

# CONFIGURATION MANUAL

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Version 15.2 - May 2017



**XS 4K**





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The latest version of the user manual, if any, and other user manuals on EVS products can be found on the EVS download center, on the following webpage:

<https://www.evs.com/en/download-area>.

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# 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 15.2.

The changes linked to new features in release 15.2 are listed below:

## **Support of 10-channel and 12-channel configurations**

- See section "About Supported Configurations" on page 49
- See section "About Record and Play Channels" on page 50
- See section "About Extended Configurations" on page 51
- See section "Codec-Related Information" on page 85
- See section "HD Standard Configurations" on page 53
- See section "General Information on 1080p Configurations" on page 57
- See section "1080p Standard Configurations" on page 58

## **Support of Mjpeg Proxy codec**

- See section "About Multi-Essence" on page 79
- See section "Codec Settings" on page 80
- See section "Codec Availability" on page 84
- See section "Codec-Related Information" on page 85
- See section "Clearing Video Disks" on page 43
- See section "Gigabit Prioritization Settings" on page 152

## **Support of XAVC-Intra HD codec**

- See section "Codec Settings" on page 80
- See section "Codec Availability" on page 84
- See section "Codec-Related Information" on page 85

## **Support of HDR**

- See section "HDR Profile" on page 78

## **Parameter "Default Copy/Move" renamed to "Network Copy/Push"**

- See section "Network Copy/Push (Supersedes 'Default Copy/Move')" on page 195

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

## **Additional information on OSD Configuration**

- See section "Configuring OSD Display" on page 164
- See section "Monitoring Settings" on page 163
- See section "OSD Settings" on page 187



# 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, ...).

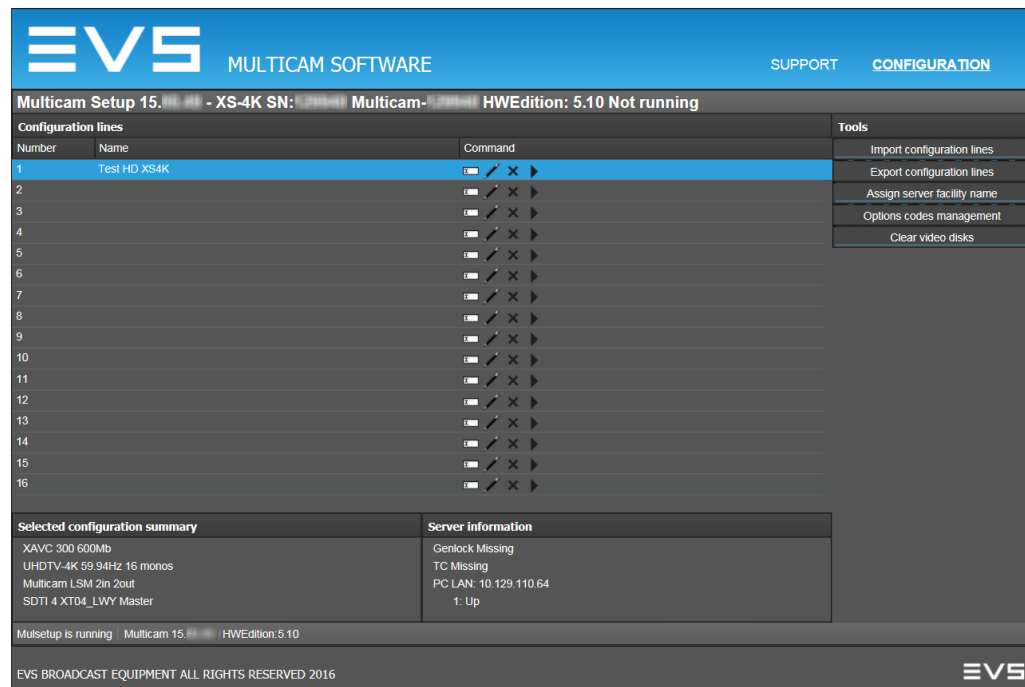
The configuration module has been developed along the lines presented in this section.

