ◦ A warning message tells you which field value is problematic.

  ◦ The page containing the inconsistent field value is then displayed when you use the server-based application.

# 4.1.4.  Overview of the Setup Menus in the Remote Panel

## Introduction

When you work in LSM or XSense mode, the Technical and Operational Setup menus available on the Remote Panel allow you to define:

- the commonly used technical settings in the Technical Setup menu

- all operational settings in the Operational Setup menu.

The values assigned to the settings are saved as soon as they are modified.

## Accessing the Technical Setup Menu

To access the Technical Setup menu, press **F0** from the Main Setup page.

The Technical Setup menu opens on the 1st page.

The Technical Setup menu is divided in sections and subsections, named by Tx.y where x is the section number, and y the subsection number.

In all sections dedicated to a tab of the Multicam Configuration window in this manual, you will find an overview table that lists the settings available in the Technical Setup menu, as well as the sections where you will find them.

> **Note**
> The Setup menu of the Remote Panel is dynamically adapted based on the
> EVS server configuration and valid license codes. Consequently, the settings
> available on the Remote Panel do not have a fixed position in the Setup
> menu.

### Accessing the Operational Setup Menu

To access the Operational Setup menu, proceed as follows:

1.  If you are in Playlist mode, press **RECORD** first to exit this mode.

2.  Press **SHIFT** + **MENU** to go to the Main menu:

| | | | Setup |
|---|---|---|---|
| 1PGM+PRV | 2/3 PGM | | |

3.  Select Setup by pressing **SHIFT + D** to enter the Operational Setup menu.

The Operational Setup menu is divided in sections and subsections, named by x.y
where x is the section number, and y the subsection number.

## 4.1.5. Navigating and Editing in the Setup Menus of the Remote Panel

### Introduction

The way you navigate and edit settings is identical in the Technical Setup menu and
Operational Setup menu. The navigation and editing commands are explained below.

# Navigation Commands

The following table presents the commands to navigate in the Setup menus of the Remote Panel:

| Command description | Command key |
| --- | --- |
| Moving to another section when you are inside a section | **SHIFT+F_** key corresponding to the section |
| Moving to the next page inside a section<br>When you are on the last page of a section, you will go to the 1st page of the next section. | **F10** |
| Moving to the previous page inside a section<br>When you are on the first page of a section, you will go to the last page of the previous section. | **F9** |
| Exiting the Setup menu | **Menu** |
| Scrolling through section pages with the jog wheel | **ENTER** (when no setting is selected) + jog |

# Editing Commands

The following table presents the commands to edit a setting in the Setup menus of the Remote Panel:

| Command description | Command key |
| --- | --- |
| Selecting a setting in a section | **F_** key corresponding to the requested setting |
| Modifying the setting value | Turn the jog wheel |
| Validating the modification to a setting value | **ENTER** |
| Restoring the default value for the selected setting | **CLEAR + F_** key corresponding to the requested setting |
| Restoring the default values on the entire Setup menu | **CLEAR + F0** |
| Validating the changes in the Setup menu<br>(to answer to the message when you try to leave the menu) | **MENU** |
| Canceling the changes in the Setup menu<br>(to answer to the message when you try to leave the menu) | **CLEAR** |
| Staying in the Setup menu<br>(to answer to the message when you try to leave the menu) | **ENTER** |

# 4.1.6.    Required Application Reboot

## Introduction

Modifications to some parameters will only be applied after rebooting the application. When you change one of the following parameters, a message will inform you that you need to reboot Multicam.

Such parameters are summarized below, but the parameter description also specifies when a reboot is required:

| Tab Name | Setting Name |
|---|---|
| Server tab | Some video and reference settings:<br>• Field rate<br>• Resolution<br>• Timecode |
| Server tab | All codec settings |
| Server tab | All PC LAN settings (only editable from the Multicam Setup window) |
| Channels tab | Some base settings:<br>• Inputs<br>• Outputs<br>• Base config |
| Channels tab | One audio setting:<br>• Number of tracks |
| Channels tab | One recorder setting:<br>• REC capacity |
| Network tab | All XNet settings:<br>• Operation Mode<br>• Net name<br>• Net number<br>• Visibility<br>• XNet server |
| Network tab | All Gigabit settings:<br>• Gigabit connection<br>• Gigabit IP configuration |

# 4.2.    Server Tab

## 4.2.1.    Overview

The Server tab covers the settings related to video codecs and standards, time reference, phase definition, interpolation activation, and PC LAN.

The table below presents the settings of the Server tab. A cross is displayed in the corresponding column when the setting is available:

•    in the basic or advanced display mode in the server-based and web-based interfaces

•    in the **Technical Setup** menu (T1.X) of the Remote Panel

| Setting Name | Basic | Advanced | Technical Setup |
|---|---|---|---|
| **Video and reference settings** | | | |
| **Field rate** | X | X | – |
| **Aspect ratio** | X | X | – |
| **Resolution** | X | X | – |
| **HDR Profile** | – | X | – |
| **Color Gamut** | – | X | – |
| **Timecode** | X | X | – |
| **Sync PC Time to TC** | – | X | – |
| **Genlock** | X | X | – |
| **Codec Settings** (Intra / Proxy) | | | |
| **Codec** | X | X | – |
| **Bitrate** | X | X | – |
| **Horizontal Res.** | – | X | – |
| **Phase definition settings** | | | |
| **HD output phase** | – | X | X |
| **Interpolation settings** | | | |
| **Vertical interp.** | – | X | X |
| **Four Lines** | – | X | X |
| **PC LAN settings** | | | |
| **IP Address** | X | X | – |

| Setting Name | Basic | Advanced | Technical Setup |
|---|---|---|---|
| **Subnet Mask** | X | X | – |
| **Default Gateway** | X | X | – |

# 4.2.2.  Video Codecs and Reference
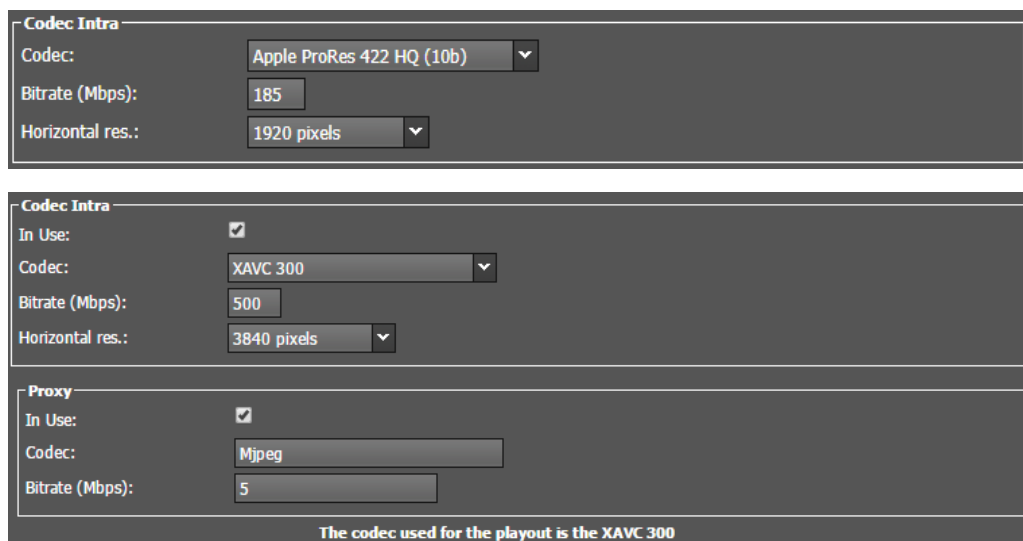
## Video and Reference Settings

### User Interface
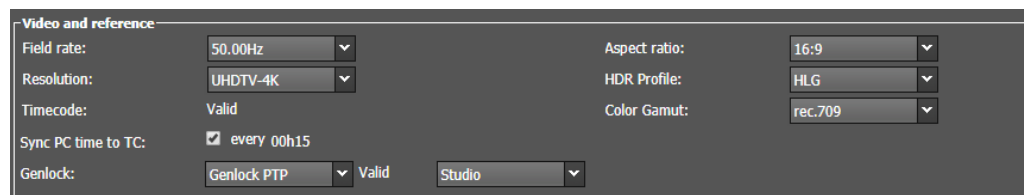
The Video and Reference settings are available on the Server tab in the server-based application (1st page) and web-based interface. These settings are not available in the Technical Setup menu of the Remote Panel.

---

⚠️ **WARNING**

Most Video and Reference settings (all except Sync PC time and Genlock) require an application reboot (**ALT+Q** from the operational windows) for changes to be taken into account.

---

The following screenshot displays the Video and Reference settings defined on the Server tab in the web-based interface:



### Field Rate

| Description | Field frequency used (Hz).<br>Both field rate and resolution give the video standard. |
|---|---|
| **Values** | 50.00 Hz (PAL) - default<br>59.94 Hz (NTSC) |

## Aspect Ratio

| Description | Specifies the aspect ratio of the content provided on the input video signal. |
|---|---|
| Values | The following values are available:<br>• **16:9**<br>• **16.9 Pillarbox** |
| Default value | 16:9 |

## Resolution

| Description | Vertical resolution used (number of white-to-black and black-to-white transitions that can be seen from the top to the bottom of the picture) (pixel + type).<br>Both field rate and resolution correspond to the video standard. |
|---|---|
| Values | In HD:<br>• **720p**<br>• **1080i**<br>• **1080p** (available with code 22)<br>In UHD-4K:<br>• **UHDTV-4K** (available with code 27) |

## Player Resolution

| Availability | This field is available in the following conditions:<br>• The Resolution parameter is set to 1080p<br>• The XS-VIA has valid license codes 39 (1080p upscale to UHD-4K) and 27 (UHD-4K) |
|---|---|
| Description | Resolution for the play channels when running a 1080p configuration.<br>This field is located on the right of the **Resolution** field (no label).<br><br>In case of UHD-4K, the video content is transported in 2-sample interleave format. |
| Values | • UHD-4K PGM<br>• 1080p PGM |
| Default value | 1080p PGM |

## HDR Profile

| Availability | The parameter is only available in advanced mode. |
|---|---|
| Description | Specifies the OETF function (opto-electric transfer function) used for High Dynamic Profile (HDR). HDR is a digital technique of compositing and tone-mapping of images that aims at extending the dynamic range of an image beyond the native capability of the capturing device, in order to increase the luminosity contrasts in a picture. |
| Values | • **None** (SDR = Standard Dynamic Range)<br>• **HLG** (= Hybrid Log-Gamma, developed by BBC and NHK)<br>• **PQ** (= Perceptual Quantizer, developed by Dolby Lab. Inc.)<br>• **S-Log3** (developed by Sony)<br>• **V-Log** (developed by Panasonic) |
| Default value | None (SDR) |

## Color Gamut

| Availability | The parameter is only available in advanced mode. |
|---|---|
| Description | Specifies the standard corresponding to the color space of the incoming feeds. This metadata, to be set manually, does not have a functional impact on the EVS server. |
| Values | • **Unknown**: no color space is specified.<br>• **rec. 709**: corresponds to the color space usually used with HDTV. Only available in HD and UHD-4K.<br>• **rec. 2020**: corresponds to the Wide Gamut color space that offers a larger color range, usually used with UHDTV. Only available in HD and UHD-4K. |
| Default value | • rec. 709 |

## Timecode

| Description | Status of the timecode signal delivered to the EVS server. The timecode information is stored on a separate track from the video.<br>It can be provided in two different ways:<br>• LTC (Longitudinal Timecode) provided via the Timecode IN connector on the EVS server rear panel<br>• Timecode information is calculated from the PTP value |
|---|---|
| Values | The timecode status can be: **OK** or **Valid**, **BAD**, **LOST** or **DRIFT** (defined by the EVS server).<br>The timecode is given as hh:mm:ss:fr. |

# Sync PC Time to TC

| Description | Specifies whether the PC time is synchronized with the timecode, and how often the synchronization takes place. |
|---|---|
| Values | Synchronization: Yes/No<br>Frequency: every 00h15 (not editable) |

# Genlock

| Description | Specifies the source of the genlock signal, and indirectly of the timecode signal, as well as the status of the genlock signal and the frame synchronizer mode. |
|---|---|
| Values | Source:<br>• **Genlock PTP**: the genlock is provided via the V4X module: 1-C or 1-D.<br>This is only available when the XIP Interface is used (See Base Settings, Interface setting).<br>In this case, the timecode information is calculated from the PTP value.<br>• **Genlock SDI**: the genlock is provided via the Ref Video IN connector on the EVS server rear panel.<br>In this case, the LTC timecode is provided via the Timecode IN connector on the EVS server rear panel.<br>Status: (read-only)<br>• **Valid\OK**<br>• **Bad**<br>• **Lost\Drift** (only applicable for Genlock SDI)<br>Mode:<br>• **Studio**: no correction of a shifted video signal<br>• **Resync** (default): resynchronization of a shifted video signal |

⚠ **WARNING**

If you want the genlock and timecode signals to be delivered through PTP, contact the EVS support as this may require an upgrade of the V4X base module.

> **NOTE**
>
> When your server is set in XiP mode and runs a configuration without any PGMs and only a limited number of recorders, none of the V4X modules on the first V4X board are used.
>
> No PTP signal is received for the following configurations:
> - **720p/1080i/1080p:** 1 IN 0 OUT, 2 IN 0 OUT, 3 IN 0 OUT, 4 IN 0 OUT
> - **UHD-4K:** 1 IN 0 OUT, 2 IN 0 OUT
>
> When selecting the Genlock PTP parameter, the following error message is displayed:
> 'The selected IN/OUT configuration does not support Genlock PTP'.

# About Multi-Essence

## Introduction

The XS-VIA server can encode, at a time, a record train in two different codec types, which are called essences. The following essences are available: **Intra** and **Proxy (Lo-Res)** . This process is seamless to the user, who will go on working as before with the EVS server.

This section provides an overview of the multi-essence feature, and mainly specifies the rules and restrictions you should take into account when you configure an XS-VIA server in multi-essence.

## Essence Combinations

The essences can be combined as follows:

- Intra only

- Intra + Proxy

## General Rules

- You will only see one record train per record channel and one clip per LSMID even if the record trains and clips exist in several essences on the EVS server.

- A single clip is identical in all available essences.

- The **Proxy** essence cannot be used as a single essence on an EVS server.

## Recording and Editing Rules

• When the server is configured in multi-essence mode, the clips are created in each active essence.

• In general, all editing actions on clips are applied seamlessly on all active essences of the clip.

## Playout Rules

• The Intra essence is always played out.

• The Proxy essence is never played out.

## Limitations With Proxy Codecs

Dolby E is not supported in Proxy essence. If audio channels are configured in Dolby E in a multi-essence configuration with Proxy, the Proxy output will have no associated audio.

> **NOTE**
>
> The Lo-Res audio is Mpeg-1 Layer II at 48 kHz sampling frequency.

# Codec Settings

## Introduction

The XS-VIA server can encode, at a time, a record train in an Intra codec and in the Proxy codec.

### Possible Codec Sections

The codec settings are organized in two codec sections, which correspond to the essences you can activate on the XS-VIA server.

Only the codec sections corresponding to the essences available on the EVS server will be displayed. See section "Codec Availability" on page 113 for more information on the availability of a given codec and/or codec section.

The following codec sections can be available:

• **Codec Intra:** It is always displayed as at least an Intra codec is available.

• **Proxy:** It is displayed when the Proxy essence is available. This essence is always used together with a Hi-Res Intra codec.

# User Interface

The Codec settings are available on the Server tab in the server-based application (1$^{st}$ page) and web-based interface. These settings are not available in the Technical Setup menu of the Remote Panel.

---

⚠️ **WARNING**

The Codec settings require an application reboot (**ALT+Q** from the operational windows) for changes to be taken into account.

---



# In Use

| | |
|---|---|
| **Description** | Specifies, in each essence section, whether the given essence is encoded or not on the EVS server. |
| **Values** | • Yes<br>• No |
| **Default value** | Yes in **Intra Codec** section<br>No in **Proxy** section |

## Codec (Codec Intra)

| | |
|---|---|
| **Description** | Algorithm used to compress the video signal.<br>With Intra codecs, the compression techniques are performed exclusiverly relative to information contained within the current frame. |
| **Values** | In HD:<br>• Avid DNxHD 120,185 or 185x (only in 50 Hz)<br>• Avid DNxHD 145, 220 or 220x (only in 59.94 Hz)<br>• Apple ProRes 422, 422 LT, 422 HQ<br>• AVC-Intra 100<br>• XAVC-Intra 100<br>In UHD-4K:<br>• XAVC-Intra 300, 480<br>• DNxHR SQ, HQ, HQX<br>See section "Codec Availability" on page 113 for detailed information on codec availability. |
| **Default values** | • Avid DNxHD 120 in HD 50Hz<br>• Avid DNxHD 145 in HD 59.94 Hz<br>• XAVC-Intra 300 in UHD-4K |

> **NOTE**
>
> When the EVS server is configured to work in AVC-Intra codec, the XAVC-Intra HD codec is also available in playout. The opposite is also applicable.

## Proxy

| | |
|---|---|
| **Description** | Algorithm used to compress the video signal in low resolution.<br>It is used for remote browsing purposes.<br>It is not possible to run an EVS server with the Proxy essence only. |
| **Values** | • Mjpeg<br>• h.264 |
| **Default Value** | • Mjpeg |

## Bitrate

| | |
|---|---|
| **Description** | Number of megabits processed per second (Mbps).<br>The bitrate depends on the codec. |
| **Values** | See section "Codec-Related Information" on page 114 for detailed information on bitrates per codec. |

## Horizontal Res.

| Description | Number of white-to-black and black-to-white transitions that can be seen from the left to the right of the picture (pixels). The setting value depends on the selected video standard and on the codec. |
|---|---|
| Values | See section "Codec-Related Information" on page 114 for detailed information on horizontal resolution for each video standard and codec. |

# Codec Availability

## Introduction

The codec availability mainly depends on whether the license code required for a given codec is active or not.

The codec availability of the Proxy essence depends on additional hardware and software requirements detailed below.

## Requirement Overview

### Codec Intra

The Intra codecs are available when the respective license code is active.

On an XS-VIA server, several license codes are available as standard codecs on the base server hardware.

### Codec Proxy

The **Proxy** settings, and the Mjpeg Proxy codec, are available when the license code 32 (Proxy) is granted on the server.

## License Codes

The following table presents the codec availability for an XS-VIA server depending on the license code.

| Proxy codec | V4X Codec Board |
|---|---|
| Mjpeg, H.264 (Proxy codec) | code 32 |

| HD codecs | V4X Codec Board |
|---|---|
| Avid DNxHD® | code 5 |
| Apple ProRes (422, 422 LT, 422 HQ) | code 6 |
| AVC-Intra | code 13 |
| XAVC-Intra HD | code 15 |
| **UHD-4K codecs** | **V4X Codec Board** |
| DNxHR 4K (SQ, HQ, HQX) | code 16 |
| XAVC-Intra 4K (XAVC class 300, XAVC class 480) | code 19 |

## Codec-Related Information

### Bitrates and Horizontal Resolutions in HD 720p (50 Hz)

| Codec | AVID DNxHD 115 | AVID DNxHD 175 | AVID DNxHD 175x (10b) | Apple ProRes 422 LT | Apple ProRes 422 SQ | Apple ProRes 422 HQ | AVC-Intra 100 XAVC-Intra 100 |
|---|---|---|---|---|---|---|---|
| **Bitrate (Mbps)** | 1-115 | 116-175 | 116-175 | 85 | 120 | 185 | 111 |
| **Default bitrate** | 115 | 175 | 175 | 85 | 120 | 185 | 111 |
| **Horizontal Resolution** | 1280 | 1280 | 1280 | 1280 | 1280 | 1280 | 1280 |

### Bitrates and Horizontal Resolutions in HD 720p (59.94 Hz)

| Codec | AVID DNxHD 145 | AVID DNxHD 220 | AVID DNxHD 220x (10b) | Apple ProRes 422 LT | Apple ProRes 422 SQ | Apple ProRes 422 HQ | AVC-Intra 100 XAVC-Intra 100 |
|---|---|---|---|---|---|---|---|
| **Bitrate (Mbps)** | 1-145 | 146-220 | 146-220 | 102 | 145 | 220 | 111 |
| **Default bitrate** | 145 | 220 | 220 | 102 | 145 | 220 | 111 |
| **Horizontal Resolution** | 1280 | 1280 | 1280 | 1280 | 1280 | 1280 | 1280 |

> **NOTE**
>
> The dynamic bitrate management system modifies compression tables for each recorded field to keep the bitrate of the encoded stream as close as possible to the target. A higher bitrate means better picture quality and less storage capacity but a higher bandwidth is required. Improper values can exceed disks performance, causing frozen pictures during playback.

## Bitrates and Horizontal Resolutions in HD 1080i (50 Hz)

| Codec | AVID DNxHD 120 | AVID DNxHD 185 | AVID DNxHD 185x (10b) | Apple ProRes 422 LT | Apple ProRes 422 SQ | Apple ProRes 422 HQ | AVC-Intra 100 XAVC-Intra 100 |
|---|---|---|---|---|---|---|---|
| Bitrate (Mbps) | 1-121 | 122-185 | 122-185 | 85 | 120 | 185 | 111 |
| Default bitrate | 121 | 184 | 184 | 85 | 120 | 185 | 111 |
| Horizontal Resolution | 1920 | 1920 | 1920 | 1920 | 1920 | 1920 | 1920 |

## Bitrates and Horizontal Resolutions in HD 1080i (59.94 Hz)

| Codec | AVID DNxHD 145 | AVID DNxHD 220 | AVID DNxHD 220x (10b) | Apple ProRes 422 LT | Apple ProRes 422 SQ | Apple ProRes 422 HQ | AVC-Intra 100 XAVC-Intra 100 |
|---|---|---|---|---|---|---|---|
| Bitrate (Mbps) | 1-145 | 146-220 | 146-220 | 102 | 145 | 220 | 111 |
| Default bitrate | 145 | 220 | 220 | 102 | 145 | 220 | 111 |
| Horizontal Resolution | 1920 | 1920 | 1920 | 1920 | 1920 | 1920 | 1920 |

## Bitrates and Horizontal Resolutions in HD 1080p (50 Hz)

| Codec | AVID DNxHD 240 | AVID DNxHD 365 | AVID DNxHD 365x (10b) | Apple ProRes 422 LT | Apple ProRes 422 SQ | Apple ProRes 422 HQ | AVC-Intra 100 XAVC-Intra 100 |
|---|---|---|---|---|---|---|---|
| **Bitrate (Mbps)** | 1-242 | 243-367 | 243-367 | 170 | 245 | 367 | 222 |
| **Default bitrate** | 242 | 367 | 367 | 170 | 245 | 367 | 222 |
| **Horizontal Resolution** | 1920 | 1920 | 1920 | 1920 | 1920 | 1920 | 1920 |

## Bitrates and Horizontal Resolutions in HD 1080p (59.94 Hz)

| Codec | AVID DNxHD 290 | AVID DNxHD 440 | AVID DNxHD 440x (10b) | Apple ProRes 422 LT | Apple ProRes 422 SQ | Apple ProRes 422 HQ | AVC-Intra 100 XAVC-Intra 100 |
|---|---|---|---|---|---|---|---|
| **Bitrate (Mbps)** | 1-291 | 292-440 | 292-440 | 204 | 293 | 440 | 222 |
| **Default bitrate** | 291 | 440 | 440 | 204 | 293 | 440 | 222 |
| **Horizontal Resolution** | 1920 | 1920 | 1920 | 1920 | 1920 | 1920 | 1920 |

# Bitrates and Horizontal Resolutions in UHD-4K (50 and 59.94 Hz)

The following tables present the bitrates for the whole UHD-4K image:

| Field rate | 50 Hz | 50 Hz | 59.9 Hz | 59.94 Hz |
|---|---|---|---|---|
| Codec | XAVC-Intra 300 | XAVC-Intra 480 | XAVC-Intra 300 | XAVC-Intra 480 |
| Default bitrate | 500 | 800 | 600 | 960 |
| Horizontal Resolution | 3840 | 3840 | 3840 | 3840 |

| Field rate | 50 Hz | 50 Hz | 50 Hz | 59.9 Hz | 59.94 Hz | 59.94 Hz |
|---|---|---|---|---|---|---|
| Codec | AVID DNxHR SQ (8bit) | AVID DNxHR HQ (8bit) | AVID DNxHR HQx (10 bits) | AVID DNxHR SQ (8bit) | AVID DNxHR HQ (8bit) | AVID DNxHR HQx (10 bits) |
| Default bitrate | 965 | 1455 | 1455 | 1155 | 1745 | 1745 |
| Horizontal Resolution | 3840 | 3840 | 3840 | 3840 | 3840 | 3840 |

# Properties of the Proxy Codecs

| Property | Mjpeg | h.264 |
|---|---|---|
| Bitrate (Mbps) | 3 or 5 | 1, 1.5, 2, 3 |
| Default bitrate | 3 | 2 |
| Resolution | SD NTSC 352 x 240 pixels<br>CIF 352 x 288 pixels<br>CIF is used in all modes other than SD NTSC | 640x360 |

## 4.2.3.   Phase Definition Settings

### User Interface

The Phase Definition settings are available on the Server tab in the server-based application (2nd page) and web-based interface in the advanced mode.

The following screenshot displays the Phase Definition settings:
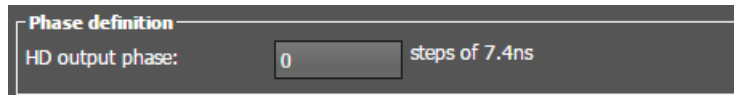


### HD Output Phase

| Description | Allows you to define a phase correction for the HD output. The value is adjusted by steps of 7.4 ns, which corresponds to 1/2 pixel of HD. |
|---|---|
| Values | Steps of half pixels (7.4 ns):<br>• from -4504500 to 4504500 in NTSC<br>• from -5400000 to 5400000 in PAL |
| Default value | 0 |

## 4.2.4.   Interpolation Settings

### User Interface

The Interpolation settings are available on the Server tab in the server-based application (2nd page) and web-based interface in the advanced mode.

The following screenshot displays the Interpolation settings defined on the Server tab in the web-based interface:

## General Description

The interpolation process aims at reducing the vertical jitter of the pictures that is present during slow-motion replays. This vertical jitter is actually caused by a violation of the frame parity when playing back the pictures at less than 100 % speed.

The process consists in re-building new frames to produce a more transparent result. These frames have to be interpolated, that is calculated by making suitably weighted averages of adjacent lines.

There are two interpolation modes: the two-line interpolator and the four-line interpolator. They are not mutually exclusive:

- The two-line interpolator reduces the vertical jitter, but also the vertical bandwidth.
- The four-line interpolator makes it possible to have perfectly steady pictures, but reduces even more the vertical bandwidth.

> **NOTE**
>
> All VTRs use interpolation in PLAY VAR mode.

## Vertical Interp. (Vertical Interpolation)

| Description | Enables or disables the two-line interpolation process. |
|---|---|
| Values | <ul><li>No (default)</li><li>Yes</li></ul> |

## Four Lines

| Description | Enables or disables the four-line interpolation process. |
|---|---|
| Values | <ul><li>No (default)</li><li>Yes</li></ul> |

# 4.2.5.    PC LAN Settings

## User Interface

The PC LAN settings allow the H4X board of an EVS server to communicate and exchange information with other EVS hardware on a setup.

The PC LAN settings are displayed on the Server tab in the server-based application (2nd page) and web-based interface in the advanced mode.

The following screenshot displays the PC LAN settings defined on the Server tab in the web-based interface:

```
┌─ PC LAN ────────────────────────────────────────────────────────┐
│                                                                  │
│  IP address:              10 . 129 . 110 .  21    Up       Up    │
│                                                                  │
│  Subnet mask:            255 . 255 . 254 .   0                   │
│                                                                  │
│  Default gateway:         10 . 129 . 111 . 254                   │
│                                                                  │
└──────────────────────────────────────────────────────────────────┘
```

**NOTE**

The PC LAN settings are read-only in the Multicam Configuration window. You can modify them in the Multicam Setup window, using the **Set LAN PC address** command. See section "Setting the Server PC LAN Connection" on page 25 for more information.

# IP Address

| | |
|---|---|
| **Description** | IP address to connect to the port #1 of the internal switch module on the board on the server.<br>The status of the PC LAN connection(s) is specified next to the IP address on the web-based interface, and in a separate parameter on the server-based interface.<br>When the redundancy is enabled, the status of both PC LAN connections is specified. |
| **Values** | The IP addresses 0.0.0.0 and 255.255.255.255 are not allowed.<br>The connection status can be **Up** or **Down**. |

# Subnet Mask

| | |
|---|---|
| **Description** | Range of logical addresses within the address space assigned to port #4 of the internal switch module. |

# Default Gateway

| | |
|---|---|
| **Description** | IP address of the router on the network that the port #4 of the internal switch module can use as an access point to external networks. |

# 4.2.6.   Domain Name System Settings

## User Interface

The Domain Name System settings allow an EVS server to retrieve from a DNS server in the same PC LAN network the address of the available NMOS Registry and Discovery Instances. The EVS server will register itself to one of these instances using unicast messages and will retrieve information about other NMOS Nodes.

The Domain Name System settings are displayed on the Server tab in the server-based application (2nd page) and web-based interface in the advanced mode.

The following screenshot displays the Domain Name System settings defined on the Server tab in the web-based interface:

| Domain Name System | |
|---|---|
| NMOS Unicast: | ☐ |
| Primary: | 10.129.110.210 |
| Secondary: | |
| Search Domain: | evs.nmos.tv |

---

✎ **NOTE**

Apart from the **NMOS Unicast** parameter, the Domain Name System settings are read-only in the Multicam Configuration window. You can modify them in the Multicam Setup window, by pressing **L**. See section "Configuring a DNS Server Connection" on page 27 for more information.

---

## NMOS Unicast

| Description | Allows to enable or disable NMOS Unicast Mode. |
|---|---|
| Values | • **Disabled (Default):** The EVS server sends multicast messages to make itself known to other NMOS Nodes in the network.<br>• **Enabled:** The EVS server retrieves the IP address of the Registry and Discovery Service from the DNS-SD service. The registry and discovery is based on unicast messages.<br><br>If no DNS server IP address (primary or secondary) or DNS server search domain has been defined, you cannot enable Unicast Mode.<br><br>When you change the **NMOS Unicast** parameter, a message will inform you that you need to reboot Multicam. |

## Primary

| Description | Specifies the IP address of the primary DNS server. |
|---|---|
| Values | Default value: 000.000.000.000. |

## Secondary

| Description | Specifies the IP address of the secondary DNS server. |
|---|---|
| Values | Default value: 000.000.000.000. |

## Search Domain

| Description | Specifies the search domain of the DNS server. |
|---|---|

# 4.3. Channels Tab

## 4.3.1. Channels

### Overview

The table below presents the settings of the Channels tab. A cross is displayed in the corresponding column when the setting is available:

- in the basic or advanced display mode in the server-based and web-based interfaces. In the web-based interface, the settings are all displayed on one page.

- in the **Technical Setup** menu (T2.X) of the Remote Panel.

The Channels tab includes the settings related to video and audio channels, type and configuration of recorders, audio format and audio-video synchronization parameters.

| Setting Name | Basic | Advanced | Technical Setup |
|---|---|---|---|
| **Base settings** | | | |
| **Inputs** | X | X | X |
| **Outputs** | X | X | X |
| **Base config** | X | X | X |
| **UHD-4K Format** | X | X | X |
| **Interface** | X | X | X |
| **Port settings** | | | |
| **RS422 #1-#6** | X | X | X |
| **VIA Controller Settings** | | | |
| **IPD-VIA** | X | X | |
| **Channels and control settings** | | | |
| **OUT1-6 / IN1-12** | X | X | X |
| **Name** | X | X | X |
| **Main ctrl** | X | X | X |
| **Sec. ctrl** | – | X | X |
| **Mode** | – | X | X |
| **OSD** | – | X | – |
| **Audio I/Os settings** | | | |
| **MADI** | X | X | X |
| **Analog** | X | X | X |

| Setting Name | Basic | Advanced | Technical Setup |
|---|---|---|---|
| **Digital** | X | X | X |
| **Audio settings** | | | |
| **Number of tracks** | X | X | X |
| **Audio monitoring settings** | X | X | X |
| **Mon #1-#4** | X | X | X |
| **Advanced audio settings (Inputs)** | – | X | – |
| **Advanced audio settings (Embedded outputs)** | – | X | – |
| **Advanced audio settings (MADI outputs)** | – | X | – |
| **Recorder settings** | | | |
| **Loop recording** | – | X | X |
| **Clip Capacity** | – | X | X |
| **Rec auto start** | – | X | X |
| **Rec capacity** | – | X | X |
| **Mix on one channel setting** | | | |
| **OUT1-6** | – | X | X |
| **Timecode settings** | | | |
| **LTC** | – | X | – |
| **User** | – | X | X |
| **Primary TC** | – | X | X |
| **SMPTE 334M packets management settings** | | | |
| **Decoding** | – | X | X |
| **Encoding** | – | X | X |
| **Custom 1 / 2** | – | X | – |
| **SD OUT Encoding** | – | X | – |
| **Timecode insertion settings** | | | |
| **IN Loop settings** | – | X | – |
| **HD OUT settings** | – | X | – |

> **NOTE**
>
> The following features are not supported on XS-VIA:
> - 3D
> - TwinRec
> - SD Autosense

# Base Settings

## User Interface
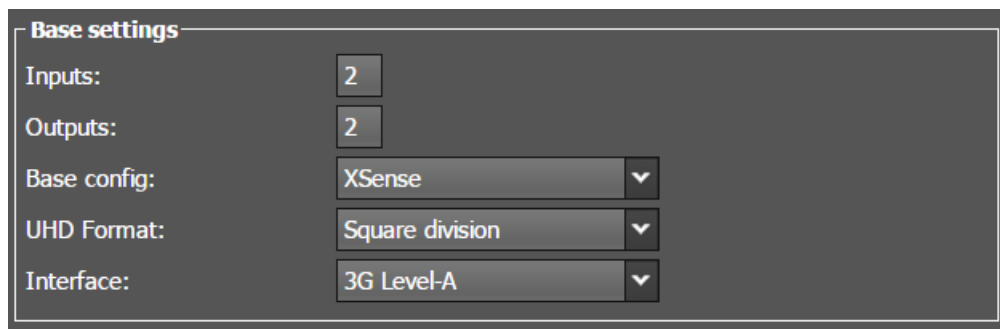
The base settings allow defining the main characteristics of a configuration as regards play and record channels.

> **WARNING**
>
> Some base settings (Inputs, Outputs Base config.) require an application reboot (**ALT+Q** from the operational windows) for changes to be taken into account.

These fields are available in the following interfaces:

- in the Multicam Configuration window, Channels tab, in the basic and advanced display mode on the server- and web-based interfaces

- in the Technical menu of the Remote Control Panel (T2.X)

## Inputs

| Description | Number of logical record channels in the given configuration. The partition of the disk storage between these channels, and the advanced audio settings are automatically adapted to the number of record channels. |
| --- | --- |
| Values | The number of supported channels depends on the chassis, and the mode:<br>•    on XS-VIA: 0-12 (Spotbox), 1-12 (XSense)<br>See section "About Supported Configurations" on page 49 for more information on number of record channels and on supported configurations. |

## Outputs

| Description | Number of logical play channels in the given configuration. |
| --- | --- |
| Values | The number of supported channels depends on the chassis, and the mode:<br>•    on XS-VIA and XS-VIA: 0-6 (Spotbox), 1-6 (XSense)<br>See section "About Supported Configurations" on page 49 for more information on number of record channels and on supported configurations. |

## Base Config.

| Description | Mode the EVS server is working in.<br>The base configurations available depend on the server type, and on the valid license codes. |
|---|---|
| Values | • **Spotbox**:<br>mode where the EVS server can be controlled by industry-standard protocols: Sony BVW75, VDCP, Odetics, DD35, EVS' AVSP, IPDP or LinX API, or from the Multicam production screens.<br>License codes: 90 ... 95 + 127<br>• **XSense**:<br>mode where the EVS server can be controlled by the XSense Remote Panel or from the Multicam production screens. The XSense licence code and the playlist management codes have to be valid, for users to be able to select XSense as a base configuration.<br>License codes: 96 + 90 ... 95 + 111<br>• **Video Delay**:<br>mode where the server is used to play out the input with a video delay.<br>License codes: 90 ... 95 + 127<br>• **Server**:<br>mode where the EVS server can only be controlled by the supported industry-standard protocols, but not from the Multicam production screens.<br>License codes: 90 ... 95 (without 127) |
| Default value | XSense |

## UHD-4K Format

| Availability | The parameter is only available when the UHDTV-4K resolution is selected in the Server tab, Video and Reference settings, **Resolution** field. |
|---|---|
| Description | Defines the format used to transfer the UHD-4K image to and from the EVS server. |
| Values | The following values are possible:<br>• **two-sample interleave**: the UHD-4K is transported as four 1080p images at 1/4 of the original 4K resolution. This value is mandatory with a 12G interface.<br>• **square division**: the UHD-4K is transported as four 1080p quadrants.<br>• **single stream:** the UHD-4K is transported as a single stream.This value is only with a XIP interface. |
| Default value | two-sample interleave |

## Interface

| | |
|---|---|
| **Availability** | The parameter is only available with one of the following license code active or with the following hardware:<br>• code 22 (3G-SDI interface in 1080p)<br>• code 27 (UHD-4K resolution)<br>• XT-VIA rear panel (XIP or SDI) |
| **Description** | Defines the interface the EVS server will use in 1080p with UHD-4K resolutions  or XT-VIA rear panel:<br>• The **HD-SDI interface** consists of a HD-SDI serial link and provides a bitrate of 1.485 Gbit/s.<br>• The **3G-SDI interface** consists of a single serial link that provides 2.970 Gbit/s.<br>• The **12G-SDI interface** consists of a single serial link corresponding to 4 x 3G-SDI links. This provides an uncompressed interface for UHD-4K.<br>• The **IP SFP+ connectors** with the XIP rear panel. |
| **Values** | The following values are possible, but their availability depends on several conditions:<br>• **HD-SDI**: HD-SDI connection for 720p or 1080i<br>  ◦ available with these resolutions.<br>• **3G Level-A**: 3G-SDI connection for 1080p, or each 1080p quadrant of an UHD-4K image.<br>  ◦ available with code 22 (1080p 3G) or code 27 (UHD-4K).<br>• **12G**: 12G-SDI connection for an UHD-4K image.<br>  ◦ available with code 27 (UHD-4K) with 12G or XIP rear panels.<br>• **XIP**: V4X and MX4X SFP+ connection for IP streams.<br>  ◦ available with an XIP rear panel with all resolutions. |
| **Default value** | • HD-SDI for all resolutions except UHD-4K<br>• 12G for UHD-4K resolution |

# Port Settings
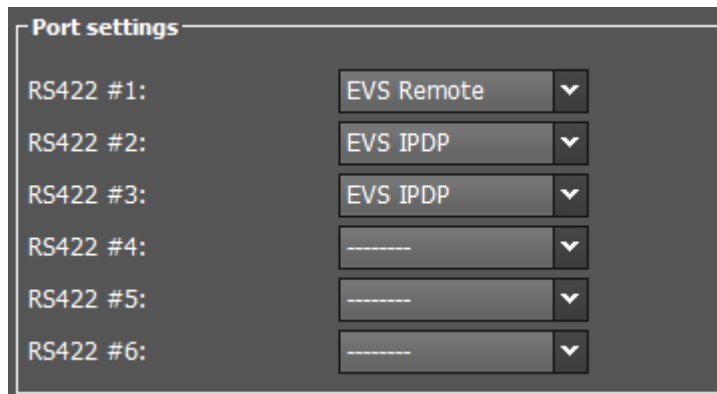
## User Interface

The port settings allow assigning the RS422 ports to the various external controllers (EVS or third-party) that will communicate with the EVS server.

These fields are available in the following interfaces:

• in the Multicam Configuration window, Channels tab, in the basic and advanced display mode of the server- and web-based interfaces

• in the Technical menu of the Remote Control Panel (T2.X)

The following screenshot displays the Port settings defined on Channels tab in the web-based interface:



## RS422 #1 - #6

| Description | Specifies what type of device/controller is connected to each RS422 port of the EVS server. |
|---|---|
| Values | The following values can be available if the required license codes are active:<br>• EVS Remote for XSense Remote Panel (code 96)<br>• EVS IPDP (code 120 or 121)<br>• Sony BVW75 (code 118)<br>• XtenDD35 (code 118)<br>• Odetics (code 119)<br>• VDCP (code 119)<br>• EVS AVSP (code 120 or 121)<br>• Edit Rec (code 122)<br>• LinX (code 123) |

# Channels and Control Settings

## User Interface

The Channel and Control settings mainly allow specifying which controllers (main and possibly secondary) have the hand on which play or record channels.

These fields are available in the following interfaces:

• in the Multicam Configuration window, Channels tab, in the basic and advanced display mode of the server- and web-based interfaces.

• in the Technical menu of the Remote Control Panel (T2.X)

## Name

| Description | User-defined name for play or record channel. This name will be used for the OSD, and in the IPDirector application suite. The name can contain maximum 24 characters. |
|---|---|

## Main ctrl (Main Controller)

| Description | Name of the main device/controller allowed to control the given play or record channel. |
|---|---|
| Values | For a controller to be available in the list of values, it must first be assigned to an RS422 port in the port settings.<br>In addition, rules specific to each controller apply to the assignment of the controller (used alone or in combination with other controllers) to play or/and record channels.<br>An error message will be displayed to warn you in case of a wrong protocol selection or protocol combination, and the fields that contain errors will be highlighted in red. |

## Sec. ctrl (Secondary Controller)

| Description | Name of the secondary device/controller allowed to control the given play or record channel. |
|---|---|
| Values | For a controller to be available in the list of values, it must first be assigned to an RS422 port in the port settings.<br>In addition, rules specific to each controller apply to the assignment of the controller (used alone or in combination with other controllers) to play or/and record channels.<br>An error message will be displayed to warn you in case of a wrong protocol selection or protocol combination, and the fields that contain errors will be highlighted in red. |

## Mode

| Description | Specifies how the control on the given play or record channel is managed between the main and secondary controllers, when it is possible to define main and secondary controllers. |
|---|---|
| Values | Two control modes are possible:<br>• **Exclusive mode:**<br>The main controller can decide at any time to pass the control to, or to retrieve the control from the secondary controller.<br>• **Parallel mode:**<br>Any of both controllers can take the control as long as the other controller is not executing a command. The control can thus be freely passed on from one controller to the other. |

## OSD

| Description | Specifies which device (main or secondary controller) will manage the OSD display characters in parallel mode. |
|---|---|
| Values | Two values are possible:<br>• **Main:** The OSD display is managed by the main controller.<br>• **Sec.:** The OSD display is managed by the secondary controller. |

# VIA Controller Settings

## Introduction

The VIA Controller settings allow you to activate the control of the server's record and play channels by IPD-VIA.

This field is available in the Multicam Configuration window, Channels tab, in the basic and advanced display mode of the server- and web-based interfaces.

## IPD-VIA

| Availability | The parameter is only available with the license code 99 and with all base configs. |
|---|---|
| Description | This option makes it possible to let IPD-VIA control all the server's channels.<br>The control by IPD-VIA comes in addition to the already configured serial controllers. |

| **Values** | Yes / No (default). |
|---|---|

# Rules for Controller Assignment

## Main Rules for XS-VIA server

On an XS-VIA server, the following main rules are applicable:

- In an XSense base configuration:

  - All Remote Panels must be the first in the list of main controllers, without gap. It is not allowed to have another controller preceding a Remote Panel in this list.

  - A Remote Panel has to be assigned as main controller of the record channels.

  - Other controllers can be assigned as secondary controllers to PGMs taking into account the protocol-specific rules.

  - A record channel cannot have a secondary controller.

  - No more than 4 play channels on an EVS server can be assigned to Remote Panels.

  - No more than 3 play channels can be assigned to one Remote Panel.

- In a Spotbox or Server base configuration:

  - A Remote Panel is not allowed.

  - Controllers other than a LSM Remote Panel can be assigned to play or record channels, taking into account the protocol-specific rules on controller use and combinations.

# Protocol-Specific Assignment Rules

## Standalone Protocol

The table shows whether or not the given protocol, used as a standalone (as main controller, without secondary controller) can be assigned to the specified number of play channels, record channels or play and record channel combinations.

The green cells refer to allowed assignments, the red ones to banned assignments. Numbers in the cells refer to the notes mentioned below the table.

| | Remote | IPDP | AVSP | VDCP | Sony | Odetics | DD35 | VDCP Mix | VDCP F&K | Odetics F&K | LinX |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **1 PGM** | | | | | | | | 2 | | | |
| **2 PGM** | | | | | | | | | | 3 | |
| **> 2 PGM** | | | | | | | | | | | |
| **1 REC** | 1 | | | | | | | | | | |
| **> 1 REC** | | | | | | | | | | | |
| **1 PGM + 1 REC** | | | | | | | | | | | |
| **Several PGM + 1 REC** | | | | | | | | | | | |
| **Several PGM + Several REC** | | | | | | | | | | | |

1. Every recorder
2. Only if Mix on one channel is enabled.
3. Only consecutive PGMs

### Protocol Used in Exclusive Mode

The table shows whether or not the given protocol, used in exclusive mode (as a main controller or secondary controller) can be assigned to the specified number of play channels, record channels or play and record channel combinations.