### 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:



**EVS MULTICAM SOFTWARE** SUPPORT CONFIGURATION

Multicam Setup 15.2 - XS-4K SN: Multicam- HW Edition: 5.10 Not running

Configuration lines			Tools
Number	Name	Command	
1	Test HD XS4K	[Icon] [Icon] [Icon] [Icon]	Import configuration lines
2		[Icon] [Icon] [Icon] [Icon]	Export configuration lines
3		[Icon] [Icon] [Icon] [Icon]	Assign server facility name
4		[Icon] [Icon] [Icon] [Icon]	Options codes management
5		[Icon] [Icon] [Icon] [Icon]	Clear video disks
6		[Icon] [Icon] [Icon] [Icon]	
7		[Icon] [Icon] [Icon] [Icon]	
8		[Icon] [Icon] [Icon] [Icon]	
9		[Icon] [Icon] [Icon] [Icon]	
10		[Icon] [Icon] [Icon] [Icon]	
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14		[Icon] [Icon] [Icon] [Icon]	
15		[Icon] [Icon] [Icon] [Icon]	
16		[Icon] [Icon] [Icon] [Icon]	

**Selected configuration summary**  
 XAVC 300 600Mb  
 UHDTV-4K 59.94Hz 16 monos  
 Multicam LSM 2in 2out  
 SDTI 4 XT04\_LWY Master

**Server information**  
 Genlock Missing  
 TC Missing  
 PC LAN: 10.129.110.64  
 1: Up

Multicam is running Multicam 15.2 HW Edition: 5.10

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- 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.

## 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, and MADl 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 now 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
<b>Server-Based Application</b>	Yes	Yes (tabs 1-6)	Yes (tab 7)
<b>Web-Based Interface</b>	Yes (except some Tools commands)	Yes (tabs 1-6)	Yes (tab 7)
<b>Remote Panel</b>	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.



#### NOTE

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

---

### 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 12.
- 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 65.

## 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 13. 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 27 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.