The green cells refer to allowed assignments, the red ones to banned assignments. Numbers in the cells refer to the notes mentioned below the table.

| | Remote | IPDP | AVSP | VDCP | Sony | Odetics | DD35 | VDCP Mix | VDCP F&K | Odetics F&K | LinX |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Main Controller** | | | | | | | | | | | |
| 1 PGM | green | green | green | red | red | red | red | red | red | red | red |
| 2 PGM | green | green | green | red | red | red | red | red | red | red | red |
| > 2 PGM | green | green | green | red | red | red | red | red | red | red | red |
| 1 PGM + 1 REC[1] | green | green | green | red | red | red | red | red | red | red | red |
| 1 REC | red | green | green | red | red | red | red | red | red | red | red |
| > 1 REC | red | green | green | red | red | red | red | red | red | red | red |
| Several PGM + 1 REC[1] | red | green | green | red | red | red | red | red | red | red | red |
| Several PGM + Several REC[1] | red | green | green | red | red | red | red | red | red | red | red |
| **Secondary Controller** | | | | | | | | | | | |
| 1 PGM | red | red | green | green | green | green | green | green [2] | red | red | green |
| 2 PGM | red | red | green | green | green | red | red | green | red | red | green |
| > 2 PGM | red | red | green | green | green | red | red | red | red | red | green |
| 1 PGM + 1 REC[1] | red | red | green | green | green | red | red | red | red | red | green |
| 1 REC | red | red | green | green | green | green | green | red | red | red | green [3] |
| Several PGM + 1 REC[1] | red | red | green | green | red | red | red | red | red | red | green |
| Several PGM + Several REC[1] | red | red | green | green | red | red | red | red | red | red | green |

1. The recorder cannot be controlled by a secondary controller in exclusive mode. In these cases, the recorder must be standalone or in parallel mode.

2. Only if Mix on one channel is enabled.

3. The recorder cannot be controlled by LinX as secondary controller in XSense configurations.

## Protocol Used in Parallel Mode

The table shows whether or not the given protocol, used in parallel mode (as a main, secondary or mix controller) can be assigned to the specified number of play channels, record channels or play and record channel combinations.

The green cells refer to allowed assignments, the red ones to banned assignments. Numbers in the cells refer to the notes mentioned below the table.

| | Remote | IPDP | AVSP | VDCP | Sony | Odetics | DD35 | VDCP Mix | VDCP F&K | Odetics F&K | LinX |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **1 PGM** | | | | | | | | **1** | | | |
| **2 PGM** | | | | | | | | | | | |
| **> 2 PGM** | | | | | | | | | | | |
| **1 REC** | | | | | | | | | | | 2 |
| **> 1 REC** | | | | | | | | | | | 2 |
| **1 PGM + 1 REC** | | | | | | | | | | | 2 |
| **Several PGM + 1 REC** | | | | | | | | | | | 2 |
| **Several PGM + Several REC** | | | | | | | | | | | 2 |

1. Only if Mix on one channel is enabled.

2. The recorders cannot be controlled by LinX in XSense configurations.

# Rules for Controller Combinations

## Exclusive Mode - Play Channels

| Secondary > Primary v | Remote | IPDP | AVSP | VDCP | Sony | Odetics | DD35 | LinX | Odetics F&K | VDCP F&K | VDCP Mix |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Remote | - | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟥 | 🟥 | 🟥 | 🟥 |
| IPDP | - | - | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟥 | 🟥 | 🟥 | 🟩 |
| AVSP | - | 🟥 | - | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 |
| VDCP | - | 🟥 | 🟥 | - | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 |
| Sony | - | 🟥 | 🟥 | 🟥 | - | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 |
| Odetics | - | 🟥 | 🟥 | 🟥 | 🟥 | - | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 |
| DD35 | - | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | - | 🟥 | 🟥 | 🟥 | 🟥 |
| LinX | - | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | - | 🟥 | 🟥 | 🟥 |
| Odetics F&K | - | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | - | 🟥 | 🟥 |
| VDCP F&K | - | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | - | 🟥 |
| VDCP Mix | - | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | - |

## Exclusive Mode - Record Channels

The following table shows the supported protocol combinations in exclusive mode on record channels.

| Secondary > Primary v | Remote | IPDP | AVSP | VDCP | Sony | Odetics | DD35 | LinX | Odetics F&K | VDCP F&K | VDCP Mix |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Remote | | | | | | | | | | | |
| IPDP | | - | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟥 | 🟥 | 🟥 | 🟥 |
| AVSP | | 🟥 | - | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 |
| VDCP | | 🟥 | 🟥 | - | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 |
| Sony | | 🟥 | 🟥 | 🟥 | - | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 |
| Odetics | | 🟥 | 🟥 | 🟥 | 🟥 | - | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 |
| DD35 | | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | - | 🟥 | 🟥 | 🟥 | 🟥 |
| LinX | | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | - | 🟥 | 🟥 | 🟥 |
| Odetics F&K | | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | - | 🟥 | 🟥 |

| Secondary > Primary v | Remote | IPDP | AVSP | VDCP | Sony | Odetics | DD35 | LinX | Odetics F&K | VDCP F&K | VDCP Mix |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VDCP F&K | (gray) | Red | Red | Red | Red | Red | Red | Red | Red | - | Red |
| VDCP Mix | (gray) | Red | Red | Red | Red | Red | Red | Red | Red | Red | - |

## Parallel Mode - Play Channels

The following table shows the supported protocol combinations in parallel mode on play channels.

| Secondary > Primary v | Remote | IPDP | AVSP | VDCP | Sony | Odetics | DD35 | LinX | Odetics F&K | VDCP F&K | VDCP Mix |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Remote | - | Green | Red | Green * | Red | Green * | Green * | Red | Red | Red | Red |
| IPDP | - | - | Red | Green * | Red | Green * | Green * | Red | Red | Red | Green |
| AVSP | - | Red | - | Red | Green | Red | Red | Red | Red | Red | Red |
| VDCP | - | Green * | Red | - | Green | Red | Red | Red | Red | Red | - |
| Sony | - | Green | Green | Green | - | Green | Green | Green | Red | Red | Red |
| Odetics | - | Green * | Red | Red | Green | - | Red | Red | Red | Red | Red |
| DD35 | - | Green * | Red | Red | Green | Red | - | Red | Red | Red | Red |
| LinX | - | Green | Red | Red | Green | Red | Red | - | Red | Red | Red |
| Odetics F&K | - | Red | Red | Red | Red | Red | Red | Red | - | Red | Red |
| VDCP F&K | - | Red | Red | Red | Red | Red | Red | Red | Red | - | Red |
| VDCP Mix | - | Green | Red | - | Red | Red | Red | Red | Red | Red | - |

* These protocol combinations in parallel mode have operational limitations.

## Parallel Mode - Record Channels

The following table shows the supported protocol combinations in parallel mode on record channels.

| Secondary > Primary v | Remote | IPDP | AVSP | VDCP | Sony | Odetics | DD35 | LinX | Odetics F&K | VDCP F&K | VDCP Mix |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Remote | - | - | - | - | - | - | - | - | - | - | - |
| IPDP | - | - | 🟥 | 🟥 | 🟩 | 🟩 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 |
| AVSP | - | 🟥 | - | 🟥 | 🟩 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 |
| VDCP | - | 🟥 | 🟥 | - | 🟩 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | - |
| Sony | - | 🟩 | 🟩 | 🟩 | - | 🟩 | 🟩 | 🟩 | 🟥 | 🟥 | 🟥 |
| Odetics | - | 🟩 | 🟥 | 🟥 | 🟩 | - | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 |
| DD35 | - | 🟥 | 🟥 | 🟥 | 🟩 | 🟥 | - | 🟥 | 🟥 | 🟥 | 🟥 |
| LinX | - | 🟥 | 🟥 | 🟥 | 🟩 | 🟥 | 🟥 | - | 🟥 | 🟥 | 🟥 |
| Odetics F&K | - | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | - | 🟥 | 🟥 |
| VDCP F&K | - | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | - | 🟥 |
| VDCP Mix | - | 🟥 | 🟥 | - | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | 🟥 | - |
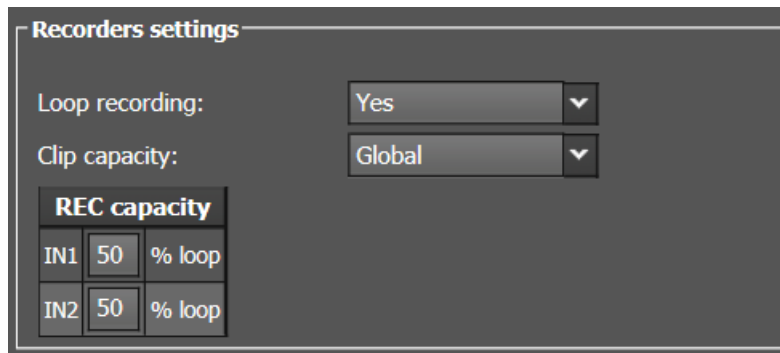
# Recorder Settings

## User Interface

The Recorder settings allow specifying configuration settings associated to the record channels.

These fields are available in the following interfaces:

• in the Multicam Configuration window, Channels tab, in the advanced display mode of the server- and web-based interfaces;

• in the Technical menu of the Remote Control Panel (T2.X).



## Loop Recording

| Description | The **Loop recording** setting enables/disables the endless loop recording of all record channels of the EVS server. |
| --- | --- |
| Values | Yes (default) / No<br>The value is forced to **Yes** in all configurations, except Spotbox and Server configurations. |

## Clip Capacity

| Description | The **Clip capacity** setting specifies the recording mode on the record channels. |
|---|---|
| Values | The following values are available: Global / Per channel<br>• **Global**:<br>In this mode, the clip capacity is shared between the different record trains.<br>**Example:** When 3 record trains are used, creating a clip of 30 min on REC1 will take 10 min of recording capacity equally from each record train.<br>• **Per channel**:<br>In this mode, the clip capacity is only relevant to the individual record train.<br>**Example:** When 3 record trains are used, creating a clip of 30 min on REC1 will take 30 min of recording capacity from the 1$^{st}$ record train, but will not affect the recording capacity of the other two record trains. |
| Default value | The default value depends on the base configuration:<br>• **Global**:<br>  ◦ in XSense configurations (locked value)<br>  ◦ in Video delay configurations (locked value)<br>  ◦ in Spotbox configurations<br>• **Per channel**:<br>  ◦ in Server configurations |

## Rec Auto Start

| Availability | This setting is displayed when a Spotbox or Server configuration is running. |
|---|---|
| Description | Automatic start of the record channels after the EVS server has initialized.<br>In an XSense configuration, the setting is not displayed and the **Rec Auto Start** is automatically activated in the background. |
| Values | Yes (default) / No |

### REC Capacity

> ⚠ **WARNING**
>
> A change to this parameter requires an application reboot (**ALT+Q** from the operational windows) to be taken into account.

| Description | This parameter contains two types of information on the specified recorder:<br>**Recording Capacity: XX%** percentage of the disk space allocated to each channel.<br>**Loop / No Loop:** indicates whether the Loop Recording parameter is enabled or not. |
|---|---|
| Values | The following values are possible:<br>• **Recording Capacity:** The value is defined by the user.<br>The total of all values must not exceed 100%.<br>By default, the recording capacity is evenly distributed among all recorders.<br>• **Loop / No Loop:**<br>• The value directly depends on the Loop Recording setting:<br>  ◦ If the Loop Recoding is enabled, the value will be 'Loop'.<br>  ◦ If the Loop Recording is disabled, the value will be 'No Loop'. |

## Mix on One Channel Feature

### Introduction

The **Mix on one channel** feature provides mixing with a single codec module. This function can be enabled for each individual play channel.

### Availability

The Mix on one channel feature is available for playlists only, in Spotbox configurations and with all controllers.

The feature is available, in addition, in the following conditions:

• with a valid license code 31

• in HD and 1080p resolutions (not with UHD-4K).

### Supported Modes

#### 1 PGM Mode

In a single PGM mode, users working in a Spotbox configuration with IPDirector no longer need to use two channels in PGM/PRV mode to play back a playlist with effects.

When they activate the mix on one channel feature, they can play back a playlist with effects using only 1 PGM.

#### Multi-PGM Mode

In a multi PGM mode, the **Load PL** setting interacts with the use of the **Mix on one channel** setting as shown in the table below. The table summarizes how the play channels are used when you load a playlist in 2 PGM mode, depending on the defined settings:

| Mode | Mix on one channel? | Load Playlist? |
|------|---------------------|----------------|
| 2 PGM | No | Conditional |
| 2 PGM | Yes | Conditional |
| 2 PGM | No | Always |
| 2 PGM | Yes | Always |

When users set the **Load PL** parameter to 'Conditional', and enable the **Mix on one channel** setting, they can use load playlists on both play channels, and play them with effects, or only play back a playlist with effects on PGM1, while using PGM2 to play back something else.

## Mix on One Channel Settings

### User Interface

These fields are available in the following interfaces:

• in the Multicam Configuration window, Channels tab, in the advanced display mode of the server- and web-based interfaces;

• in the Technical menu of the Remote Control Panel (T2.X).

⚠ **WARNING**

The Mix on one channel settings are only available if the license code 31 is valid.

The following screenshot displays the Mix on One Channel settings defined on the Channels tab in the web-based interface:



## Mix on one Channel

| | |
|---|---|
| **Description** | Enables/disables mixing on a single codec module. This function applies to mixes in playlists, not in timelines. The license code 31 is required for the Mix on One Channel feature to be available. Mix on One Channel is available for all controllers (Remote Panel or protocol), with all supported codecs and for HD resolutions. |
| **Values** | Yes (default) / No |

# 4.3.2. Audio

## Audio I/Os Settings

### User Interface

The Audio I/Os settings allow users to specify the audio connectors (digital or MADI) that correspond to the physical connectors available on the rear panel of the EVS server.

The hardware configuration defined in the audio I/O settings is used, among others, to provide a default audio channel association in the advanced audio settings.

> ✎ **NOTE**
>
> The settings available and the setting values defined for these parameters are not automatically validated against the real hardware configuration. Therefore you have to make sure the settings you define reflect accurately the available physical connectors you want to use.

These fields are available in the following interfaces:

- in the Multicam Configuration window, Channels tab, in the basic and advanced display mode.
- in the Technical menu of the Remote Control Panel (T2.X).

The following screenshot displays the Audio I/Os settings defined on the Channels tab in the web-based interface:



## MADI

| Availability | This parameter is available even if the connectors are not fitted on the EVS server. |
|---|---|
| Description | Number of IN and OUT MADI audio mono channels available on the EVS server rear panel. |
| Values | • **None**<br>• **128/128**<br>  ◦ 128 IN mono audio channels<br>  ◦ 128 OUT mono audio channels<br>Refer to the technical reference manual for more information about the number of mono channels provided with each physical connector. |
| Default value | **None** |

## Analog

| Availability | This parameter is available even if the connectors are not fitted on the EVS server. |
|---|---|
| Description | This parameter is not relevant on an XS-VIA server.<br>Number of IN and OUT analog audio mono channels available on the EVS server rear panel. |
| Values | • **None**<br>• **4/4**<br>  ◦ 4 IN mono audio channels<br>  ◦ 4 OUT mono audio channels<br>• **8/8**<br>  ◦ 8 IN mono audio channels<br>  ◦ 8 OUT audio channels |
| Default value | **None** |

## Digital

| | |
|---|---|
| **Availability** | This parameter is always available even if the connectors are not fitted on the EVS server. |
| **Description** | Number of IN and OUT digital audio mono channels available on the EVS server rear panel. |
| **Values** | • **None**<br>• **8/8**<br>  ◦ 8 IN mono audio channels<br>  ◦ 8 OUT audio channels<br>• **16/16**<br>  ◦ 16 IN mono audio channels<br>  ◦ 16 OUT mono audio channels |
| **Default value** | **None** |

# Audio Settings

## User Interface

The Audio settings allow users to specify some general audio settings. Other general audio settings are available in the Audio I/Os settings and Audio Monitoring settings.

These fields are available in the following interfaces:

- in the Multicam Configuration window, Channels tab, in the advanced display mode.

- in the Technical menu of the Remote Control Panel (T2.X).

The following screenshot displays the Audio settings defined on the Channels tab in the web-based interface, in advanced mode:
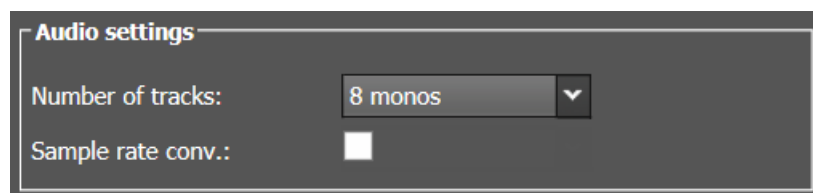


## Number of Tracks

> ⚠ **WARNING**
>
> A change to this parameter requires an application reboot (**ALT+Q** from the operational windows) to be taken into account.

| | |
|---|---|
| **Description** | Number of mono audio tracks associated to each video channel. |
| **Values** | 4 Monos (default), 8 Monos, 16 Monos |

## Sample Rate Conv. (Conversion)

| | |
|---|---|
| **Availability** | This parameter is not available when the **Digital** parameter is set to **None** in the Audio IOs settings. The parameter is indeed only relevant with the digital AES/EBU audio format. |
| **Description** | This setting is not relevant on an XS-VIA server.<br>Specifies whether the input sample rate is converted.<br>If this parameter is set to **No**, the user has to make sure that the signals are properly synchronized. |
| **Values** | Yes (default) / No |

# Audio Monitoring Settings
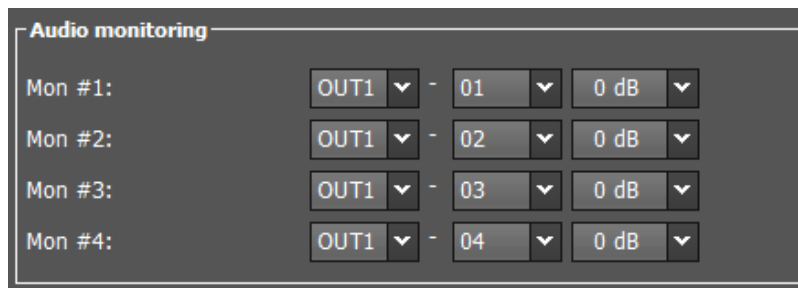
## User Interface

The Audio Monitoring settings allow users to specify which audio signals are monitored on the 4 XLR audio monitoring outputs located on the right of the rear panel.

These fields are available in the following interfaces:

- in the Multicam Configuration window, Channels tab, in the advanced display mode.

- in the Technical menu of the Remote Control Panel (T2.X).

The following screenshot displays the Audio settings and Audio Monitoring settings defined on the Channels tab in the web-based interface:



## Audio Monitoring: Mon #1 - Mon #4

| | |
|---|---|
| **Description** | Specifies the source of the audio signal that will be sent to each of the four audio monitoring connectors (numbered from left to right on the backplane). |
| **Value** | For each audio monitoring connector, the audio signal to be monitored is specified by the video channel number and the audio mono channel number.<br>**Example:** The value 'OUT2-04' for Mon #1 means that the audio signal of the 4$^{th}$ audio mono channel of the PGM2 is sent to the monitoring connector 1. |
| **Default Values** | By default, the audio signal of the first play channel, and the audio mono channels from 1 to 4 (OUT1-01 to OUT1-04) are respectively assigned to the Mon #1 to Mon #4 connectors. |

# Number of Audio Tracks

## Introduction

In the audio settings, the **Number of Tracks** parameter makes it possible to define how many audio mono channels, called **Tracks** in Multicam, will be associated to each video channel (play or record channel).

The number of tracks that can be assigned to each video channel varies based on the following elements:

• Maximum number of audio mono channels supported on the EVS server;

• Number of play and record channels defined in the running Multicam configuration.

You can also refer to the Technical Reference manual, Audio section, for more information on the hardware possibilities on each EVS server.

The following table provides the default and maximum number of mono audio channels per video channel:

| Configuration Mode | Embedded | MADI |
|---|---|---|
| 2-channel configurations | 2*16 audio mono (= 32 tracks) | 2*16 audio mono (= 32 tracks) |
| 4-channel configurations | 4*16 audio mono (= 64 tracks) | 4*16 audio mono (= 64 tracks) |
| 6-channel configurations | 6*16 audio mono (= 96 tracks) | 6*16 audio mono (= 96 tracks) |
| 8-channel configurations | 8*16 audio mono (= 128 tracks) | 8*16 audio mono (= 128 tracks) |
| 10-channel configurations | 10*16 audio mono (=160 tracks) | 10*16 audio mono (=160 tracks) |
| 12-channel configurations | 12*16 audio mono (=192 tracks) | 12*16 mono (=192 tracks) if # IN ≤ 8 + LoRes 12*8 mono (= 96 tracks) if # IN > 8 + LoRes |
| UHD-4K | 6*16 audio mono (=96 tracks) | 6*16 audio mono (=96 tracks) |

# Overview on Advanced Audio Settings

## Introduction

The Advanced Audio settings are defined in the Channels tab of the Multicam Configuration window. In the server-based application, they are displayed from page 3 and are only available in the advanced mode. They allow audio channel routing, muting, and adjusting the audio gain.

The Advanced Audio settings for the **inputs** allow users to specify how the audio sources are routed to the audio mono channels of each record channel.

The Advanced Audio settings for the **outputs** allow users to specify how the audio mono channels are routed to each play channel (for embedded audio) or to the various physical audio connectors (MADI, digital connectors).

In the server-based application, the advanced audio settings are available on different pages:

- audio inputs
- audio embedded outputs
- audio digital outputs (AES/EBU)
- audio MADI outputs

In the web-based interface, the audio inputs and the various audio output types are displayed in the Channels tab, Advanced Audio settings, as different tabs of a single table.

---
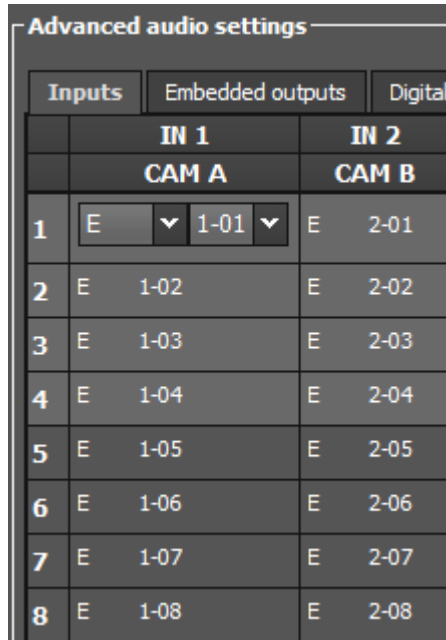
### NOTE

The settings for digital or MADI outputs are only available when the corresponding connectors are defined in the **Audio Connectors** field (Audio settings section) that reflects the audio hardware configuration.

---

# General Table Structure

The screenshot below presents part of the input settings:



In the table, the information is organized as follows, for input or output settings:

- The rows correspond to the audio mono channels of the A/V material stored on the EVS server. The number of rows depends on the value assigned to the **Number of tracks** setting defined in the Audio settings field group.

- The columns correspond to the record channels or play channels.

- The values in the cells show the rooting of the audio mono channels:

  ◦ from the source to the material stored on the EVS server (audio inputs)

  ◦ from the material stored on the EVS server to the play channels (audio outputs)

# Audio Types and Channel Numbers

The screenshot below presents part of the input settings, where the audio input from the record channels is routed by default to the embedded audio channels.

| Advanced audio settings | | |
|---|---|---|
| **Inputs** | Embedded outputs | Digital |
| | **IN 1** | **IN 2** |
| | **CAM A** | **CAM B** |
| **1** | E  ▼  1-01 ▼ | E    2-01 |
| **2** | E    1-02 | E    2-02 |
| **3** | E    1-03 | E    2-03 |
| **4** | E    1-04 | E    2-04 |
| **5** | E    1-05 | E    2-05 |
| **6** | E    1-06 | E    2-06 |
| **7** | E    1-07 | E    2-07 |
| **8** | E    1-08 | E    2-08 |

The values in the cells of the table refer to the audio channel assigned and are made up as follows:

- The first letter refers to the audio type (E for embedded, D for digital, DY for Dolby Digital, EY for Dolby Embedded, M for MADI, MY for Dolby MADI).

For **embedded audio or MADI** (for example 1-01):

- The first number before the hyphen refers to the number of the play or record channel.
- The figure after the hyphen refers to the audio mono channel.

For **digital audio** (for example D 05),

- The number refers to the number of the digital input or output.

# Audio Input Settings

## Introduction

The advanced audio input settings allow users to specify the following elements:

- Which type of audio source should be taken into account in the recording process.

- How the audio mono channels of the source material will be distributed to the material recorded on the EVS server.

- Whether an audio gain or audio muting should be applied in the recording process.

## Example 1



The E2-03 value located in the intersection between row 3 and column IN2 means that the 3$^{rd}$ audio mono channel of the embedded audio source plugged into the IN2 (CAMB) connector will be recorded on the same position on the EVS server.

## Example 2



The allocation of the source audio mono channels shown above means that:

- The embedded audio source of the 1$^{st}$ mono channel of the record channel (IN1 or IN2) will be stored on mono channels 1 to 4 of the recorded material.

- The embedded audio source of the 5$^{th}$ mono channel of the record channel (IN1 or IN2) will be stored on mono channels 5 to 8 of the recorded material.

## Example 3

| | IN 1 | | IN 2 | | |
|---|---|---|---|---|---|
| | CAM A | | CAM B | | |
| 1 | D | 01 | D | 05 | D |
| 2 | D | 02 | D | 06 | D |
| 3 | D | 03 | D | 07 | D |
| 4 | D | 04 | D | 08 | D |

The allocation of the source audio mono channels shown above means that:

- The audio source from the digital connectors is used for the material recorded on the EVS server.

- The audio source 1 from the digital connector will be mapped to the 1$^{st}$ mono channel of the material recorded on the EVS server, and so on.

## Example 4

| | IN 1 | | IN 2 | | |
|---|---|---|---|---|---|
| | CAM A | | CAM B | | |
| 1 | E | 1-01 | E | 1-01 | E |
| 2 | E | 1-02 | E | 1-02 | E |
| 3 | E | 1-03 | E | 1-03 | E |
| 4 | E | 1-04 | E | 1-04 | E |
| 5 | E | 1-05 | E | 1-05 | E |
| 6 | E | 1-06 | E | 1-06 | E |
| 7 | E | 1-07 | E | 1-07 | E |
| 8 | E | 1-08 | E | 1-08 | E |
| 9 | E | 1-09 | E | 1-09 | E |

You will allocate the source audio mono channels as shown above when you want to send the audio mono channels from REC1 to all other record channels.

The command **IN1 on all** allows you doing this more rapidly in the web-based interface.

# Audio Output Settings

## Introduction

The audio output settings for audio allow users to do the following:

• Map the audio mono channels of the material stored on the EVS server to an output mono channel of a play channel.

• Specify the audio gain to be applied to each output mono channel.

• Mute an output mono channel.

This can be defined for the various audio types: embedded audio, digital audio, if the corresponding connectors are available on the hardware configuration.

## User Interface

The screenshots below show an abstract of the default audio channel assignment for the various audio types in a configuration.

## Example

In the screenshot below, the audio mono channels defined on the A/V material on the EVS server are allocated to the play channels in the following way:

The audio outputs are in dolby embedded format.

By default, an audio mono channel of the A/V material stored the EVS server is sent to the corresponding embedded channel of the play channel. In this example, this is the case for mono channels from 3 to 8.

For mono channels 1 and 2, the default mapping has been changed as follows:

- The audio mono channel 1 of the A/V material is sent to the mono channel 2 of the play channel, and this for all play channels.

- The audio mono channel 2 of the A/V material is sent to the mono channel 1 of the play channel, and this for all play channels.

| Inputs | Embedded outputs | | Digital outputs | | Analog outputs | |
|---|---|---|---|---|---|---|
| | **OUT1** | | **OUT2** | **OUT3** | | **OUT4** |
| | **PGM 1** | | **PGM 2** | **PGM 3** | | **PGM 4** |
| 1 | EY | 1-02 | EY 2-02 | EY 3-02 | EY | 4-02 |
| 2 | EY | 1-01 | EY 2-01 | EY 3-01 | EY | 4-01 |
| 3 | EY | 1-03 | EY 2-03 | EY 3-03 | EY | 4-03 |
| 4 | EY | 1-04 | EY 2-04 | EY 3-04 | EY | 4-04 |
| 5 | EY | 1-05 | EY 2-05 | EY 3-05 | EY | 4-05 |

# Default Mapping for Audio Inputs and Outputs

## Introduction

The tables below present the channel mapping for audio inputs and outputs in the following configuration:

- XS-VIA chassis

- 64recorders or players (see section "About Supported Configurations" on page 49) .

- Audio hardware configuration: BNC MADI + 4 DB 15 Digital

In configurations with less recorders or players, the irrelevant rows or columns should be disregarded.

# Audio (Embedded) Inputs

By default, the audio embedded mono channels from the source material are mapped as shown in the table below onto the A/V material stored on the EVS server.

The table shows 6 recorders, and an audio configuration with 16 tracks (mono channels):

|  | IN 1 | IN 2 | IN 3 | IN 4 | IN 5 | IN 6 |
|---|---|---|---|---|---|---|
| Mono1 | E 1-01 | E 2-01 | E 3-01 | E 4-01 | E 5-01 | E 6-01 |
| Mono2 | E 1-02 | E 2-02 | E 3-02 | E 4-02 | E 5-02 | E 6-02 |
| Mono3 | E 1-03 | E 2-03 | E 3-03 | E 4-03 | E 5-03 | E 6-03 |
| Mono4 | E 1-04 | E 2-04 | E 3-04 | E 4-04 | E 5-04 | E 6-04 |
| Mono5 | E 1-05 | E 2-05 | E 3-05 | E 4-05 | E 5-05 | E 6-05 |
| Mono6 | E 1-06 | E 2-06 | E 3-06 | E 4-06 | E 5-06 | E 6-06 |
| Mono7 | E 1-07 | E 2-07 | E 3-07 | E 4-07 | E 5-07 | E 6-07 |
| Mono8 | E 1-08 | E 2-08 | E 3-08 | E 4-08 | E 5-08 | E 6-08 |
| Mono9 | E 1-09 | E 2-09 | E 3-09 | E 4-09 | E 5-09 | E 6-09 |
| Mono10 | E 1-10 | E 2-10 | E 3-10 | E 4-10 | E 5-10 | E 6-10 |
| Mono11 | E 1-11 | E 2-11 | E 3-11 | E 4-11 | E 5-11 | E 6-11 |
| Mono12 | E 1-12 | E 2-12 | E 3-12 | E 4-12 | E 5-12 | E 6-12 |
| Mono13 | E 1-13 | E 2-13 | E 3-13 | E 4-13 | E 5-13 | E 6-13 |
| Mono14 | E 1-14 | E 2-14 | E 3-14 | E 4-14 | E 5-14 | E 6-14 |
| Mono15 | E 1-15 | E 2-15 | E 3-15 | E 4-15 | E 5-15 | E 6-15 |
| Mono16 | E 1-16 | E 2-16 | E 3-16 | E 4-16 | E 5-16 | E 6-16 |

# Audio Embedded Outputs

By default, the audio mono channels from the A/V material stored on the EVS server are mapped to the embedded mono channels on the play channels as presented in the table below.

The table shows 6 players, and an audio configuration with 16 tracks (mono channels):

|          | OUT 1     | OUT 2     | OUT 3     | OUT 4     | OUT 5     | OUT 6     |
|----------|-----------|-----------|-----------|-----------|-----------|-----------|
| **Mono1**  | E 1-01 | E 2-01 | E 3-01 | E 4-01 | E 5-01 | E 6-01 |
| **Mono2**  | E 1-02 | E 2-02 | E 3-02 | E 4-02 | E 5-02 | E 6-02 |
| **Mono3**  | E 1-03 | E 2-03 | E 3-03 | E 4-03 | E 5-03 | E 6-03 |
| **Mono4**  | E 1-04 | E 2-04 | E 3-04 | E 4-04 | E 5-04 | E 6-04 |
| **Mono5**  | E 1-05 | E 2-05 | E 3-05 | E 4-05 | E 5-05 | E 6-05 |
| **Mono6**  | E 1-06 | E 2-06 | E 3-06 | E 4-06 | E 5-06 | E 6-06 |
| **Mono7**  | E 1-07 | E 2-07 | E 3-07 | E 4-07 | E 5-07 | E 6-07 |
| **Mono8**  | E 1-08 | E 2-08 | E 3-08 | E 4-08 | E 5-08 | E 6-08 |
| **Mono9**  | E 1-09 | E 2-09 | E 3-09 | E 4-09 | E 5-09 | E 6-09 |
| **Mono10** | E 1-10 | E 2-10 | E 3-10 | E 4-10 | E 5-10 | E 6-10 |
| **Mono11** | E 1-11 | E 2-11 | E 3-11 | E 4-11 | E 5-11 | E 6-11 |
| **Mono12** | E 1-12 | E 2-12 | E 3-12 | E 4-12 | E 5-12 | E 6-12 |
| **Mono13** | E 1-13 | E 2-13 | E 3-13 | E 4-13 | E 5-13 | E 6-13 |
| **Mono14** | E 1-14 | E 2-14 | E 3-14 | E 4-14 | E 5-14 | E 6-14 |
| **Mono15** | E 1-15 | E 2-15 | E 3-15 | E 4-15 | E 5-15 | E 6-15 |
| **Mono16** | E 1-16 | E 2-16 | E 3-16 | E 4-16 | E 5-16 | E 6-16 |

# Audio Digital Outputs

The default mapping to audio digital output connectors differ depending on the number of tracks (mono channels) defined.

## 16 Audio Tracks

With audio configurations with 16 tracks (mono channels), the audio mono channels of the A/V material stored on the EVS server are sent to the digital audio output connectors of the play channels as presented in the table below.

The table shows 6 players, and the audio configuration with 16 tracks (mono channels):

|        | OUT 1 | OUT 2 | OUT 3 | OUT 4 |
|--------|-------|-------|-------|-------|
| Mono1  | D 01  | D 09  | None  | None  |
| Mono2  | D 02  | D 10  | None  | None  |
| Mono3  | D 03  | D 11  | None  | None  |
| Mono4  | D 04  | D 12  | None  | None  |
| Mono5  | D 05  | D 13  | None  | None  |
| Mono6  | D 06  | D 14  | None  | None  |
| Mono7  | D 07  | D 15  | None  | None  |
| Mono8  | D 08  | D 16  | None  | None  |

## 8 Audio Tracks

With audio configurations with 8 tracks (mono channels), the audio mono channels of the A/V material stored on the EVS server are sent to the digital audio output connectors of the play channels as presented in the table below.

The table shows 6 players, and an audio configuration with 8 tracks (mono channels):

|        | OUT 1 | OUT 2 | OUT 3 | OUT 4 |
|--------|-------|-------|-------|-------|
| Mono1  | D 01  | D 05  | None  | None  |
| Mono2  | D 02  | D 06  | None  | None  |
| Mono3  | D 03  | D 07  | None  | None  |
| Mono4  | D 04  | D 08  | None  | None  |
| Mono5  | None  | None  | None  | None  |
| Mono6  | None  | None  | None  | None  |
| Mono7  | None  | None  | None  | None  |
| Mono8  | None  | None  | None  | None  |

# Audio MADI Outputs

By default, the audio mono channels from the A/V material stored on the EVS server are mapped to the MADI mono channels on the play channels as presented in the table below.

The table shows 6 players, and an audio configuration with 16 tracks (mono channels):

|          | OUT 1 | OUT 2 | OUT 3 | OUT 4 | OUT 5 | OUT 6 |
|----------|-------|-------|-------|-------|-------|-------|
| **Mono1**  | M1-01 | M1-17 | M1-33 | M1-49 | M2-01 | M2-17 |
| **Mono2**  | M1-02 | M1-18 | M1-34 | M1-50 | M2-02 | M2-18 |
| **Mono3**  | M1-03 | M1-19 | M1-35 | M1-51 | M2-03 | M2-19 |
| **Mono4**  | M1-04 | M1-20 | M1-36 | M1-52 | M2-04 | M2-20 |
| **Mono5**  | M1-05 | M1-21 | M1-37 | M1-53 | M2-05 | M2-21 |
| **Mono6**  | M1-06 | M1-22 | M1-38 | M1-54 | M2-06 | M2-22 |
| **Mono7**  | M1-07 | M1-23 | M1-39 | M1-55 | M2-07 | M2-23 |
| **Mono8**  | M1-08 | M1-24 | M1-40 | M1-56 | M2-08 | M2-24 |
| **Mono9**  | M1-09 | M1-25 | M1-41 | M1-57 | M2-09 | M2-25 |
| **Mono10** | M1-10 | M1-26 | M1-42 | M1-58 | M2-10 | M2-26 |
| **Mono11** | M1-11 | M1-27 | M1-43 | M1-59 | M2-11 | M2-27 |
| **Mono12** | M1-12 | M1-28 | M1-44 | M1-60 | M2-12 | M2-28 |
| **Mono13** | M1-13 | M1-29 | M1-45 | M1-61 | M2-13 | M2-29 |
| **Mono14** | M1-14 | M1-30 | M1-46 | M1-62 | M2-14 | M2-30 |
| **Mono15** | M1-15 | M1-31 | M1-47 | M1-63 | M2-15 | M2-31 |
| **Mono16** | M1-16 | M1-32 | M1-48 | M1-64 | M2-16 | M2-32 |

# Modifying the Audio Routing or Type

## Introduction

Audio routing settings can be modified in the Channels tab, in the Advanced Audio Settings. It is possible to change:

- the audio type of all displayed audio channels at the same time by means of:
    - the shortcut keys described below in the server-based application
    - the buttons at the bottom of the table in the web-based interface
- the audio type of individual channels by manually editing the audio type value.
- the routing of an individual audio channel by editing the cell value in the advanced audio settings tables.

## Collective Editing Actions in Server- and Web-Based Interfaces

You can apply the following editing actions to all audio channels of a page using the following shortcuts, when available on your EVS server, and on the current page:

| Command description | Command key (Server-based app.) | Command button (Web-based interface) |
| --- | --- | --- |
| Set all audio channels to Embedded | **CTRL+E** | **all E** |
| Set all audio channels to Digital | **CTRL+D** | **all D** |
| Set all audio channels to MADI | **CTRL+M** | **all M** |
| Toggle all audio channels to Dolby Audio | **CTRL+Y** | **Tgl Dolby** |
| Set all audio channels to None | **CTRL+N** | **all None** applicable to all E,D **or** A outputs at a time |
| Reset all the audio configuration (also on other pages) to default values | **F5** | - |
| Route all audio input channels of REC1 to the other record channels (only audio inputs) | **CTRL+0** | **Rec 1 on all** |
| Validating the changes | **ALT+A** | **Apply** |

## Individual Editing Actions in the Server-Based Application

In the server-based application, you can use the following editing commands for modifying individual field/cell values (audio type or audio routing), when available on your EVS server, and on the current page:

| Command description | Command key |
|---|---|
| Selecting a field value | **TAB** |
| Scrolling down in the list of the possible values for the selected field | **SPACEBAR** |
| Scrolling up in the list of the possible values for the selected field | **SHIFT + SPACEBAR** |
| Increasing the audio channel number by 8 audio mono channels (valid when the audio channel is selected) | **CTRL + RIGHT ARROW** |
| Decreasing the audio channel number by 8 audio mono channels. This is valid when the audio channel is selected. | **CTRL + LEFT ARROW** |
| Increasing by 1 the ID of the audio source channel. This is valid with audio channels with ID - embedded - when the channel number is selected. | **CTRL + ARROW UP** |
| Decreasing by 1 the ID of the audio source channel. This is valid with audio channels with ID - embedded - when the channel number is selected. | **CTRL + ARROW DOWN** |

## Individual Editing Actions in the Web-Based Interface

In the web-based application, click on the values you want to edit in the requested cell (s). The available values are displayed in drop-down fields, which allow you to select the requested value individually:
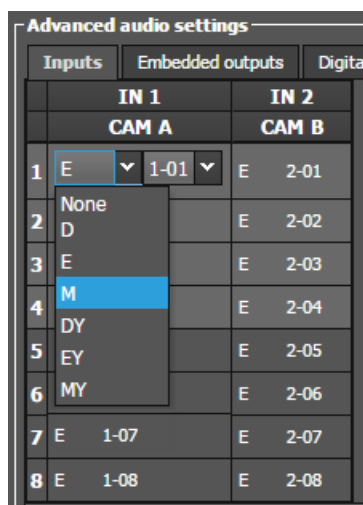
# Modifying the Audio Gain and Mute Settings

## Introduction

From the Advanced Audio Settings pages of the Channels tab, you can not only modify the default routing of audio channels, but also do the following:

- Adjust the audio gain for each audio mono channel individually;
- Mute individual audio channels.

In the server-based application, the audio gain and audio mute information can be displayed via the **CTRL+G** command, which allows you to toggle the display in the tables to show the audio gain and mute information.

In the web-based interface, the audio gains can be displayed by selecting the **Show gain** command below the advanced audio settings.

The audio gain can be adjusted by steps of 0.75dB, 3dB or 6dB, in the range from -77.25dB to +23.25dB of the current audio level.

---

> **WARNING**
>
> When an audio input is used for multiple tracks, the value of the gain shall be the same for all tracks.
> When editing the gain of 1 of the replicated tracks, the gain of all the tracks shall also be modified. Otherwise, the following error message will be displayed `"Incoherent input audio gains"`.

---

The following screenshot shows the display of mute and audio gain settings:
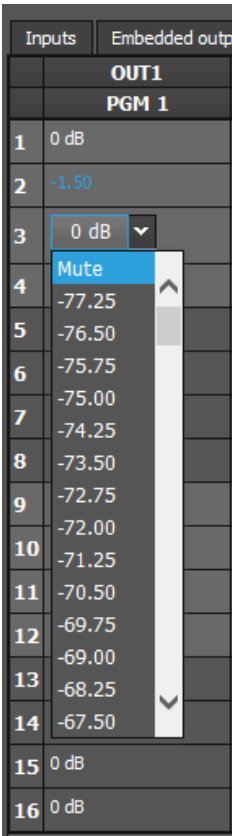


## In the Server-Based Application

The following table shows the various commands available to adjust the audio gain, and mute an audio channel in the server-based application.

One of the following command can be applied on an individual channel when it is selected and when the audio gain display is on.

| Command description | Command key |
|---|---|
| Hiding and Showing the audio gain display | **CTRL+G** |
| Muting the selected audio channel | **CTRL+M** |
| Un-muting the selected audio channel | **CTRL+U** |
| Increasing by 0.75dB the audio level of the selected audio channel | **SPACEBAR** |
| Lowering by 0.75dB the audio level of the selected audio channel | **SHIFT** + **SPACEBAR** |
| Increasing by 3dB the audio level of the selected audio channel | **CTRL+ARROW RIGHT** |
| Lowering by 3dB the audio level of the selected audio channel | **CTRL+ARROW LEFT** |
| Increasing by 6dB the audio level of the selected audio channel | **CTRL+ARROW UP** |
| Lowering by 6dB the audio level of the selected audio channel | **CTRL+ARROW DOWN** |

## In the Web-Based Interface

To modify the audio gain of an audio channel or mute it, proceed as follows:

1. In the **Channels** tab, select the Inputs tab or Outputs tab of the Advanced Audio Settings depending on whether you want to work on audio input or output channels.

2. Click the **Show gain** button.

   The audio gain applied to each mono channel is displayed, instead of the audio type and routing data.

3. In the requested cell, click the value you want to modify, and select the requested audio gain or mute value from the list.

# Dolby Audio Management

## Concepts

- **Dolby Digital or Dolby 5.1 or AC-3**, is an audio coding system containing up to 6 discrete channels of sound, with 5 channels for normal-range speakers (20 Hz - 20,000 Hz) (Right front, Center, Left Front, Right Rear and Left Rear) and one channel (20 Hz - 120 Hz) for the LFE, or subwoofer.

- **Dolby E** is a professional coding system optimized for the distribution of surround and multichannel audio through two-channel postproduction and broadcasting infrastructures, or for recording surround audio on two audio tracks of conventional digital video tapes, video servers, communication links, switchers, and routers.

> **NOTE**
>
> Dolby E is not supported in Proxy essence. If audio channels are configured in Dolby E in a multi-essence configuration with Proxy, the Proxy output will have no associated audio.

## Available Dolby Configuration

### Case 1: The 5.1 audio signal is carried on 6 discrete PCM audio channels

- It is available on an XS-VIA server in all configurations.

- The audio can be embedded depending on the configuration.

### Case 2: The 5.1 audio signal is coded in the two-channel Dolby E standard

- Dolby E over AES/EBU links

  ◦ Set the configuration of the pair of channels carrying the Dolby E signal to "DY" in the Multicam Configuration window, Channels tab. This has two effects :

- It disables the sample rate converter on the input channels.

- It forces all transitions to a hard cut.

# 4.3.3.    Timecode and Data Insertion

## Timecode Settings

### User Interface
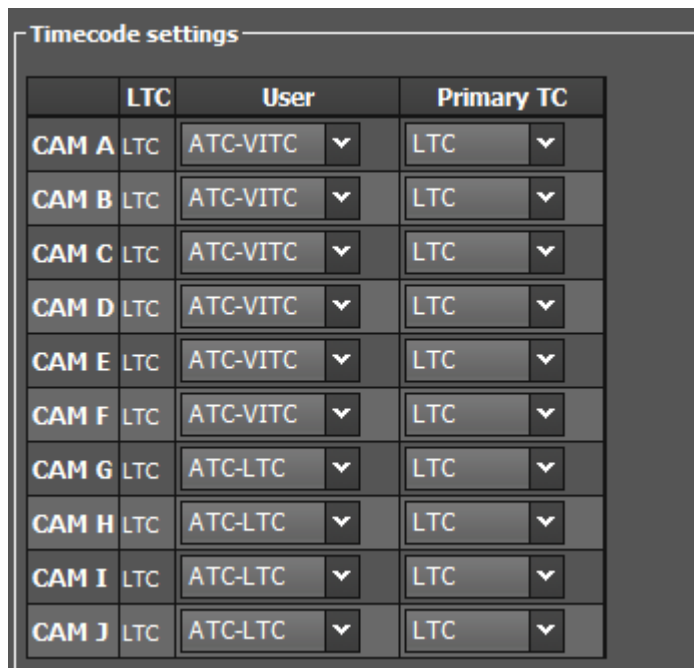
The Timecode settings allow specifying which type of timecode the users want to use as the reference to work on a given recorder of an EVS server.

The selection of a timecode type, using the timecode settings, rely on the management of two timecode jump tables.

These fields are available in the following interfaces:

- in the Multicam Configuration window, Channels tab, in the advanced display mode on the server- and web-based interfaces;

- partly in the Technical menu of the Remote Control Panel (T2.X)

The following screenshot displays the Timecode settings defined on the Channels tab in the web-based application:

## LTC

| | |
|---|---|
| **Description** | Longitudinal timecode (timecode defined on or plugged into the EVS server) automatically stored in the first timecode jump table (LTC table).<br>This is not possible to modify the timecode type stored in the first timecode jump table. |
| **Values** | LTC (non-editable) |

## User

| | |
|---|---|
| **Description** | Timecode type stored in the second timecode jump table (User TC table). |
| **Values** | In HD and UHD-4K:<br>• LTC<br>• ATC-LTC (Ancillary LTC Timecode)<br>• ATC-VITC (Ancillary VITC Timecode) |

## Primary TC

| | |
|---|---|
| **Description** | Timecode type that is displayed at the bottom the VGA and is used to work with the video material stored on the given recorder.<br>Usually, an LTC timecode is used to perform operations on live events. A VITC timecode is used for video material ingested from tapes as it is the timecode embedded in the video signal. |
| **Values** | • **LTC:** LTC timecode, which is automatically stored in the LTC table. It is specified in the **LTC** field.<br>• **User:** User-defined timecode, which is stored in the USER TC table and specified in the **User** field. |
| **OSD Display** | Depending on the value selected for this setting, the timecode displayed at the bottom of the user's OSD will have a different color:<br>• If the LTC timecode is selected, the timecode color will be white.<br>• If the USER timecode is selected, the timecode color will be yellow. |

# Timecode Insertion Settings

## User Interface

The Timecode Insertion settings allow the management of VITC or ancillary timecodes channel by channel.

These fields are available in the following interfaces:

•    in the Multicam Configuration window, Channels tab, in the advanced display mode on the server- and web-based interfaces.

---

✎    **NOTE**

Some settings may not be relevant with an XS-VIA server.

---

The screenshot below shows the Timecode Insertion settings in HD on the Channels tab in the web-based application:

# Output Tab

## HD OUT (in HD): ATC-LTC / ATC-VITC

| Description | Enables/disables the insertion of the embedded timecode (ATC-LTC or ATC-VITC) in the HD output. |
|---|---|
| Values | The values specified for the ATC-LTC and ATC-VITC fields have to be the same. The values can be as follows:<br><br>• **No** — No new timecode inserted in the output.<br>• **In** — Same timecode as in the input inserted in the output.<br>• **LTC** — Timecode from the LTC table inserted in the output.<br>• **USER** — User-defined timecode inserted in the output.<br>• **TC 0** — All ATC-LTC/ATC-VITC timecodes generated in the video signal coming out of the given PGM will remain static and fixed to 00:00:00:00. |
| Default value | No |

> ⚠ **WARNING**
>
> The HD OUT ATC-LTC / ATC-VITC settings cannot be set both to 'No' if ancillary data is to be transfered via IP streams. See section "LiveIP Settings for Ancillary Data Streams" on page 303.

## HD OUT (in HD): UserBits

| Description | Enables/disables the insertion of the user bits in the HD output.<br>The values specified for the ATC-LTC and ATC-VITC fields have to be the same.<br>When TC0 is selected in the ATC-LTC and ATC-VITC field, the user bits values will also remain static and fixed to 00:00:00:00 whatever the selected value. |
|---|---|
| Values | Yes (default) / No |

# SMPTE 334M Packet Management Settings

## User Interface

The SMPTE 334M Packet Management settings specify how ancillary data packets stored in the vertical ancillary data space in HD signals are handled.

These fields are available in the following interfaces:
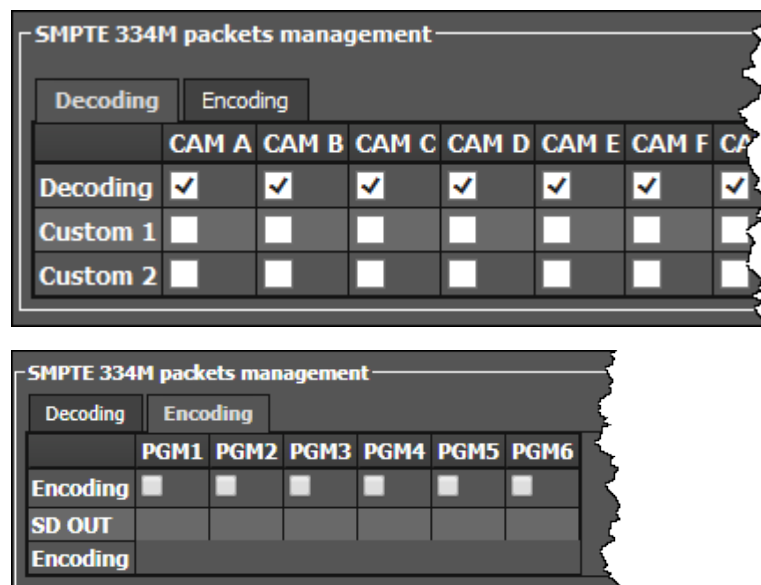
- in the Multicam Configuration window, Channels tab, in the advanced display mode on the server- and web-based interfaces;

- partly in the Technical menu of the Remote Control Panel (T2.X).

---

> ✎ **NOTE**
>
> Some settings may not be relevant with an XS-VIA server.

---

The following screenshot shows the SMPTE Package settings defined on the Channels tab in the web-based application:

# Supported Packets

The supported ancillary data packets must comply with the SMPTE standards 334M, 291M (type 2 ANC packet).

Up to now, SMPTE 334M data packets carried on the chrominance (C) data stream within the SMPTE 292M signal are not decoded (HD).

All DIDs mentioned in the SMPTE 334M standards are supported:

- 61 => 62

- 40 => 5F

- C0 => DF

Those DIDs are saved and restored on the output channels on their original lines. The other DIDs are not saved.

The maximum number of bytes saved per field (frame for 720p) is 2014. One saved SMPTE 334M packet is composed of user data word (UDW) plus 7 configuration bytes. It has to be taken into account to compute the number of bytes saved.

Please refer to the SMPTE RP 291-2006 standard for the assignment of DIDs to specific applications.

# Decoding Tab

## Decoding

| Description | Enables/disables the decoding of SMPTE 334M data packets on each record channel. |
|---|---|
| Values | Yes (default) / No |

## Custom 1/2

| Description | Enables/disables a customized decoding of the SMPTE 334M data packets. See section "Customizing the Decoding of SMPTE Data" on page 173 for more information. |
|---|---|
| Values | Yes / No (default) |

# Encoding Tab

## Encoding

| Description | Enables/disables the encoding of the SMPTE 334M data onto each play channel in HD. |
|---|---|
| Values | Yes / No (default) |

### SD OUT Encoding

| Description | This setting is not relevant with an XS-VIA server. Enables/disables the encoding of the SMPTE334M data present on the HD output on the SD downconverted output on each play channel. See section "SMPTE 334M Packet Management Settings" on page 171 for more information. |
|---|---|
| Values | Yes / No (default) |

> **⚠ WARNING**
>
> The Encoding setting has to be set to 'Yes' to be able to transfer the ancillary data via IP streams. See section "LiveIP Settings for Ancillary Data Streams" on page 303.

## Customizing the Decoding of SMPTE Data

Upon request, it is possible to customize the decoding of the SMPTE 334M data.

If you wish to keep uncompressed 8-bit data in the VANC data space, you can select two lines - $L_a$ and $L_b$ - on which $N_a$ and $N_b$ bytes can be saved per field (frame for 720p).

The saved data are left aligned after SAV (Start of Active Video) and the maximum number of data saved ($N_a + N_b$ + regular SMPTE 334M packet) must not exceed 2014.

If you require this customization, please contact your EVS representative to specify the number of bytes you want to keep and on which lines. EVS will provide you with a specific customization file.

This customization file will be activated using the Custom 1, Custom 2 settings.

# 4.4. Network Tab

## 4.4.1. Overview

The Network tab includes the settings on theXNet network and Gigabit Ethernet network, both networks used for the backup and transfer of video and audio data.

The table below presents the settings of the Network tab. It specifies whether the setting is available:

• in the basic or advanced display mode in the server-based and web-based interfaces

• in the **Technical Setup** menu (T3.X) of the Remote Panel

| Setting Name | Basic | Advanced | Technical Setup |
|---|---|---|---|
| **XNet settings** | | | |
| **Operation Mode** | X | X | X |
| **Net name** | X | X | – |
| **Net number** | X | X | X |
| **Type** | X | X | X |
| **Gigabit Connection settings** | | | |
| **Physical interface** | X | X | X |
| **Link aggregation** | X | X | X |
| **Gigabit IP Configuration settings** | | | |
| **IP address** | X | X | X |
| **Subnet mask** | X | X | X |
| **Default gateway** | X | X | X |
| **Gigabit Prioritization settings** | | | |
| **Configuration mode** | X | X | X |
| **Connections (Lo-Res/Unreserved)** | X | X | X |
| **IP IO Configuration settings** | | | |
| **IP Address** | X | X | X |
| **Subnet Mask** | X | X | X |
| **Default Gateway** | X | X | X |

# 4.4.2.   XNet Settings

## Introduction

The XNet settings allow specifying the settings related to the XNet network. This network allows the content between EVS servers to be visible across the network, and easily transferable.

---

⚠ **WARNING**

Changes to the XNet parameters require an application reboot (**ALT+Q** from the operational windows) to be applied.

---

## User Interface

The **XNet** settings, also dealt with in this section, are available:
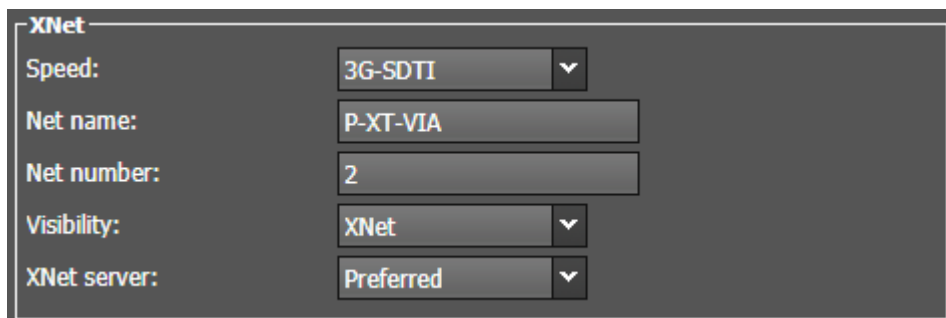
*   in the Multicam Configuration window, Network tab, in the basic and advanced display mode in the server-based application (page 1) and web-based interfaces
*   partly in the Technical menu of the Remote Control Panel (T3.X)

---

✎ **NOTE**

The XNet settings will only be displayed if the SDTI license code (117) is valid.

---

The following screenshot display the XNet settings on the Network tab in the web-based interface:

| XNet | |
|---|---|
| Speed: | 3G-SDTI |
| Net name: | P-XT-VIA |
| Net number: | 2 |
| Visibility: | XNet |
| XNet server: | Preferred |

## Operation Mode

| | |
|---|---|
| **Description** | Enables the selection of the 3G-SDTI  or XNet-VIA   option and the bandwidth for the XNet network.<br>The XNet circuit is closed only when the Multicam software is started. |
| **Values** | The following values are available:<br>• 3G-SDTI (formerly No Relay 2970 Mbps)<br>• XNet-VIA<br>• Off |
| **Default value** | Off |

> ⚠ **WARNING**
>
> For using XNet-Via we strongly recommend upgrading to the latest H4X_4S board firmware. For the update procedure you find more details in the Installation Manual ("Performing Hardware Maintenance").

## Net Name

| | |
|---|---|
| **Description** | Machine name on the XNet network.<br>It is not mandatory because a network number is assigned to the EVS server. It is however recommended as it helps to easily identify the servers connected to the XNet network. The Net Name will be displayed even if the SDTI code is not valid. |
| **Values** | The Net Name is user-defined and cannot exceed 8 characters. |
| **Default value** | By default, no Net Name is assigned. |

## Net Number

| | |
|---|---|
| **Description** | The Net Number parameter defines the machine number on the network. This number is user-defined and must be unique for each system on the network. An error message appears if the number is already assigned to another machine. |
| **Values** | • in SDTI: range between 1 and 29<br>• in XNet-VIA: range between 1 and 34 |
| **Default value** | 1 |

**NEW !**

# Visibility

| Description | Defines the privileges of the EVS server on the XNet network. |
| --- | --- |
| Values | The following values are possible:<br>• **Local:** It cannot access the content on other EVS servers.<br>• **XNet:** It can access all content on other EVS servers.<br><br>Whatever the type of visibility defined, the content of an EVS server can be accessed without restrictions by the other EVS servers on the XNet network. |
| Default value | XNet |

# XNet Server

| Description | Defines if the EVS server may or may not become the XNet server. |
| --- | --- |
| Values | The following values are possible:<br>• **Preferred:** Can be selected as XNet server.<br>• **Allowed:** Can only be selected as XNet server if none of the other EVS servers in the XNet network have been set to 'Preferred'.<br>• **Forbidden:** It cannot be selected as XNet server.<br><br>The XNet server is selected automatically. |
| Default value | Preferred |

When upgrading from Multicam 16.1 or earlier to Multicam 16.2 or later, the following parameter conversion shall be applied.

| Before Multicam 16.2 | Multicam 16.2 or higher | |
| --- | --- | --- |
| **Type** | **Visibility** | **XNet Server** |
| Server | XNet | Preferred |
| Master | XNet | Allowed |
| Client | Local | Allowed |

# 4.4.3.    Gigabit Connection

## Introduction

The Gigabit connection allows the backup and transfer of the audio and video data without going through the XNet network. The Gigabit Connection settings specify which interface provides the gigabit connection on the EVS server.

The Gigabit connection can be available via the following interface, having the following characteristics:

- The internal GbE (Gigabit Ethernet) board is equipped with two 1GbE ports.

    The 1GbE **or** 10GbE ports can be used to provide the internal Gigabit connection.

---

⚠ **WARNING**

Changes to the Gigabit Connection settings require an application reboot (**ALT+Q** from the operational windows) to be applied.

---

## User Interface

The **Gigabit connection** settings are available:

- in the Multicam Configuration window, Network tab, in the basic and advanced display modes in the server-based application (page 1), and web-based interface.

- in the Technical menu of the Remote Control Panel (T3.X).



---

⚠ **WARNING**

When you use the GbE board, you can use the 1GbE or the 10 GbE connections, but not both simultaneously.

---

## Teaming

Teaming is available with the GbE board, on both its 1GbE or 10GbE interfaces. Teaming can be enabled using the **Link Aggregation** setting.

When teaming is active, and one of the GbE link fails, the other will seamlessly take over all ongoing and pending tasks.

## Physical Interface

| | |
|---|---|
| **Availability** | This section is only available if the server is equipped with a GbE board. |
| **Description** | Specifies the physical interface that provides the Gigabit Ethernet connection. |
| **Values** | The following values are available:<br>• **None**<br>  No gigabit interface is present.<br>• **1 GbE (on 10GbE board)**<br>  One or two of the 1GbE connections on the GbE board is/are used.<br>• **10 GbE**<br>  One or two of the 10GbE connections of the GbE board is/are used. |
| **Default Value** | The default value corresponds to the most efficient physical interface installed on the EVS server. |

## Link aggregation

| | |
|---|---|
| **Description** | Specifies the teaming method when using the 1GbE or the 10GbE ports of the GbE board. |
| **Values** | The following values are available:<br>• **None**<br>  No link aggregation method is applied, and no teaming is provided.<br>• **LACP**<br>  The Link Aggregation Control Protocol is used to provide teaming.<br>• **Adapter Fault Tolerance**<br>  The Adapter Fault Tolerance (AFT) method is used to provide teaming.<br>• **Switch Fault Tolerance**<br>  The Switch Fault Tolerance (SFT) method is used to provide teaming. |
| **Default Value** | None |

# 4.4.4.    Gigabit IP Configuration

## Introduction

The Gigabit IP Configuration settings specify the IP addresses for the Gigabit connections on the GbE board, depending on which GbE connections are specified in the **Physical Interface** parameter in the Gigabit Connection settings.

---

⚠ **WARNING**

Changes to the Gigabit settings require an application reboot (**ALT+Q** from the operational windows) to be applied.

---

## User Interface

The **Gigabit IP Configuration** settings are available:

- in the Multicam Configuration window, Network tab, in the basic and advanced display modes in the server-based application (page 1), and web-based interface.

- in the Technical menu of the Remote Control Panel (T3.X).

The following screenshot displays the Gigabit IP Configuration settings on the Network tab in the web-based interface:



## Gigabit Connection Problems

When no Gigabit module is present or when the Gigabit connection has been lost, the first line of the Gigabit IP Configuration settings displays the message `!Not detected!`.

When the Gigabit connection of the GbE board has been lost, the last line of the Gigabit IP Configuration settings will display the message `Connection problem`.

When the teaming is active, and only one of the connection is lost, the Gigabit transfers will continue as the second connection will take over. No warning message is displayed in the Multicam configuration module, but this information is however available in XNet Monitor or XNet Web Monitor.

### IP Address (Port 1/Port 2)

| Description | IP address to connect to the port1/port2 of the Gigabit Ethernet connection on the EVS server. |
|---|---|
| Values | The IP addresses 0.0.0.0 and 255.255.255.255 are not allowed. |

### Subnet Mask (Port 1/Port 2)

| Description | Range of logical addresses within the address space assigned to the Gigabit Ethernet connection.<br>The IP addresses of both GbE ports must belong to different subnet masks. Otherwise, Multicam will return an error message. |
|---|---|

### Default Gateway (Port 1/Port 2)

| Description | IP address of the router on the Gigabit Ethernet network that serves as an access point to external networks. |
|---|---|

# 4.4.5.    Gigabit Prioritization Settings

## Introduction

The Gigabit connection is used for several tasks (browsing, streaming, transfer, etc.). For this reason, prioritization parameters can be defined to make sure the EVS server will have a sufficient bandwidth to smoothly perform tasks seen as critical within a given workflow.

The Gigabit prioritization settings allow users to prioritize the transfer from/to the Gigabit FTP server.

---

⚠ **WARNING**
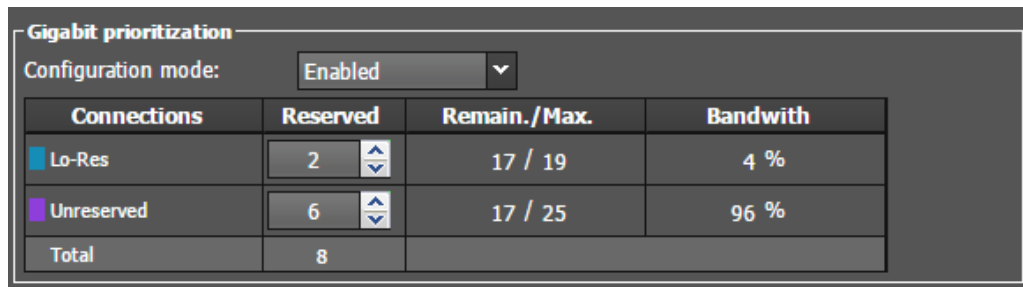
- Changes to the Gigabit Prioritization settings require an application reboot (**ALT+Q** from the operational windows) to be applied.
- When the Truck Manager is used in a given workflow, it automatically configures the Gigabit Prioritization settings to take into account the connection needs of all EVS products in the workflow.

---

## User Interface

The **Gigabit Prioritization** settings are available:

*   in the Multicam Configuration window, Network tab, in the advanced display modes
    on page 2 in the server-based interface, and in the web-based interface.

The following screenshot highlights the Gigabit prioritization settings on the Network tab
in the web-based interface:



## General Description

The prioritization settings consists in giving priority to a number of Lo-Res (Proxy)
connections on the Gigabit network.

Based on the effective bandwidth on the Gigabit interfaces of the EVS server, Multicam
calculates the maximum number of Lo-Res connections that can be granted with
priority.

Knowing the maximum number of connections which can have priority, the administrator
can set the requested number of reserved connections for critical jobs (Lo-Res
browsing, for example). The unreserved connections will be available for less prioritary
jobs (backup of clips to be archived, for example).

When processing jobs, Multicam always makes use of the full available Gigabit
bandwidth: If the bandwidth is not fully allocated, the remaining bandwidth is
automatically distributed among the connections.

## Configuration mode

| Description | Specifies whether and how you want to configure the priorities for the Gigabit connections. |
|---|---|
| Values | Two configuration modes are available:<br>• **Disabled:**<br>  ◦ The parameters for setting prioritization are hidden: you cannot reserve connections.<br>  ◦ The number of unreserved connections is set to 6 by default. This value can be raised up to 25.<br>• **Enabled:**<br>  ◦ You can set the number of Lo-Res connections.<br>  ◦ The number of unreserved connections is computed and set automatically (never lower than 6). |
| Default value | Disabled |

## Connections (Lo-Res)

| Availability | The setting is only available in Enabled configuration mode, and if the Lo-Res codec essence is active on the EVS server. |
|---|---|
| Description | Allows configuring the number of Lo-Res connections allowed to the bandwidth of the EVS server.<br>Each Lo-Res connection has a priority profile optimized for a smooth browsing of Lo-Res media, without impacting other transfers. |
| Values | The values is set in the **Reserved** column.<br>The number of remaining and maximum Lo-Res connections for the given server configuration is specified in the **Remain./Max.** column. |
| Default value | 0 |

## Connections (Unreserved)

| Availability | The setting is only displayed in Enabled configuration mode. |
|---|---|
| Description | Specifies the number of unreserved connections allowed to the Gigabit interface of the EVS server. |
| Values | 6-25<br>A minimum of six unreserved connections is necessary to provide the same number of connections as in earlier versions of Multicam. |
| Default value | 6 |

# 4.4.6.    IP IO Configuration

## Introduction

The IP IO configuration allows to configure the IP addresses of the V4X and MV4X SFP+ ports (10GbE). These ports are used to send or receive video from or onto the EVS server over an IP network.

> **NOTE**
>
> The QSFP interfaces of the XHub-VIA IP Aggregator do not have an IP address.

## User Interface

The **IP IO configuration** settings are available:

- in the Multicam Configuration window, Network tab, in the basic and advanced display modes in the server-based application and web-based interface.

**IP IO Configuration**

DHCP Mode: ☐

| | | SFP 1-C | | | | | SFP 1-D | | |
|---|---|---|---|---|---|---|---|---|---|
| IP Address | 10 | 131 | 124 | 130 | 10 | 131 | 124 | 138 | |
| Subnet Mask | 255 | 255 | 255 | 248 | 255 | 255 | 255 | 248 | |
| Default Gateway | 10 | 131 | 124 | 129 | 10 | 131 | 124 | 137 | |

| | | SFP 2-C | | | | | SFP 2-D | | |
|---|---|---|---|---|---|---|---|---|---|
| IP Address | 10 | 131 | 124 | 98 | 10 | 131 | 124 | 106 | |
| Subnet Mask | 255 | 255 | 255 | 248 | 255 | 255 | 255 | 248 | |
| Default Gateway | 10 | 131 | 124 | 97 | 10 | 131 | 124 | 105 | |

| | | SFP 3-C | | | | | SFP 3-D | | |
|---|---|---|---|---|---|---|---|---|---|
| IP Address | 10 | 131 | 124 | 114 | 10 | 131 | 124 | 122 | |
| Subnet Mask | 255 | 255 | 255 | 248 | 255 | 255 | 255 | 248 | |
| Default Gateway | 10 | 131 | 124 | 113 | 10 | 131 | 124 | 121 | |

| | | SFP 4-C | | | | | SFP 4-D | | |
|---|---|---|---|---|---|---|---|---|---|
| IP Address | 10 | 131 | 124 | 146 | 10 | 131 | 124 | 154 | |
| Subnet Mask | 255 | 255 | 255 | 248 | 255 | 255 | 255 | 248 | |
| Default Gateway | 10 | 131 | 124 | 145 | 10 | 131 | 124 | 153 | |

| | | SFP 5-C | | | | | SFP 5-D | | |
|---|---|---|---|---|---|---|---|---|---|
| IP Address | 10 | 131 | 124 | 162 | 10 | 131 | 124 | 170 | |
| Subnet Mask | 255 | 255 | 255 | 248 | 255 | 255 | 255 | 248 | |
| Default Gateway | 10 | 131 | 124 | 161 | 10 | 131 | 124 | 169 | |

| | | SFP 6-C | | | | | SFP 6-D | | |
|---|---|---|---|---|---|---|---|---|---|
| IP Address | 10 | 131 | 124 | 178 | 10 | 131 | 124 | 186 | |
| Subnet Mask | 255 | 255 | 255 | 248 | 255 | 255 | 255 | 248 | |
| Default Gateway | 10 | 131 | 124 | 177 | 10 | 131 | 124 | 185 | |

| | | SFP 8-C | | | | | SFP 8-D | | |
|---|---|---|---|---|---|---|---|---|---|
| IP Address | 10 | 131 | 124 | 114 | 10 | 131 | 124 | 122 | |
| Subnet Mask | 255 | 255 | 255 | 248 | 255 | 255 | 255 | 248 | |
| Default Gateway | 10 | 131 | 124 | 113 | 10 | 131 | 124 | 121 | |

Increment automatically

## IP Address (SFP+ Ports)

| | |
|---|---|
| **Description** | IP address of the specified SFP port used to transmit or receive video from or onto the EVS server. |
| **Values** | The IP addresses 0.0.0.0 and 255.255.255.255 are not allowed.<br>Some applications require that all network interfaces are in a different subnet.<br><br>The IP address does not need to be an even number. |

### Subnet Mask (SFP+ Ports)

| Description | Range of logical addresses within the address space assigned to the LiveIP network (video-over-IP network). |
|---|---|

### Default Gateway (SFP+ Ports)

| Description | IP address of the router on the LiveIP network that serves as an access point to external networks. |
|---|---|

## Automatic Incrementation of IP Addresses

To make the configuration of the different IP addresses of the SFP+ interfaces more easy, a mode can be enabled which will automatically set the addresses based on the values you enter for the ports 1-C and 1-D.

The different IP addresses are automatically incremented as follows:

- **IP Address:** The 4th decimal number is automatically incremented based on the previous address in the same category (C or D) between 1 and 254. In case an IP address is set to 254, the subsequent IP address is set to 1.

    Example: 1-C is set to 10.1.1.1 and 1-D is set to 10.1.2.253

    ◦  2-C is set to 10.1.1.2 and 3-C is set to 10.1.1.3

    ◦  2-D is set to 10.1.2.254 and 3-D is set to 10.1.2.1


- **Subnet Mask:** The value you set for 1-C and 1-D is repeated for all interfaces in the same category.

    Example: 1-C is set to 255.255.255.0 and 1-D is set to 255.255.255.0

    ◦  2-C is set to 255.255.255.0 and 3-C is set to 255.255.255.0

    ◦  2-D is set to 255.255.255.0 and 3-D is set to 255.255.255.0


- **Default Gateway:** The value you set for 1-C and 1-D is repeated for all interfaces in the same category.

    Example: 1-C is set to 10.1.1.100 and 1-D is set to 10.1.2.200

    ◦  2-C is set to 10.1.1.100 and 3-C is set to 10.1.1.100

    ◦  2-D is set to 10.1.2.200 and 3-D is set to 10.1.2.200


To enable this mode:

- in the server-based application (VGA), open the second page of the Network tab and press **CTRL + I**.

- in the web-based interface, open the Network tab and click the **Automatically Increment** button.

## NEW! Automatically Configuring the IP Addresses Through DHCP

### Introduction

You can automate the IP address configuration of the SFP+ interfaces through DHCP. For this, you only need a DHCP server running that is accessible on the LiveIP network.

Check the **DHCP Mode** option to enable this feature. By default, it is disabled.



---
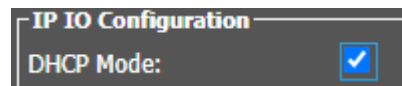
✎ **NOTE**

> The DHCP option is a global option, i.e. you cannot configure it for some interfaces and use the manual configuration for some others.

---

During configuration, the fields with the IP addresses become read-only and Multicam replaces the IP addresses by ---. ---. ---. ---.
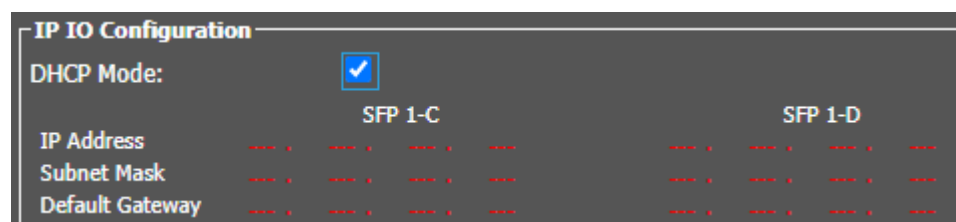


When you launch your configuration, Multicam will try to retrieve the IP addresses from the DHCP server.

---

✎ **NOTE**

> Each SFP+ interface negotiates its IP information independently with the DHCP server.

---

The type of information that will appear in the IP IO Configuration pane will depend on:

- the availability and accessibility of the DHCP server;
- there being active and inactive SFP+ interfaces;

    Inactive SFP+ interfaces are interfaces that are connected to a V4X module that is electrically switched off because it is not used. For example on XT-VIA, in a 4IN 2OUT configuration we only use codec module #1 (for the 2 PGMs) and #5 and #6 (for the 4 RECs). The codec modules 2, 3 and 4 are not used, therefore the interfaces 2-C, 2-D, 3-C, 3-D, 4-C and 4-D are "inactive";

- there being active SFP+ interfaces that have one or more LiveIP streams (senders or receivers) assigned to them.

The information is displayed as follows:

- All inactive SFP+ interfaces will be displayed with **---.---.---.---**;
- All active SFP+ interfaces:
  - for which an IP address could be obtained, are displayed with the IP address;
  - for which no IP address could be obtained, are displayed with **---.---.---.---** and:
    - if the interface is used (at least 1 stream is attached), an error message is displayed.

      ```
      One or more Live IP network interface IP addresses
      could not be retrieved from the DHCP server. Please
      check your Live IP settings and make sure that those
      interfaces are not assigned to any stream

      {list of interfaces}

      Press any key to continue
      ```
    - if the interface is not used (no stream is attached), no error message is displayed.

If you disable the **DHCP Mode** option again, the manually added IP addresses are restored again.

# 4.5.     Monitoring Tab

## 4.5.1.     Overview

The Monitoring tab includes the settings of the Multiviewer output, the OSD information to be displayed, and the downconverted outputs configuration.

The table below presents the settings of the Monitoring tab. It specifies where the setting groups are available (page) and whether each setting is available:

- in the basic and advanced display mode in the server-based and web-based interfaces

- in the **Technical Setup** menu (T4.X) of the Remote Panel

| Setting Name | Basic & Advanced | Technical Setup |
|---|---|---|
| **Multiviewer Settings** | | |
| **Layout** | X | – |
| **Display** | X | – |
| **Audio Monitoring from video** | X | – |
| **Audio Monitoring left-right tracks** | X | – |
| **HD output format** | X | – |
| **OSD Settings** | | |
| **Genlock Error** | X | X |
| **Disk Error** | X | X |
| **Network error** | X | X |
| **Clip name** | X | X |
| **Tally** | X | – |
| **Monitoring Settings** | | |
| **Char OUT, format** | X | X |

# 4.5.2.    Multiviewer Settings

## Introduction

On an XS-VIA server, the internal multiviewer MV4X is cabled and has to be used from version 16.1. The former MV4 multiviewer is thus ignored if it is fitted on the XS-VIA. Refer to the Technical Reference manual for more information.

The EVS servers equipped with the MV4X multiviewer on the MTPC board and with the internal LAN provide the following ports on the rear panels:

• four output ports to allow the connection of four independent HD-SDI multiviewers;

• two intput ports to allow external feeds to be displayed on the multiviewer.

The output ports allow the following uses:

• four operators working independently on the same EVS server.

• two operators working with one multiviewer displaying recorders, and a second multiviewer displaying players.

• operators to have a recorder display of an UHD-4K channel on one multiviewer, and a player display of the UHD-4K channel on a second multiviewer, for example.

The **Multiviewer settings** make it possible to specify the settings for each multiviewer, such as the number of channels to combine and display, the audio and output video configuration.

## Supported Formats

The MV4X multiviewer allows up to 2 external feeds to be displayed on the multiviewer.

These feeds have to be in the following video formats:

| SDI Mode | IP Mode |
|---|---|
| SD PAL NTSC | SD PAL NTSC |
| 720p 50/59.94 | 720p 50/59.94 |
| 1080i 50/59.94 | 1080i 50/59.94 |
| 1080p 50/59.94* | 1080p 50/59.94 |
| UHD-4K 50/59.94** | UHD-4K 50/59.94 |

* Both 3G-SDI (Level-A and Level-B) are supported.

** UHD-4K is only supported when transported as single stream over 12G-SDI.

## OSD with MV4X Multiviewers

The monitoring outputs of the MV4X multiviewer provide the following main information:
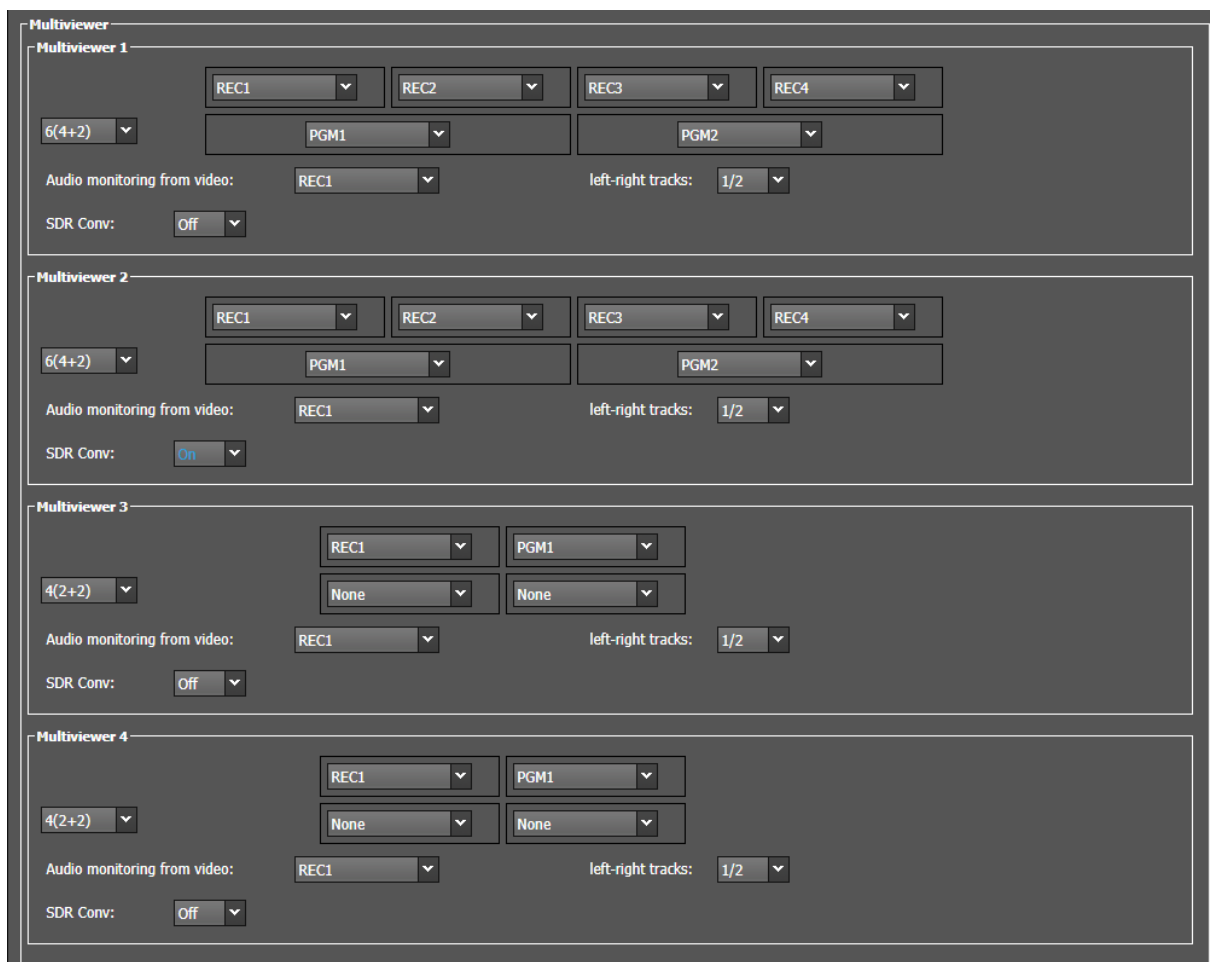
- The OSD is displayed over the full screen.

- Tally information is integrated into the OSD.

- Channel names can be assigned by UMD/Tally protocol.

- Audio meters are displayed on the right margin.

- Clip ID and name (up to 24 characters) are displayed on the upper right corner.

## User Interface

The Multiviewer settings are available in the Multicam Configuration window, Monitoring tab.

The Multiviewer settings will only be displayed if a Multiviewer board is present on the EVS server.

The following screenshot displays the Multiviewer section on the Monitoring tab.

# Multiviewer 1-4

## Maximum Number of Sources

With the MV4 multiviewer, the overall number of sources displayed in the multiviewers is not limited.

## Layout

| Description | Specifies how the sources are displayed on the Multiviewer 1 to Multiviewer 4, one section being dedicated to each Multiviewer. The number of Multiviewer sections displayed depends on what the hardware configuration supports. |
|---|---|
| Values | The following layouts are available: <br> • **1** <br> • **2 (1+1)** <br> • **4 (2+2)** <br> • **6 (3+3)** <br> • **6 (3+1+2)** <br> • **6 (3+2+1)** <br> • **6 (4+2)** <br> • **7 (2+4+1)** <br> • **8 (3+3+2)** (not useful on all servers) <br> • **8 (4+2+2)** <br> • **10 (4+3+3)** <br> • **10 (4+4+2)** <br> • **12 (4+4+4)** <br> • **12 (5+5+2)** <br> • **14 (5+5+3+1)** |
| Default value | • **4 (2+2)** with ≤ 4 channels <br> • **6 (4+2)** with 6-channel configurations **4IN-2OUT** or **4OUT-2IN** <br> • **6 (3+3)** with other 6-channel configurations <br> • **8 (3+3+2)** with 8-channel configurations <br> • **6 (3+3)** with more extended configurations <br> • **1** in UHD-4K |

## Available Layouts

The available layouts are:

• **2 (1+1)**: 2 identical size images.

- **4 (2+2)**: 4 identical size images, 2 at the top, 2 at the bottom.



- **6 (4+2)**: 4 small size images at the top, 2 larger images at the bottom.



- **6 (3+3)**: 6 identical size images, 3 at the top, 3 at the bottom.



- **6 (3+1+2)**: 3 small size images at the top, 1 larger image in the bottom left corner, 2 small size images in the bottom right corner.



- **6 (3+2+1):** 3 small size images at the top, 1 larger image in the bottom right corner, 2 small size images in the bottom left corner.



- **7 (2+4+1:** 2 larger images at the top, 4 small size images in the bottom left corner, 1 larger image in the bottom right corner.

- **8 (3+3+2)**: 6 small size images in the first 2 rows, 2 larger images at the bottom. This layout is not useful on all servers.



- **8 (4+2+2):** 4 small size images in the top row, 4 larger images in the center.



- **10 (4+3+3)**:  4 small size images at the top, 6 larger images at the bottom.



- **10 (4+4+2):** 8 small size images in the first two rows, 2 larger images at the bottom.



- **12 (4+4+4)**: 12 identical size images, 4 in each row.



- **12 (5+5+2):** 10 small size images in the first two rows, 2 larger images at the bottom.

- **14 (5+5+2+2):** 10 small images in the first two rows, 2 small images in the bottom left corner and two larger images in the bottom right corner.



- **1**: It is available with any configuration.



## Source Display

| Description | Specifies the source linked to the corresponding display in the selected layout.<br>You can select:<br>• no image (none).<br>• play channels (PGM)<br>• record channels (REC)<br>• direct input into the Multiviewer I1 and I2 connectors on the back panel for external feeds. |
|---|---|
| Values | The values available for recorder or player channels correspond to the names the channels have been assigned in the **Channels** tab, **Channel and control** settings, which are the following by default:<br>• **none**<br>• **PGM1 to PGM6**<br>• **REC1  to REC12** |

## Audio Monitoring from Video

| Description | Specifies the channel for which the audio will be monitored via the SDI or IP outputs.<br>This is selectable individually for each multiviewer.<br>References the audio streams to the MV output video stream. |
|---|---|
| Values | The list of values includes the channels selected above for multiviewer display. |
| Default value | **None** |

### Audio Monitoring Left-Right Tracks

| | |
|---|---|
| **Description** | Specifies the pair of stereo audio tracks of the selected channel to monitor.<br>This is selectable individually for each multiviewer. |
| **Values** | From **1/2** up to **15/16**, depending on the value defined for the **Number of tracks** setting in the Channels tab, Audio settings. |
| **Default value** | **1/2**: By default, the first stereo pair of the source is selected. |

### HDR to SDR Conversion

| | | | |
|---|---|---|---|
| **Description** | If enabled, the MV4X will downconvert HDR content to SDR content and perform a colorspace conversion (from Rec.2020 to Rec.709).<br>This is selectable individually for each multiviewer. | | |
| **Values** | • **On**<br>• **Off** | | |
| **Default value** | **Off** | | |
| **Availability** | Unavailable in case the 2 parameters below are configured as follows:<br>• **HDR Profile** = None (=SDR)<br>• **Color Gamut** = Rec.709 or Unknown<br>See section "Video and Reference Settings" on page 105. | | |
| **Supported Conversions** | **Initial HDR Profile** | **Initial Color Gamut** | **Conversion** |
| | None (SDR) | Rec.2020 | SDR - Rec.709 |
| | HLG | | |
| | PQ | | |
| | S-Log3 | | |
| | V-Log | | |
| | HLG | Rec.709 | |
| | PQ | | |
| | S-Log3 | | |
| | V-Log | | |

### Multiviewer Format

#### HD Output Format

| Description | Specifies the format for the HD output of the multiviewer. Both multiviewers use the same HD output format. |
|---|---|
| Values | The following values are available:<br>• **1080i**<br>• **1080p** |
| Default value | • **1080i** |

# 4.5.3.  OSD Settings

### User Interface

The **OSD settings** allow specifying the settings related to the OSD and information to be displayed on the monitoring screen.