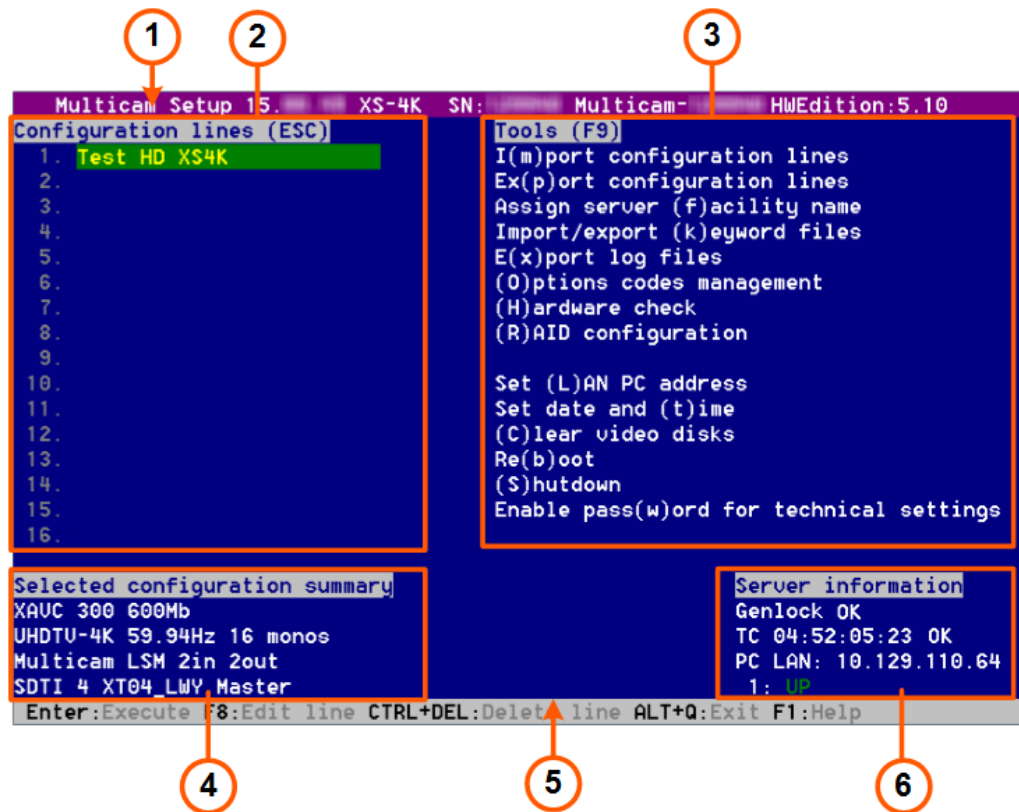


## User Interfaces

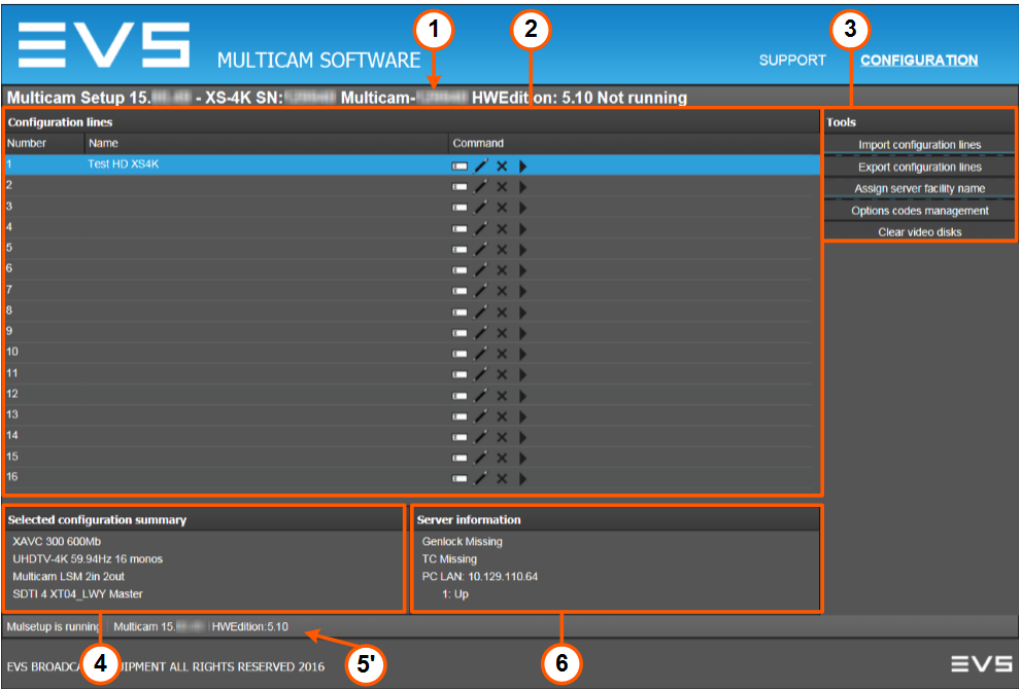
The Multicam Setup window contains six areas highlighted and described below.

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.	<b>Title bar</b>	<p>The title bar displays the following information:</p> <ul style="list-style-type: none"> <li>• Multicam version</li> <li>• chassis type</li> <li>• server serial number</li> <li>• server facility name (if any)</li> <li>• hardware edition</li> </ul>
2.	<b>Configuration Lines</b>	<p>This area shows all configurations the EVS server can run:</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Each configuration line contains all configuration parameters, which allow a very flexible configuration of the EVS server.</li> </ul> <p>See section "Configuration Lines" on page 12 for more information.</p>
3.	<b>Tools</b>	<p>This area provides the main commands for server administration and maintenance.</p> <p>For more information, click the <b>Tools</b> command below to go to the dedicated sections in the Multicam Setup chapter:</p> <ul style="list-style-type: none"> <li>• <a href="#">Import/export configuration lines</a></li> <li>• <a href="#">Assign server facility name</a></li> <li>• <a href="#">Import/export keyword files</a></li> <li>• <a href="#">Export log files</a></li> <li>• <a href="#">Options code management</a></li> <li>• <a href="#">Hardware check</a></li> <li>• <a href="#">Raid Configuration</a></li> <li>• <a href="#">Set LAN PC address</a></li> <li>• <a href="#">Set date and time</a></li> <li>• <a href="#">Clear video disks</a></li> <li>• <a href="#">Reboot</a></li> <li>• <a href="#">Enable password for technical settings</a></li> </ul>
4.	<b>Configuration Summary</b>	<p>This area shows a summary of the server parameters for the configuration line selected in the Configuration Lines area.</p> <p>The summary displays the following information:</p> <ol style="list-style-type: none"> <li>1. codec type - bitrate - video standard (for each active codec)</li> <li>2. based config - INs/OUTs - No. audios</li> <li>3. SDTI No. - server name - server type</li> </ol>