These fields are available in the following interfaces:

• in the Multicam Configuration window, Monitoring tab

• in the Technical menu of the Remote Control Panel (T4.X)

The following screenshot displays the OSD settings on the Monitoring tab in the web-based interface:
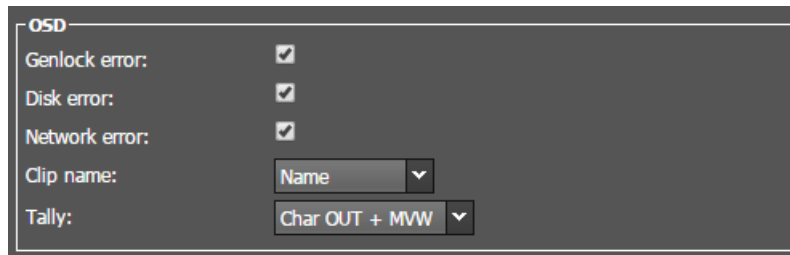


### Genlock Error

| Description | Enables or disables the Genlock information display on the monitoring output.<br>If the Genlock reference is not correct, the **!GkV** message appears on the monitoring output. |
|---|---|
| Values | **Yes** (default) / **No** |

## Disk Error

| Description | Enables or disables the disk error information display on the monitoring output. As the server is equipped with a RAID disk array, the operation can continue seamlessly even with 1 faulty disk. If 1 disk is disconnected during operation, the **!RAID** message appears on all monitoring outputs, and another message appears when the operator shuts down the application, to invite him to replace the disk and rebuild the RAID array. Please, refer to the Technical Reference manual for details on the RAID system and its maintenance. |
|---|---|
| Values | **Yes** (default) / **No** |

## Network Error

| Description | Enables or disables the network error information display on the monitoring output. If there is an problem with the network connection, the **!Net** message appears on the monitoring output. When the network is available again, the system will try to reconnect and the →**Net** message appears on the monitoring output. |
|---|---|
| Values | **Yes** (default) / **No** |

## Clip Name

| Description | Specifies how the clip name is displayed. |
|---|---|
| Values | **VarID** / **Name** |
| Default | **Name** |

### Tally

| Description | Defines on which monitoring outputs the Tally signal will be displayed. |
|---|---|
| Values | The following values are available:<br>• **Char OUT**:<br>The tally signal will be displayed on the discrete OSD of the Char OUT monitoring outputs.<br>• **Multiviewer**:<br>The tally signal will be displayed on the OSD of the Multiviewer monitoring outputs.<br>• **Char OUT + MVW**:<br>The tally signal will be displayed both on the OSD of the Multiviewer and of the Chart OUT monitoring outputs. |
| Default value | Char OUT + MVW |

# 4.5.4. Monitoring Settings

## User Interface

The **Monitoring settings** allow specifying the settings related to the monitoring output lines.

These fields are available in the following interfaces:

• in the Multicam Configuration window, Monitoring tab

• in the Technical menu of the Remote Control Panel (T4.X)

The following screenshot displays the Monitoring settings on the Monitoring tab, in the web-based interface:

### Char OUT, Format

| Description | Allows enabling or disabling the OSD on the monitoring outputs, and setting the format of the monitoring output. |
|---|---|
| Values | The values available for the **Char OUT** setting are:<br>• **No:** OSD is disabled on the monitoring outputs.<br>• **Yes:** OSD is enabled on the monitoring outputs.<br>The values for the **Format** setting is read-only and depends on the current resolution:<br>• **3G** in UHD-4K and 1080p.<br>• **HD** in 720p and 1080i. |
| Default value | No |

> ✎ **NOTE**
>
> See section "Configuring OSD Display" on page 200 for more information on how the OSD-related settings can be configured with an XS-VIA server equipped with V4X boards.

# 4.5.5.  Configuring OSD Display

## Overview

This section explains how you configure the OSD-related settings to get the requested OSD display on an EVS server equipped with V4X boards and an MV4X multiviewer.

Below the overview table, you will find details on how to configure the settings in the various possible cases.

| | | OSD<br>Char. OUT<br>REC | OSD<br>Char. OUT<br>PGM | OSD<br>MV4X<br>REC | OSD<br>MV4X<br>PGM |
|---|---|---|---|---|---|
| **Monit.<br>Char. OUT<br>=<br>YES** | OSD on Outputs<br>= **YES** | | Yes | | Yes |
| | OSD on Outputs<br>= **NO** | | No | | No |
| | OSD on Inputs<br>= **YES** | Yes | | Yes | |
| | OSD on Inputs<br>= **NO** | No | | No | |

| | | OSD Char. OUT REC | OSD Char. OUT PGM | OSD MV4X REC | OSD MV4X PGM |
|---|---|---|---|---|---|
| **Monit. Char. OUT = NO** | OSD on Outputs = **YES** | No | No | | Yes |
| | OSD on Outputs = **NO** | No | No | | No |
| | OSD on Inputs = **YES** | No | No | Yes | |
| | OSD on Inputs = **NO** | No | No | No | |

## Case 1: OSD on Char OUT and Multiviewer

If you want OSD display on both video connectors **and** multiviewer connectors:

- set the **Monit. Char. OUT** setting(s) to **YES** (see "Monitoring Settings" AND

- set the **OSD on outputs** and/or **OSD on inputs** setting(s) to **YES** (see "OSD Settings") depending on whether you want OSD on inputs, outputs or both.

## Case 2: Clean Outputs on Char OUT and Multiviewer

If you do not want OSD display on both video connectors **and** multiviewer connectors:

- set the **OSD on outputs** and **OSD on inputs** setting(s) to **NO** (see "OSD Settings").

## Case 3: OSD on Multiviewer + Clean Outputs on Char OUT

- set the **Monit. Char. OUT** setting(s) to **NO** (see "Monitoring Settings" AND

- set the **OSD on outputs** and/or **OSD on inputs** setting(s) to **YES** (see "OSD Settings") depending on whether you want OSD on inputs, outputs or both on the multiviewer.

# 4.6. Protocol Tab

## 4.6.1. Overview

The Protocol tab includes the settings that will be used with the Sony BVW75 protocol and the EditRec feature.

The table below presents the settings of the Protocol tab. It specifies whether the setting is available:

• in the basic or advanced display mode in the server-based and web-based interfaces

• in the **Technical Setup** menu (T5.X) of the Remote Panel.

| Setting Name | Basic | Advanced | Technical Setup |
|---|---|---|---|
| **RS422 Protocols Settings** | | | |
| **Id Type** | X | X | X |
| **Sony BVW Settings** | | | |
| **FFW/REW speed** | X | X | X |
| **Use guardband** | X | X | X |
| **List Remote CAM** | X | X | X |
| **SONY Parallel Status** | X | X | X |
| **Edit Rec 1 / 2** | | | |
| **Port #** | read only | read only | |
| **Playlist Settings** | | | |
| **Default PL** | X | X | X |
| **Time Code Settings** | | | |
| **Serial Sony LTC** | X | X | – |
| **Serial Sony VITC** | X | X | X |
| **Insert TC in SDI** | – | X | X |
| **User TC of created clips** | – | X | X |
| **OSD Settings** | | | |
| **OSD on Output** | X | X | X |
| **Display sel** | – | X | X |
| **TC H-Pos** | – | X | X |
| **TC V-Pos** | – | X | X |

| Setting Name | Basic | Advanced | Technical Setup |
|---|---|---|---|
| **Name H-Pos** | – | X | X |
| **Name V-Pos** | – | X | X |
| **Audio Settings** | | | |
| **Edit audio Fade** | X | X | X |
| **Channel Settings** | | | |
| **EE** | X | X | X |
| **Stop Behavior** | X | X | X |
| **Full EE command 'value'** | X | X | X |
| **Tally/UMD Settings** | | | |
| **Protocol** | X | X | – |
| **UMD O/W** | X | X | – |
| **Display Index** | X | X | – |
| **RS422 VarID Settings** | | | |
| **Uniqueness** | – | read only | – |
| **Length** | – | read only | – |
| **Format** | – | read only | – |
| **VDCP visibility Settings** | | | |
| **Port #1...6** | – | read only | – |

> **NOTE**
>
> The following features are not supported on XS-VIA:
> • Edit Rec

## 4.6.2.  RS422 Protocols Settings

### User Interface

The **RS422 Protocols settings** allow specifying the settings related to the clip identification used to access the video clips.

These fields are available in the following interfaces:

•   in the Multicam Configuration window, Protocol tab, on page 1 in the basic and advanced display mode in the server- and web-based interfaces

The following screenshot displays the RS422 Protocol settings on the Protocols tab in the web-based interface:



### ID Type

| Description | Specifies the clip ID used by the protocols to access and identify the clips. Please note that at any time, the VDCP protocol can decide to use either the default value or the VarID (see RS422 VarID Settings). See section "Clip Identifiers" on page 205 for more information on clip identifiers. |
|---|---|
| **Values** | •   **ID LSM** <br> •   **UmID** |
| **Default value** | **ID LSM** |

# 4.6.3. Clip Identifiers

## LSM ID

The LSM ID is a clip identifier based on the EVS video server structure.

The LSM ID is made up of 3 digits and 1 letter, for example 112B, where the digits and letter represent the following elements in the server structure:
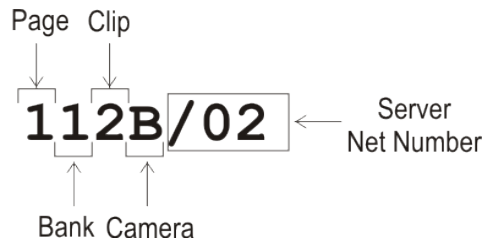


The digits after the LSM ID correspond to the Net Number of the server on which the clip is stored, i.e. the EVS video server ID on the XNet network. They are not part of the LSM ID.

## UmID

The UmID is an 8-bytes ID with fixed length.

It is used for the unique clip identification on the XNet network.

## VarID

The VarID is a 32-bytes ID with variable length and format.

The following VarID parameters need to be set up:

- Length (8 bytes, 32 bytes)
- Format (ASCII, binary)
- Uniqueness level (local = server level, global = network level)
- Protocol visibility (list of Net Numbers of the servers)

---

✎ **NOTE**

The VarID allows a redundant architecture where the VarID can be identical on two different servers. All servers can stay on the same XNet network. Consequently, this does not require a full replication of the XNet network. With the UmID, the full replication was necessary as this clip ID has to be unique on the XNet network.

---

# 4.6.4.  Sony BVW Settings

## User Interface

The **Sony BVW settings** allow specifying the settings that will be used with the Sony BVW75 protocol.

These fields are available in the following interfaces:

- in the Multicam Configuration window, Protocol tab, on page 1 in the basic and advanced display mode in the server- and web-based interfaces

- in the Technical menu of the Remote Control Panel (T5.X)

---

⚠ **WARNING**

The Sony BVW settings are only available if the license code 118, required to work with the Sony protocol, is valid.

---

The following screenshot displays the Sony BVW settings on the Protocol tab in the web-based interface:



## FFW/REW Speed

| Description | Specifies the speed used by the protocol for forward and rewind operations. |
|---|---|
| Values | **2** to **50** times the normal speed |
| Default value | **50** |

## Use Guardband

| Description | Makes the OUT guardband available to the protocol. |
|---|---|
| Values | • **Yes**, meaning that the protocol has access to the IN and OUT guardbands.<br>• **No**, meaning that the protocol has only access to the IN guardband. |
| Default value | **No** |

### List Remote CAM

| Description | Allows access to the CAM recorders of the remote server specified in the field next to the check box. |
|---|---|
| Values | • **Yes**, meaning that the recorders of the local server and the remote server are available.<br>When the setting is set to **Yes**, type the net numbers of the distant servers you want to allow access to as follows:<br>`<2;3;4>`<br>• **No**, meaning that only the recorders of the local server are available. |
| Default value | **No** |

### SONY Parallel Status

| Description | Activates the Sony serial connection status reporting when several controllers are used in parallel mode. |
|---|---|
| Values | **Yes** / **No** |
| Default value | **Yes** |

# 4.6.5.   EditRec

## Introduction to Edit Rec

### Edit Rec Protocol

The Edit Rec is a linear editing engine associated to a play channel and a record channel on the EVS server. Its role is to emulate a VTR. The Edit Rec engine relies on the Edit Rec protocol. In addition, both the play and the record channels of the Edit Rec engine are associated to the same RS422 port.

For more information on the Edit Rec feature, refer to the Edit Rec manual.

# Overview on Edit Rec Settings

The **Edit Rec settings** allow specifying the settings that will be used by the Edit Rec feature.

The Edit Rec settings are available in the following interfaces:

- in the Multicam Configuration window, Protocol tab, on page 2 for Edit Rec 1 and on page 3 for Edit Rec 2, in the basic and advanced display mode in the server- and web-based interfaces

- in the Technical menu of the Remote Control Panel, pages T5.X for Edit Rec 1 and Edit Rec 2

The following screenshot displays the Edit Rec 1 settings on the Protocols tab in the web-based interface:



# Edit Rec 1/2 Setting

As two Edit Rec engines can be defined on a server, two pairs of play and record channels can be assigned to this Edit Rec.

When an Edit Rec engine is set up on a server, the **Port #** parameter on the corresponding Edit Rec settings page specifies the port number of the associated play and record channels. If no Edit Rec engine has been configured, **Port #--** is displayed.

> **NOTE**
>
> You can only edit the settings when the corresponding Edit Rec play channel is stopped.

# Playlist Settings for Edit Rec

## User Interface

The **Playlist settings** allow specifying the playlist that will be loaded by default when the Edit Rec starts.

The following screenshot displays the playlist settings for Edit Rec on the Protocols tab in the web-based interface:



## Default PL

| Description | Specifies the playlist loaded by default when the Edit Rec is started. |
|---|---|
| **Values** | **10** to **99** |
| **Default value** | **60** |

# Audio Settings for Edit Rec

## User Interface

The **Audio settings** allow specifying the settings related to the fading applied at the clip boundaries.

The following screenshot displays the Audio settings for Edit Rec on the Protocols tab in the web-based interface:
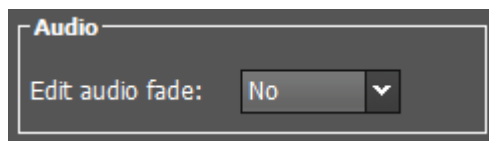


## Edit Audio Fade

| Description | Defines the audio effect to be applied to the clip boundaries and included in the clip material. |
|---|---|
| **Values** | • **No**<br>• **V-Fade**<br>• **µMix** |
| **Default value** | **No** |

# Time Code Settings for Edit Rec

## User Interface

The **Time Code settings** allow specifying the timecode (TC) types used in various communication protocols.

The following screenshot displays the Timecode settings for Edit Rec on the Protocols tab in the web-based interface:
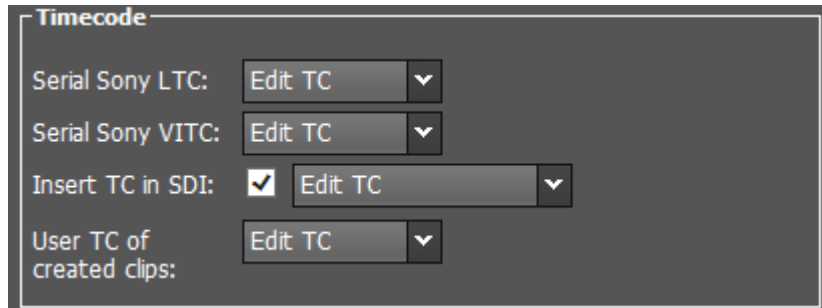


## Serial Sony LTC

| Description | Specifies the type of timecode used in communications between the Sony controller and the Edit Rec engine when the controller works with the LTC. |
|---|---|
| Values | This field is not editable. The value is always **Edit TC**, meaning the timecode of the playlist based on the Start TC. |

## Serial Sony VITC

| Description | Specifies the type of timecode used in communications between the Sony controller and the Edit Rec engine when the controller works with the VITC. |
|---|---|
| Values | • **Edit TC**, the playlist timecode based on the defined Start TC.<br>• **User TC**, the clip timecode from the USER TC table. |
| Default value | **Edit TC** |

### Insert TC in SDI (1 or 2 fields)

| Description | Activates or deactivates the timecode insertion in the VITC in SD or in the HANC in HD when the playlist is played out on the Edit Rec play channel. |
|---|---|
| Values | • **No**, no timecode is inserted.<br>• **Yes**, the following timecode is inserted:<br>   ◦ **Edit TC**, the playlist timecode based on the defined Start TC.<br>   ◦ **Default**, the timecode selected in the D-VITC field in SD, or in the HANC VITC / LTC fields in HD defined in Timecode Insertion Settings. |
| Default value | **Yes - Edit TC** |

### User TC of Created Clips

| Description | Specifies the TC type inserted into the User TC for the created clips. |
|---|---|
| Values | • **Edit TC**<br>• **User** |
| Default value | **Edit TC** |

# Channel Settings for Edit Rec

## User Interface

The **Channel settings** allow specifying the settings related to the channel behavior.

The following screenshot displays the Channel settings for Edit Rec on the Protocols tab in the web-based interface:
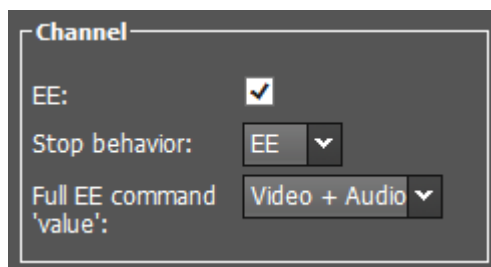
## EE

| | |
|---|---|
| **Description** | Activates the EE (Electronic to Electronic) mode, the signal being recorded is played on the output channel without any delay. |
| **Values** | **Yes / No** |
| **Default Value** | **Yes** |

## Stop Behavior

| | |
|---|---|
| **Description** | Defines the channel behavior when it is in stop mode. |
| **Values** | • **PB** (playback): The EditRec playlist is displayed on the EditRec output.<br>• **EE**: The EditRec input passes through the server and is displayed on the EditRec output. |
| **Default Value** | **PB** |

## Full EE Command 'Value'
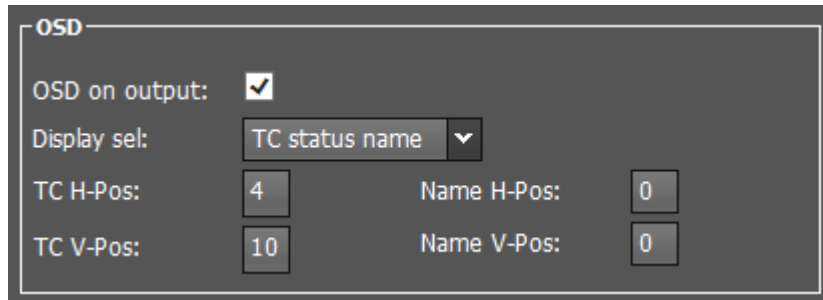
| | |
|---|---|
| **Description** | Allows to specify whether the **Full EE** command is applied on the audio and/or to the video.<br>The **Full EE** command makes it possible to view the source connected to the EditRec through the EditRec outputs without any audio or video delay.<br>From a practical point of view, this command allows the operator to select the IN and OUT points of the sources and of the recorder from a single monitoring window (EditRec output). |
| **Values** | The following values are available:<br>• **Video+Audio:** When the EVS server receives the **Full EE** command, it is applied to the video and audio feeds.<br>• **Audio:** When the EVS server receives the **Full EE** command, it is applied to the audio feeds only. This is relevant with the Sony plugin Editor. |
| **Default Value** | Video + Audio |

# OSD Settings for Edit Rec

## User Interface

The **OSD settings** allow specifying the settings related to the OSD and information to be displayed on the monitoring screen.

The following screenshot displays the OSD settings for Edit Rec on the Protocols tab in the web-based interface:



## OSD on Output

| Description | Activates or deactivates the OSD feature. |
|---|---|
| **Values** | **Yes / No** |
| **Default value** | **Yes** |

## Display Sel

| Description | Specifies the field or combination of fields to be displayed on the screen. |
|---|---|
| | • The TC is the Edit TC or the User TC in case the controller uses the VITC and User TC has been selected for the Serial Sony VITC field. |
| | • The Name is the number of the edited playlist. |
| **Values** | • **Name** |
| | • **TC** |
| | • **TC Status** |
| | • **TC Status Name** |
| | • **TC Name** |
| | • **Status** |
| | • **Status Name** |
| **Default value** | **TC Status Name** |

## TC H-Pos

| | |
|---|---|
| **Description** | Defines the horizontal position of the TC on the screens. |
| **Values** | **0** to **9** |
| **Default value** | **4** |

## Name H-Pos

| | |
|---|---|
| **Description** | Defines the horizontal position of the edit name on the screen. |
| **Values** | **0** to **15** |
| **Default value** | **0** |

## TC V-Pos

| | |
|---|---|
| **Description** | Defines the vertical position of the TC on the screen. |
| **Values** | **0** to **11** |
| **Default value** | **10** |

## Name V-Pos

| | |
|---|---|
| **Description** | Defines the vertical position of the edit name on the screen. |
| **Values** | **0** to **11** |
| **Default value** | **0** |

# 4.6.6.  Tally Feature

## Introduction

The Tally feature allows a protocol to send tally information on the monitoring outputs of the EVS server.

The Tally feature relies on the following technical characteristics:

- **Tally protocol:** TSL 5.0 (defined in the Tally settings).

- **Listening port (on EVS server):** 9800

- **Transport protocol:** UDP inbound

Tally information is available:

- with the MV4X multiviewer and internal LAN.

- via the SDI Char Out monitoring outputs.

The tally information consists in red, green or amber color applied to different OSD elements.

## Displayed Tally Information

The tally information displayed on the monitoring outputs depends on the following elements:

- Configuration of the hardware

- Selection of the monitoring outputs (Char OUT and/or MVW)

  with the **Tally** setting in Monitoring tab, OSD section

- Selection of the channels (Rec and/or Play, or no display)

  with the **Tally** setting in Operation tab, OSD section

The following table summarizes which Tally information is displayed depending on the hardware and the **Tally** setting in the Monitoring tab.

| Hardware > <br><br> Tally value V | SDI Char Out outputs | MV4X Multiviewer <br>(and Internal LAN) |
|---|---|---|
| **Char OUT** | Channel name highlighted (upper left) | Nothing displayed |
| **Multiviewer** | Nothing displayed | Colored frame around channel thumbnail<br>+<br>Colored rectangles (lower left and right) |
| **Char OUT + MVW** | Channel name highlighted (upper left) | Colored frame around channel thumbnail<br>+<br>Colored rectangles (lower left and right)<br>+<br>Channel name highlighted (upper left) |

In addition, the value for the **Tally** setting in the Operation tab will determine whether the tally information is displayed for record channels, play channels, for both record and play channels, or not displayed at all.

## Protocol Tally versus GPI Tally

The GPI tally is independent of the protocol tally (over PC LAN) and cannot be used at the same time as the protocol tally.

A tally command sent via GPI will be represented as a red rectangle around the monitoring output of the channel on which the GPI is defined.
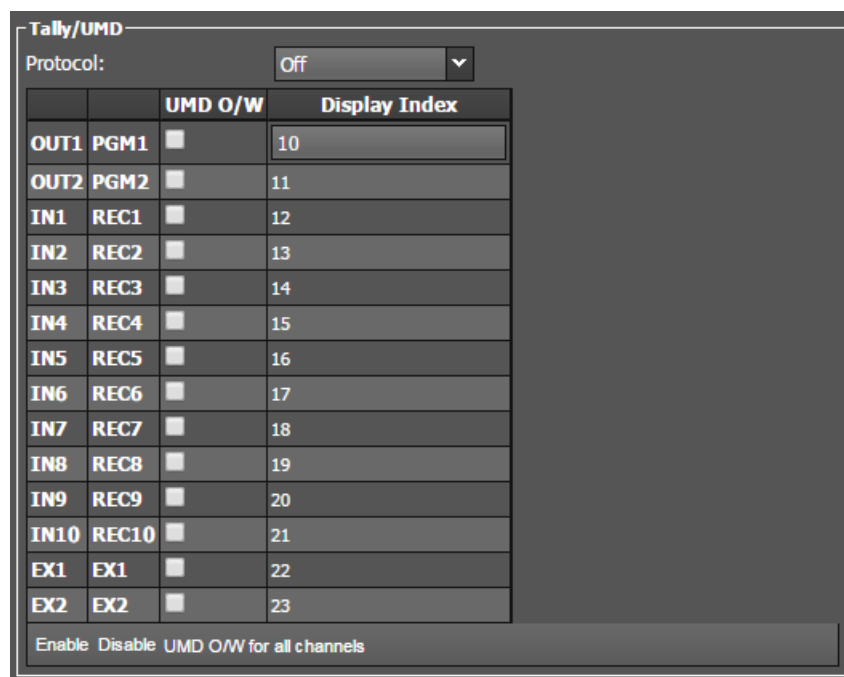
# 4.6.7.    Tally/UMD Settings

## User Interface

The **Tally/UMD settings** allow specifying some settings related to the Tally and UMD information that can be displayed on the monitoring outputs (multiviewer or discrete OSD).

The Tally/UMD settings are available in the Multicam Configuration window, Protocol tab, in the basic and advanced display mode in the server- and web-based interfaces.

The following screenshot displays the Tally/UMD settings on the Protocols tab in the web-based interface:



## Protocol

| Description | Specifies the UMD protocol used to communicate with the control system that provides the UMD and Tally information. |
|---|---|
| Values | • **Off**:<br>No communication protocol is defined, and the Tally/UMD features over PC LAN are disabled.<br>• **TSL 5.0**:<br>The TSL protocol is used to communicate with the control system to provide the Tally/UMD information. |
| Default value | Off |

## UMD O/W

| Description | Allows the UMD protocol to overwrite the name of the corresponding external MVW input or REC/PGM (Channels tab, Channel and Control settings, **Name** field) with the name defined in the control system.<br>Once the channel names have been overwritten, the original channel names defined on the EVS server can not be restored. You have to retype them when you disable the **UMD O/W** field. |
|---|---|
| Values | • **Yes**: The channel names are overwritten.<br>• **No**: The channel names are preserved. |
| Default value | No |

## Display Index

| Description | Display number assigned to each EVS server output (REC/PGM or external MVW inputs).<br>It should logically correspond to the display number defined in the control system.<br>Only the first number is defined manually. |
|---|---|
| Values | **0 to 65,495** (maximum value with TSL 5.0 protocol) |
| Default value | 10 (1st number) |

The display number values for the IN, OUT and MVW channels are calculated and assigned as follows:

• The display number value of the first IN channel (REC) has to be set manually. The display number value of all subsequent IN channels is automatically calculated from that first value and incremented sequentially.

  Display number values are reserved for 24 IN channels.

• The display number value of the first OUT channel (PGM) is based on the display number value of the first IN channel + 24. The display number value of all subsequent OUT channels is sequentially and automatically incremented.

  Display number values are reserved for 12 OUT channels.

• The display number value of the first external multiviewer input (EXT) is based on the display number value of the first IN channel + 36 (24 + 12). The display number value of all subsequent external multiviewer input channels is sequentially and automatically incremented.

  Display number values are reserverd for 4 external multiviewer inputs.

The following example (8 IN and 4 OUT) clarifies the rules above:

| CHANNEL | Display Index |
|---|---|
| **IN1 (manually set by the user)** | 22 |
| **IN2** | 23 |

| CHANNEL | Display Index |
|---------|---------------|
| **IN3** | 24 |
| **IN4** | 25 |
| **IN5** | 26 |
| **IN6** | 27 |
| **IN7** | 28 |
| **IN8** | 29 |
| **IN9** | <not visible> |
| **IN10** | <not visible> |
| **IN11** | <not visible> |
| **IN12** | <not visible> |
| Multicam currently only supports up to 12 REC | |
| **OUT1** | 46 |
| **OUT2** | 47 |
| **OUT3** | 48 |
| **OUT4** | 49 |
| **OUT5** | <not visible> |
| **OUT6** | <not visible> |
| Multicam currently only supports up to 6 PGM | |
| **EXT1** | 58 |
| **EXT2** | 59 |

## Collective Commands

The following table presents the name and description of the collective command, as well as the keyboard shortcut available in the server-based interface:

| Command | Description | Shortcut |
|---------|-------------|----------|
| Enable | Enables the overwrite command for all channels (Rec/Play) and external inputs that can be displayed in a monitoring output. | **CTRL + Y** |
| Disable | Disables the overwrite command for all channels (Rec/Play) and external inputs that can be displayed in a monitoring output. | **CTRL + N** |

# 4.6.8. RS422 VarID Settings

## User Interface

The **RS422 VarID settings** and the **VDCP visibility settings** display the read-only VarID settings.

These fields are available in the following interfaces:

• in the Multicam Configuration window, Protocol tab in the advanced display mode in the server- and web-based interfaces.

---

⚠ **WARNING**

The VDCP visibility settings are only available if the license code 119, required to work with the VDCP protocol, is valid.

---

The following screenshot displays the RS422 VarID and the VDCP visibility settings on the Protocols tab in the web-based interface:

# VarID Definition and Parameters

> ⚠️ **WARNING**
>
> Please contact the EVS support should you need to change the VarID definition or parameters.

The VarID is a 32-bytes ID with variable length and format. The VarID settings enable VDCP protocol to use the VarID to access the clip IDs on a server or on the XNet network.

This page in the Multicam Configuration menu only displays the parameter values. These values are extracted from the 'varid.ini' file and can only be changed by editing this external file. In case of error or undefined values, the corresponding parameter default value is used.

If any of the VarID settings does not correspond to the network defined values set on the XNet, the server will be disconnected from the network and operate in local mode. In this case:

- The Multicam Configuration window clearly displays the message **!Not XNet common value!** next to the incorrect parameter.

- A message is displayed on the XNet network monitoring screen indicating the incorrect parameter.

## VarID Configuration File

The VarID parameters are defined in a configuration file. This file, named `varid.ini`, is located in the `/mnt/apps/data/user` folder (`/user` folder when you connect to the EVS server using an FTP client).

The file has the following syntax:

```
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
; VARID settings
;----------------------------
;Parameter values and [default]
;
; Uniqueness= [Local] or Global
; Length= [32] or 8
; Format= [ASCII] or Binary
; Visibility= [], 1..34,*
;               default= empty is converted to local XT Net number
;               * for all XNet
;
;----------------------------
Uniqueness=Local
Length=32
Format=ASCII
1=
2=
3=
4=
5=
6=
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
```

## Uniqueness

## Length

| Description | Specifies whether the VarID has a fixed length of 8 bytes or a variable length of 32 bytes. |
|---|---|
| Values | • **8**, fixed length.<br>• **32**, variable length. |
| Default value | **32** |

## Format

| Description | Specifies whether the VarID has an ASCII or binary format. |
|---|---|
| Values | • **ASCII**<br>• **Binary** |
| Default value | **ASCII** |

## VDCP Visibility

| Description | Specifies the list of servers which will be visible on the various communication ports that the VDCP protocol will use to communicate with. This parameter is only relevant for the VDCP protocol.<br>For a list of servers, use the corresponding servers XNet numbers separated with a semi-colon (;). Please note that the list order is taken into account in the visibility. This means that the system first searches for the requested clips on the first server of the list, then on the second, and so on. |
|---|---|
| Values | • (empty), the local server is used (converted to the local XNet number).<br>• **1** to **29**, the servers available on XNet.<br>• **1** to 34 servers available on XNet-VIA.<br>• **\***, for all XNet servers. |
| Default value | **1** |

NEW !

# 4.7.    GPI Tab

## 4.7.1.    Overview

The GPI tab includes the settings of the GPI inputs and outputs signals.

The table below presents the settings of the GPI tab. They specify where the setting groups are available (page) and whether each setting is available:

•    in the server-based and web-based interfaces

•    in the **Technical Setup** menu (T6.X) of the Remote Panel.

| Setting Name | Basic & Advanced | Technical Setup |
|---|---|---|
| **GPI Settings** | | |
| **TTL GPIs set as GPIs** | X | T6.1 |
| **GPIs IN** | | |
| **Channel/Device** | X | T6.2 to T6.3 |
| **Port** | X | T6.2 to T6.3 |
| **Function** | X | T6.2 to T6.3 |
| **Delay** | X | T6.4 |
| **GPIs OUT** | | |
| **Function** | X | T6.5 |
| **Type** | X | T6.5 |
| **Advance** | X | T6.6 |
| **Pulse duration** | X | T6.6 |
| **Tally Playlist Settings** | | |
| **Tally** | X | X |
| **Add Clip to PL** | X | X |
| **Clips guardbands** | X | X |

## 4.7.2.  GPI Settings

### User Interface

The **GPI Settings** allow specifying the settings related to the GPI inputs and outputs features.

These fields are available in the following interfaces:

• in the Multicam Configuration window, GPI tab

• in the Technical menu of the Remote Control Panel (T6.X)

The following screenshot displays the GPI settings on the GPI tab in the web-based interface:



> **NOTE**
>
> If the **TTL GPIs set as GPIs** parameter is set to **In**, then the display looks like the illustration above with 8 **GPIs IN** and 4 **GPIs OUT** lines.
> If it is set to **Out**, then the display is reorganized to expose 4 **GPIs IN** and 8 **GPIs OUT** lines.

# GPI Types and Functions

There are 3 types of GPIs available to be used on the servers:

- The input lines 1 to 4 are opto-isolated inputs.

- The output lines 1 to 4 are relay outputs.

- The GPIs TTL lines can be configured as 4 TTL inputs or 4 TTL outputs, in both cases numbered from 5 to 8.

According to the protocol you are using, the following functions are available and can be assigned to the GPIs lines as described hereunder in the **Function** parameter.

- **AVSP**: Play, Stop, Still, Recue, GotoClipIN, GotoClipOUT, Next, Skip.

- **Sony**: Play, Pause, Recue, Previous, Next, Skip.

- **DD35**: Play, Pause, Recue, Previous, Next, Skip.

- **Odetics**: Play, Pause, Recue, Next.

- **VDCP**: Play, Pause, Recue, Previous, Next, Skip.

---

> ✏️ **NOTE**
>
> For all protocols, except AVSP, use the channel assignment (PGM1 to PGMx) instead of the device protocol type (Sony BVW75, Odetics).
> The AVSP protocol does not require any GPI IN setting in this page as they are defined through specific serial AVSP commands. For this reason, specific AVSP commands will not be available via the **Function** parameter for the GPIs IN.

---

# TTL GPIs set as GPIs

| Description | Defines the 4 configurable GPIs as inputs or outputs. |
|---|---|
| **Values** | **In** / **Out** |
| **Default value** | **In** |

## GPIs IN - Channel/Device

| Description | Specifies the server channel or the external device connected to the corresponding GPI input line, and therefore to which channel or device the GPI will be sent to. |
|---|---|
| Values | The following values are possible and correspond to one of the channels or controllers assigned in the Channel and Control settings (Channels tab, page 1):<br>• **PGMx**: The GPI is sent to the specified play channel.<br>• **RECx**: The GPI is sent to the specified record channel.<br>• **RMT1**: The GPI is sent to the remote controller.<br>• **<Protocol Name>**: The GPI is sent to the third-party controlling device. |

## GPIs IN - Port

| Description | Specifies the RS422 port on which the server will receive the input signal. This setting is relevant when the device is an EVS remote controller or third-party controller. |
|---|---|
| Values | The possible values are from 1 to 6: it corresponds to the RS422 port to which the controller specified in the **Channel/Device** field is assigned in the Port settings (Channels tab, page 1). |

## GPIs IN - Function

| | |
|---|---|
| **Description** | Specifies the function associated to the GPI input line. According the configured protocol some or all of the functions described below are available. |
| **Values** | • **Play**: sends a play command at 100% speed on the selected channel.<br>• **Pause**: sends a pause command on the selected channel.<br>• **Recue**: sends a jump to the IN point of the on air element on the selected channel. (If this is a playlist, the jump is performed to the IN point of the first clip of the playlist.)<br>• **Previous**: sends a command to go to the previous clip of a playlist on the selected channel.<br>• **Next**: sends a command to go to the next clip of a playlist on the selected channel.<br>• **Skip**: sends a command to skip the clip being played on the selected channel.<br>• **Tally**: activates or deactivates the on-air flag on the selected channel.<br>• **Mark IN**: sets an IN point on the corresponding record channel.<br>• **Mark OUT**: sets an OUT point on the corresponding record channel.<br>• **Mark Tly**: sets an IN and an OUT points on record trains based on changes in camera angles of the director's cut. An IN point is set on the train to which the director switches and an OUT point is set on the train that the director leaves.<br>• **Exit ASP**: sends a command to exit the loop as soon as possible without playing the current element until its end then jump to the selected element. (This GPI is used with playlists in IPDirector.)<br>• **Exit OUT**: sends a command to exit the loop as soon as the OUT point of the current element is reached then jump to the selected element. (This GPI is used with playlists in IPDirector.)<br>• **None**: no value is defined. |
| **Default value** | **None** |

## GPIs IN - Delay

| | |
|---|---|
| **Description** | Specifies the time (number of seconds and/or frames) that the server will wait after receiving the input signal before executing the input-related function. |
| **Values** | • **00s00fr** to **02s00fr**<br>• **Disable** |
| **Default value** | **Disable** |

### GPIs OUT - Function

| Description | Specifies the function that activates the output line. |
|---|---|
| Values | The following function can trigger a GPI OUT:<br>• **Replace** |

### GPIs OUT - Type

| Description | Specifies the type of GPI output signal that will trigger the specified function. |
|---|---|
| Values | The following values are possible:<br>• **close** ⎍ The level changes to high level at activation.<br>• **close pulse** ⎍ A rising edge pulse is generated at activation.<br>• **open** ⎍ The level changes to low level at activation.<br>• **open pulse** ⎍ A falling edge pulse is generated at activation. |

### GPIs OUT - Advance

| Description | Defines the time (number of seconds and/or frames), at which the output will be generated ahead of the timecode linked to the output line. |
|---|---|
| Values | • **00s00fr** to **02s00fr**<br>• **Disable** |
| Default value | **Disable** |

### GPIs OUT - Pulse duration

| Description | Defines the pulse duration (number of seconds and/or frames) for pulse type output lines. |
|---|---|
| Values | • **00s00fr** to **02s00fr** (2fr steps)<br>• **Disable** |
| Default value | **Disable** |

# 4.7.3.    Tally Playlist Settings

## Introduction

The **Tally Playlist settings** allow specifying the settings related to the tally feature. This feature allows the user to automatically create a clip for each change of camera performed with the Director's Cut and to add these clips to a playlist. The clips are created automatically by the server as it receives GPIs IN signals from a switcher when the director changes the camera angle.

## User Interface

These fields are available in the following interfaces:

- in the Multicam Configuration window, GPI tab
- in the Technical menu of the Remote Control Panel (T6.X)

The following screenshot displays the Tally settings on the GPI tab in the web-based interface:
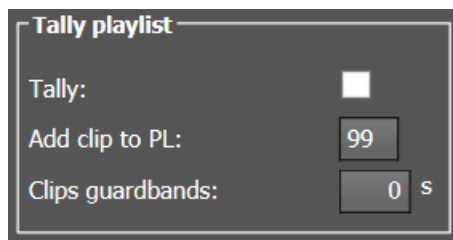


## How to Activate the Tally Playlist Function

To use the tally function, proceed as follows:

1. Activate it using the **Tally** parameter.

2. Go to the GPIs IN settings area and select the GPI IN used for the tally control.

3. Set the Channel/Device on the REC on which the Director's Cut is performed.

4. Set the function as **Mark Tly**.

The tally function is now active, and works as follows:

When the server receives a 'Mark tally' GPI IN, an IN point is marked on the corresponding record train (for ex. cam a). When a second 'Mark Tally' GPI IN is received on a different record train (for ex. cam b), the server marks an OUT point on the first record train (cam a) and an IN point on the second record train (cam b). All the clips created this way are added to the defined playlist.

## Tally

| | |
|---|---|
| **Description** | Activate or deactivate the playlist tally function. |
| **Values** | **Yes/No** |
| **Default Value** | **Yes** |

## Add Clip to PL

| | |
|---|---|
| **Description** | Selects the LSM ID of the playlist to which the tally clips will be added. |
| **Values** | **10** to **99** |
| **Default Value** | **99** |

## Clips Guardbands

| | |
|---|---|
| **Description** | Specifies the guardbands length of the tally clips, in seconds. |
| **Values** | **0** to **250** |
| **Default Value** | **0** |

# 4.8.    Operation Tab

## 4.8.1.    Overview

### Operation Tab

The **Operation** tab is available as the default tab with operational settings. It consists of several pages in the basic mode in the server-based application. No advanced mode is available in this tab.

The table below presents the settings of the Operation tab. They specify whether the various settings are available:

• in the basic or advanced display mode in the server-based and web-based interfaces.

• in the **Operational Setup** menu of the Remote Panel.

---

> **NOTE**
>
> • Some operational settings and/or setting values may be displayed although they are not relevant to the EVS server you are operating or to the configuration you are running.
> • When the IPD-VIA parameter is enabled in the VIA Controller settings, certain parameters will be highlighted. This to make clear that these parameters do not apply to the IPD-VIA controller.

---

### OSD Settings

| Setting Name | Basic | Operational Setup |
|---|---|---|
| **OSD settings** | | **1.x** |
| **Cue Number on OSD** | X | X |
| **Keyword info** | X | X |
| **OSD on outputs** | X | X |
| **OSD on inputs** | X | X |
| **Background** | X | X |
| **Tally** | X | X |
| **Audio meters OSD settings** | | **1.x** |
| **Audio Meters** | X | X |
| **DB Adjust** | X | X |

| Setting Name | Basic | Operational Setup |
|---|---|---|
| Style | X | X |
| Thickness | X | X |

## Clips Settings

| Setting Name | Basic | Operational Setup |
|---|---|---|
| **Clips settings** | | **2.x** |
| Automake clip for cam A to L | X | X |
| Make clips rem. trains | X | X |
| Guardbands | X | X |
| Default clip duration | X | X |
| Autoname clips | X | X |
| Clip post-roll | X | X |
| Mark cue points | X | X |
| Preroll | X | X |
| Record trains OUTs | X | X |
| Freeze on cue points | X | X |
| Network Copy/Push | X | X |
| Protocol receive page | X | X |
| Playlist receive page | X | X |
| Timeline receive page | X | X |

## Playlist Settings

| Setting Name | Basic | Operational Setup |
|---|---|---|
| **Playlist settings** | | **3.x** |
| Video effect duration | X | X |
| Wipe type | X | X |
| Default playlist speed | X | X |
| Insert in playlist | X | X |
| Confirm Ins/Del clips | X | X |
| Playlist loop | X | X |
| Playlist auto fill | X | X |

| Setting Name | Basic | Operational Setup |
|---|---|---|
| **Fade to/from color** | X | X |
| **Load playlist** | X | X |
| **Make local auto** | X | X |

## Miscellaneous Settings

| Setting Name | Basic | Operational Setup |
|---|---|---|
| **Protection settings** | | **5.x** |
| **Protect pages** | X | X |
| **Clip edit by network** | X | X |
| **Confirm delete clips/playlists** | X | X |
| **Keywords settings** | | **6.x** |
| **Keyword files** | X | X |
| **Keyword mode** | X | X |
| **Push settings** | | **7.x** |
| **Push target** | X | X |
| **Push target 1/2** | X | X |
| **Push mode** | X | X |
| **Push receive page** | X | X |
| **Push receive slots** | X | X |
| **Audio settings** | | **8.x** |
| **Audio slow motion** | X | X |
| **Lipsync value** | X | X |
| **Aux track output** | X | X |

## EVS Controller Settings

| Setting Name | Basic | Operational Setup |
|---|---|---|
| **EVS Controller settings** | | **9.x** |
| **Effect duration for take** | X | X |
| **Fast jog** | X | X |
| **PGM Speed** | X | X |

| Setting Name | Basic | Operational Setup |
|---|:---:|:---:|
| **Recall clip toggle** | X | X |
| **Record key** | X | X |
| **VGA & Remote sync** | X | X |
| **Call channel VGA** | X | X |
| **PGM/PRV mode** | X | X |
| **Loop button** | X | X |

> **NOTE**
>
> The following features are not supported on XS-VIA:
> - Internal loop mode
> - Paint/target
> - Offside line (internal and external)
> - Split Screen feature
> - Timeline feature

# 4.8.2.   OSD Settings

## User Interface

The OSD settings allow users to specify which and how the information will be displayed on the OSD.

These fields are available in the following interfaces:

- in the Multicam Configuration window, Operation tab

- in the Operational menu of the Remote Control Panel (1.1)

The following screenshot displays the OSD settings on the Operation tab in the web-based interface:
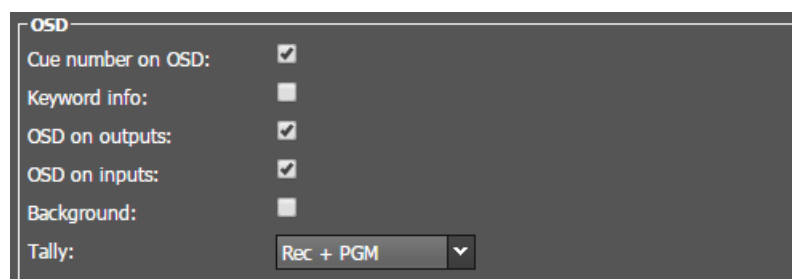
## Cue Number on OSD

| Description | Enables / disables the display of the cue point number on the OSD of the monitoring outputs when a cue point is recalled inside a record train. |
|---|---|
| Values | Yes (default) / No |

## Keyword Info

| Description | Shows / hides the defined keywords and ranking on the OSD of the monitoring outputs when the clip is loaded on its Short IN point.<br>As soon as the operator starts jogging into the clip or initiates a playback, this information is removed from the OSD so that the video content is clearly visible. |
|---|---|
| Values | Yes / No (default) |

## OSD on Outputs

| Description | Enables / disables the OSD on the play channels on discrete monitoring outputs.<br>See section "Configuring OSD Display" on page 200 for more information on how to configure OSD-related settings on an XS-VIA equipped with V4X boards. |
|---|---|
| Values | Yes (default) / No |

## OSD on Inputs

| Description | Enables / disables the OSD on the record channels on discrete monitoring outputs. |
|---|---|
| Values | Yes (default) / No |

## Background

| Description | Applies a dark gray background to the OSD display. |
|---|---|
| Values | Yes / No (default) |

### Tally

| Description | Defines whether the Tally signal will be displayed on the record and/or play channels. |
|---|---|
| Values | The following values are available:<br>• **No**:<br> The Tally signal is not displayed at all on the monitoring outputs.<br>• **Rec only**:<br> The Tally signal is displayed on the monitoring outputs of the record channels.<br>• **PGM only**:<br> The Tally signal is displayed on the monitoring outputs of the play channels.<br>• **Rec + PGM**:<br> The Tally signal is displayed on the monitoring outputs of the record and play channels. |
| Default value | PGM + REC |

## 4.8.3.  Audio Meters OSD Settings

### User Interface

The Audio Meters OSD settings allow users to specify whether and how the audio meters are to be displayed on the OSD.

These fields are available in the following interfaces:

• in the Multicam Configuration window, Operation tab

• in the Operational menu of the Remote Control Panel (1.2)

The following screenshot displays the Audio Meters OSD settings on the Operation tab in the web-based interface:
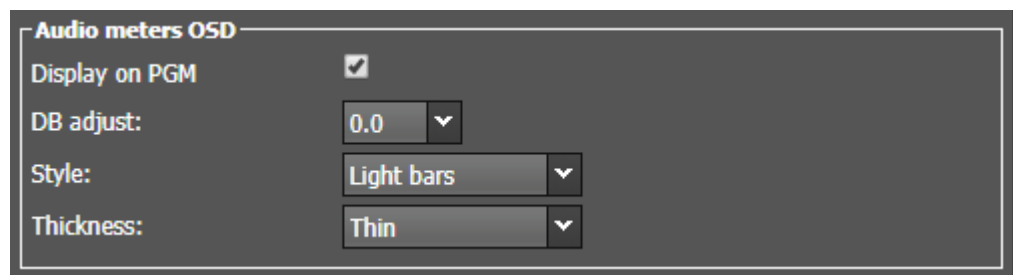
## Display On PGM

| Description | Shows/hides the audio meters on the OSD. The Audio Meters parameter impacts the output channels of both discrete OSD (Char OUT) and multiviewer, but not the input channels. |
|---|---|
| Values | Yes / No |
| Default value | Yes |

## DB Adjust

| Description | Adjusts the value of the displayed audio meters. |
|---|---|
| Values | From - 83.2 to 0.0 dB, with a variable increments (larger in low values, and smaller with increasing values). |
| Default value | 0.0 |

## Style

| Description | Specifies the style of the audio meters;<br>The **Style** parameter impacts the audio meters of the discrete OSD (Char OUT), but not those of the multiviewer . |
|---|---|
| Values | Light Bars , Glowing Boxes , Dark Boxes , Light Boxes , Dark Bars |
| Default value | Light Bars |

## Thickness

| Description | Specifies the thickness of the audio meters;<br>The **Thickness** parameter impacts the audio meters of the discrete OSD (Char OUT), but not those of the multiviewer . |
|---|---|
| Values | Thin, Medium, Thick |
| Default value | Thin |

# 4.8.4. Clips Settings
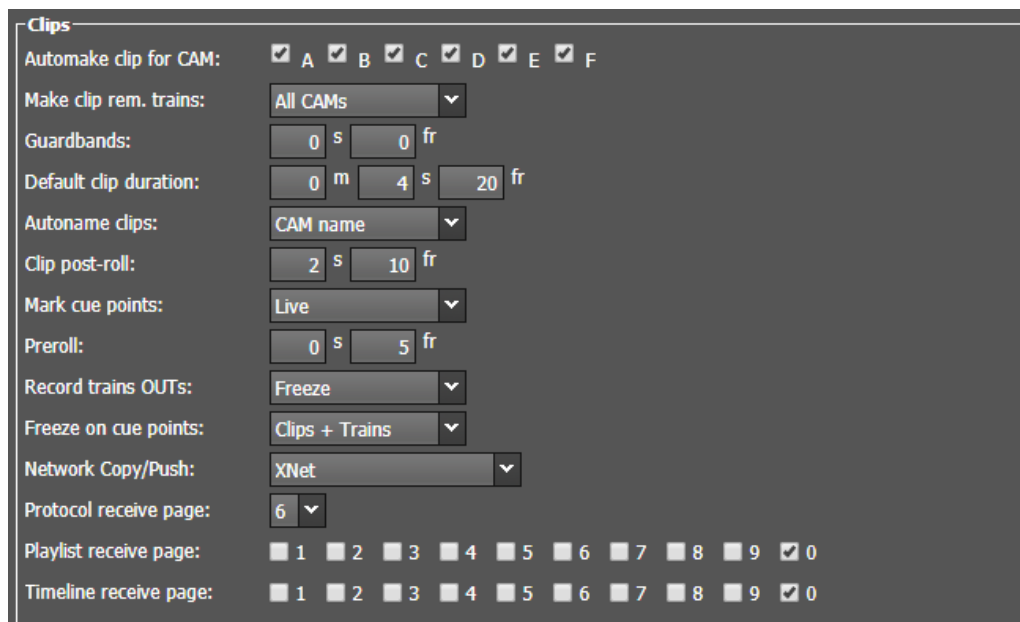
## User Interface

The Clips settings relate to various aspects of the clip management: clip definition, storage location, metadata, and cue points.

The Clips settings are available in the following interfaces:

• in the Multicam Configuration window, Operation tab

• in the Operational menu of the Remote Control Panel (2.X).

The following screenshot displays the Clips settings on the Operation tab in the web-based interface:

## Automake Clip for CAM A to L

| Availability | This parameter is only displayed in XSense configurations. |
| --- | --- |
| Introduction | When creating clips, the clip corresponding to the camera on which IN/OUT points have been marked are always saved. It is possible to save automatically the same action on the other cameras.<br>Only cameras letters applicable to the logical channels are displayed. |
| Description | Specifies that clips have to be created on the given cameras (A to L) even if no IN or OUT point has been marked on that camera. |
| Values | Yes / No |
| Default value | Yes |

## Make Clip Rem. Trains

| Availability | The setting **Make clip remote trains** is only available if the license code 117 is valid. |
| --- | --- |
| Description | Allows users to clip all cameras of a remote EVS server if at least one record train of that server is controlled. |
| Values | Ctrled Cams / All cams |
| Default value | Ctrled Cams |

## Guardbands

| Description | Specifies the amount of A/V material that remains available before and after a clip (called 'guardbands') when the clip is created. |
| --- | --- |
| Values | From 00s00fr to 60s00fr |
| Default value | 05s00fr |

## Default Clip Duration

| | |
|---|---|
| **Description** | Specifies the duration of clips created with only one reference point (IN or OUT point). |
| **Values** | Disable, or from 00s01fr to 4h.<br>When set to 'Disable', both IN and OUT points are required to be able to create a clip.<br>The duration can be set:<br>• With second granularity up to 1 minute<br>• With minute granularity from 1 minute up to 4 hours. |
| **Default value** | 04s00fr |

## Autoname Clips

| | |
|---|---|
| **Description** | If this function is enabled, the value of the selected field will automatically be used to name the clip upon creation. |
| **Values** | The values from the following fields can be used to automatically name clips:<br>• **Disabled:**<br>No name is assigned to a clip when it is created.<br>• **TC IN:**<br>The timecode of the IN point of the clip is automatically assigned to a clip when it is created.<br>• **CAM Name:**<br>The name of the record channel is automatically assigned to a clip when it is created.<br>• **ID Louth:**<br>The ID Louth of the clip, i.e. the unique identifier for the clip on the XNet network, is assigned to a clip when it is created.<br>• **VarID 32:**<br>The VarID of the clip is assigned to a clip when it is created.<br>When this option is selected, the VarID used to assign a name to the clip will be limited to the first 8 characters of this field. |
| **Default value** | Disabled |

## Clip Post-Roll

| | |
|---|---|
| **Description** | When the post-roll function is enabled from the secondary clip menu, the clip will play through its OUT point for the duration defined by the Clip post-roll parameter.<br>This is also valid inside record trains if the Record Train OUTs parameter is set to **Freeze**. |
| **Values** | From 00s00fr to 600s00fr |
| **Default value** | 02s00fr |

## Mark Cue Point

| | |
|---|---|
| **Description** | Specifies how the cue point timecode will be memorized. |
| **Values** | Two values are possible for this parameter:<br>• **Live:**<br>  Memorizes cue points based on the timecode of the LIVE input.<br>• **Playback:**<br>  Memorizes cue points based on the timecode of the field loaded on the main play channel. |
| **Default value** | Live |

## Preroll

| | |
|---|---|
| **Description** | Preroll duration used when recalling a cue point. |
| **Values** | From 0s01fr to 5s00fr. |
| **Default value** | 0s05fr |

## Record Trains OUTs

| Description | Specifies whether Multicam will freeze or play through when it reaches an OUT point marked on the record train that is being played back. |
|---|---|
| Values | Two values are possible for this parameter:<br>• **Play through:**<br>  Multicam will still countdown to the OUT point, but will keep playing through this point.<br>• **Freeze:**<br>  Multicam will countdown to the OUT point and will automatically freeze:<br>  ◦ on that picture if the post-roll mode is disabled<br>  ◦ on that picture + the post-roll duration if the post-roll mode is enabled.<br>When playing a clip, Multicam always freezes on the OUT point (or OUT point + post-roll duration when post-roll mode is enabled). |
| Default value | Play through |

## Freeze on Cue Points

| Description | Specifies whether Multicam will freeze or not when it reaches a cue point marked on the clip and/or the record train that is being played back.<br>The post-roll parameter is not taken into account for this functionality. |
|---|---|
| Values | • **No:**<br>  The playout plays through the cue points when playing clips or record trains.<br>• **Clips + Trains:**<br>  The playout freezes on the cue points when playing clips or record trains where cue points have been defined.<br>• **Clips:**<br>  The playout freezes on the cue points when playing clips where cue points have been defined.<br>• **Record Trains:**<br>  The playout freezes on the cue points when playing record trains where cue points have been defined. |
| Default value | No |

## Network Copy/Push (Supersedes 'Default Copy/Move')

| | |
|---|---|
| **Description** | Allows you to select the prefered network for copying, pushing and creating a clip on a distant server.<br>This setting is taken into account when the destination machine is visible both on the XNet and GbE networks. |
| **Values** | Two values are possible for this parameter:<br>• **XNet:**<br>The operations are executed through the XNet network. There is no failover mechanism to the GbE interface.<br>• **Gigabit (XNet failover):**<br>The copy operations are first executed via the GbE interface.<br>If the transfer is not possible (ports not connected, IP address unknown, etc.) **and** the EVS server is in **mono-essence** mode, the transfer is then tried through XNet.<br>Whatever the value defined for this setting, the following rules are applied if both networks are available:<br>• Transfers to GbE targets are always performed via the GbE interface.<br>• Metadata is always transferred via the XNet interface.<br>The value is forced to Gigabit if the code 117 (SDTI) is not valid on the EVS server, or if the XNet network is not active. |
| **Default value** | XNet |

## Protocol Receive Page

| | |
|---|---|
| **Description** | Specifies on which page the clips created by protocols are stored. When a page is full, clips are stored on the next page. Only clips created on this page (and the other protocol pages if the first page is full) are visible for protocols. |
| **Values** | 1 to 10 (=0) |
| **Default value** | 6 |

## Playlist Receive Page

| | |
|---|---|
| **Introduction** | This setting is linked to the copy function that allows users to automatically create a local copy of all network clips when copying a local or network playlist. For details, refer to the description of the Playlist copy function in the Operations manual. |
| **Availability** | The setting is only available if the license code 111 is valid. |
| **Description** | Specifies on which page(s) of your EVS server the clips received when using the PLST+CLIPS copy function must be stored. <br> Clip pages can be assigned simultaneously as PUSH and PLST Receive Pages. |
| **Values** | 1 to 10 (=0) |
| **Default value** | 0 (page 10) |

## Timeline Receive Page

| | |
|---|---|
| **Description** | This setting is not relevant on an XS-VIA server. <br> Specifies on which page(s) the clips automatically created in timeline mode as part of the timeline editing process are stored. |
| **Values** | 1 to 10 (=0) |
| **Default value** | 0 (page 10) |

# 4.8.5.   Playlist Settings
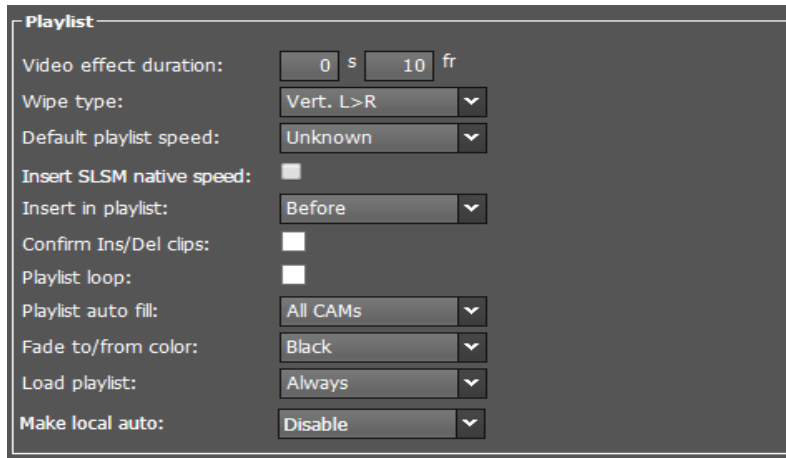
## User Interface

The Playlist settings relate to various aspects of playlist management and effects.

These fields are available in the following interfaces:

- in the Multicam Configuration window, Operation tab
- in the Operational setup menu of the Remote Control Panel (3.X)

The following screenshot displays the Playlist settings on the Operation tab in the web-based interface:



## Availability

The Playlist settings are only available if the license code 111 is valid.

On an XS-VIA server, the license code 111 is only allowed with an XSense configuration.

You can also create and manage playlist exclusively via protocols. In this case, the playlist settings will not be available, and all playlist-related parameters will be defined by the controlling application or device.

---

> **NOTE**
>
> Some operational settings may be displayed although they are not relevant to the EVS server you are operating or to the configuration you are running.

---

## Video Effect Duration

| | |
|---|---|
| **Description** | Sets the duration of video transition effect. The specified value is used as default value in the Playlist Edit mode. Note that the duration of the video transition when using the **TAKE** button in 1PGM+PRV mode has its own parameter, **Effect for take**, defined in the EVS Controller section of the Operation tab. |
| **Values** | 0s00fr to 20s00fr |
| **Default value** | 00s10fr |

## Wipe Type

| | |
|---|---|
| **Description** | Specifies the vertical wipe effects from Left to Right or from Right to Left. |
| **Values** | Vert. L>R / Vert. R>L |
| **Default value** | Vert. L > R |

## Default Playlist Speed

| | |
|---|---|
| **Description** | Defines the default speed used to play clips in a playlist. |
| **Values** | The following values are possible Unknown, and from 0% to 100%:<br>• **Unknown** means that the speed of the previous clip in the playlist will be used as a reference for the current clip.<br>• **0%** will force the playlist to pause at the end of each clip.<br>• **1% to 100%** will apply the specified speed as default speed for playlist elements. |
| **Default value** | Unknown |

## Insert SLSM Native Speed

| | |
|---|---|
| **Description** | Defines whether an SLSM clip inserted into a playlist will automatically be set to be played out at its native speed, or at the value defined in the **Default playlist speed** parameter. |
| **Values** | The following values are possible:<br>• **No** means that playout speed of the SLSM clips depends on value defined in the **Default playlist speed**.<br>• **Yes** means that the speed of the playout SLSM clips is automatically set to its native speed. |
| **Default value** | No |

## Insert in Playlist

| | |
|---|---|
| **Description** | Specifies if the clips add to a playlist are insert before or after the active clip in the playlist. |
| **Values** | After / Before |
| **Default value** | Before |

## Confirm Ins/Del Clips

| | |
|---|---|
| **Description** | Specifies whether a confirmation will be required each time the operator wants to add a clip to the playlist or remove a clip from the playlist. |
| **Values** | • Enabled (Yes)<br>• Disabled (No) |
| **Default value** | Disabled (No) |

## Playlist Loop

| | |
|---|---|
| **Description** | Specifies whether the playlists in play mode will be looped and played back continuously. |
| **Values** | • Enabled (Yes)<br>• Disabled (No) |
| **Default value** | Disabled (No) |

## Playlist Auto Fill

| | |
|---|---|
| **Description** | Specifies which camera angles will be added to the playlists when using the **Fill Playlist (F9)** function from the main menu of the Remote Panel. |
| **Values** | The following values are possible:<br>• **All Cams:**<br>The clips for all camera angles will be added to the playlist.<br>• **Prim+Sec:**<br>The clips corresponding to the primary and secondary camera angles will be added to the playlist.<br>• **Primary:**<br>The clips corresponding to the primary camera angles will be added to the playlist.<br>• **Secondary:**<br>The clips corresponding to the secondary camera angles will be added to the playlist.<br>• **Cam A, Cam B, Cam C, Cam D**<br>The clips corresponding to the defined camera angle will be added to the playlist. |
| **Default value** | All Cams |

### Fade To/From Color

| Description | Specifies the color that is used in the transition effects 'fade to color', 'fade from color' and 'fade to/from color' (V fade). |
|---|---|
| Values | Black / White |
| Default value | Black |

### Load Playlist

| Description | This parameter is only used in 2PGM or 3PGM mode. |
|---|---|
| Values | The following values are available:<br>• **Always:**<br>  This always loads the selected playlist in PGM/PRV mode.<br>• **Conditional:**<br>  This loads the selected playlist on the selected PGM only if only 1 channel is active when entering the Playlist Edit mode. It allows loading and playing multiple playlists using a single Remote Panel. |
| Default Value | Always |

### Make Local Auto

| Description | When this setting is enabled and a local playlist is loaded on a play channel, local clips corresponding to distant elements of that playlist are automatically created.<br>The local copy of the playlist elements are stored on the first available locations on the Playlist Receive Page. |
|---|---|
| Values | • Enabled (Yes)<br>• Disabled (No) |
| Default value | Disabled (No) |

## 4.8.6.  Protection Settings

### User Interface

The Protection settings aim at protecting clips stored on the EVS server from deletion.

These fields are available in the following interfaces:

• in the Multicam Configuration window, Operation tab

• in the Operational setup menu of the Remote Control Panel (5.1)

The following screenshot displays the Protection settings on the Operation tab in the web-based interface:



## Protect Pages

| Description | Specifies the pages on which the clips stored are protected from accidental deletion.<br>The clips stored on these pages are also protected when using the **Clear All Clips (F7)** function from the main menu of the Remote Panel.<br>See section "Navigating and Editing in the Multicam Configuration Window" on page 98 for more information on how to enable pages. |
|---|---|
| Values | Page 1 to 10 (=0). Several pages can be selected. |

⚠ **WARNING**

When the option **Clear Video Disks** is selected in the Multicam Setup window of the server-based application, all clips are deleted, including the protected ones.

## Clip Edit by Network

| Availability | This setting is only available if the license code 117 is valid. |
|---|---|
| Description | Allows users to edit clips on the whole XNet network. |
| Values | The following values are possible:<br>• **Yes:**<br>Other users on the network can trim, rename, delete, etc. your clips, or modify the keywords and ranking assigned to your clips.<br>• **No:**<br>Only the local operators can modify or delete clips on the server and edit their metadata. |
| Default value | No |

### Confirm Delete Clips/Playlists

| Description | Enables a confirmation request when users delete clips, playlists or in both situations. |
|---|---|
| Values | The following values are possible:<br>• **Off:**<br>Clips and playlists are immediately deleted.<br>• **Clips:**<br>A confirmation is required for a clip deletion, but not for a playlist deletion.<br>• **Playlists:**<br>A confirmation is required for a playlist deletion, but not for a clip deletion.<br>• **Clips & Playlists:**<br>A confirmation is required both for a playlist deletion, and for a clip deletion. |
| Default Values | Off |

> **NOTE**
>
> This parameter does not apply to the **Clear Video Disks** command, available in the Multicam Setup window of the server-based application, which already has its own confirmation message.

# 4.8.7. Keywords Settings

## User Interface

The Keywords settings allow the management of keywords on the EVS server.

These fields are available in the following interfaces:
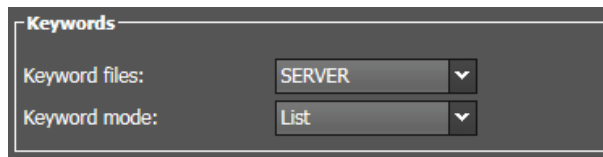
• in the Multicam Configuration window, Operation tab

  ◦ on page 1 on the web-based interface

• in the Operational setup menu of the Remote Control Panel (6.1)

> **WARNING**
>
> The Keywords settings are only available if the license codes 124 and 125 are valid.

The following screenshot displays the Keywords settings on the Operation tab in the web-based interface:



# Keyword Files

| Description | Specifies the keywords file that can be used to assign keywords to clips or to search the clips database. |
|---|---|
| **Values** | The following values are possible:<br><br>• **-------- :**<br>  No keywords file is selected, and the keyword assignment and related search functions are not available.<br><br>• **SERVER:**<br>  The keywords file sent by the active EVS server to all systems on the XNet network will be used. This value is only available if the XNet network is used.<br><br>• **<Keywords file name>:**<br>  ◦ Other file names will appear if keywords files (files with a .KWD extension) have been loaded in the `/mnt/apps/data/kwd` directory of the system (`/kwd` via FTP).<br>  ◦ Keyword files can be imported using the Import/Export Keyword Files function in the Multicam Setup window. See section "Importing and Exporting Keyword Files" on page 46 for details about keyword import/export function,<br>  ◦ See the "Keyword Management" section in the Multicam operational manual for details about the keywords file format and keywords-related functions, |
| **Default Values** | -------- (keywords file not selected) |

### Keyword Mode

| Description | Specifies the keyword assignment/search mode on the EVS Remote Panel. |
|---|---|
| Values | The following values are possible:<br>• **List:**<br>It will display the keywords by groups of 8 on the LCD of the Remote Panel and the operator can select them with the corresponding F_ key.<br>• **Numeric:**<br>It doesn't display the keywords list on the LCD, but allows the operator to enter directly the keyword ID using the F_ keys.<br>The Numeric mode is faster when the operator knows the position of the keywords inside the keywords file, either from memory, using the VGA keyword screens, or using a print of the keywords list. |
| Default Values | List |

# 4.8.8. Push Settings

### User Interface

The Push settings relate to the management of the Push function on the EVS server. The Push function allows users to easily send a copy of a clip to another machine on the network via the GbE network or the XNet network.

These fields are available in the following interfaces:
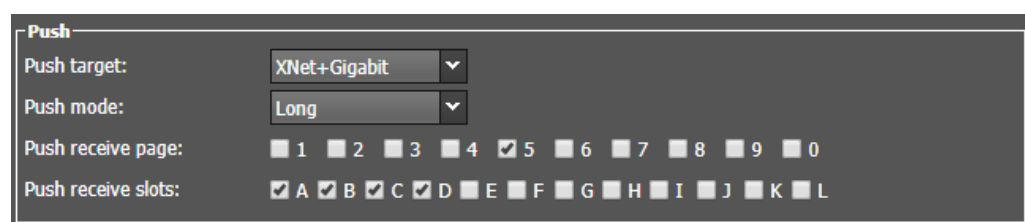
• in the Multicam Configuration window, Operation tab

• in the Operational setup menu of the Remote Control Panel (7.1)

> ⚠️ **WARNING**
>
> The values available in the Push settings depend on the presence of the XNet hardware or GbE hardware.

The following screenshot displays the Push settings on the Operation tab in the web-based interface:

# Push Target

| Description | Specifies which EVS servers will be listed as possible targets for push actions when the user selects:<br>• the default Target 1 and Target 2 in the settings, or<br>• a target for a specific push action if no default target has been configured. |
|---|---|
| **Values** | The following values are possible:<br>• **XNet:**<br>Only XNet targets will be listed. The servers are listed by their network system name and number.<br>• **Gigabit:**<br>Only EVS servers reachable via the GbE network and not present on the same XNet network will be listed. The servers are listed by their GbE server name, and IP Address.<br>• **XNet +Gigabit:**<br>First the servers on the same XNet network connected through XNet are listed, then the servers not on the same XNet network but reachable via the GbE network are listed.<br>The **Gigabit** and **XNet +Gigabit** values are not available if the EVS server does not have a GbE board. |
| **Default Value** | XNet |

# Push Target 1 / 2

| Availability | These parameters are only available in the server-based application, not in the web-based interface. |
|---|---|
| **Description** | Specifies to which machine(s) on the network the clips must automatically be sent when the operator uses the **PUSH** function on the Remote Panel.<br>The machines defined in this setting are also used as default target for clip copies.<br>The users can define two default targets: Target 1/ Target 2. The clips will be pushed in sequential order. |
| **Values** | A list of values will be displayed depending on the value assigned to the **Target** setting:<br>• **--------:**<br>When no target is defined in these parameters, the user will be able to define the requested target when (s)he calls the **PUSH** function.<br>• **<network system name and number>**are listed and can be assigned for targets belonging to the XNet network.<br>• **<GbE server name and IP Address>** are listed and can be assigned for targets belonging on the GbE network. |
| **Default Values** | -------- (No target machine specified) |

## Push Mode

| | |
|---|---|
| **Description** | Specifies how the clips should be sent using the **PUSH** function, that is to say with or without the original guardbands. |
| **Values** | The following values are possible:<br>• **Short:**<br>The clips are sent from the Short IN to the Short OUT points, to which the guardbands of the destination machine are added.<br>• **Long:**<br>The clips are sent from the Protect IN to the Protect OUT. |
| **Default Values** | Short |

## Push Receive Page

| | |
|---|---|
| **Description** | Specifies the page of your machine where clips sent to you by other network operators using the **PUSH** function must be stored first.<br>When the preferred slots on the first page are fulled, the clips are stored on the preferred slots of the next page.<br>See section "Navigating and Editing in the Multicam Configuration Window" on page 98  for more information on how to enable pages. |
| **Values** | Page 1 to 10 (=0). A single page can be selected. |
| **Default Values** | (Page) 5 |

## Push Receive Slots

| | |
|---|---|
| **Description** | Specifies the clip position(s) (A to L) where the pushed clips will be stored in priority, starting on the page specified in the **Push Receive Page** setting.<br>See section "Navigating and Editing in the Multicam Configuration Window" on page 98  for more information on how to enable slots. |
| **Values** | Slot A to L. Several slots can be selected. |
| **Default Values** | (CAM) A,B,C,D |

# 4.8.9.    Audio Settings

## User Interface

These fields are available in the following interfaces:

• in the Multicam Configuration window, Operation tab

• in the Operational setup menu of the Remote Control Panel (8.1)

The following screenshot displays the Audio settings on the Operation tab in the web-based interface:
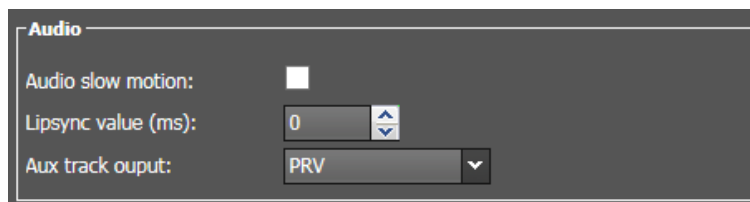


## Audio Slow Motion

| Description | Allows users to play back or mute the audio track when the playing speed is different than 100%. |
|---|---|
| Values | The following values are possible:<br>• **No**: The audio track is muted during the playback.<br>• **Yes**: The audio track is not muted during the playback. It will be faded in, then muted above a given threshold (400%). |
| Default value | No |

## Lipsync Value (ms)

| Description | Specifies the delay (in ms) between video and audio signals:<br>• A positive value means video is ahead of audio.<br>• A negative value means audio ahead of video. |
|---|---|
| Values | The following values are possible:<br>• Range for PAL: from -41,458 ms to 14,708 ms → 848 to 3544 samples, 0 ms → 2838 samples<br>• Range for NTSC: from -34,625 to 12,125 ms → 688 to 2932 (samples), 0 ms → 2350 samples |
| Default value | 0 ms |

---

**NOTE**

This adjustment is done during the record process. A new Lipsync value will apply for the next recorded pictures only.

---

### Aux Track Output

| Description | Specifies to which audio outputs the auxiliary track of the playlist will be played out. |
|---|---|
| Values | The following values are possible:<br>• **PRV:**<br>The auxiliary track will use the audio outputs normally assigned to the PRV channel. If no PRV channel is available, the Aux Track will not be assigned to any audio output.<br>• **PRV&7-8/15-16:**<br>The auxiliary track will use the audio outputs normally assigned to the PRV channel if there is one, plus all the audio outputs from 7-8/15-16 that have not yet been assigned to another channel. Use this option if you need an auxiliary track without PRV channel available.<br>• **PGM:**<br>The auxiliary track will use the audio outputs normally assigned to the PGM channel. |
| Default value | PRV |

# 4.8.10.  EVS Controller Settings

## Introduction

The EVS Controller settings gather:

- ◦ Settings related to the behavior of the keys, lever or jog of the Remote Panel.

- ◦ Settings associated to the EVS server itself.

---

⚠ **WARNING**

Most of the settings are only available or applicable with base configurations associated to the use of an EVS Remote Panel (XSense Remote ).

---

# User Interface

These fields are available in the following interface:

- in the Multicam Configuration window, Operation tab.

The following screenshot displays the EVS Controller settings on the Operation tab in the web-based interface:



## Effect Duration for Take

| Description | Defines the duration of the transition when using the **TAKE** key to chain 2 sequences in PGM+PRV mode. |
|---|---|
| Values | Range of values: 00s00fr to 20s00fr. |
| Default value | 00s05fr |

## Fast Jog

| Description | Sets the increment of the jump when the Remote Panel is used in Fast Jog mode. |
|---|---|
| Values | The values from 1 to 20 times are possible. |
| Default value | 20x |

## PGM Speed

| | |
|---|---|
| **Context** | During playback, if PGM Speed has been enabled in the secondary menu of the Remote Panel, the lever range will be adapted so that:<br>• the only playback value for any position of the lever other than 0, is the one specified by this parameter in the setup (PGM Spd mode ON) |
| **Description** | Specifies the playback speed assigned to the lever when the **PGM Speed** command is used. |
| **Values** | Range of values from 1 to 400 % |
| **Default value** | 50% |

## Recall Clip Toggle

| | |
|---|---|
| **Description** | Enables/disables the selection of the camera of a clip through the Function keys: Pressing several times the F_ key browses to CAM A, CAM B, CAM C, CAM D, CAM E and CAM F. |
| **Values** | Yes / No |
| **Default value** | Yes |

## Record Key

| | |
|---|---|
| **Description** | Changes the function of the **RECORD** key on the Remote Panel, as described below. |
| **Values** | The following values are possible:<br>• **Start REC+Live:**<br>Pressing the **RECORD** key starts the record process and switches to LIVE mode.<br>• **Live:**<br>Pressing the **RECORD** key only switches to last recorded picture, but the record is not restarted if it has been previously stopped by the operator. |
| **Default value** | Start REC+Live |

## VGA & Remote Sync

| Description | Specifies whether and how the current clips machine, page and bank of VGA screens and Remote Panel must be synchronized. |
| --- | --- |
| Values | The following values are possible:<br>• **No:**<br>Clip machine, page and bank can be selected independently on the VGA screen and on the Remote Panel.<br>• **Yes:**<br>Clip machine, page and bank are synchronized between VGA screen and Remote Panel. Connecting to the clips of a network machine or coming back to the clips of the local machine, or selecting a new page or bank on one side will be automatically reflected on the other.<br>• **Server:**<br>Clip pages and banks can be selected independently on VGA and Remote Panel, but connecting to the clips of a network machine or coming back to the clips of the local machine on the VGA or Remote Panel will be automatically reflected on the other. |
| Default value | No |

## Call Channel VGA

| Description | Enables or disables the **Call Channel** function on the VGA Clip screen. This function allows the operator to select on which PGM channel the clips called from the keyboard and VGA should be loaded. |
| --- | --- |
| Values | Yes / No |
| Default value | Yes |

## PGM/PRV Mode

| | |
|---|---|
| **Description** | Allows the user to select the PGM/PRV mode on the LCD display as a function accessible from the **A** button on the Remote Panel's main menu.<br>Otherwise, the PGM/PRV mode selection is not accessible from the A button. |
| **Values** | The following values are possible:<br>• **Yes:** The PGM/PRV mode is available from the **A** key on the Remote Panel.<br>• **No:** The PGM/PRV mode is not available from the **A** key on the Remote Panel. |
| **Default value** | Yes |

## Loop Button

| | |
|---|---|
| **Description** | Defines the behavior of the loop function enabled with the **SHIFT + Loop**. |
| **Values** | The following values are possible:<br>• **Loop clip:**<br>Pressing the loop button loops the loaded clip between its Short IN and Short OUT points, when you are located between these two points.<br>• **Loop clip bounce:**<br>Pressing the loop button loops bounce the loaded clip between its Short IN and Short OUT points, when you are located between these two points.<br>• **Disable:**<br>Pressing the loop button has no effect. |
| **Default value** | Loop clip |

# 5.     LiveIP Configuration

## 5.1.    Accessing the LiveIP Configuration Module

### What is the LiveIP Configuration Module for?

On the EVS server, the LiveIP Configuration module provides a web-based user interface for administrators to define and visualize all LiveIP-related settings, among others the configuration of receivers (streams received through input channels) and senders (streams sent from output channels) of an EVS server.

When S-CORE Master is used to control and monitor the nodes in the IP network, the configuration of senders and receivers of the EVS servers is made available in S-CORE Master and can be dynamically edited in S-CORE Master, and automatically reflected in the Live IP Configuration module and vice versa.

---

**NOTE**

The IP addresses of the V4X and MV4X SFP+ ports from the codec modules area are defined in the Multicam Configuration module, Network tab, IP IO Configuration section.

---

### How to Access the LiveIP Configuration Module?

You can access the LiveIP Configuration module by clicking the **LiveIP** button at the bottom of the Multicam Configuration web interface:



---
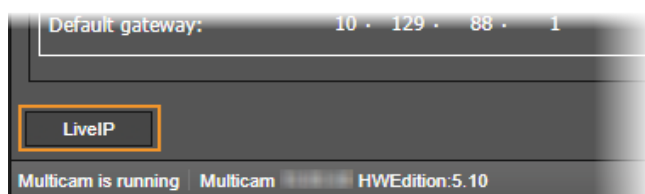
**NOTE**

Only one user can connect to the LiveIP Configuration module at a time. Should another user be connected, you will be informed and prompted to take the hand.

---

Clicking the **LiveIP** button opens the LiveIP configuration module, which is made up of three tabs:

- IP configuration tab: It allows you to configure the streams sent from output channels (senders) and streams received through input channels (receivers).

- PTP configuration tab: It allows you to monitor and configure some settings for time synchronization of all EVS server nodes on the IP network.

- MV configuration tab: It allows you to configure the video streams received by and sent from the internal multiviewer (MV4X).

# 5.2.    About EVS Server in IP Network

## Introduction

The following schema summarizes the main communication channels used by an EVS server to exchange data in the LiveIP network:
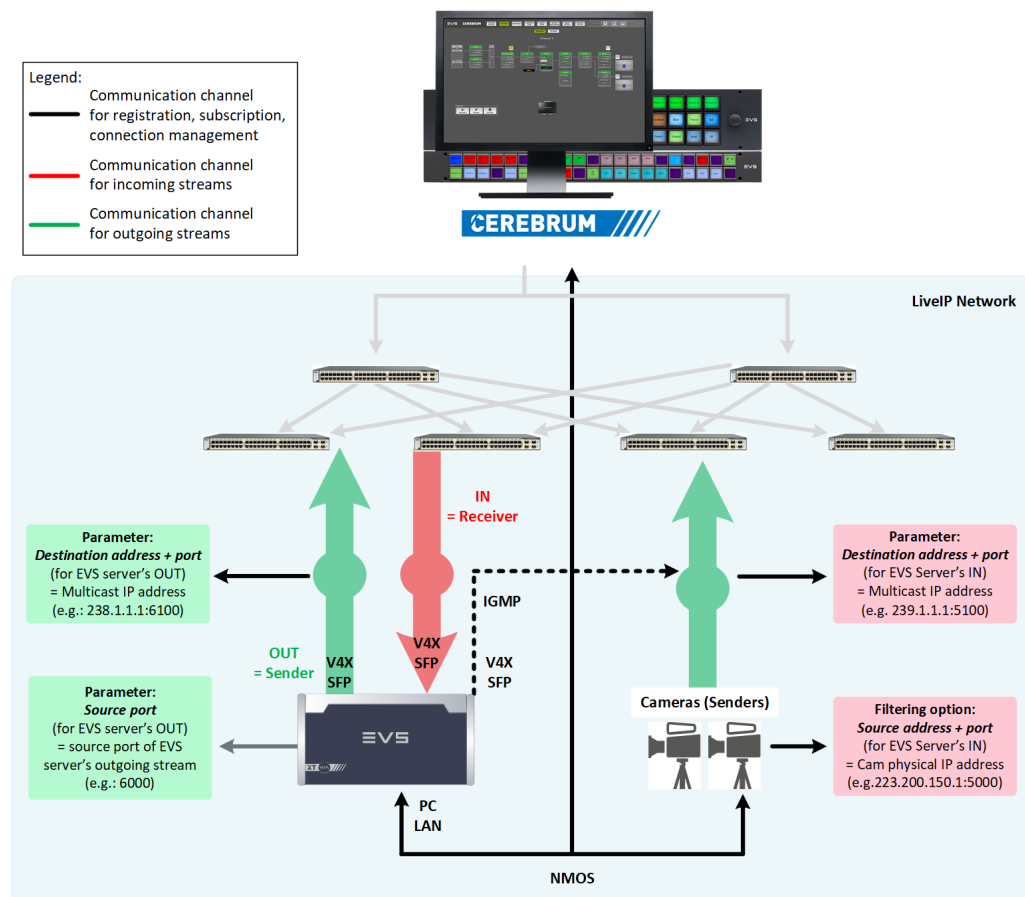
# Discovery and Registration Management

An EVS server uses the NMOS IS-04 protocol to get itself and its resources (input / output channels and associated streams) discovered, identified and registered on the IP network.

In the NMOS model, an EVS server is called a **node**. The EVS server node includes a set of input and output channels called **devices**. Each device is able to send or receive video and audio streams.

These streams are called:

• **senders** when they are going out of the EVS server

• **receivers** when they are coming into the EVS server

As a node, the EVS server hosts an NMOS Node API.

An NMOS Registration API advertizes its presence on the network.

The EVS server node can post to the Registration API to register itself and its resources (senders and receivers).

Once the senders and receivers are registered in the NMOS registry, all other nodes on the network can get lists of resources and negotiate stream transmissions with the EVS server's senders and receivers on the network.

The following modes are supported:

• mDNS

• unicast via DNS-SD

# Input Channels

The input channels can get incoming LiveIP streams (receivers) from cameras on the LiveIP network.

To get incoming LiveIP streams, the input channels subscribe to multicast flows using IGMP (Internet Group Management Protocol): the input channels automatically send IGMP joins to subscribe to the multicast streams identified in the **Destination address** and **Destination port** defined as IN parameters in the LiveIP configuration.

Both protocol versions IGMP v.2 and v.3 are supported.

The incoming LiveIP streams are RTP packets with an UDP header.

By default, all UDP streams coming from the specified multicast address will be received.

However, you can:

• filter these incoming streams using the **Source address** and/or **Source port**.

• select which audio streams you want to receive.

Unicast transmission directly between a camera and an input channel is also supported although this is not the typical communication mode.

# Output Channels

The output channels send outgoing LiveIP streams (senders) to the LiveIP network.

The EVS server has to advertise its outgoing streams using SDP files (Session Description Protocol): the SDP files contain relevant metadata to inform the receivers about the stream content, and to allow the receivers to correctly interpret the streams.

The play channel sends the outgoing streams from a given **Source port** (logical port of the EVS server) to the multicast (or unicast) **Destination address and Destination port** specified in the LiveIP Configuration parameters of the output channel.

The outgoing streams have the same structure as the incoming streams: These are RTP packets with an UDP header.

---

**NOTE**

See section "About Media Streams" on page 269 for more information on the RTP streams and the actual media payload.

---

# Connection Management

**SDN** (Software Defined Networking) can provide a more flexible way to manage connections and flows between devices on the LiveIP network than solely through IGMP.

This can be achieved using **Cerebrum**, a flow routing system, which is able to talk to the EVS servers and to the network to manage the connections and flows on the LiveIP network:

- Cerebrum communicates stream information using SDPs through the NMOS protocol. The PC LAN (port 3000) is used to communicate in this context.

- The EVS server's senders and receivers will then use IGMP joins to subscribe to the streams advertised by SDP.

In addition, Multicam also supports Basic Ember+ Stream Switching (BESS) to:

- receive and interpret SDPs advertising streams from senders and

- generate SDP streams to potential receivers.

The PC LAN is used to communicate through BESS. Communication is established in TCP using port 9000.

The EVS server's receivers will then use IGMP joins to subscribe to the streams advertised by SDP.

Multicam supports NMOS IS-05 to:

- receive and interpret SDPs advertising streams from senders and

- receive transport parameters defining the incoming multicast stream

- configure a sender based on transport parameters defining the outgoing multicast stream

- generate SDP streams to potential receivers.

The PC LAN is used to communicate through NMOS. Communication is established in TCP using port 3000.

# Switching Logic

The XS-VIA server supports both switching logics:

- Make-before-break (MBB)

- Break-before-make (BBM)

Make-before-break is the preferred switching logic and is used whenever applicable. You cannot manually select the switching logic to be used by the server.

This choice is done automatically and is determined by the following criteria:

- the type of streams.

  MBB is not supported for audio (2110-30) and ancillary data streams (2110-40).

- the resolution.

  ◦ There are no limitations in 720p/1080i.

  ◦ MBB is not supported at all with UHD-4K and UHD-8K.

- ◦ There are some limitations in 1080p:

  - - Only 1 active input stream can be attributed to each SFP interface. If not, BBM is used.

    For example, in case you have 1 1080p REC (A) for a given V4X module, and you switch to another 1080p REC (B) on the same SFP port, then the bandwith temporarily rises from 3G to 6G. MBB is supported during the switch.

    In case you have 2 1080p REC (A and B) and each stream  is attributed to a different SFP port of a given V4X module, and you switch both of the 1080p streams to another 1080p stream (A to C and B to D), then the bandwith on each port temporarily rises from 3G to 6G. MBB is still supported.

    In case you have 2 1080p REC (A and B) on the same SFP port for a given V4X module, and both 1080p REC (A and B) are switched to two other 1080p REC (C and D) on the same SFP port, then the bandwidth temporarily rises from 6G to 12G. MBB is not supported either.

    In case 2 1080p REC are attributed to the same SFP port of a given V4X module, and ST2022-7 is enabled, MBB is no longer supported.

  - - SLSM2x is not supported with MBB.

    For example, in case you have 1 1080p SLM2x REC for a given V4X module, and both phases are attributed to a different SFP port, and you switch to another 1080p SLSM2x REC, MBB is supported.

    In case both phases of the 1080p SLMS2x REC are attributed to the same SFP port, or in case ST2022-7 is enabled, MBB is no longer supported.

The used switching logic is determined module by module.

For example, it is perfectly possible that module V4X #5 uses MBB and V4X module #6 not.

# SMPTE ST2022-7 Seamless Protection Switching

## Introduction

When sending a data stream (e.g. video, audio) over an IP network to a particular destination, some IP packets might get lost along the way. One method to recover those lost IP packets and to reconstruct the original data stream, is to send two identical data streams over two different network paths to the same destination.

The SMPTE standard ST2022-7 allows to reconstruct the original data stream in case IP packets are lost in any of the network paths. Switching from one network path to the other occurs without impact on the content of the stream.

The XS-VIA Server supports SMPTE ST2022-7 for video (ST2110-20), audio streams (ST2110-30) and ancillary data streams (ST2110-40) for 720p, 1080i and 1080p (only for Clean Out and Character). ST2022-7 is only supported in UHD-4K with a XHub-VIA IP aggregator.

## Concept

A SMPTE ST2022-7-enabled sender (e.g. a video camera) duplicates the data stream (e.g. recorded video and audio) and sends it via two different network paths to the destination receiver (i.e. the primary stream on the SFP+ port C, the secondary stream on the SFP+ port D). The SMPTE ST2022-7-enabled receiver combines the IP packets from the data streams from both network paths to reconstruct the original data stream. If an IP packet was lost on network path 1, the identical IP packet is taken from network path 2. In case network path 1 is completely gone, the entire data stream is taken from network path 2 and vice versa.
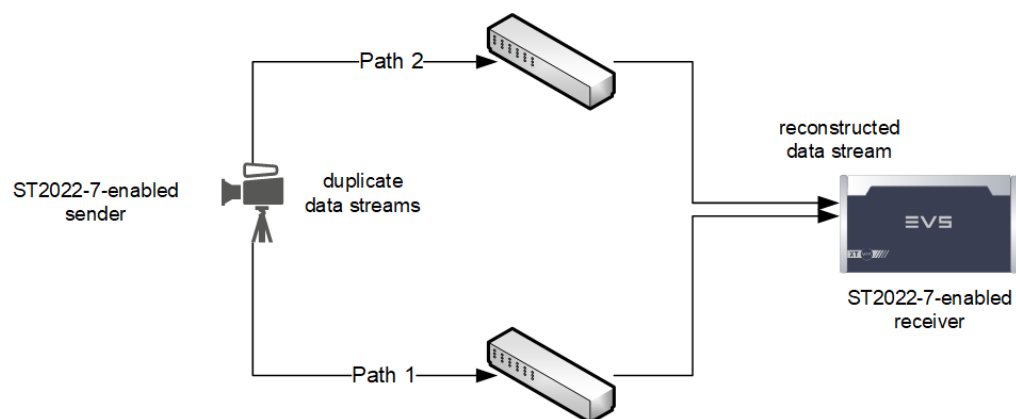


## Detail

The SMPTE ST2022-7 enabled sender duplicates each IP packet of the data stream and sends it both to network path 1 and 2. The payload of the IP packets is identical, but their RTP, UDP and IP header may be different.

As both data streams use different network paths from sender to receiver, the IP packets will generally not be received at the same time. Due to other network traffic, extra jitter

may also be introduced. To be able to switch between network path 1 IP packets and network path 2 IP packets seamlessly, some buffering is needed at the receiver side to deal with this delay difference and/or jitter.
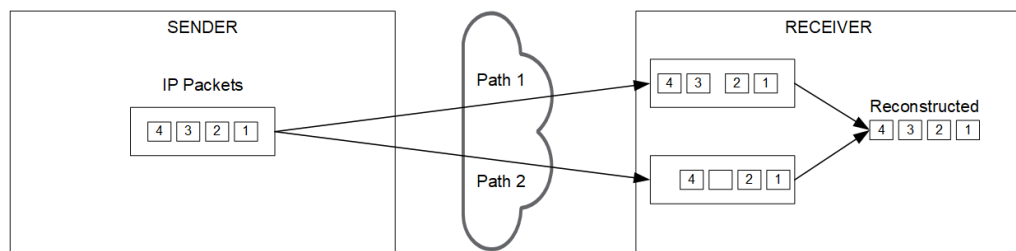


### Supported Protocol Versions

Multicam supports the following protocol versions:

- **BESS (Basic Ember+ Stream Switching)**: v1.1
- **IGMP**: v.2, v.3
- **NMOS IS-04**: v1.0, v 1.1, v1.2
- **NMOS IS-05:** v1.0

# 5.3. Video IP Configuration

## 5.3.1. About Media Streams

### Composition of Media Streams

The input and output channels of the EVS server respectively receive and send media streams using the RTP protocol (Real-Time Transport Protocol). The RTP protocol provides a means to transfer media flows over UDP for fast delivery.

The RTP streams have the following structure:
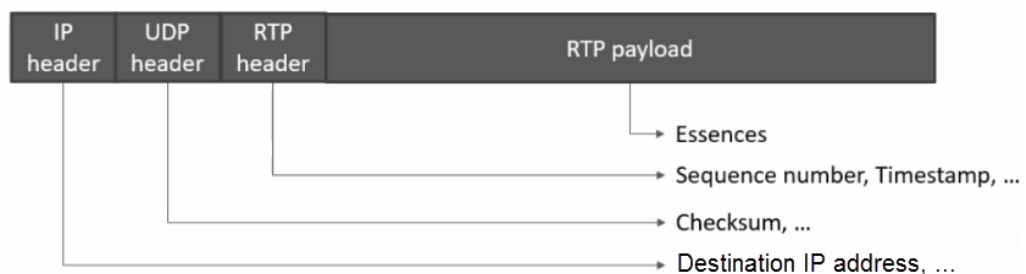


The video media, audio content and ancillary data are sent as separate RTP streams.

## Video Streams

### Type

With SMPTE 2022-6, the uncompressed video streams are the same as the old SDI streams, and still contain the audio and data from the blanking interval.

With SMPTE 2022-8, the uncompressed video streams no longer include the audio or ancillary data, but they are still carried out over the IP network as ST 2022-6 Ethernet packets.

With SMPTE 2110-20, the video stream is uncompressed video complying with RFC 4175. The video streams are containing only the active video. No embedded audio and no ancillary data are sent.

See section "Protocol" on page 277 for more information on the differences in video streams depending on the applied protocol.

The video streams for each phase of UHD-4K are sent as separate streams.

## Audio Streams

### Type

When the audio streams are sent as separate streams, they are uncompressed audio streams built on AES67 (PCM audio).

### Requirements

They comply with SMPTE 2110-30 and meet the following requirements:

- **Audio sampling frequency:** 48 kHz
- **Bit depth:** 24 bits / sample
- **Packet time:**

  For inputs:

  - 1 ms up to 8 audio tracks or
  - 500µs, 333µs, 250µs & 125µs up to 16 audio tracks

  For outputs:

  - 1ms for 2, 4, 6 or 8 tracks or
  - 125µs for 2, 4, 6, 8 or 16 tracks

- **Supported profiles:**

  For inputs: level C (limited up to 16 tracks)

  For outputs: level A

- **ST2022-7 Jitter buffer:** 10ms

### Maximum Numbers of Streams and Mono Channels

The maximum number of streams and audio mono channels per stream are as follows:

- Up to 4 streams audio can be associated to an IN or OUT channel.
- Up to 16 audio mono channels can be included in each IN audio stream.

  The max. number of audio mono channels depends on the packet time.
- Up to 16 audio mono channels can be included in each OUT audio stream.

  To support 16 audio mono channels, the packet time has to be set to 125µs.

### Mapping to the EVS Server

The IN and OUT audio streams are considered as embedded audio by the EVS server. Audio channels carried in AES67 streams are logically wired to embedded audio inputs in the following way :

| Stream 1 AES67 #1 | Audio channel 1 of stream 1 | Audio embedded 1 |
|---|---|---|
| | Audio channel 2 of stream 1 | Audio embedded 2 |
| Stream 2 AES67 #1 | Audio channel 1 of stream 2 | Audio embedded 3 |
| | Audio channel 2 of stream 2 | Audio embedded 4 |
| | Audio channel 3 of stream 2 | Audio embedded 5 |
| etc. | etc. | etc. |

# Ancillary Data Streams

## Type

With SMPTE 2110-40, ancillary data (keywords, timecodes, closed captions) is transported as separate streams over RTP. The ancillary data streams can contain ancillary data encoded as SMPTE 334M packets, timecodes or both. Their SDP is in line with RFC 4566.

## Limitations

Only packets with ancillary data that is related to video lines will be supported. Any other ancillary data will be ignored.

## 5.3.2. Overview of Video IP Configuration

### User Interface
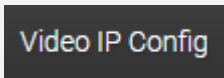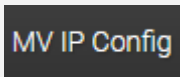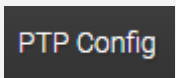


| # | Name of area | Description |
|---|---|---|
| **1.** | Menu bar | It displays links to the pages including LiveIP settings. By default, the focus is on the **Video IP Config** page. |
| **2.** | General settings | It features general settings related to the running or selected configuration. |
| **3.** | Channels area | It features the logical IN and OUT channels. |
| **4.** | Video settings | It displays the LiveIP settings of the physical video streams associated to the IN or OUT channel selected in the Channels area. |
| **5.** | Audio settings | It displays the LiveIP settings of the physical audio streams associated to the IN or OUT channel selected in the Channels area. |
| **6.** | Ancillary Data settings | It displays the LiveIP settings of the physical ancillary data streams associated to the IN or OUT channel selected in the Channels area. |

| # | Name of area | Description |
|---|---|---|
| 7. | Monitoring settings | It displays the LiveIP settings of the monitoring stream associated to the IN or OUT channel selected in the Channels area. |
| 8. | Edit bar | It features commands for editing the settings on the IP Configuration page. |

## Menu Bar (1)
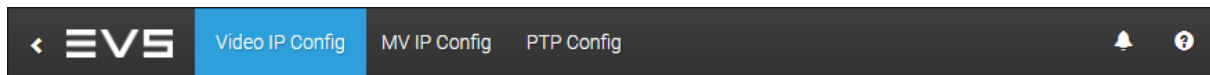


The menu bar features the following icons:

| GUI Element | Description |
|---|---|
|  | Clicking the **Back** icon brings you back to the Multicam configuration module. |
|  | Clicking **Video IP Config** displays the Video IP Configuration page where you configure your IP streams. See section "Overview of Video IP Configuration" on page 272. |
|  | Clicking **MV IP Config** displays the Multiviewer IP Configuration page where you configure the incoming and outgoing video IP streams of the internal multiviewer (MV4X) of your server. See section "MV IP Configuration" on page 322.<br><br>The **MV IP Config** button will not be available if the protocol is 2022-6 or 2022-8. |
|  | Clicking **PTP Config** displays the PTP Configuration page where you configure and monitor the clock synchronization settings. See section "PTP Configuration" on page 319. |
|  | Clicking the History icon displays former change notifications. |
|  | Clicking the About icon opens the Welcome page of the Multicam web interface giving access to the documentation and support phone numbers. |

✎ **NOTE**

When settings have been modified but not saved in one of the configuration pages, a red (invalid changes) and/or green (valid changes) icons are displayed next to the page name in the Menu bar. Only valid changes are committed when you save the changes:
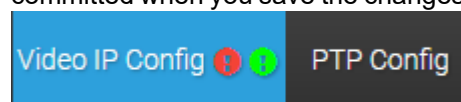
## General Settings (2)

See section "General Settings" on page 276

## Channels Area (3)

This area shows the logical channels defined in the active configuration of the EVS server:
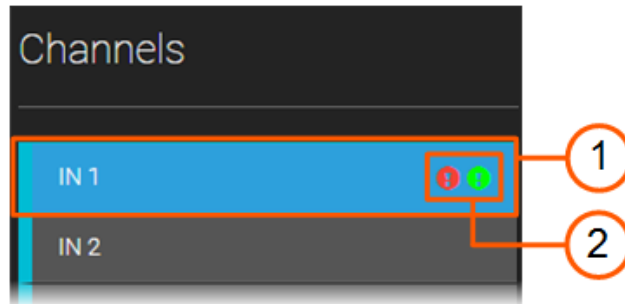


① A selected channel is highlighted in blue: The settings for the associated streams are displayed in the Video Settings, Audio Settings, Ancillary Data Settings and Monitoring Settings areas.

② Unsaved modifications to the stream settings related to a given channel are identified by one or two icons next to the channel number:

- A green circle for valid changes.
- A red circle for unvalid changes.

When saving changes, only valid changes are committed.
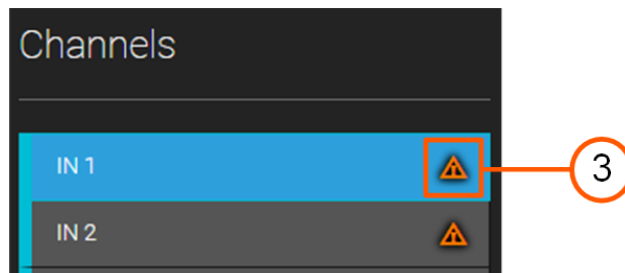


③ Indication that one or more incoming video or audio streams are missing for a logical channel.

## Video Settings (4)

See section "LiveIP Settings for Video Streams" on page 282

# Audio Settings (5)

See section "LiveIP Settings for Audio Streams" on page 292

# Ancillary Data Settings (6)

See section "LiveIP Settings for Ancillary Data Streams" on page 303

# Monitoring Settings (7)

See section "LiveIP Settings for Monitoring Streams" on page 312

# Edit Bar (8)

The following buttons can be displayed in the Edit bar depending on whether you are in Edit or View mode:

| GUI Element | Description |
|---|---|
| **Edit All** | In View mode, click this button to activate the Edit mode. When the Edit mode is active:<br>• The editable fields are displayed on a lighter gray background.<br>• A check box is displayed next to the fields on which you can filter the incoming or outgoing streams. |
| **Cancel All** | In Edit mode, click this button to cancel all changes in the displayed settings. |
| **Save All** | In Edit mode, click this button to commit all changes in the displayed settings.<br>Modified settings whose field outline is red contain invalid values: these field values will not be committed when saving all changes. |
| **Reset SFP** | In Edit mode, click this button to perform one of the following actions:<br>• **Reset SFP:** Reset all SFP interface parameters to the default values.<br>• **All SFP C/D:** Set all SFP interfaces to C or D.<br>• **Set All Primary SFP C & Secondary D:** Set all primary streams to C and all secondary streams to D, or vice versa. (Only available in ST2022-7).<br>• **Activate/Disable Soure Address Filtering:** Activate/disable the source address filtering on all active streams for all channels.<br>• **Activate/Disable Source Port Filtering:** Activate/disable the source port filtering on all active streams for all channels. |

# 5.3.3.    General Settings

## Overview

The **Video IP Configuration** page displays some general settings in the **General** area.

These settings are related to the running or selected configuration and are mainly provided for information purposes.

The settings unrelated to LiveIP are not editable in this page. However they correspond to editable settings in the Multicam Configuration module.

| A281130 / 1 | **Field rate:** 59.94 hz | **Resolution:** 1080i | **Channels:** 4 Rec / 2 Play | **# of Audios:** 8 | **Protocol:** ST 2110 | **2022-7:** Disabled |
|---|---|---|---|---|---|---|
| | **NMOS services:** Enabled | **Ember+ services:** Enabled | **AES67 Packet Time:** 1000 | **Payload ST 2110-20:** 96 | **Payload ST 2110-30:** 97 | **Payload ST 2110-40:** 100 |

## Server Name

| Description | Server hostname that consists of *<server facility name> / <configuration line number>*. This field is not editable in this page. |
|---|---|

## Field Rate

| Description | Field rate defined for the active configuration line. This field is read-only in this page. See section "Field Rate" on page 105 for more information. |
|---|---|

## Resolution

| Description | Resolution defined for the active configuration line. This field is read-only in this page. See section "Resolution" on page 106 for more information. |
|---|---|

## Channels

| Description | Channel configuration for the active configuration line. This field is read-only in this page. See sections "Inputs" and "Outputs" on page 126. |
|---|---|

# # of Audios

| Description | Number of mono audio channels per video channel.<br>This field is read-only in this page.<br>See section "Number of Tracks" on page 146 |
|---|---|

# Protocol

| Description | IP protocol used by the EVS server. |
|---|---|
| Values | **ST 2022-6:**<br>• The streams contain the complete SDI signal (video, audio and data from the blanking interval) encapsulated in Ethernet packets.<br>• No specific settings are defined for audio streams as audio streams are not sent separately.<br>**ST 2022-8:**<br>• The video streams are separated from the audio streams (AES67), but the video streams are still carried over as ST2022-6 Ethernet packets.<br>• Specific settings are defined for audio streams.<br>• The video streams no longer include ancillary data either.<br>**ST 2110 (default)**:<br>• The video streams (RFC 4175) and audio streams (AES67) are all sent separately as uncompressed signals.<br>• Specific settings are defined for audio streams.<br>• The video streams no longer include ancillary data.<br>All streams are advertized in SDP files which differ depending on the standard applied. |

> **NOTE**
>
> Ancillary data streams, audio streams and multiviewer video streams are not available if the protocol is 2022-6 or 2022-8.

## ST 2022-7

| Availability | This field is available in all resolutions: 720p, 1080i, 1080p and UHD-4K.<br><br>Without an XHub-VIA IP Aggregator, ST 2022-7 cannot be enabled in UHD-4K. |
|---|---|
| Description | Hitless protection switching.<br>If enabled, the video, audio, ancillary data and monitoring stream configuration lines will be duplicated.<br><br>All SDPs are automatically updated. There is no impact on the NMOS tree structure. The number of resources remains the same. |

## NEW! NMOS Services

| Description | If enabled, the LiveIP resources will be exposed through NMOS IS-04 and IS-05. |
|---|---|
| Values | • Enabled<br>• Disabled<br>Default value: Enabled. |

## NEW! Ember+ Services

| Description | If enabled, the LiveIP resources will be exposed through Ember+ BESS. |
|---|---|
| Values | • Enabled<br>• Disabled<br>Default value: Enabled. |

## NEW! AES67 Packet Time

| Availability | This field is only available in case ST2110 is selected as protocol. |
|---|---|
| Description | Determines the packet time for outgoing ST2110-30 audio streams. |
| Values | Supported values: 1000µs and 125µs (in case of 16 mono channels per stream)<br>Default value: 1000µs. |

### `NEW!` **Payload ST 2110-20**

| Availability | This field is only available in case ST2110 is selected as protocol. |
|---|---|
| Description | Identifier used to characterize the type of LiveIP stream. |
| Values | Supported values: 96-127.<br>Default value: 96. |

### `NEW!` **Payload ST 2110-30**

| Availability | This field is only available in case ST2110 is selected as protocol. |
|---|---|
| Description | Identifier used to characterize the type of LiveIP stream. |
| Values | Supported values: 96-127.<br>Default value: 97. |

### `NEW!` **Payload ST 2110-40**

| Availability | This field is only available in case ST2110 is selected as protocol. |
|---|---|
| Description | Identifier used to characterize the type of LiveIP stream. |
| Values | Supported values: 96-127.<br>Default value: 100. |

## Format

| Availability | This field is only available with UHD-4K format. |
|---|---|
| Description | UHD-4K transport format. |
| Values | • **Quad-HD:** The UHD-4K image is transported either as four 1080p image quadrants (square division), or as as four 1080p images at 1/4 of the original 4K resolution (two-sample interleave).<br>• **Single stream:** The UHD-4K image is transported as a single live IP video stream. |

> **NOTE**
>
> When working in UHD-4K Single Stream, only ST 2110 is allowed as protocol.

## 5.3.4.    Editing LiveIP Stream Settings

### How to Edit LiveIP Stream Settings

1.  Open the **LiveIP** Configuration module from the Multicam Configuration module.

2.  Click **Video IP Config** in the Menu bar.

3.  In the Channels area (left), click the IN or OUT logical channel for which you want to define the stream settings:

    IN 1

    IN 2

    OUT 1

    OUT 2
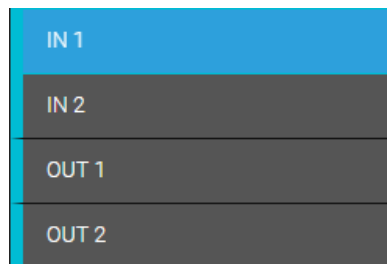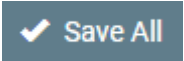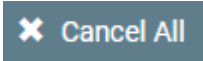
    The physical streams (video, audio, ancillary data and monitoring) associated to the selected logical channel will be displayed in the areas on the right.

4.  In the Edit bar, click the **Edit All** to enable the edit mode for the stream settings displayed.

5.  Refer to the settings description to edit the settings as you want:

    ◦  See section "LiveIP Settings for Video Streams" on page 282

    ◦  See section "LiveIP Settings for Audio Streams" on page 292

    ◦  See section "LiveIP Settings for Ancillary Data Streams" on page 303

    ◦  See section "LiveIP Settings for Monitoring Streams" on page 312

    The outline of the modified fields or check-boxes turns green if the change is valid, red if the change is invalid.

    Unsaved changes are also identified by rectangles next to the channel number and next to the IP Config page name.

6.  Click **Save All** to commit the changes or **Cancel All** to cancel all the modifications. Only the valid modifications will be committed when you save.

# Enabled and Disabled Filter Fields

Some LiveIP parameters can be used as filters for incoming streams.

In **View** mode, the fields on which a filter can be defined are displayed differently if the filter is enabled or disabled.

On the following screenshot showing some input settings of video streams, the **Source Address** filter is enabled (regular font) and the **Source Port** filter is disabled (grey italic font):

| Source Address | Source Port |
|----------------|-------------|
| 223.200.150.1  | *5000*      |

In **Edit** mode, the field is selected if enabled and unselected if disabled, as usual.

# 5.3.5.    LiveIP Settings for Video Streams

## Introduction

The Video area displays the video settings of the input or output LiveIP streams depending on whether you have selected an input or output channel in the Channels area:

- LiveIP Input Streams
- LiveIP Output Streams

See section "Editing LiveIP Stream Settings" on page 280 for a complete procedure on how to edit LiveIP streams.

---

✎   **NOTE**

For flexibility reasons, there is no validation of the address and port numbers regarding the range authorized by the video standard. It is the user's responsibility to define a network compliant with the standards.

---

When ST2022-7 is active, the video stream configuration lines for each server channel are duplicated. The first line indicates the primary stream, the second line indicates the secondary stream.

## LiveIP Input Streams

**Without ST2022-7 activated**

| Label | | | Source Address | | Source Port | | Destination Address | | Destination Port | | SFP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IN1 PHASE-1 | ● | ☑ | 223.200.150.1 | ☐ | 5000 | | 239.1.1.1 | | 5100 | | 4-C ▾ |
| IN1 PHASE-2 | ● | ☑ | 223.200.150.1 | ☐ | 5000 | | 239.1.1.1 | | 5100 | | 4-C ▾ |
| IN1 PHASE-3 | ● | ☑ | 223.200.150.1 | ☐ | 5000 | | 239.1.1.1 | | 5100 | | 3-C ▾ |
| IN1 PHASE-4 | ● | ☑ | 223.200.150.1 | ☐ | 5000 | | 239.1.1.1 | | 5100 | | 3-C ▾ |
| IN1 PHASE-5 | ● | ☑ | 223.200.150.1 | ☐ | 5000 | | 239.1.1.1 | | 5100 | | 2-C ▾ |
| IN1 PHASE-6 | ● | ☑ | 223.200.150.1 | ☐ | 5000 | | 239.1.1.1 | | 5100 | | 2-C ▾ |

**With 2022-7 activated**

| Label | | | Source Address | | Source Port | | Destination Address | | Destination Port | | SFP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IN1 Video | ● | PRI | 10.131.88.52 | ☐ | 8100 | | 239.1.1.11 | | 8100 | | 4-C ▾ |
| IN1 Video | ● | DUP | 192.168.0.1 | ☐ | 8100 | | 239.1.1.1 | | 8100 | | 4-D |

## Label

IN1 PHASE-1

| Description | Label identifying the input stream.<br>This is automatically assigned based on the naming conventions explained in the **Values** section. |
|---|---|
| Values | The label includes the following elements :<br>• channel number (all)<br>  ◦ **INX**<br>• phase number (SLSM)<br>  ◦ **PHASE-X**<br>• UHD format and quadrant number (UHD-4K)<br>  ◦ **2SI-X** (two-sample interleave)<br>  ◦ **SDQS-X** (square division)<br>• **PRI/DUP** indicates the primary or secondary stream (in case of ST2022-7)<br>Examples:<br>• IN3 PHASE-1 (SLSM input channel 3, phase 1)<br>• IN3 SDQS-2 (UHD-4K input channel 3, square division, quadrant 2) |

## Link Status
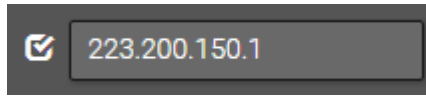
IN1 PHASE-1 ●

IN1 Video ● PRI

IN1 Video ● DUP

| Description | Dot indicating the (non)presence of a stream. |
|---|---|
| Availability | Only appears for active streams. |
| Values | • **Green:** The input stream is properly configured and connected.<br>• **Red:** The input stream is not properly configured and/or connected.<br>One of the following might be wrong:<br>  ◦ the cable is no longer plugged into the connector;<br>  ◦ the IP of the stream is wrong; no packets are being received;<br>  ◦ the essence type of the stream is wrong. |

### Source Address



| Description | IP address of the sender from which the incoming streams are sent.<br>This is used as a filtering option you can activate with the check-box displayed next to the field in **Edit** mode:<br>• If the filter is enabled (regular font in View mode), only input streams with this source IP address in their header will be passed through to the corresponding IN connector of the EVS server.<br>• If the filter is disabled (grey italic font in View mode), the input streams are not filtered based on the source IP address.<br>When you check or uncheck the check box of a primary stream, the check box of the corresponding secondary stream will be checked or unchecked at the same time. |
|---|---|
| Values | This must be a valid IP address of the format XXX.XXX.XXX.XXX where XXX is a number in the range [0-255]. |

### Source Port



| Description | UDP port number of the sender from which the input streams are sent.<br>This is used as a filtering option you can activate using the check-box displayed next to the field in **Edit** mode:<br>• If the filter is enabled (regular font in View mode), only input streams having this source port in their header will be passed through to the corresponding IN connector of the EVS server.<br>• If the filter is disabled (grey italic font in View mode), the input streams are not filtered based on the source port number.<br>When you check or uncheck the check box of a primary stream, the check box of the corresponding secondary stream will be checked or unchecked at the same time. |
|---|---|
| Values | This must be a valid UDP port number in the range [0-65535]. |

## Destination Address

239.1.1.1

| NEW ! | **Description** | IP address the sender sends its streams to.<br>Multicast and unicast IP addresses are supported.<br><br>When working in unicast mode, the receiver's IP address has to be specified as destination address. |
|---|---|---|
| | **Values** | This must simply be a valid IP address of the format XXX.XXX.XXX.XXX where XXX is a number in the range [0-255]. |

## Destination Port

5100

| **Description** | UDP port number of the destination address the sender sends streams to.<br>The EVS server listens to this port to get the streams from the sender. |
|---|---|
| **Values** | This must be a valid UDP port number in the range [0-65535]. |

## MBB

| | |
|---|---|
| **Description** | Make-before-break determines how the receiver will handle the transition from one stream to another. |
| **Availability** | This field only appears if MBB is supported by the configuration of the server. |
| **Values** | **MBB:** the new input stream is ingested by the receiver before the original stream is disconnected. |
| **Limitations** | See section "About EVS Server in IP Network" on page 263 for more information. |

## QSFP



| | |
|---|---|
| **Description** | The QSFP interface of the XHub-VIA IP Aggregator that is connected to the Live IP network and through which the video streams pass.<br><br>The QSFP interface is displayed together with the SFP+ port on the EVS server that will receive the incoming video streams. |
| **Availability** | This field is displayed instead of the **SFP** field when the EVS server is connected to an XHub-VIA IP Aggregator. |
| **Values** | • 29 (X-C)<br>• 30 (X-D)<br>where *X* is the number of the codec module. |
| **Limitations** | • When in ST2022-7, the primary stream has to be on 29 (X-C) and the secondary stream on 30 (X-D). |

## SFP



| Description | Physical V4X SFP+ port (IN connector) on the EVS server that receives the incoming streams. <br>• The **codec module (1 to 6)** of the SFP+ port is automatically assigned based on the required cabling for the running configuration. It cannot be changed. <br>• The **letter (C or D)** of the SFP+ port on which the EVS server receives the input streams is automatically assigned. |
|---|---|
| Availability | When the EVS server is not connected to an XHub-VIA IP Aggregator, this field will be displayed instead of the QSFP field. |
| Values | • X-C (default for even channels) <br>• X-D (default for odd channels) <br>where *X* is the number of the codec module. |
| Limitations | • In 720p and 1080i, a maximum of 6 streams are allowed per SFP+ interface. <br>• In 1080p and UHD-4K QuadHD 2SI or SDQS, the incoming streams cannot exceed three streams per SFP+ interface. <br>• In UHD-4K single stream, only 1 stream is allowed per SFP+ interface. <br>• When in ST2022-7: <br>  ◦ only HD and Full HD are supported. UHD-4K is not supported. <br>  ◦ the primary stream has to be on SFP+ port C and the secondary stream on SFP+ port D. |

## LiveIP Output Streams

**Without 2022-7 activated**



**With 2022-7 activated**



## Label



| Description | Label identifying the output streams. This is automatically assigned based on the defined naming principles explained in the **Values** section. |
|---|---|
| Values | The label includes the following elements : <br> • channel number (all) <br>   ◦ **OUTX** <br> • UHD format and quadrant number (UHD-4K) <br>   ◦ **2SI-X** (two-sample interleave) <br>   ◦ **SDQS-X** (square division) <br> • **PRI/DUP** indicates the primary or secondary stream (in case of ST2022-7) <br> Examples: <br> • OUT2 Video (standard output channel 2) <br> • OUT2 SDQS-2 (UHD-4K output channel 2, square division, quadrant 2) |

## Source Port



| Description | Port number of the source IP address (of the V4X SFP+) from which the output streams are sent. |
|---|---|
| Values | This must be a valid port number in the range [0-65535]. |

> **NOTE**
>
> The source IP address of an output stream is that of the associated V4X SFP+ port and is defined in the section "IP IO Configuration" on page 184.

## Destination Address

238.1.1.1

**NEW !**

| Description | IP address to which the output streams are sent.<br>Multicast and unicast IP addresses are supported.<br><br>When working in unicast mode, the receiver's IP address has to be specified as destination address. |
|---|---|
| Values | This must be a valid IP address of the format XXX.XXX.XXX.XXX where XXX is a number in the range [0-255]. |

## Destination Port

6100

| Description | Port number to which the output streams are sent. |
|---|---|
| Values | This must be a valid port number in the range [0-65535]. |

## QSFP



| Description | The QSFP interface of the XHub-VIA IP Aggregator that is connected to the Live IP network and through which the video streams pass.<br><br>The QSFP interface is displayed together with the SFP+ port on the EVS server that will send the outgoing video streams. |
|---|---|
| Availability | This field is displayed instead of the **SFP** field when the EVS server is connected to an XHub-VIA IP Aggregator. |
| Values | • 29 (X-C)<br>• 30 (X-D)<br>where *X* is the number of the codec module. |
| Limitations | • When in ST2022-7, the primary stream has to be on 29 (X-C) and the secondary stream on 30 (X-D). |

## SFP



| | |
|---|---|
| **Description** | Physical V4X SFP+ port (OUT connector) on the EVS server from which the output streams are sent.<br>• The **codec module (1 to 6)** of the SFP+ port is automatically assigned based on the required cabling for the running configuration. It cannot be changed.<br>• The **letter (C or D)** of the SFP+ port from which the EVS server sends the output streams is automatically assigned. |
| **Availability** | When the EVS server is not connected to an XHub-VIA IP Aggregator, this field will be displayed instead of the QSFP field. |
| **Values** | • X-C (default for even channels)<br>• X-D (default for odd channels)<br>where *X* is the number of coded module |
| **Limitations** | • In 720p and 1080i, a maximum of 6 streams are allowed per SFP+ interface.<br>• In 1080p and UHD-4K QuadHD 2SI or SDQS, the incoming streams cannot exceed three streams per SFP+ interface.<br>• In UHD-4K single stream, only 1 stream is allowed per SFP+ interface.<br>• When in ST2022-7:<br>  ◦ only HD and Full HD are supported. UHD-4K is not supported.<br>  ◦ the primary stream has to be on SFP+ port C and the secondary stream on SFP+ port D. |

# 5.3.6.   LiveIP Settings for Audio Streams

## Introduction

The Audio area will display the audio settings of input or output LiveIP streams depending on whether you have selected an input or output channel in the Channels area:

- [LiveIP Input Streams](#)
- [LiveIP Output Streams](#)

The audio streams are not available with the protocol ST 2022-6.

Up to 4 audio streams can be associated to an IN or OUT channel.

See section "Editing LiveIP Stream Settings" on page 280 for a complete procedure on how to edit LiveIP streams.

---

> **NOTE**
>
> For flexibility reasons, there is no validation of the address and port numbers regarding the range authorized by the video standard. It is the user's responsibility to define a network compliant with the standards.

---

When ST2022-7 is active, the audio stream configuration lines for each server channel are duplicated. The first line indicates the primary stream, the second line indicates the secondary stream.

## LiveIP Input Streams

**Without ST2022-7 activated**

| | Label | | Source Address | | Source Port | Destination Address | Destination Port | SFP | Channel Grouping | # of Channels | Audio Track |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ☑ | IN1 AES67-1 | ● ☑ | 223.200.150.1 | ▢ | 5000 | 239.1.1.1 | 5100 | 4-C ▾ | ST | 2 | 1 to 2 |
| ☑ | IN1 AES67-2 | ● ☑ | 223.200.150.1 | ▢ | 5000 | 239.1.1.1 | 5100 | 4-C ▾ | e.g: 51,ST | 1 | 3 to 3 |
| ☑ | IN1 AES67-3 | ▢ | 223.200.150.1 | ▢ | 5000 | 239.1.1.1 | 5100 | 4-C ▾ | e.g: 51,ST | 1 | 4 to 4 |
| ☑ | IN1 AES67-4 | ● ▢ | 223.200.150.1 | ▢ | 5000 | 239.1.1.1 | 5100 | 4-C ▾ | e.g: 51,ST | 1 | 5 to 5 |

**With ST2022-7 activated**

| | Label | | Source Address | Source Port | Destination Address | Destination Port | SFP | Channel Grouping | # of Channels | Audio Track |
|---|---|---|---|---|---|---|---|---|---|---|
| ☑ | IN1 AES67-1 | ● PRI | 192.168.0.1 | 8100 | 239.1.1.1 | 8100 | 4-C ▾ | | 8 | 1 to 8 |
| | IN1 AES67-1 | ● DUP | 192.168.0.1 | 8100 | 239.1.1.1 | 8100 | 4-D | | 8 | 1 to 8 |
| | IN1 AES67-2 | PRI | 192.168.0.1 | 8100 | 239.1.1.1 | 8100 | 4-C ▾ | | 8 | 9 to 16 |
| | IN1 AES67-2 | DUP | 192.168.0.1 | 8100 | 239.1.1.1 | 8100 | 4-D | | 8 | 9 to 16 |

## Check-Box

Click the check-box available in front of the 1st audio stream to send the corresponding audio stream. By default, only the first audio stream is selected.

A check-box is displayed in front of an audio stream only if the preceding audio stream has been selected.

## Label

IN1 AES67-1

| Description | Label identifying the audio input stream.<br>This is automatically assigned based on the naming conventions explained in the **Values** section. |
|---|---|
| Values | The label is based on the pattern <INX AES67-Y PRI/DUP> where:<br>• **X** is the channel number<br>• **Y** is the audio stream number<br>• **PRI/DUP** indicates the primary or secondary stream (in case of ST2022-7) |

## Link Status
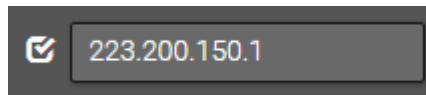
IN1 AES67-1 ●

IN1 AES67-1 ● PRI

IN1 AES67-1 ● DUP

| Description | Dot indicating the (non)presence of a stream. |
|---|---|
| Availability | Only appears for active streams. |
| Values | • **Green:** The input stream is properly configured and connected.<br>• **Red:** The input stream is not properly configured and/or connected.<br>One of the following might be wrong:<br>◦ the cable is no longer plugged into the connector;<br>◦ the IP of the stream is wrong; no packets are being received;<br>◦ the essence type of the stream is wrong. |

### Source Address



| Description | IP address of the sender from which the incoming streams are sent.<br>This is used as a filtering option you can activate with the check-box displayed next to the field in **Edit** mode:<br>• If the filter is enabled (regular font in View mode), only input streams with this source IP address in their header will be passed through to the corresponding IN connector of the EVS server.<br>• If the filter is disabled (grey italic font in View mode), the input streams are not filtered based on the source IP address.<br>In case ST2022-7 is enabled, when you check or uncheck the check box of a primary stream, the check box of the corresponding secondary stream will be checked or unchecked at the same time.<br>If no source address is specified, the filter is seen as being inactive. |
|---|---|
| Values | This must be a valid IP address of the format XXX.XXX.XXX.XXX where XXX is a number in the range [0-255]. |

### Source Port



| Description | UDP port number of the sender from which the input streams are sent.<br>This is used as a filtering option you can activate using the check-box displayed next to the field in **Edit** mode:<br>• If the filter is enabled (regular font in View mode), only input streams having this source port in their header will be passed through to the corresponding IN connector of the EVS server.<br>• If the filter is disabled (grey italic font in View mode), the input streams are not filtered based on the source port number.<br>In case ST2022-7 is enabled, when you check or uncheck the check box of a primary stream, the check box of the corresponding secondary stream will be checked or unchecked at the same time. |
|---|---|
| Values | This must be a valid UDP port number in the range [0-65535]. |

## Destination Address

239.1.1.1

| NEW! | Description | IP address the sender sends its streams to.<br>Multicast and unicast IP addresses are supported.<br><br>When working in unicast mode, the receiver's IP address has to be specified as destination address. |
|---|---|---|
| | Values | This must be a valid IP address of the format XXX.XXX.XXX.XXX where XXX is a number in the range [0-255]. |

## Destination Port

5100

| Description | UDP port number of the destination address the sender sends streams to.<br>The EVS server listens to this port to get the streams from the sender. |
|---|---|
| Values | This must be a valid UDP port number in the range [0-65535]. |

## QSFP



| | |
|---|---|
| **Description** | The QSFP interface of the XHub-VIA IP Aggregator that is connected to the Live IP network and through which the audio streams pass.<br><br>The QSFP interface is displayed together with the SFP+ port on the EVS server that will receive the incoming audio streams. |
| **Availability** | This field is displayed instead of the SFP field when the EVS server is connected to an XHub-VIA IP Aggregator. |
| **Values** | • 29 (X-C)<br>• 30 (X-D)<br>where *X* is the number of the codec module. |
| **Limitations** | • When in ST2022-7, the primary stream has to be on 29 (X-C) and the secondary stream on 30 (X-D). |

## SFP



| | |
|---|---|
| **Description** | Physical V4X SFP+ port (IN connector) on the EVS server that receives the input streams.<br>• The **codec module (1 to 6)** of the SFP+ port is automatically assigned based on the required cabling for the running configuration. IT cannot be changed.<br>• The **letter (C or D)** of the SFP+ port on which the EVS server receives the input streams is automatically assigned. |
| **Availability** | When the EVS server is not connected to an XHub-VIA IP Aggregator, this field will be displayed instead of the **QSFP** field. |
| **Values** | • X-C (default for even channels)<br>• X-D (default for odd channels)<br>where *X* is the number of coded module. |
| **Limitations** | When in ST2022-7, the primary stream has to be on SFP C and the secondary stream on SFP D. |

## Channel Grouping

ST

| Description | Free text to specify how audio mono channels are grouped in the stream. |
|---|---|
| Values | It is recommended to use the following values specified in the ST 2110-30 standard for a meaningful grouping.<br>If several values are entered, separate them by a comma. |

| Grouping Symbol | Qty channels | Group Descr. | Order channels |
|---|---|---|---|
| **M** | 1 | Mono | Mono |
| **DM** | 2 | Dual Mono | M1, M2 |
| **ST** | 2 | Standard Stereo | Left, Right |
| **LtRt** | 2 | Matric Stereo | Left Total, Right Total |
| **51** | 6 | 5.1 Surround | L, R, C, LFE, Ls, Rs |
| **71** | 8 | 7.1 Surround | L, R, C, LFE, Lss, Rss, Lrs, Rrs |
| **U01...U64** | As in symbol *Unn* where *nn* = nr ch. in group) | Undefined | None specified: ch. order in this group = Undefined. |

> **NOTE**
>
> With duplicate streams (ST2022-7), you cannot set the channel grouping for secondary streams. The value is automatically taken over from the primary stream.

## # of Channels

2

| Description | Number of audio mono channels present in the AES67 stream. |
|---|---|
| Values | Addition of all mono channels of all groupings in the stream.<br>• For an IN channel, up to 16 audio mono channels can be included in each audio stream.<br>The default value is 8. |
| Limitation | • For primary streams (in case of 2022-7), the sum of the number of audio mono channels set for the activated audio streams must be ≤ the number of audio channels mentioned in the General Settings of the Video IP Configuration page. |

> **NOTE**
>
> With duplicate streams (ST2022-7), you cannot set the number of audio mono channels for the secondary stream. The value is automatically taken over from the primary stream.

## Audio Track

1 to 2

| Description | Mapping between the AES67 streams and the embedded mono channels on the EVS server.<br>This is a read-only field automatically calculated by the EVS server. |
|---|---|
| Values | **X to Y** where:<br>• **X** is the first number of the mapped mono channel on the EVS server.<br>• **Y** is the last number of the mapped mono channel on the EVS server. |

## LiveIP Output Streams

**Without ST2022-7 activated**



**With ST2022-7 activated**



## Check-Box

Click the check-box available in front of the 1st audio stream to send the corresponding audio stream. By default, only the first audio stream is selected.

A check-box is displayed in front of an audio stream only if the preceding audio stream has been selected.

## Label



| Description | Label identifying the audio input stream. This is automatically assigned based on the naming conventions explained in the **Values** section. |
|---|---|
| Values | The label is based on the pattern **<OUTX AES67-Y PRI/DUP>** where: <br> • **X** is the channel number <br> • **Y** is the audio stream number <br> • **PRI/DUP** indicates the primary or secondary stream (in case of ST2022-7) |

### Source Port

| | |
|---|---|
| **Description** | Port number of the source IP address (of the V4X SFP+) from which the output streams are sent. |
| **Values** | This must be a valid port number in the range [0-65535]. |

---

**NOTE**

The source IP address of an output stream is that of the associated V4X SFP+ port and is defined in the section "IP IO Configuration" on page 184.

---

### Destination Address

**NEW!**

| | |
|---|---|
| **Description** | IP address to which the output streams are sent. Multicast and unicast IP addresses are supported.<br><br>When working in unicast mode, the receiver's IP address has to be specified as destination address. |
| **Values** | This must be a valid IP address of the format XXX.XXX.XXX.XXX where XXX is a number in the range [0-255]. |

### Destination Port

| | |
|---|---|
| **Description** | Port number to which the output streams are sent. |
| **Values** | This must be a valid port number in the range [0-65535]. |

## QSFP



| | |
|---|---|
| **Description** | The QSFP interface of the XHub-VIA IP Aggregator that is connected to the Live IP network and through which the audio streams pass.<br><br>The QSFP interface is displayed together with the SFP+ port on the EVS server that will send the audio streams. |
| **Availability** | This field is displayed instead of the SFP field when the EVS server is connected to an XHub-VIA IP Aggregator. |
| **Values** | • 29 (X-C)<br>• 30 (X-D)<br>where *X* is the number of the codec module. |
| **Limitations** | • When in ST2022-7, the primary stream has to be on 29 (X-C) and the secondary stream on 30 (X-D). |

## SFP



| | |
|---|---|
| **Description** | Physical V4X SFP+ port (OUT connector) on the EVS server from which the output streams are sent.<br>• The **codec module (1 to 6)** of the SFP+ port is automatically assigned based on the required cabling for the running configuration. It cannot be changed.<br>• The **letter (C or D)** of the SFP+ port on which the EVS server sends the output streams is automatically assigned. |
| **Availability** | When the EVS server is not connected to an XHub-VIA IP Aggregator, this field will be displayed instead of the **QSFP** field. |
| **Values** | • X-C (default for even channels)<br>• X-D (default for odd channels)<br>where *X* is the number of coded module. |
| **Limitations** | When in ST2022-7, the primary stream has to be on SFP C and the secondary stream on SFP D. |

## Channel Grouping

See section "Channel Grouping" on page 297.

## # of Channels

| Description | Number of audio mono channels present in the AES67 stream. |
|---|---|
| Values | Addition of all mono channels of all groupings in the stream.<br>• For an OUT, 2, 4, 6, 8 or 16 audio channels can be included in each audio stream. To support 16 audio channels, the packet time should be set to 125µs.<br>The default value is 8. |
| Limitation | • For primary streams (in case of 2022-7), the sum of the number of audio mono channels set for the activated audio streams must be ≤ the number of audio channels mentioned in the General Settings of the Video IP Configuration page.<br>• 16 audio channels is only supported if the server is running in maximally 8 video channels. |

## Audio Track

See section "Audio Track" on page 298

# 5.3.7. LiveIP Settings for Ancillary Data Streams

## Introduction

The Ancillary Data area will display the ancillary data settings of input or output LiveIP streams depending on whether you have selected an input or output channel in the Channels area:

•  LiveIP Input Streams

•  LiveIP Output Streams

The ancillary data streams are not available with the protocol ST 2022-6 or ST 2022-8.

1 ancillary data stream can be associated to an IN or OUT channel.

When ST2022-7 is active, the ancillary data stream configuration line for each server channel is duplicated. The first line indicates the primary stream, the second line indicates the secondary stream.

See section "Editing LiveIP Stream Settings" on page 280 for a complete procedure on how to edit LiveIP streams.

---

> ✎ **NOTE**
>
> For flexibility reasons, there is no validation of the address and port numbers regarding the range authorized by the video standard. It is the user's responsibility to define a network compliant with the standards.

---

## LiveIP Input Streams

### Without ST2022-7 Activated



### With ST2022-7 Activated



## Check-Box

Click the check-box available in front of the ancillary data stream to receive the corresponding ancillary data stream. By default, the ancillary data stream is not selected.

### Label

IN1 Anc-1

| Description | Label identifying the ancillary data input stream. This is automatically assigned based on the naming conventions explained in the **Values** section. |
|---|---|
| Values | The label is based on the pattern **<INX Anc-Y>** where:<br>• **X** is the channel number<br>• **Y** is the ancillary data stream number |
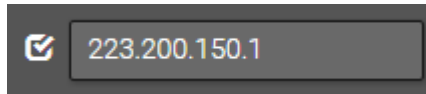
### NEW! Link Status

IN1 Anc-1 🟢

| Description | Dot indicating the (non)presence of a stream. |
|---|---|
| Availability | Only appears for active streams. |
| Values | • **Green:** The input stream is properly configured and connected.<br>• **Red:** The input stream is not properly configured and/or connected.<br>One of the following might be wrong:<br>  ◦ the cable is no longer plugged into the connector;<br>  ◦ the IP of the stream is wrong; no packets are being received;<br>  ◦ the essence type of the stream is wrong;<br>  ◦ no valid IP address of SFP/QSFP interface is assigned to the stream (when working in DHCP). |

## Source Address

| Description | IP address of the sender from which the incoming streams are sent.<br>This is used as a filtering option you can activate with the check-box displayed next to the field in **Edit** mode:<br>• If the filter is enabled (regular font in View mode), only input streams with this source IP address in their header will be passed through to the corresponding IN connector of the EVS server.<br>• If the filter is disabled (grey italic font in View mode), the input streams are not filtered based on the source IP address. |
| --- | --- |
| Values | This must be a valid IP address of the format XXX.XXX.XXX.XXX where XXX is a number in the range [0-255]. |

## Source Port

| Description | UDP port number of the sender from which the input streams are sent.<br>This is used as a filtering option you can activate using the check-box displayed next to the field in **Edit** mode:<br>• If the filter is enabled (regular font in View mode), only input streams having this source port in their header will be passed through to the corresponding IN connector of the EVS server.<br>• If the filter is disabled (grey italic font in View mode), the input streams are not filtered based on the source port number. |
| --- | --- |
| Values | This must be a valid UDP port number in the range [0-65535]. |

## Destination Address

239.1.1.1

NEW!

| | |
|---|---|
| **Description** | IP address the sender sends its streams to.<br>Multicast and unicast IP addresses are supported.<br><br>When working in unicast mode, the receiver's IP address has to be specified as destination address. |
| **Values** | This must be a valid IP address of the format XXX.XXX.XXX.XXX where XXX is a number in the range [0-255]. |

## Destination Port

5100

| | |
|---|---|
| **Description** | UDP port number of the destination address the sender sends streams to.<br>The EVS server listens to this port to get the streams from the sender. |
| **Values** | This must be a valid UDP port number in the range [0-65535]. |

## Content

Content

Both

| | |
|---|---|
| **Description** | Type of data contained in the stream. |
| **Values** | Both (334M and Timecode)<br>This field cannot be edited. |

## QSFP



| Description | The QSFP interface of the XHub-VIA IP Aggregator that is connected to the Live IP network and through which the ancillary data streams pass. |
|---|---|
| | The QSFP interface is displayed together with the SFP+ port on the EVS server that will receive the incoming ancillary data streams. |
| **Availability** | This field is displayed instead of the **SFP**field when the EVS server is connected to an XHub-VIA IP Aggregator. |
| **Values** | • 29 (X-C)<br>• 30 (X-D)<br>where *X* is the number of the codec module. |
| **Limitations** | • When in ST2022-7, the primary stream has to be on 29 (X-C) and the secondary stream on 30 (X-D).<br>• When not in ST2022-7, the IN1 has to be on 29 (X-C). |

## SFP



| Description | Physical V4X SFP+ port (IN connector) on the EVS server that receives the input streams.<br>• The **codec module (1 to 6)** of the SFP+ port is automatically assigned based on the required cabling for the running configuration. IT cannot be changed.<br>• The **letter (C or D)** of the SFP+ port on which the EVS server receives the input streams is automatically assigned. |
|---|---|
| **Availability** | When the EVS server is not connected to an XHub-VIA IP Aggregator, this field will be displayed instead of the **QSFP** field. |
| **Values** | • X-C (default for even channels)<br>• X-D (default for odd channels)<br>where *X* is the number of codec module. |
| **Limitations** | When in ST2022-7, the primary stream has to be on SFP C and the secondary stream on SFP D. |

## LiveIP Output Streams

**Without ST2022-7 Activated**

| Ancillary Data | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Label** | **Source Port** | **Destination Address** | **Destination Port** | **Content** | **SFP** |
| ☐ OUT1 Anc-1 | 8100 | 239.1.1.1 | 8100 | Both ▾ | 1-C ▾ |

**With ST2022-7 Activated**

| Ancillary Data | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Label** | | **Source Port** | **Destination Address** | **Destination Port** | **Content** | **SFP** |
| ☐ OUT1 Anc-1 | PRI | 8100 | 192.0.2.1 | 36929 | Both ▾ | 1-C ▾ |
| OUT1 Anc-1 | DUP | 8100 | 239.1.1.1 | 8100 | Both ▾ | 1-D |

## Check Box

Click the check-box available in front of the ancillary data stream to send the corresponding data stream. By default, the ancillary data stream is not selected.

## Label



| Description | Label identifying the ancillary data output stream. This is automatically assigned based on the naming conventions explained in the **Values** section. |
| --- | --- |
| Values | The label is based on the pattern **<OUTX Anc-Y>** where:<br>• **X** is the channel number<br>• **Y** is the audio stream number |

## Source Port



| Description | Port number of the source IP address (of the V4X SFP+) from which the output streams are sent. |
| --- | --- |
| Values | This must be a valid port number in the range [0-65535]. |

> ✎ **NOTE**
>
> The source IP address of an output stream is that of the associated V4X SFP+ port and is defined in the section "IP IO Configuration" on page 184.

## Destination Address

238.1.1.1

**NEW !**

| Description | IP address to which the output streams are sent. Multicast and unicast IP addresses are supported.<br><br>When working in unicast mode, the receiver's IP address has to be specified as destination address. |
| --- | --- |
| Values | This must be a valid IP address of the format XXX.XXX.XXX.XXX where XXX is a number in the range [0-255]. |

## Destination Port

6100

| Description | Port number to which the output streams are sent. |
| --- | --- |
| Values | This must be a valid port number in the range [0-65535]. |

## Content



| Description | Type of data contained in the stream. |
|---|---|
| Values | • 334M (closed captions and keywords)<br>• Timecode<br>• Both |

> ⚠️ **WARNING**
> - In case '334M' is selected, the Encoding setting in the SMPTE 334M Packet Management settings has to be set to 'Yes' to be able to transfer the ancillary data via IP streams. See section "SMPTE 334M Packet Management Settings" on page 171.
> - In case 'Timecode' is selected, the HD OUT ATC-LTC / ATC-VITC settings in the Timecode Insertion settings cannot be set both to 'No'. See section "Timecode Insertion Settings" on page 169.
> - In case 'Both' is selected, the Encoding setting has to be set to 'Yes' and the HD OUT ATC-LTC / ATC-VITC settings cannot be set both to 'No'.

## QSFP

| Description | The QSFP interface of the XHub-VIA IP Aggregator that is connected to the Live IP network and through which the ancillary data streams pass. |
|---|---|
| | The QSFP interface is displayed together with the SFP+ port on the EVS server that will send the ancillary data streams. |
| Availability | This field is displayed instead of the **SFP** field when the EVS server is connected to an XHub-VIA IP Aggregator. |
| Values | • 29 (X-C)<br>• 30 (X-D)<br>where *X* is the number of the codec module. |
| Limitations | • When in ST2022-7, the primary stream has to be on 29 (X-C) and the secondary stream on 30 (X-D).<br>• When not in ST2022-7, the OUT1 has to be on 29 (X-C). |

## SFP

| Description | Physical V4X SFP+ port (OUT connector) on the EVS server from which the output streams are sent.<br>• The **codec module (1 to 6)** of the SFP+ port is automatically assigned based on the required cabling for the running configuration. It cannot be changed.<br>• The **letter (C or D)** of the SFP+ port on which the EVS server sends the output streams is automatically assigned. |
|---|---|
| Availability | When the EVS server is not connected to an XHub-VIA IP Aggregator, this field will be displayed instead of the QSFP field. |
| Values | • X-C (default for even channels)<br>• X-D (default for odd channels)<br>where *X* is the number of coded module. |
| Limitations | When in ST2022-7, the primary stream has to be on SFP C and the secondary stream on SFP D. |

# 5.3.8.     LiveIP Settings for Monitoring Streams

## Introduction

The Monitoring area will display the settings for the video monitoring LiveIP streams of the input or output streams depending on whether you have selected an input or output channel in the Channels area.

See section "Editing LiveIP Stream Settings" on page 280 for a complete procedure on how to edit LiveIP streams.

---

### NOTE

For flexibility reasons, there is no validation of the address and port numbers regarding the range authorized by the video standard. It is the user's responsibility to define a network compliant with the standards.

---

When ST2022-7 is active, the monitoring stream configuration lines for each server channel are duplicated. The first line indicates the primary stream, the second line indicates the secondary stream.

## Monitoring of Input Streams

**Without ST2022-7 activated**

| Label | Source Port | Destination Address | Destination Port | SFP |
|-------|-------------|---------------------|------------------|-----|
| ☑ MON IN1 Video | 8100 | 192.168.0.1 | 8100 | 4-C ▾ |

**With ST2022-7 activated**

| Label | | Source Port | Destination Address | Destination Port | SFP |
|-------|-----|-------------|---------------------|------------------|-----|
| ☐ MON IN1 Video | PRI | 8100 | 239.1.1.1 | 8100 | 4-D ▾ |
| MON IN1 Video | DUP | 8100 | 239.1.1.1 | 8100 | 4-C |

## Check-Box

Click the check-box available in front of the 1st monitoring stream to send the corresponding monitoring stream. By default, none of the monitoring streams (primary, secondary) is activated.

When you uncheck the check box of a primary stream, the corresponding check box of the secondary stream will be unchecked as well.

When you check the check box of the primary stream, the check box of the secondary stream will appear. You can choose to activate it or not.

## Label

MON IN1 Video

| Description | Label identifying the monitoring LiveIP stream of the input stream.<br>This is automatically assigned based on the naming conventions explained in the **Values** section. |
|---|---|
| Values | The label is based on the pattern **<MON INX Video PRI/DUP>** where:<br>• **X** is the channel number<br>• **PRI/DUP**indicates the primary or secondary stream (in case of ST2022-7) |

## Source Port

8100

| Description | Port number of the source IP address (of the V4X SFP+) from which the monitoring streams of the input streams are sent. |
|---|---|
| Values | This must be a valid port number in the range [0-65535]. |

---

**NOTE**

The monitoring streams are sent from the V4X SFP+ connector receiving the corresponding input streams.
The source IP address of a monitoring stream is that of the associated V4X SFP+ port and is defined in the section "IP IO Configuration" on page 184.

---

## Destination Address

192.168.0.1

**NEW !**

| Description | IP address to which the monitoring streams of the input streams are sent.<br>Multicast and unicast IP addresses are supported. |
|---|---|
| Values | This must be a valid IP address of the format XXX.XXX.XXX.XXX where XXX is a number in the range [0-255]. |
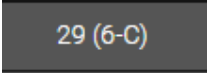
## Destination Port
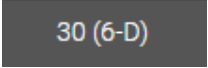
8100

| Description | Port number to which the monitoring streams of the input streams are sent. |
|---|---|
| Values | This must be a valid port number in the range [0-65535]. |

## QSFP

QSFP

29 (6-C)

30 (6-D)

| Description | The QSFP interface of the XHub-VIA IP Aggregator that is connected to the Live IP network and through which the video streams pass.<br><br>The QSFP interface is displayed together with the SFP+ port on the EVS server that is used to send the outgoing video streams. |
|---|---|
| Availability | This field is displayed instead of the **SFP** field when the EVS server is connected to an XHub-VIA IP Aggregator. |
| Values | • 29 (X-C)<br>• 30 (X-D)<br>where *X* is the number of the codec module. |
| Limitations | • When in ST2022-7, the primary stream has to be on 29 (X-C) and the secondary stream on 30 (X-D). |

### SFP



| Description | Physical V4X SFP+ port (IN connector) on the EVS server from which the monitoring streams are sent.<br>The monitoring streams are sent from the same V4X SFP+ connector as the IN connector. |
|---|---|
| Availability | When the EVS server is not connected to an XHub-VIA IP Aggregator, this field will be displayed instead of the QSFP field. |
| Values | • X-C (default)<br>• X-D<br>where *X* is the number of coded module. |
| Limitations | • In 1080p, the monitoring of input streams cannot exceed three streams (monitoring outputs) per SFP+ interface.<br>• When in ST2022-7, the primary stream has to be on SFP+ port C and the secondary stream on SFP+ port D. |

**NOTE**

When working in ST2022-7 with the secondary stream deactivated, the monitoring stream may either be assigned to SFP+ port C or D.

## Monitoring of Output Streams

### Without ST2022-7 Activated



### With ST2022-7 Activated



### Check-Box

Click the check-box available in front of the 1st monitoring stream to send the corresponding monitoring stream. By default, none of the monitoring streams (primary, secondary) is activated.

When you uncheck the check box of a primary stream, the corresponding check box of the secondary stream will be unchecked as well.

When you check the check box of the primary stream, the check box of the secondary stream will appear. You can choose to activate it or not.

### Label



| Description | Label identifying the monitoring IP stream of the output stream. This is automatically assigned based on the naming conventions explained in the **Values** section. |
|---|---|
| Values | The label is based on the pattern **<MON INX Video PRI/DUP>** where: <br>• **X** is the channel number <br>• **PRI/DUP** indicates the primary or secondary stream (in case of ST2022-7) |

### Source Port

8100

| Description | Port number of the source IP address (of the V4X SFP+) from which the monitoring streams of the output channel are sent. |
|---|---|
| Values | This must be a valid port number in the range [0-65535]. |

✎ **NOTE**

The monitoring streams are sent from the V4X SFP+ connector sending the corresponding output streams.
The source IP address of a monitoring stream is that of the associated V4X SFP+ port and is defined in the section "IP IO Configuration" on page 184.

### Destination Address

192.168.0.1

**NEW !**

| Description | IP address to which the monitoring streams of the output streams are sent. Multicast and unicast IP addresses are supported.<br><br>When working in unicast mode, the receiver's IP address has to be specified as destination address. |
|---|---|
| Values | This must be a valid IP address of the format XXX.XXX.XXX.XXX where XXX is a number in the range [0-255]. |

### Destination Port

8100

| Description | Port number to which the monitoring streams of the output streams are sent. |
|---|---|
| Values | This must be a valid port number in the range [0-65535]. |

## QSFP



| Description | The QSFP interface of the XHub-VIA IP Aggregator that is connected to the Live IP network and through which the video streams pass. The QSFP interface is displayed together with the SFP+ port on the EVS server that is used to send the outgoing video streams. |
|---|---|
| Availability | This field is displayed instead of the **SFP** field when the EVS server is connected to an XHub-VIA IP Aggregator. |
| Values | • 29 (X-C)<br>• 30 (X-D)<br>where *X* is the number of the codec module. |
| Limitations | • When in ST2022-7, the primary stream has to be on 29 (X-C) and the secondary stream on 30 (X-D). |

## SFP



| Description | Physical V4X SFP+ port (OUT connector) on the EVS server from which the monitoring streams are sent.<br>The monitoring streams are sent from the same V4X SFP+ connector as the OUT connector. |
|---|---|
| Availability | When the EVS server is not connected to an XHub-VIA IP Aggregator, this field will be displayed instead of the QSFP field. |
| Values | • X-C (default)<br>• X-D<br>where *X* is the number of coded module. |
| Limitations | • In 1080p, the outgoing streams cannot exceed three streams (clean outputs and monitoring outputs) per SFP+ interface.<br>• When in ST2022-7, the primary stream has to be on SFP+ port C and the secondary stream on SFP+ port D. |

---

> **NOTE**
>
> When working in ST2022-7 with the secondary stream deactivated, the monitoring stream may either be assigned to SFP+ port C or D.

---

# 5.4. PTP Configuration

## Principles

The PTP (precision time protocol) provides a mechanism that ensures that each device in an LiveIP network has the same high precision clock (elapsed time since timebase reference).

A PTP grandmaster clock provides the exact clock to the LiveIP network, and all devices on the network (PTP clients) host a slave clock that synchronizes to the PTP grandmaster clock.

The Best Master Clock Algorithm (BMCA) is used to select the grandmaster clock.

On the EVS server, the PTP is used to synchronize all streams inside the server, as explained below:

• It is used by senders to put timestamps (corresponding to the image capture time) on the streams so that they are aligned.

• It is used by receivers to compare the timestamps in order to align the different parts.

The PTP is also used to provide the **Genlock** and **Timecode** signals. They were provided through SDI up to Multicam 16.1. The PTP generator sends additional information such as the offset to account for leap seconds, different time zones.

# In Practice

The PTP is received via the V4X SFP+ connectors of the video codec modules.

One of the SFP+ modules (PTP master module) operates as the single PTP client for the XS-VIA Server and synchronizes the other video codec modules. The PTP master module is the V4X module 1-C.

The PTP page allows you to monitor the PTP status and make sure that the streams on the EVS server are correctly synchronized.

If you want the PTP to provide the genlock and timecode signals, you need to select the **Genlock PTP** value in the **Video Reference** section, **Genlock** setting. See section "Genlock" on page 108.

---

**NOTE**

When your server is set in XiP mode and runs a configuration without any PGMs and only a limited number of recorders, none of the V4X modules on the first V4X board are used.

No PTP signal is received for the following configurations:
- **720p/1080i/1080p:** 1 IN 0 OUT, 2 IN 0 OUT, 3 IN 0 OUT, 4 IN 0 OUT
- **UHD-4K:** 1 IN 0 OUT, 2 IN 0 OUT

When selecting the Genlock PTP parameter, the following error message is displayed:
'The selected IN/OUT configuration does not support Genlock PTP'.

---

You also need to make sure the required PTP generation configuration is set for the synchronization metadata to be appended to the PTP signal. The configuration must be defined according to the section Organization Extension TLV: Synchronization Metadata, from SMPTE-2059-2. Those messages have to be sent once every second or when the Master Locking Status is changed.

---

**WARNING**

If you want the genlock and timecode signals to be delivered through PTP, contact the EVS support as this may require an upgrade of the V4X base module.

---

| Status: Ok | Clock: 0x15665bb7097aec1a | GrandMaster Clock ID: 0x080011fffe21e542 | Profile: INTEROP_AES_SMPTE | Domain: 127 |

## Status



| Description | Status of the PTP.<br>This is a read-only field. |
|---|---|
| Values | • **OK** (green): locked to PTP clock, Organization Extension is activated on PTP generator, the framerate is supported.<br>• **Bad** (red): not locked to PTP clock.<br>• **OE issue** (orange): locked to PTP clock, Organization Extension is not activated on PTP generator or the framerate is not supported.<br>• **System Framerate issue** (yellow): locked to PTP clock, Organization Extension is activated on PTP generator, the framerate configured on the PTP is not in line with the XT framerate. |

## Clock



| Description | Value generated by the grandmaster clock at regular intervals which allows time stamping the IP packets, as well as generating the genlock and timecode signals.<br>This is a read-only field. |
|---|---|

## Grand Master Clock ID



| Description | MAC address of the grandmaster clock of the PTP infrastructure in the IP network.<br>This is a read-only field. |
|---|---|

### NEW ! Profile

**Profile:** INTErop_AES_SMPTE

| Description | Editable field specifying the PTP profile (set of required options, prohibited options, ranges and defaults of configurable attributes) specific to the broadcast industry and used by SMPTE 2110. |
|---|---|
| Values | The supported profiles are:<br>• IEEE_1588_2008<br>• AES67_2015<br>• SMPTE_2059<br>• INTEROP_DEFAULT_AES_SMPTE<br>• INTEROP_AES_SMPTE<br>The profile **INTEROP_AES_SMPTE** is used by default.<br>It allows the interoperability between AES67 and SMPTE 2059-2. |

### Domain

**Domain:** 126

| Description | Editable field specifying the PTP domain<br>• that contains the devices that need to share a common grandmaster clock<br>• in which the specified PTP profile has to be used.<br>This allows multiple timing systems to exist in the same network. Devices will ignore and drop all messages on a domain different from their own. |
|---|---|
| Values | Value between **0** and **127**. |

# 5.5.    MV IP Configuration

## 5.5.1.    Overview of Multiviewer IP Configuration

### User Interface

The Multiviewer IP Configuration user interface is quite similar to the Video IP Configuration user interface. It only differs in that there are no areas to configure audio and ancillary data streams
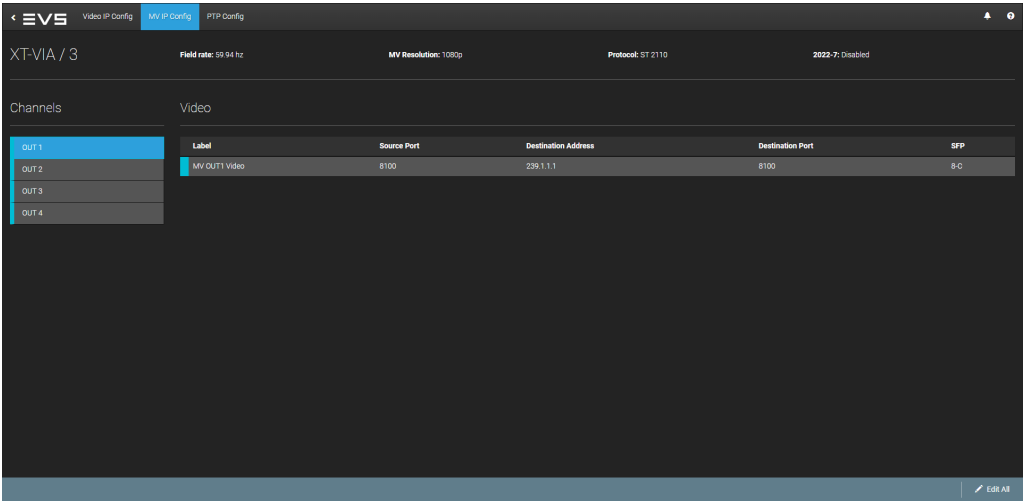
The MV IP Configuration page will not be available if:

•   the protocol is 2022-6 or 2022-8;

•   the resolution is UHD-8K.

# 5.5.2.   General Settings

## Overview

The **MV IP Configuration** page displays some general settings in the **General** area.

These settings are related to the running or selected configuration and are mainly provided for information purposes.

The settings unrelated to LiveIP are not editable in this page. However they correspond to editable settings in the Multicam Configuration module.

XT-VIA / 3   **Field rate:** 59.94 hz   **MV Resolution:** 1080p   **Protocol:** ST 2110   **2022-7:** Disabled

## Server Name

| Description | Server hostname that consists of *<server facility name> / <configuration line number>*.<br>This field is not editable in this page. |
|---|---|

## Field Rate

| Description | Field rate defined for the active configuration line.<br>This field is read-only in this page.<br>See section "Field Rate" on page 105 for more information. |
|---|---|

## MV Resolution

| Description | The multiviewer output resolution defined for the active configuration line.<br>This field is read-only in this page.<br>See section "Resolution" on page 106 for more information. |
|---|---|

## Protocol

| Description | IP protocol used by the EVS server. |
|---|---|
| Values | ST 2110 |

## ST 2022-7

| Availability | This field is only available in 720p, 1080i, 1080p.<br><br>If the XHub-VIA IP Aggregator is used, the field is also available in UHD-4K. |
|---|---|
| Description | Hitless protection switching.<br>If enabled, the video, audio and monitoring stream configuration lines will be duplicated.<br><br>All SDPs are automatically updated. There is no impact on the NMOS tree structure. The number of resources remains the same. |

# 5.5.3.   Editing Live IP Stream Settings

## How to Edit LiveIP Stream Settings

1. Open the **LiveIP** Configuration module from the Multicam Configuration module.

2. Click **MV IP Config** in the Menu bar.

3. In the Channels area (left), click the IN or  OUT logical channel for which you want to define the stream settings:
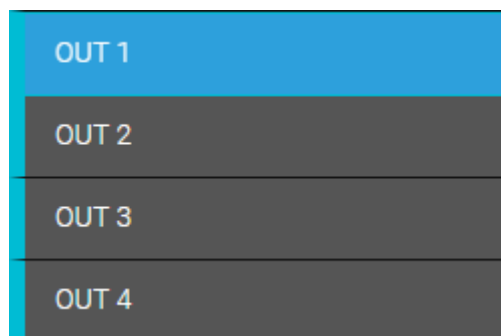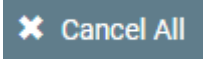


The physical video streams associated to the selected logical channel will be displayed in the area on the right.

4. In the Edit bar, click the [ ✎ Edit All ] to enable the edit mode for the stream settings displayed.

5. Refer to the settings description to edit the settings as you want:

   ◦ See section "LiveIP Settings for Multiviewer Video Streams" on page 327.

   The outline of the modified fields or check-boxes turns green if the change is valid, red if the change is invalid.

   Unsaved changes are also identified by rectangles next to the channel number and next to the IP Config page name.

6. Click ![Save All] to commit the changes or ![Cancel All] to cancel all the modifications. Only the valid modifications will be committed when you save.

## Enabled and Disabled Filter Fields

Some LiveIP parameters can be used as filters for incoming streams.

In **View** mode, the fields on which a filter can be defined are displayed differently if the filter is enabled or disabled.

On the following screenshot showing some input settings of video streams, the **Source Address** filter is enabled (regular font) and the **Source Port** filter is disabled (grey italic font):

| Source Address | Source Port |
|----------------|-------------|
| 223.200.150.1  | *5000*      |

In **Edit** mode, the field is selected if enabled and unselected if disabled, as usual.

# 5.5.4. LiveIP Settings for Multiviewer Video Streams

## Introduction

The Video area displays the video settings of the input or output LiveIP Multiviewer video streams depending on whether you have selected an input or output channel in the Channels area:

- LiveIP Input Streams
- LiveIP Output Streams

See section "Editing Live IP Stream Settings" on page 325 for a complete procedure on how to edit LiveIP streams.

The EVS server supports 2 MV input streams and 4 MV output streams.

---

### ✎ NOTE

For flexibility reasons, there is no validation of the address and port numbers regarding the range authorized by the video standard. It is the user's responsibility to define a network compliant with the standards.

---

When ST2022-7 is active, the multiviewer output configuration lines for each server channel are duplicated. The first line indicates the primary stream, the second line indicates the secondary stream.

ST2022-7 is only supported for active **output** streams.

## Supported Input Formats

The following input formats are supported when working in IP:

- SD PAL/NTSC
- 720p 50/59.94
- 1080i 50/59.94
- 1080p 50/59.94
- UHD-4K 50/59.94

---

### ✎ NOTE

UHD-4K is only fully supported when transported as single stream. When working in 2SI, one of the four phases may be sent as input to the Multiviewer (corresponding to a regular 1080p stream). Square division is not supported as Multiviewer IP input.

---

The input format is completely transparent. You do not have to declare the input format for MV IN1 and MV IN2.

## LiveIP Input Streams



### Label

| Description | Label identifying the input stream.<br>This is automatically assigned based on the naming conventions explained in the **Values** section. |
|---|---|
| Values | The label includes the following elements :<br>• channel number<br> ◦ **MV INX**<br> ◦ **Video**<br>Example:<br>• MV IN1 |

### Source Address



| Description | IP address of the sender from which the incoming streams are sent.<br>This is used as a filtering option you can activate with the check-box displayed next to the field in **Edit** mode:<br>• If the filter is enabled (regular font in View mode), only input streams with this source IP address in their header will be passed through to the corresponding IN connector of the EVS server.<br>• If the filter is disabled (grey italic font in View mode), the input streams are not filtered based on the source IP address. |
|---|---|
| Values | This must be a valid IP address of the format XXX.XXX.XXX.XXX where XXX is a number in the range [0-255]. |

### Source Port

5000

| Description | UDP port number of the sender from which the input streams are sent.<br>This is used as a filtering option you can activate using the check-box displayed next to the field in **Edit** mode:<br>• If the filter is enabled (regular font in View mode), only input streams having this source port in their header will be passed through to the corresponding IN connector of the EVS server.<br>• If the filter is disabled (grey italic font in View mode), the input streams are not filtered based on the source port number. |
|---|---|
| **Values** | This must be a valid UDP port number in the range [0-65535]. |

### Destination Address

239.1.1.1

**NEW !**

| Description | IP address the sender sends its streams to.<br>Multicast and unicast IP addresses are supported.<br><br>When working in unicast mode, the receiver's IP address has to be specified as destination address. |
|---|---|
| **Values** | This must simply be a valid IP address of the format XXX.XXX.XXX.XXX where XXX is a number in the range [0-255]. |

### Destination Port

5100

| Description | UDP port number of the destination address the sender sends streams to.<br>The EVS server listens to this port to get the streams from the sender. |
|---|---|
| **Values** | This must be a valid UDP port number in the range [0-65535]. |

## QSFP



| Description | The QSFP interface of the XHub-VIA IP Aggregator that is connected to the Live IP network and through which the multiviewer streams pass.

The QSFP interface is displayed together with the SFP+ port on the EVS server that receive the multiviewer streams. |
|---|---|
| Availability | This field is displayed instead of the **SFP** field when the EVS server is connected to an XHub-VIA IP Aggregator. |
| Values | • 29 (8-C)<br>• 30 (8-D) |

## SFP



| Description | Physical MV4X SFP+ port (IN connector) on the EVS server that receives the incoming streams.<br>• The **codec module (8)** of the SFP+ port is automatically assigned based on the required cabling for the running configuration. It cannot be changed.<br>• The **letter (C or D)** of the SFP+ port on which the EVS server receives the input streams is automatically assigned. |
|---|---|
| Availability | When the EVS server is not connected to an XHub-VIA IP Aggregator, this field will be displayed instead of the **QSFP** field. |
| Values | • 8-C (default for even channels)<br>• 8-D (default for odd channels) |

## LiveIP Output Streams

**Without ST2022-7 activated**



**With ST2022-7 activated**



### Check-Box

By default, the check box of the multiviewer output streams is selected.

In case of ST20227-7 the check box of both the primary and secondary stream is selected.

If you deactivate the primary stream, the secondary stream is deactivated as well. Activating the secondary stream without the primary stream is not possible.

When working in ST2022-7 with the secondary stream deactivated, the monitoring stream may either be assigned to SFP+ port C or D.

### Label

| Description | Label identifying the output stream. This is automatically assigned based on the naming conventions explained in the **Values** section. |
| --- | --- |
| Values | The label includes the following elements :<br>• channel number<br>　◦ **MV OUTX**<br>　◦ **Video**<br>• **PRI/DUP** indicates the primary or secondary stream (in case of ST2022-7) |

### Source Port



| Description | Port number of the source IP address (of the MV4X SFP+) from which the output streams are sent. |
| --- | --- |
| Values | This must be a valid port number in the range [0-65535]. |

> **NOTE**
>
> The source IP address of an output stream is that of the associated MV4X SFP+ port and is defined in the section "IP IO Configuration" on page 184.

## Destination Address

238.1.1.1

**NEW !**

| Description | IP address the sender sends its streams to.<br>Multicast and unicast IP addresses are supported.<br><br>When working in unicast mode, the receiver's IP address has to be specified as destination address. |
|---|---|
| Values | This must simply be a valid IP address of the format XXX.XXX.XXX.XXX where XXX is a number in the range [0-255]. |

## Destination Port

6100

| Description | UDP port number of the destination address the sender sends streams to.<br>The EVS server listens to this port to get the streams from the sender. |
|---|---|
| Values | This must be a valid UDP port number in the range [0-65535]. |

## QSFP

QSFP

29 (8-C)

| Description | The QSFP interface of the XHub-VIA IP Aggregator that is connected to the Live IP network and through which the multiviewer streams pass.<br><br>The QSFP interface is displayed together with the SFP+ port on the EVS server that will send the multiviewer streams. |
|---|---|
| Availability | This field is displayed instead of the **SFP** field when the EVS server is connected to an XHub-VIA IP Aggregator. |

| **Values** | • 29 (8-C)<br>• 30 (8-D) |
|---|---|
| **Limitations** | • When in ST2022-7, the primary stream has to be on 29 (8-C) and the secondary stream on 30 (8-D). |

## SFP



| | |
|---|---|
| **Description** | Physical MV4X SFP+ port (OUT connector) on the EVS server from which the output streams are sent. <br>• The **codec module (8)** of the SFP+ port is automatically assigned based on the required cabling for the running configuration. It cannot be changed. <br>• The **letter (C or D)** of the SFP+ port from which the EVS server sends the output streams is automatically assigned. |
| **Availability** | When the EVS server is not connected to an XHub-VIA IP Aggregator, this field will be displayed instead of the **QSFP** field. |

| Values | • 8-C (default for even channels)<br>• 8-D (default for odd channels) |
|---|---|
| Limitations | • In 1080p, a maximum of 3 streams are allowed per SFP+ interface.<br>• When in ST2022-7, the primary stream has to be on 29 (8-C) and the secondary stream on 30 (8-D). When not in ST2022-7, the IN1 has to be on 29 (8-C).<br>• When in 1080p and ST2022-7, you can have:<br>  ◦ Up to 3 redundant streams with:<br>    - primary stream on interface C<br>    - secondary stream on interface D<br><br>               C     D<br>    MV OUT 1  PRI  DUP<br>    MV OUT 2  PRI  DUP<br>    MV OUT 3  PRI  DUP<br>    MV OUT 4<br><br>  ◦ Up to two redundant streams with:<br>    - primary streams on interface C<br>    - secondary streams on interface D<br><br>    AND<br><br>    two additional outputs without redundancy with:<br>    - the first stream on interface C<br>    - the second stream on interface D<br><br>               C     D<br>    MV OUT 1  PRI  DUP<br>    MV OUT 2  PRI  DUP<br>    MV OUT 3  PRI<br>    MV OUT 4        PRI |

**NOTE**

No physical audio stream is generated by the multiviewer output. Any AES67 audio stream associated to an output video stream is a link (reference) to an existing AES67 audio stream of a player.

The **Audio Monitoring from Video** setting allows to link the audio tracks of a specific player to a specific multiviewer output. See section "Multiviewer Settings" on page 190.

# 6.    Monitoring

## 6.1.    Server Monitoring

## 6.1.1.    Overview on Server Monitoring Windows

The Server Monitoring section is available by pressing **SHIFT**+**F5** from the operational windows on the VGA.

---

✎ **NOTE**

This section is only available in the server-based application. It is not available from the web-based interface.

---

It contains the pages shortly presented in the following table. The page name in this table allows you to directly jump to the corresponding page:

| Page | Page Name | Description |
|------|-----------|-------------|
| #1 | General Information window | Provides general system information and maintenance commands on the EVS server. |
| #2 | RAID and Disk Status window | Gives information on the disks or raids from internal and/or external storage. |
| #3 | Timecode Status window | Gives information on the genlock, analog LTC and timecode statuses from the EVS server. This page is also used to set up how the timecodes are managed in the timecode jump tables. |
| #4 | Timecode Monitoring window | Displays timecode information from recorders (SD or HD). |
| #5 | Log Management window | Allows a user-friendly and easy management of the logs. |

## 6.1.2.    General Information Window

### Introduction

The page 1 in the Server Monitoring section, General Information window, provides system information on the EVS server, as well as some maintenance commands.

## System Information

| Field Name | Description |
| --- | --- |
| Multicam version | Version of Multicam running on the EVS server |
| Chassis type | Type of server chassis (with server height when relevant) |
| Serial number | Serial number of the EVS server |
| Hardware edition | Hardware version of the EVS server |
| Facility name | Name assigned to the EVS server for internal maintenance via the **Tools** menu, **Assign server facility name** option, in the Multicam setup window. |
| Net name | Machine name on the XNet network.<br>It is not mandatory. It can however be useful to easily identify the servers running a given configuration, as it is tied to the running configuration.<br>The Net Name will be displayed even if the SDTI code is not valid.<br>It is defined in the Multicam Configuration window, **Network** tab, **XNet** section, **Net name** parameter. |
| Net number | Machine number on the XNet network (from 1 to 29) or the XNet-VIA network (from 1 to 34). This number is user-defined and must be unique for each system on the network. |
| XNet server | Role and privileges of the EVS server on the XNet network. |
| Local clips | Number of clips (out of the max. clip numbers) stored locally on the EVS server. |
| Network clips | Number of clips (out of the max. clip numbers) stored on the XNet network.<br>Up to 32,000 clips in the XNet network.<br>Up to 64,000 clips in the XNet-VIA network. |

## Date and Time

This section specifies the date and time of the EVS server.

## Maintenance

This section provides some commands to perform the following maintenance actions:

| Command | Description |
|---------|-------------|
| Reset archive status | Resets the flag of all clips whose archive status has been enabled with the Archive fonction on the Remote panel. |
| Resync to TC ref | Resynchronizes the server timecode to the timecode reference. |
| Delete keyword file | Deletes the selected keyword file. Press **SPACEBAR** until you select the keyword file to remove, and press **ENTER**. |
| Record train reset | Resets the record trains before their field counter overflows. Users are requested to confirm the action before performing the reset. See section "Record Train Maintenance" on page 43 |

# 6.1.3.    RAID and Disk Status Window

## Introduction

The second page gives information on the disks or RAIDs from internal and/or external storage.
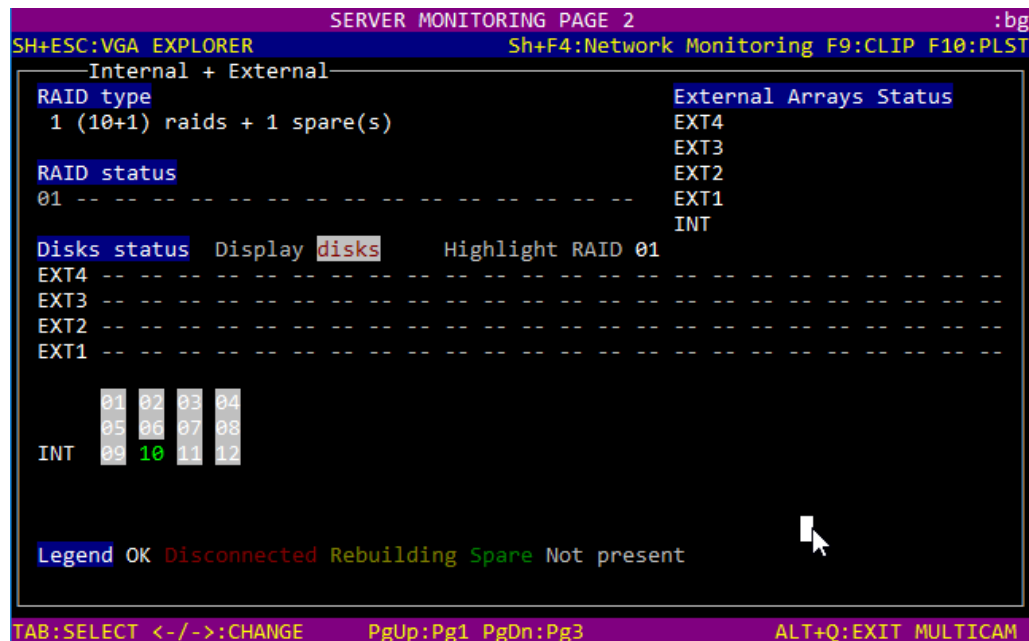


## RAID Type

The RAID type section displays the number of RAIDs, the type of RAID (**4+1**, **5+1** or **10+1**) and one spare disk per RAID. This information cannot be modified.

# RAID Status

This section displays each RAID by its number and uses a color code to display its status. See section "Disk Status" on page 339 for more information on the disk statuses.

When a raid is rebuilding, the percentage rebuild is displayed instead of the raid number. This value shows the progress of the rebuild process. See section "Rebuild Process" on page 40 for more information on the rebuild process.

# External Array Status

This section displays the status of the internal array and each external array, including potential alerts:

| Status | Meaning |
| --- | --- |
| **OK** | No alert |
| **PSU1!, PSU2!** | Problem with a power supply unit |
| **FAN1!, FAN2! or FAN3!** | Problem with a fan |

# Disk Status

This section provides a representation of the disks contained in the internal arrays, as well as their status as described below:

| Color Code | RAID Status |
| --- | --- |
| **Light gray** | **OK**: The disk is connected in a RAID. |
| **Red** | **Disconnected**: The disk is physically present but disconnected by the software. |
| **Orange** | **Rebuilding**: The disk is being rebuilt. |
| **Green** | **Spare**: The disk is connected but is not included in a RAID. |
| **gray dashes** | **Not present**: The disk is not physically connected to the hardware. |

# How to Highlight the Disks of a RAID

In the Disk Status area, the **Highlight RAID** field allows you to highlight, with a light gray background, the disks belonging to the raid number specified on the right of the field.

To change highlight a given disk raid:

1. Press **TAB** until you select the **Highlight RAID** field

2. Press the **+** or **-** keys or **up** and **down** arrow keys to change the raid you want to highlight.

### How to Change the Disk Status Display

In the Disk Status area, two types of representations are available depending on the selection made in the **Display** field, : by disk number or by RAID number.

To change the Disk Status display:

1. Press **TAB** until you select the **Display** field

2. Press the **Spacebar**,**+** and  **-** keys or **up** and **down** arrow keys to toggle the value from **disks** to **raids** or vice versa.

### RAID Display

The **RAID** display represents each disk by the raid number it is included in, or gray dashes if not present, and uses a color code to display the disk status. Spare disks are represented by the letters **sp**.
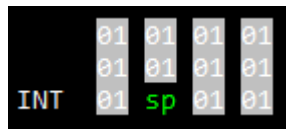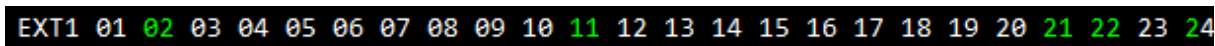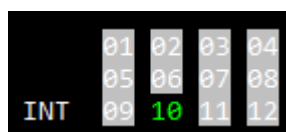


### Disk Numbering

No specific disk numbering has to be followed or preserved with SAS disks.

By default, however, the disks will be numbered as described in this section.

In the external array, the disks are numbered from 1 up to 24, from left to right:



In an internal array of hot-swappable disks, the disks are numbered as follows from 1 to 6 or 12:



# 6.1.4.   Timecode Status Window

### Introduction

This page of the Server Monitoring section provides information on the genlock, analog LTC and timecode statuses from the EVS server. This page is also used to set up how the timecodes are managed in the timecode jump tables.

# Genlock Status

The Genlock Status section provides the following information:

• Genlock status: OK, bad

• Date and time when the genlock has been correctly set or restored.

# Analog LTC Status

The Analog LTC Status section specifies the current status of the analog LTC timecode, as well as the number of drifts detected compared to the genlock.

The possible status values are the following depending on the MTPC board used:

| Status | Description |
|--------|-------------|
| **OK** | The timecode is incremented in a normal way. |
| **Drift** | The timecode received and the genlock are not synchronous. |
| **Bad** | The timecode received is not correct.<br>For example when an NTSC timecode is received instead of a PAL timecode (freq. error), when there are disturbances in the timecode reception (bad signal). |
| **Lost** | No timecode is available. |

# Timecode Status

## Introduction

The Timecode Status section displays the settings for managing and monitoring the timecode jump tables. Records are created in these tables when a break, or jump, in the timecodes occurs in the recorded material. The records in the timecode jump tables are then used to search for and manipulate the video material on the XS-VIA server.

There are two timecode jump tables:

• Timecode jump table for the LTC timecodes

• Timecode jump table for the timecodes specified by the user in the Multicam Configuration module, **Channels** tab, **Timecode Settings** area, **User** field.

### LTC Timecode

| LTC | Description | Default Values |
|---|---|---|
| **LTC jumps** | Number of timecode jumps calculated in the LTC timecode jump table for the given recorder since the last start of the server. | 1 |
| **LTC threshold** | Number of continuous timecodes to be received, after a break in LTC timecodes in the recorded material, in order to create a new record in the LTC timecode jump table. | 50 |
| **Peak alerts** | Number of peak alerts generated for the recorder since the last start of the server.<br>A peak alert is generated each time the peak limit specified in the Peak Limit field is reached.<br>In this case, this field is automatically incremented by one. | 0 |
| **Peak limits (sec)** | Period of time (in seconds) of continuous timecodes after which a break in timecodes in the recorded material will generate a peak alert. When a peak alert is generated, the value in Peak Alerts field is incremented by one. | 10 |
| **Frequency alert** | Number of frequency alerts generated for the recorder since the last start of the server.<br>A frequency alert is generated when X timecode jumps have been detected in Y seconds.<br>The X value is defined in the Frequency Number field.<br>The Y value is defined in the Frequency Time field.<br>In this case, this field is automatically incremented by one. | 0 |
| **Frequency number** | Number of timecode jumps detected for the recorder after which a frequency alert can be generated. | 10 |
| **Frequency time** | Period of time (in seconds) after which a frequency alert can be generated. | 50 |

### User Timecode

| VITC | Description | Default Values |
|---|---|---|
| **VITC jumps** | Number of timecode jumps calculated in the VITC timecode jump table for the given recorder since the last start of the server. | 1 |
| **VITC threshold** | Number of continuous timecodes to be received, after a break in VITC timecodes in the recorded material, in order to create a new record in the VITC timecode jump table. | 50 |

### How to Make Changes to Threshold Values Persistent

When you modify threshold values in this monitoring page, they are saved for the current session, but the changes are lost when you restart the EVS server.

To make the changes to threshold values persistent, press **ALT + S** after you have updated the values.

# 6.1.5.    Timecode Monitoring Window

## Introduction

The Timecode Monitoring Window displays the various timecodes used in the running configuration.

following timecode information is displayed:

- LTC timecode
- ATC timecodes on the various recorders

# 6.1.6.    Input Monitoring

## Introduction

In the Input Monitoring window on page 5 (and 6 and 7), you can monitor the quality of the incoming SDI or IP signals. The inputs monitored and displayed will depend on whether you use the SDI interface (BNC V4X connector) or IP interface (SFP+ V4X connector) for the video inputs.

The monitoring data is delivered for each input signal. The values represent the total number of occurrences (per type) since the last Multicam reboot. They are displayed in hexadecimal format.

The counters can be reset by pressing **ALT+R**.

## Input Display

The inputs will be referred to differently depending on the resolution:

| Input Name | Description |
|---|---|
| IN 1 | Record channel for a regular camera in 720p, 1080i, 1080p, 4HD-4K with 12G.<br>e.g.: IN1 refers to the 1st record channel. |
| IN 1-A | Record channel for a regular camera in UHD-4K resolution with 3G.<br>e.g.: IN 1-A is 1st quadrant of recorder 1, IN 1-B is 2nd quadrant of recorder 1, IN 1-C is 3rd quadrant of recorder 1, IN 1-D is 4th quadrant of recorder 1. |

## Monitoring of SDI Inputs

The monitoring of the SDI inputs is mainly relevant with SDI transceivers that support 12G-SDI. This monitoring table will not be displayed when working in IP mode.

| Field Name | Description |
|---|---|
| **CRC error** | • The Cyclic Redundancy Check (CRC) validates packets of information sent by devices and verifies it against the data extracted, ensuring its accuracy.<br>• CRC errors indicate when data is corrupted.<br>• The value returned is the number of corrupted and rejected packets.<br>• Having some CRC errors is normal. Consequently, this is normal if this number grows slowly but not constantly. |
| **PVID error** | PVID errors occur when the video payload does not contain a valid signal. When this error occurs, the CRC errors are reset. |

# Monitoring of IP Inputs at SFP+ Level

This monitoring table will not be displayed when working in SDI mode.

```
                         SERVER MONITORING PAGE 5                          .st
SH+ESC:VGA EXPLORER                     Sh+F4:Network Monitoring F9:CLIP F10:PLST

   Input Monitoring

                CRC Errors   Packets OK   Overflow    Pause Frame

   SFP 1-C:     0x00000000   0x0089116e   0x00000000  0x00000000
   SFP 1-D:     0x00000000   0x00000000   0x00000000  0x00000000
   SFP 2-C:     0x00000000   0x005ef88a   0x00000000  0x00000000
   SFP 2-D:     0x00000000   0x00000000   0x00000000  0x00000000
   SFP 3-C:     0x00000000   0xb4975876   0x00000000  0x00000000
   SFP 3-D:     0x00000000   0x00000000   0x00000000  0x00000000
   SFP 4-C:     0x00000000   0xb49f623f   0x00000000  0x00000000
   SFP 4-D:     0x00000000   0x00000000   0x00000000  0x00000000
   SFP 5-C:
   SFP 5-D:
   SFP 6-C:
   SFP 6-D:
   SFP 8-C:
   SFP 8-D:


TAB:SELECT <-/->:CHANGE      PgUp:Pg4 PgDn:Pg6          ALT+Q:EXIT MULTICAM
```

```
                         SERVER MONITORING PAGE 6                          .bg
SH+ESC:VGA EXPLORER                     Sh+F4:Network Monitoring F9:CLIP F10:PLST

   Input Monitoring

                MAC Address

   SFP 1-C:     00:1c:f3:01:c9:eb
   SFP 1-D:     00:1c:f3:01:c9:ec
   SFP 2-C:     00:1c:f3:01:c9:f3
   SFP 2-D:     00:1c:f3:01:c9:f4
   SFP 3-C:     00:1c:f3:01:c9:fb
   SFP 3-D:     00:1c:f3:01:c9:fc
   SFP 4-C:     00:1c:f3:01:ca:03
   SFP 4-D:     00:1c:f3:01:ca:04
   SFP 5-C:
   SFP 5-D:
   SFP 6-C:
   SFP 6-D:
   SFP 8-C:
   SFP 8-D:


TAB:SELECT <-/->:CHANGE      PgUp:Pg5 PgDn:Pg7          ALT+Q:EXIT MULTICAM
```

| Field Name | Description |
|---|---|
| CRC error | The Cyclic Redundancy Check (CRC) validates packets of information sent by devices and verifies it against the data extracted, ensuring its accuracy. CRC errors indicate when data is corrupted. The value returned is the number of corrupted and rejected packets. Having some CRC errors is normal. Consequently, this is normal if this number grows slowly but not constantly. |
| Packets OK | Number of valid packets received on the SFP+ interface. This value shall increase continously. |
| Overflow | Number of packets rejected due to their too large size or to a bad format. If this value increases, there should be a problem at the sender side. |
| Pause Frame | Number of pause frame received by the SFP+ interface. The pause frame is a mechanism to control the speed of the flow between the sender and the receiver. If this number increases quickly, there should be a problem between the sender and the receiver. |
| MAC Address | MAC address of the V4X SFP+ port |

## NEW! SFP+ Bandwidth Monitoring

This screen allows to monitor the input and output bandwidth (expressed in Mbps) for each SFP interface, including the 8-C and 8-D interfaces used for the Multiviewer.

```
                         SERVER MONITORING PAGE 7                      :bg
SH+ESC:VGA EXPLORER                    Sh+F4:Network Monitoring F9:CLIP F10:PLST

   SFP Bandwidth Monitoring (Mbps)

              Incoming    Outgoing

   SFP 1-C:        0        5274
   SFP 1-D:        0           0
   SFP 2-C:        0        5264
   SFP 2-D:        0           0
   SFP 3-C:     2598           0
   SFP 3-D:        0           0
   SFP 4-C:     2596           0
   SFP 4-D:        0           0
   SFP 5-C:
   SFP 5-D:
   SFP 6-C:
   SFP 6-D:
   SFP 8-C:
   SFP 8-D:


 TAB:SELECT <-/->:CHANGE     PgUp:Pg6 PgDn:Pg8         ALT+Q:EXIT MULTICAM
```

| Field Name | Description |
|---|---|
| Incoming | |
| Outgoing | |

## 6.1.7.    Log Management

### Introduction

The Log Management window allows a user-friendly and easy management of the logs as log files can be accessed from a remote computer while the Multicam is still in use.

```
                    SERVER MONITORING PAGE 7                        .kc
SH+ESC:VGA EXPLORER                    Sh+F4:Network Monitoring F9:CLIP F10:PLST

                         Log Management Menu
     MicroCode Logs                      Multicam Logs

       0 mc_boot           - Critical   64 mul_gbe         -      Debug
       1 mc_hal            - Critical   65 mul_general     -      Debug
       2 mc_Switch         - Critical   66 mul_database    -      Debug
       3 mc_sysmon         - Critical   67 mul_sdti_cmd    -      Debug
       4 mc_general        - Critical   68 mul_console     -      Debug
       5 mc_gbe_driver     - Critical   69 mul_remote_0    - Critical
       6 mc_scsi           - Critical   70 mul_remote_1    - Critical
       7 mc_cache          - Critical   71 mul_remote_2    - Critical
       8 mc_avindex        - Critical   72 mul_remote_3    - Critical
       9 mc_datatrfsched   - Critical   73 mul_remote_4    - Critical
      10 mc_cnlmgr         - Critical   74 mul_remote_5    - Critical
      11 mc_datasave       - Critical   75 mul_playlist    - Critical
      12 mc_systembackup   - Critical   76 mul_timeline    - Critical
      13 mc_audio_recs     - Critical   77 mul_incrust     -      Debug
      14 mc_sdti           - Critical   78 mul_player_0    - Critical
      15 mc_sdtiuser       - Critical   79 mul_player_1    - Critical
      16 mc_cnllgrec       - Critical   80 mul_player_2    - Critical

TAB:SELECT <-/->:CHANGE      PgUp:Pg6        Sh+F1:Menu   ALT+Q:EXIT MULTICAM
```

### Log File Types

The left column displays items related to microcode. The right column displays those of the Multicam.

Each item has two associated log files:

• a regular log file

• a log file logging only errors

### Criticality Levels

Each item has a criticality level that can be modified:

• The lowest and default level of criticality is **Critical**, where the log is limited to recording critical and important commands. This is the default value for all items.

• An intermediate level is **Normal**.

• The highest level is **Debug** which basically records every command.

  This highest level should never be chosen without advice of qualified EVS staff.

You can press **SHIFT+F1** to access a help screen that provides information on all commands available in this window.

> ⚠️ **WARNING**
>
> When you have to switch to **Debug** mode, first reproduce the problem, then extract the logs, and finally switch back to the default **Critical** mode.

### Extracting Log Files

This window also offers the ability to extract log files when the Multicam is running.

When the Log Management window is open, press **E** to extracts the log files instantly so that a user can access them through a common FTP client application from a remote computer.

The extracted files are located in `/mnt/apps/data` (root folder when you connect to the EVS server using an FTP client). Their name starts with an underS-CORE: The regular log file `Multicam_Database.log` is renamed `_Multicam_Database.log` once extracted when the application is running.

> 🖊 **NOTE**
>
> You can extract logs from the XNetMonitor for any server running on the XNet network. For more information, refer to the XNetMonitor manual.

# 6.2. XNet Network Monitoring

## 6.2.1. Overview on XNet Network Monitoring Windows

The XNet Network monitoring windows can be accessed via the server-based application when the EVS server is running in a given configuration. To access the XNet Network Monitoring section, press **SHIFT+F4**.

It consists in the following pages:

- The **XNet Network Schema** (page 1) shows a schematic representation of the XNet network.

- The **Hardware Error Counters** (page 2) provides a list of the hardware for which an XNet-related error has been returned.

## 6.2.2.   XNet Network Schema

### Overview

This page shows a schematic representation of the XNet network. This allows you to check the XNet network status, and to see how hardware devices are interconnected on the XNet network.

When the XNet operation mode is set to 3G-SDTI , the following network schema is displayed:



When the XNet operation mode is set to XNet-VIA, the following network schema is displayed:

# Data Displayed

All machines are displayed in the logical connection order, i.e. the way they are effectively connected on the network.

For each machine, the following information is displayed:

*   net number + name
*   serial number
*   main network configuration setting (Preferred, Allowed or Forbidden) (XNet or Local) as defined in the EVS application.
*   number of clips in the database

# Background Color

The background color of the data related to a given machine means:

*   **dark blue:** selected server
*   **turquoise:** all machines that may become server (server type = preferred or allowed)
*   **grey:** all machines that cannot become server (server type = forbidden)

# Text Color

The color of the text indicates the video network overload, based on how many XNet network mailboxes are used:

*   **white:** (OK)

    Less than 90% of the network capacity is used.

*   **red:** (warning)

    Over 90% of the network capacity is used, and the network risks to be overloaded.

# Link Color

When the XNet operation mode is 3G-SDTI, the color of the link indicates the physical link status between two machines:

*   **green:** OK
*   **red:** errors

When the XNet speed is XNet-VIA, no link is displayed.

## Possible Actions

- Pressing **S** changes the presentation of the XNet network, and shows alternately a representation based on the serial number, or on the topology.

- Pressing **ENTER** resets the status information.

- Pressing **SPACEBAR** to pause or restart the monitoring

- Pressing **F5** to refresh the XNet network schema

- Pressing **RIGHT ARROW** to display the second XNet network monitoring window.

From this window, you can also disconnect the Xhub branch on which the EVS server is located from the network. See section "Disconnecting a Machine from the XNet Network" on page 355 for more information.

# 6.2.3.  Hardware Error Counters

## Overview

The second page of the XNet monitoring section provides a list of the hardware devices present on the XNet network, sorted by serial number, with error counters information.

When the XNet operation mode is 3G-SDTI, the following information is displayed:

```
                         XNET NETWORK MONITORING                    :bg
SH+ESC:VGA EXPLORER                    F6:KW1 F7:KW2 F8:SEARCH F9:CLIPS F10:PLST
XNet  Sn      PrvSn   Name     CpLk    Frm   Mb    TimeOut
S02L  304820  114940  P-XT-VIA00003  00193 63              0
M01   114940  161020  PCL_XT0100000  00033 63              0
M04   161020  162450  PCL_XT4K00000  00230 63              0
M03   162450  304820  PCL_XT0300000  00124 75              0




















Refresh time: 017/030 s  [+/-] Change time  [F5] Refresh       Station:  4/ 4
Ctrl-Alt-L : Disconnect XHub branch from network.
<-/->:Change Pg                    S:Serial Sort Return:Rst Stat Space:Pause
```

When the XNet speed is XNet-VIA, the following information is displayed:

```
                         XNET NETWORK MONITORING                    .bg
SH+ESC:VGA EXPLORER                    F6:KW1 F7:KW2 F8:SEARCH F9:CLIPS F10:PLST
XNet  Sn       Name      CRC        Overflow      Gen        #Packet    #Pause    Up
S01L  298480  XT_NMA_1  0x00000000 0x00000000 0x00000000 0x000081FF 0x00000000 Y
M05   297340  XT_JME_2  0x00000000 0x00000000 0x00000000 0x000081FD 0x00000000 Y

















Refresh time: 016/030 s  [+/-] Change time  [F5] Refresh       Station:  2/ 2
Ctrl-Alt-L : Disconnect XHub branch from network.              Scroll:1/2
<-/->:Change Pg PgUpDn:Scroll Page S:Serial Sort Return:Rst Stat Space:Pause
```

## Data Displayed (3G-SDTI)

When the XNet operation mode is 3G-SDTI, the following data is displayed:

| Column | Description |
|--------|-------------|
| XNet | • XNet server (Preferred, Allowed or Forbidden)<br>• Net number<br>• Local machine |
| Sn | Serial number |
| PrvSn | Serial number of the previous machine in the network |
| Name | Name of the machine |
| CpLk | Electrical quality of the network |
| Frm | Checksum of the packets |
| Mb | Mailbox |
| TimeOut | Number of timeout commands |

In operating conditions, when all machines are connected, the **CpLk** (electrical quality of the network) and **Frm** (checksum on the packets) counters should not increase at all.

At the contrary, the counters will increase during disconnection/connection of/to the network.

## Data Displayed (XNet-VIA)

| Column | Description |
|--------|-------------|
| XNet | • XNet server (Preferred, Allowed or Forbidden)<br>• Net number<br>• Local machine |
| Sn | Serial number |
| Name | Name of the machine |
| CRC | Number of CRC errors |
| Overflow | Overflow of packets processed by the H4X memory |
| Gen | Numer of Generic Errors if packet size is not coherent (between 64 and 1518 bytes) |
| #Packet | Number of packets received |
| #Pause | Number of pause frames requested by external protocols |
| Link state | Status of the two physical XNet interfaces (up/down) |

## 6.2.4. Disconnecting a Machine from the XNet Network

### Introduction

From the Monitoring section, page 2, you can disconnect from the XNet network the XHub branch the EVS server your are working on is connected to. This can be useful when setting up an XNet network or troubleshooting an XNet network issue.

This feature is only possible when using a XHub from version 3.03.

### How to Disconnect a Machine from the XNet Network

To disconnect a machine from the server, proceed as follows:

1. Press **SHIFT**- **F4** to access the XNet Network Monitoring window.

2. Press **CTRL**-**ALT**-**L** to disconnect the XHub branch from the network.

   The following warning is displayed: `'The network branch you are connected on will be disconnected from the network. All network actions will be disabled.'`

3. Click **ENTER** to confirm that you want to disconnect the XHub branch from the network.

On the XNet Network Monitoring window, the following message in red font informs that the machine is disconnected and how it can be connected again:

`'XHub branch disconnected from the network. Press CTRL-ALT-L to reconnect.'`

# 6.3. Protocols

# 6.3.1. Introduction

The EVS servers can be controlled by several protocols. This section will describe briefly the supported protocols. The purpose of this description is not to be exhaustive but to give a quick overview of the protocols capabilities and the function supported.

# 6.3.2.  Sony BVW75
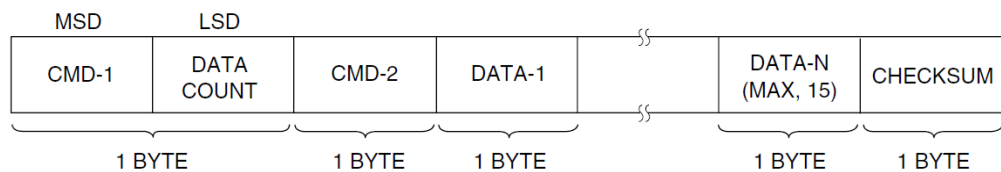
## Protocol Capabilities

This Sony protocol is able to:

- use the transport command
- get the channel status
- get the channel TC

## Characteristics

### Bitrates

38.4 kilobits/s

### Command Construction



where:

- CMD-1 : Command category
- DataCount : number of byte in the command
- CMD-2 : number of the command
- Data-x : Command parameters
- CheckSum : validity check

### Replies

**Ack:** command received and executed

| Name | CMD-1 | Data Count | CMD-2 | CheckSum |
|------|-------|-----------|-------|----------|
| **Command** | 1 | 1 | 0 1 | *XX* |

**Nack:** Error

| Name | CMD-1 | Data Count | CMD-2 | Data-1 | CheckSum |
|------|-------|-----------|-------|--------|----------|
| **Command** | 1 | 1 | 1 2 | *ZZ* | *XX* |

## Supported Commands

This table summarizes the supported commands:

| Command | Return |
| --- | --- |
| 00.0C Local Disable | 10.01:Ack |
| 00.11 Device Type Request | 12.11.20.25 for PAL<br>12.11.21.25 for NTSC |
| 00.0D Local Enable | 10.01:Ack |
| 20.00 Stop | 10.01:Ack |
| 20.01 Play | 10.01:Ack |
| 20.02 Record | 10.01:Ack (customized) |
| 20.04 StandByOff | 10.01:Ack |
| 20.05 StandByOn | 10.01:Ack |
| 20.0F Eject | 10.01:Ack (customized) |
| 20.10 Forward | 10.01:Ack |
| 2X.11 Jog Fwd | 10.01:Ack |
| 2X.12 Var Fwd | 10.01:Ack |
| 2X.13 Shuttle Fwd | 10.01:Ack |
| 20.20 Rewind | 10.01:Ack |
| 2X.21 Jog Rew | 10.01:Ack |
| 2X.22 Var Rew | 10.01:Ack |
| 2X.23 Shuttle Rew | 10.01:Ack |
| 20.30 Preroll | 10.01:Ack |
| 24.31 CueUp With Data | 10.01:Ack |
| 20.54 Anti-Clog Timer Disable | 10.01:Ack (No action) |
| 20.55 Anti-Clog Timer Enable | 10.01:Ack (No action) |
| 20.60 Full EE OFF | 10.01:Ack (No action) |
| 20.61 Full EE ON | 10.01:Ack (No action) |
| 20.64 Edit OFF | 10.01:Ack (No action) |
| 20.65 Edit ON | 10.01:Ack (No action) |
| 40.00 Timer-1 Preset | 10.01:Ack |
| 40.08 Timer-1 Reset | 10.01:Ack |
| 40.10 Set In | 10.01:Ack |

| Command | Return |
|---|---|
| 40.11 Set Out | 10.01:Ack |
| 44.14 IN Preset | 10.01:Ack |
| 44.15 OUT Preset | 10.01:Ack |
| 40.20 Reset In | 10.01:Ack |
| 40.21 Reset Out | 10.01:Ack |
| 40.30 Edit Preset | 10.01:Ack |
| 44.31 Preroll Preset | 10.01:Ack |
| 40.35 Color Frame Select | 10.01:Ack (No action) |
| 41.36 Set Timer Mode | 10.01:Ack |
| 40.40 Set Auto Mode OFF | 10.01:Ack |
| 40.41 Set Auto Mode ON | 10.01:Ack |
| 40.9E Superimpose | 10.01:Ack (No action) |
| 61.0A Request TCGen | 74.08 : GEN TIME DATA<br>74.09 : GEN UB DATA<br>78.08 : GEN TC & UB DATA |
| 61.0C Request TimeCode | 74.00 TIMER-1 DATA<br>74.04 LTC TIME DATA<br>74.05 LTC UB DATA<br>78.04 LTC TIME & UB DATA<br>74.06 VITC TIME DATA<br>74.07 VITC UB DATA<br>78.06 VITC TIME & UB DATA |
| 60.10 Request IN | 74.10 IN DATA |
| 60.11 Request OUT | 74.11 OUT DATA |
| 61.20 Request Status | 7X.20 STATUS DATA |
| 60.2E Request Speed | 7X.2E COMMAND SPEED DATA |
| 60.31 Request Preroll | 74.31 PREROLL TIME DATA |
| 60.36 Request Timer Mode | 71.36 TIME MODE DATA |

# 6.3.3.    XTENDD35

## Protocol Capabilities

The XTendDD35 protocol is a Sony Protocol extension

This protocol is able to:

- preload clips without chaining
- create clips
- get the server database

## Characteristics

Same characteristics as the Sony Protocol.

## Supported Commands

This protocol supports the same commands as the Sony protocol, as well as the following ones:

| Command | Return |
| --- | --- |
| 60.81: Request current ID | 7X.81 |
| 60.82: Get First ID | 7X.82 |
| 60.83: Get Next ID | 7X.82 |
| 60.84: Get First Delete ID | 7X.84 |
| 60.85: Get Next Delete ID | 7X.84 |
| 60.86: Get First ID Added ID | 7X.86 |
| 60.87: Get Next ID Added ID | 7X.86 |
| 67.91: Request ID duration | 7X.91 |
| 27.82: Open File | 10.01 |

EVS adds some custom commands to the protocol in order to take advantage of the server potential. Please contact EVS to know more about these commands.

# 6.3.4.   Odetics

## Protocol Capabilities

The Odetics protocol is a Sony Protocol extension.

This protocol is able to:

- preload clips without chaining

- create clips

- get the server database

## Characteristics

Same characteristics as the Sony Protocol.

## Supported Commands

This protocol supports the same commands as the Sony protocol, as well as the following ones:

| Command | Return |
|---|---|
| 00.11 : Device Type Request | 12.11 : Device Type |
| 2X.31 CueUp With Data (Odetics extention) | 10.01:Ack |
| 44.14 Preset IN (Odetics extention) | 10.01:Ack |
| 44.15 Preset OUT (Odetics extention) | 10.01:Ack |
| 40.40 Auto Mode Off | 10.01:Ack |
| 40.41 Auto Mode ON (Odetics extention) | 10.01:Ack |
| A0.01 Auto Skip | 10.01:Ack |
| AX.02 Record Cue Up With Data. | 10.01:Ack |
| AX.04 Preview In Preset | 10.01:Ack |
| AX.05 Preview Out Preset | 10.01:Ack |
| A0.06 Preview In Reset | 10.01:Ack |
| A0.07 Preview OUT Reset | 10.01:Ack |
| Ax.10 Erase ID | 10.01:Ack |
| A0.14 List First ID | 8X.14 ID Listing |
| A0.15 List Next ID | 8X.14 ID Listing |
| A8.18 ID Status Request | 81.18 ID Status |

| Command | Return |
|---|---|
| A0.1c Longuest Contiguous Available Storage. | 84.1C Longest Contiguous Available Storage |
| A0.21 Device ID Request | 88.21 Device ID |
| A8.20 Set Device ID | 10.01:Ack |

EVS adds some custom commands to the protocol in order to take advantage of the server potential. Please contact EVS to know more about these commands.

# 6.3.5.  VDCP

## Protocol Capabilities

The Video Disk Control Protocol (VDCP) is a protocol dedicated to the video server and design for the automation.

This protocol is able to:

- control several channels with one serial connection
- preload and chain clips
- create clips
- get the server database

## Characteristics

### Bitrates

38.4 kilobits/s

### Command Construction

| STX | BC | CMD1 | CMD2 | Data 1 | … | DataN | Check Sum |
|---|---|---|---|---|---|---|---|

1 byte
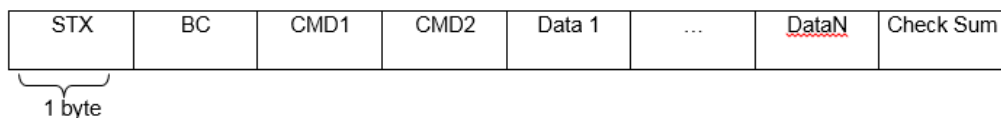
where:

- STX : 02
- BC : number of byte in the command
- CMD-1 : Command type
- CMD-2 : Command number
- Data : Command parameter (max 255 Datas)
- CheckSum : validity check

### Replies

- Ack (0x04) or Nack (0x05)
- Replies with data

## Supported Commands

This table summarizes the supported commands:

| Command | | Return |
|---|---|---|
| **VarID mode** | **8-bytes ID mode** | |
| 80.15 | 00.15 Delete Protect | 04 Ack |
| 80.16 | 00.16 Undelete Protect | 04 Ack |
| - | 10.00 Stop | 04 Ack |
| - | 10.01 Play | 04 Ack |
| - | 10.02 Record | 04 Ack |
| - | 10.04 Still | 04 Ack |
| - | 10.05 Step | 04 Ack |
| - | 10.06 Continue | 04 Ack |
| - | 10.07 Jog | 04 Ack |
| - | 10.08 Var Play | 04 Ack |
| A0.1D | 20.1D Rename ID | 04 Ack |
| - | 20.1E Preset Standard Time | 04 Ack |
| A0.1F | 20.1F New Copy | 04 Ack |
| - | 20.20 Sort Mode | 04 Ack |
| - | 20.21 Close Port | 04 Ack |
| - | 20.22 Select Port | 04 Ack |
| A0.23 | 20.23 Record Init | 04 Ack |
| A0.24 | 20.24 Play Cue | 04 Ack |
| A0.25 | 20.25 Cue With Data | 04 Ack |
| A0.26 | 20.26 Delete ID | 04 Ack |
| - | 20.29 Clear | 04 Ack |
| A0.2C | 20.2C Record Init With Data | 04 Ack |
| - | 20.43 Disk Preroll | 04 Ack |
| - | 30.01 Open Port | 30.81 Port Opened |

| Command | | Return |
|---|---|---|
| **VarID mode** | **8-bytes ID mode** | |
| B0.02 | 30.02 Next | B0/30.82 Next ID |
| B0.03 | 30.03 Last | B0/30.83 Last ID |
| - | 30.05 Port Status | 30.85 Status |
| - | 30.06 Position Request | 30.86 Position |
| B0.07 | 30.07 Active ID Request | B0/30.87 Active ID |
| - | 30.08 Device Type Request | 30.88 Device Type |
| - | 30.10 System Status Request | 30.90 System Status |
| B0.11 | 30.11 ID List | B0/30.91 ID |
| B0.14 | 30.14 ID Size Request | B0/30.94 ID Size |
| B0.16 | 30.16 ID Request | B0/30.96 ID Characteristic |
| B0.18 | 30.18 ID's Added List | B0/30.98 Added ID |
| B0.19 | 30.19 ID's Deleted List | B0/30.99 Deleted ID |

EVS adds some custom commands to the protocol in order to take advantage of the server potential. Please contact EVS to know more about these commands.

# 7. Truck Manager Plugin

## 7.1. Introduction

### Plugin Integration into Truck Manager

This chapter describes the Multicam plugin for the Truck Manager application.

The Multicam plugin consists of a list of operational settings relevant for Multicam. These settings are displayed in a specific area in the Truck Manager application, in the lower part of the Configuration pane.

The Multicam plugin allows users to define and apply remotely the settings required for the Multicam application to be operational.

### Plugin Delivery

The plugin is delivered with the Multicam application.
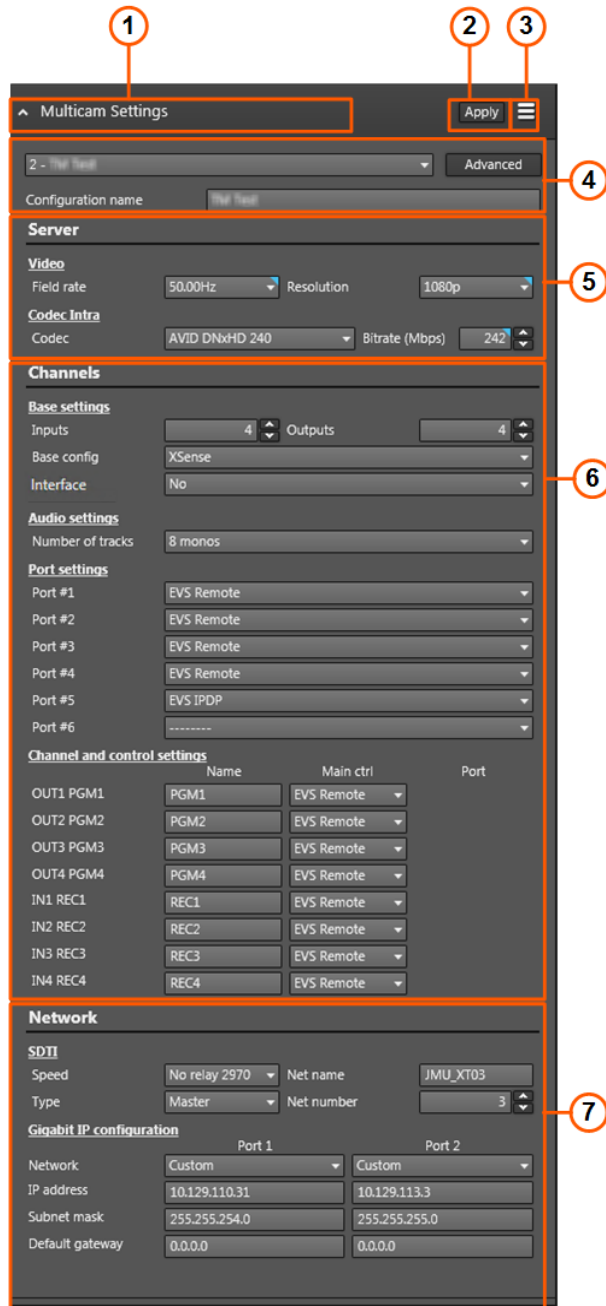
The Truck Manager application automatically downloads the right plugin version when it connects to an EVS server for the first time on a given setup.

For this reason, the version of the Truck Manager is not tied to a given plugin version of the Multicam application.

## 7.2. Plugin Overview

### Introduction

The Multicam plugin contains the elements highlighted on the screenshot below:

# Description

The table below describes the various elements of the Multicam plugin:

| Part | Name | Description |
|------|------|-------------|
| 1. | Plugin name | Field to expand or collapse the plugin area. |
| 2. | **Apply** button | Button to apply the parameter values to Multicam. |
| 3. | **Menu** icon | Icon to open the contextual menu, which provides general commands, or commands specific to Multicam.<br>See section "Contextual Menu" on page 367. |
| 4. | Configuration Area | Area that allows users to select the configuration line, and access the advanced Multicam parameters.<br>See section "Configuration Area" on page 368. |
| 5. | Server Area | Area that allows users to set the main server parameters of Multicam.<br>See section "Server Area" on page 368. |
| 6. | Channels Area | Area that allows users to set the main channels parameters of Multicam.<br>See section "Channels Area" on page 370. |
| 7. | Network Area | Area that allows users to set the main network parameters of Multicam.<br>See section "Network Area" on page 375 |

# 7.3.    Contextual Menu

## Introduction

The following contextual menu is available when you click on the contextual menu icon

▤ in the Multicam plugin in Truck Manager.

The contextual menu provides general commands, and commands specific to Multicam.
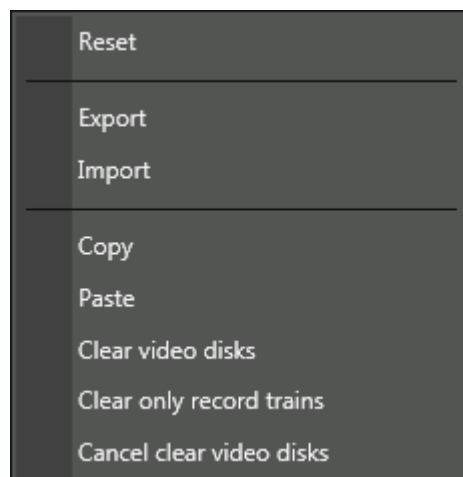


## Command Description

The table below describes the various commands of the contextual menu:

| Command Name | Select that command to ... |
|---|---|
| **Reset** | Reset the values defined in the plugin to the values currently defined in the Multicamapplication. |
| **Export** | Export all setting values associated to the Multicam application to a .cnf file named according to the following pattern `<Name>-<ProductName>.cnf.` |
| **Import** | Import the setting values stored in a .cnf file into the application plugin. |
| **Copy** | Copy to the clipboard the parameters associated to the Multicam application. |
| **Paste** | Paste to another application the parameters previously copied to the clipboard. |
| **Clear video disks** | Delete all clips, playlists and record trains on the EVS server when users launch a new configuration. |

| Command Name | Select that command to ... |
|---|---|
| **Clear only record trains** | Delete the record trains on the EVS server. |
| **Cancel clear video disks** | Cancel the clear video disks command previously issued. |

# 7.4.  Configuration Area

## Introduction

This section describes the Configuration area located above the settings in the Multicam plugin:
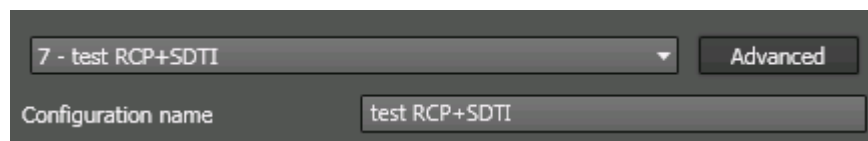


## Field Description

The following table describes the fields in the Configuration area from left to right, and form top to bottom:

| Item | Use this item to ... |
|---|---|
| **Configuration Selection** field | Select the Multicam configuration you want to edit in the Truck Manager. |
| **Advanced** button | Access the web-based interface of the Multicam Configuration window, and to access the advanced parameters not available in the Truck Manager. |
| **Configuration Name** field | Change the name of the selected configuration. |

# 7.5.  Server Area

## Introduction

This section describes the various settings available in the Server area.

Once you have specified the requested values for the various settings, click the **Apply** button to apply the values remotely to Multicam.

## Video

### Field Rate

| Description | Field frequency used (Hz).<br>Both field rate and resolution give the video standard. |
|---|---|
| **Values** | 50.00 Hz (PAL) - default<br>59.94 Hz (NTSC) |

### Resolution

| Description | Vertical resolution used (number of white-to-black and black-to-white transitions that can be seen from the top to the bottom of the picture) (pixel + type).<br>Both field rate and resolution correspond to the video standard. |
|---|---|
| **Values** | In HD:<br>• **720p**<br>• **1080i**<br>• **1080p** (available with code 22)<br>In UHD-4K:<br>• **UHDTV-4K** (available with code 27) |

### Codec Intra

#### Codec

| Description | Algorithm used to compress the video signal.<br>With Intra codecs, the compression techniques are performed exclusiverly relative to information contained within the current frame. |
|---|---|
| Values | In HD:<br>• Avid DNxHD 120,185 or 185x (only in 50 Hz)<br>• Avid DNxHD 145, 220 or 220x (only in 59.94 Hz)<br>• Apple ProRes 422, 422 LT, 422 HQ<br>• AVC-Intra 100<br>• XAVC-Intra 100<br>In UHD-4K:<br>• XAVC-Intra 300, 480<br>• DNxHR SQ, HQ, HQX<br>See section "Codec Availability" on page 113 for detailed information on codec availability. |

#### Bitrate

| Description | Number of megabits processed per second (Mbps).<br>The bitrate depends on the codec. |
|---|---|
| Values | See section "Codec-Related Information" on page 114 for detailed information on bitrates per codec. |

# 7.6.    Channels Area

### Introduction

This section describes the various settings available in the Channels area.

Once you have specify the requested values for the various settings, click the **Apply** button to apply the values remotely to Multicam.

# Base Settings

## Inputs

| | |
|---|---|
| **Description** | Number of logical record channels in the given configuration. The partition of the disk storage between these channels, and the advanced audio settings are automatically adapted to the number of record channels. |
| **Values** | The number of supported channels depends on the chassis, and the mode:<br>• on XS-VIA: 0-12 (Spotbox), 1-12 (XSense)<br>See section "About Supported Configurations" on page 49 for more information on number of record channels and on supported configurations. |

## Outputs

| | |
|---|---|
| **Description** | Number of logical play channels in the given configuration. |
| **Values** | The number of supported channels depends on the chassis, and the mode:<br>• on XS-VIA and XS-VIA: 0-6 (Spotbox), 1-6 (XSense)<br>See section "About Supported Configurations" on page 49 for more information on number of record channels and on supported configurations. |

## Base Config.

The default values are only applicable to the settings in the Multicam application, not to the settings in the Truck Manager plugin.

| Description | Mode the EVS server is working in. The base configurations available depend on the server type, and on the valid license codes. |
|---|---|
| Values | • **Spotbox**: mode where the EVS server can be controlled by industry-standard protocols: Sony BVW75, VDCP, Odetics, DD35, EVS' AVSP, IPDP or LinX API, or from the Multicam production screens. License codes: 90 ... 95 + 127 <br> • **XSense**: mode where the EVS server can be controlled by the XSense Remote Panel or from the Multicam production screens. The XSense licence code and the playlist management codes have to be valid, for users to be able to select XSense as a base configuration. License codes: 96 + 90 ... 95 + 111 <br> • **Video Delay**: mode where the server is used to play out the input with a video delay. License codes: 90 ... 95 + 127 <br> • **Server**: mode where the EVS server can only be controlled by the supported industry-standard protocols, but not from the Multicam production screens. License codes: 90 ... 95 (without 127) |
| Default value | XSense |

### Interface

| Availability | The parameter is only available with one of the following license code active or with the following hardware:<br>• code 22 (3G-SDI interface in 1080p)<br>• code 27 (UHD-4K resolution)<br>• XT-VIA rear panel (XIP or SDI) |
|---|---|
| Description | Defines the interface the EVS server will use in 1080p with UHD-4K resolutions  or XT-VIA rear panel:<br>• The **HD-SDI interface** consists of a HD-SDI serial link and provides a bitrate of 1.485 Gbit/s.<br>• The **3G-SDI interface** consists of a single serial link that provides 2.970 Gbit/s.<br>• The **12G-SDI interface** consists of a single serial link corresponding to 4 x 3G-SDI links. This provides an uncompressed interface for UHD-4K.<br>• The **IP SFP+ connectors** with the XIP rear panel. |
| Values | The following values are possible, but their availability depends on several conditions:<br>• **HD-SDI**: HD-SDI connection for 720p or 1080i<br>  ◦ available with these resolutions.<br>• **3G Level-A**: 3G-SDI connection for 1080p, or each 1080p quadrant of an UHD-4K image.<br>  ◦ available with code 22 (1080p 3G) or code 27 (UHD-4K).<br>• **12G**: 12G-SDI connection for an UHD-4K image.<br>  ◦ available with code 27 (UHD-4K) with 12G or XIP rear panels.<br>• **XIP**: V4X and MX4X SFP+ connection for IP streams.<br>  ◦ available with an XIP rear panel with all resolutions. |
| Default value | • HD-SDI for all resolutions except UHD-4K<br>• 12G for UHD-4K resolution |

## Audio Settings

| Description | Number of mono audio tracks associated to each video channel. |
|---|---|
| Values | 4 Monos (default), 8 Monos, 16 Monos |

## Port Settings

### Port #1 -

The default value is only applicable to the settings in the Multicam application, not to the settings in the Truck Manager plugin.

| Description | Specifies what type of device/controller is connected to each RS422 port of the EVS server. |
|---|---|
| Values | The following values can be available if the required license codes are active:<br>• EVS Remote for XSense Remote Panel (code 96)<br>• EVS IPDP (code 120 or 121)<br>• Sony BVW75 (code 118)<br>• XtenDD35 (code 118)<br>• Odetics (code 119)<br>• VDCP (code 119)<br>• EVS AVSP (code 120 or 121)<br>• Edit Rec (code 122)<br>• LinX (code 123) |

## Channel and Control Settings

### Name

| Description | User-defined name for play or record channel. This name will be used for the OSD, and in the IPDirector application suite. The name can contain maximum 24 characters. |
|---|---|

### Main ctrl (Main Controller)

| Description | Name of the main device/controller allowed to control the given play or record channel. |
|---|---|
| Values | For a controller to be available in the list of values, it must first be assigned to an RS422 port in the port settings.<br>In addition, rules specific to each controller apply to the assignment of the controller (used alone or in combination with other controllers) to play or/and record channels.<br>An error message will be displayed to warn you in case of a wrong protocol selection or protocol combination, and the fields that contain errors will be highlighted in red. |

# 7.7.    Network Area

## Introduction

This section describes the various settings available in the Network area.

Once you have specify the requested values for the various settings, click the **Apply** button to apply the values remotely to Multicam.

### Net Name

| | |
|---|---|
| **Description** | Machine name on the XNet network.<br>It is not mandatory because a network number is assigned to the EVS server. It is however recommended as it helps to easily identify the servers connected to the XNet network. The Net Name will be displayed even if the SDTI code is not valid. |
| **Values** | The Net Name is user-defined and cannot exceed 8 characters. |

## Gigabit IP Configuration

### IP Address (Port 1/Port 2)

| | |
|---|---|
| **Description** | IP address to connect to the port1/port2 of the Gigabit Ethernet connection on the EVS server. |
| **Values** | The IP addresses 0.0.0.0 and 255.255.255.255 are not allowed. |

### Subnet Mask (Port 1/Port 2)

| | |
|---|---|
| **Description** | Range of logical addresses within the address space assigned to the Gigabit Ethernet connection.<br>The IP addresses of both GbE ports must belong to different subnet masks. Otherwise, Multicam will return an error message. |

### Default Gateway (Port 1/Port 2)

| | |
|---|---|
| **Description** | IP address of the router on the Gigabit Ethernet network that serves as an access point to external networks. |

# Glossary

## 1

### 12G-SDI

Interface to transfer digital video content. It consists of a single serial link corresponding to 4 x 3G-SDI links.

## 3

### 3G-SDI

Interface to transfer digital video content. It consists of a single 2.970 Gbit/s serial link. It is standardized in SMPTE 424M and replaces the dual link HD-SDI.

### 3G Level-A

3G-SDI interface in which the 3G digital video stream is transferred as a single 3G-SDI stream.

## C

### Cable

Part of a cable that arrives from the camera and is plugged into a video BNC connector.

### Channel

Video connection interface on the V3X codec module. It can be used and assigned as a player or record channel in a given configuration. They are named with J8 for the primary channel when the codec module is used as a recorder, J5 for the secondary channel when the codec module is used as a recorder, J7 for the primary channel when the codec module is used as a player, J3 for the secondary channel when the codec module is used as a player. One channel 3G-SDI can handle a bandwidth equivalent to 2 x HD-SDI.

### Codec module

On the rear panel, it refers to a set of 6 BNC connectors labelled as "Codec 1" to "Codec 6". On the V3X board, it refers to the corresponding module board (COD A or COD B) fitted on one of the codec base board. There are two codec modules per codec board.

### Connector

Video connection interface (BNC) on the rear panel. The primary connector is named with from 1 to 6, the secondary connector is named from 1B to 6B.

## D

### Decoder

Processing unit that actually decodes the video signal.

# E

### Encoder

Processing unit that actually encodes the video signal.

# G

### GPI

Abbreviation for General Purpose Interface. This refers to a device used as an communication interface with the EVS server. It has digital lines which may be used for input, output, or both, depending on the function.

# I

### Intra-frame codec

Codec type for which the compression techniques are performed relative to information contained within the current frame, and not relative to any other frame in the video sequence. It is shortened by 'intra' in the manual.This is opposed to long-GOP codecs. (Source Wikipedia)

# L

### Logical channel

Logical player or recorder channel in a given configuration, independent from the physical connections that have to be used to enable this logical channel.

# M

### Mix on One Channel

Feature that allows using the secondary link of the codec module of a player channel on the V3X board (J3) as the preview channel to provide the PGM/PRV mode with a single codec module.

### Multi-Essence configuration

EVS server configuration that allows multiple and simultaneous encoding of the video materal into the server. The multi-essence Intra+ LoRes is supported on EVS servers.

### Multicam Configuration window

Window in the server-based and web-based Multicam Setup application from where you can define all configuration parameters.

### Multicam Setup application

Term used to refer equally to the server-based or web-based user interface used to set up and configure the EVS servers.

### Multicam Setup window

Initial Window in the server-based and web-based Multicam Setup application, that is displayed when the EVS server is not running a given configuration yet. It gives access to the configuration lines defined on the EVS server and to the commonly used maintenance tools.

# O

### Operational Setup menu

Menu accessible on the Remote Panel using the SHIFT+D keys form the main menu. It allows users to define operational parameters.

### OSD

Abbreviation for on-screen display.

# P

### Physical channel

See also Channel.

### Play channel (or Player)

Codec module used as a player.

# R

### Record channel (or Recorder)

Codec module used as a recorder.

# S

### SDTI network

EVS proprietary network that allows users to view and share the content of interconnected EVS video servers. 'XNet network' is used as synonym for 'SDTI network'.

### Server-Based Multicam Setup application

Server-Based application used to set up and configure the EVS servers. The short form is 'Server-Based application' in this user manual. This is accessible from the EVS Server itself when it has been started.

# T

### Technical Setup menu

Menu accessible on the Remote Panel using the F0 key. It allows users to define currently used configuration parameters.

# W

### Web-Based Multicam Setup interface

Web-Based interface used to set up and configure the EVS servers. The short form is 'web-based interface' in this manual. This is accessible from any machine (PC or server) that is on the same network range as the EVS server. This can be accessed from a web browser using the following URL pattern: http://xxx.xxx.xxx.xxx/cfgweb/ where the crosses correspond to the IP address of the PC LAN of the EVS server.

To learn more about EVS go to **www.evs.com**