#	Name of area	Description
5.	<b>Task bar</b>	The Task bar (Server-based application) displays commands for the main actions in the window. See section "Navigability and Commands" on page 10 for more information.
5'.	<b>Status bar</b>	The Status bar (web-based interface) displays: <ul style="list-style-type: none"> <li>the Multicam Setup application status</li> <li>the date and time of the last refresh</li> <li>the <b>Refresh</b> button</li> </ul>
6.	<b>Server Information</b>	This area displays the following information on the EVS server: <ul style="list-style-type: none"> <li>genlock status (OK or bad)</li> <li>timecode and timecode status (OK or bad)</li> <li>IP address of the PC LAN (if DHCP off) or <b>DHCP</b> (if DHCP on)</li> <li>Status of the PC LAN connection(s): <b>Up</b> or <b>Down</b></li> </ul>

## 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	<b>F9</b>
Moving the cursor to the first configuration line	<b>ESC</b>
Moving down in the list of editable items (configuration lines and Tools commands)	<b>TAB</b>
Moving up in the list of editable items	<b>SHIFT+TAB</b>
Displaying a Help window that gives a summary of the commands	<b>F1</b>

## 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	<b>UP ARROW</b>
Moving down in the list of configuration lines	<b>DOWN ARROW</b>
Starting the server with a given configuration line	<b>ENTER</b> on selected line.
Entering the Configuration window to edit the settings related to a selected line	<b>F8</b>
Renaming a configuration line	<b>CTRL + F1</b>
Deleting a configuration line	<b>CTRL + DELETE</b>

See section "Configuration Lines" on page 12 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	<b>ENTER</b> on the selected command





## In the Web-Based Interface



### 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.


### 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 65 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 65 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 is 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



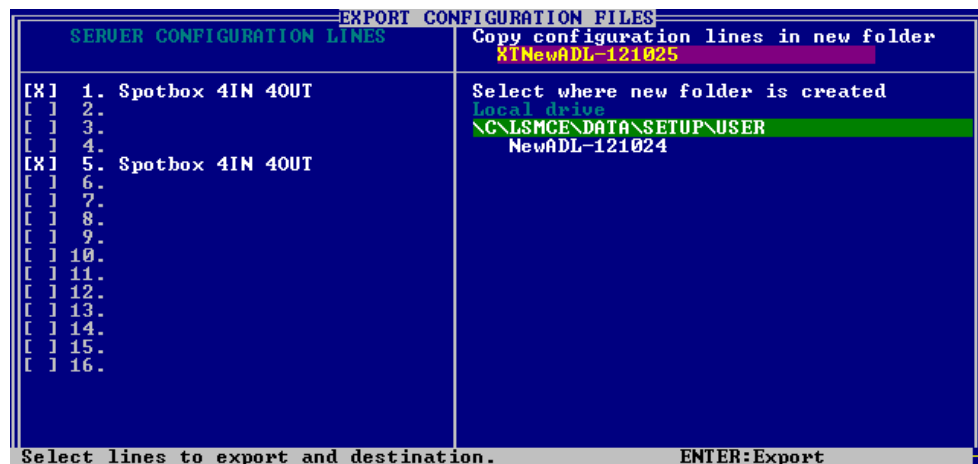
#### NOTE

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  
C: / LSMCE / DATA / SETUP / USER or a subfolder.



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 `C : /LSMCE/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



### 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:

Export configuration lines		
Number	Name	Command
1	SPOTBOX IPDP 2REC 4 PLAY	<a href="#">Export</a>
2	LSM 1REC 1PLAY	<a href="#">Export</a>
3	LSM 1REC 2PLAY	<a href="#">Export</a>
4	LSM 2REC 2PLAY	<a href="#">Export</a>
5	LSM 2REC 4PLAY	<a href="#">Export</a>
6	LSM 3REC 1PLAY	<a href="#">Export</a>
7	LSM 3REC 2PLAY	<a href="#">Export</a>
8	LSM 3REC 3PLAY	<a href="#">Export</a>
9	LSM 4REC 2PLAY	<a href="#">Export</a>
10		<a href="#">Export</a>
11	SLSM 1PLAY	<a href="#">Export</a>
12	SLSM 2PLAY	<a href="#">Export</a>
13	SLSM+1REC 2PLAY	<a href="#">Export</a>
14	SLSM+2REC 1PLAY	<a href="#">Export</a>
15		<a href="#">Export</a>
16	SPOTBOX	<a href="#">Export</a>

- Click **Export** next to the configuration line you want to export.
- In the File Download dialog box, click **Save**.
- Select the location where you will save the export configuration file (.lin file) and, if requested, change the file name.
- 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

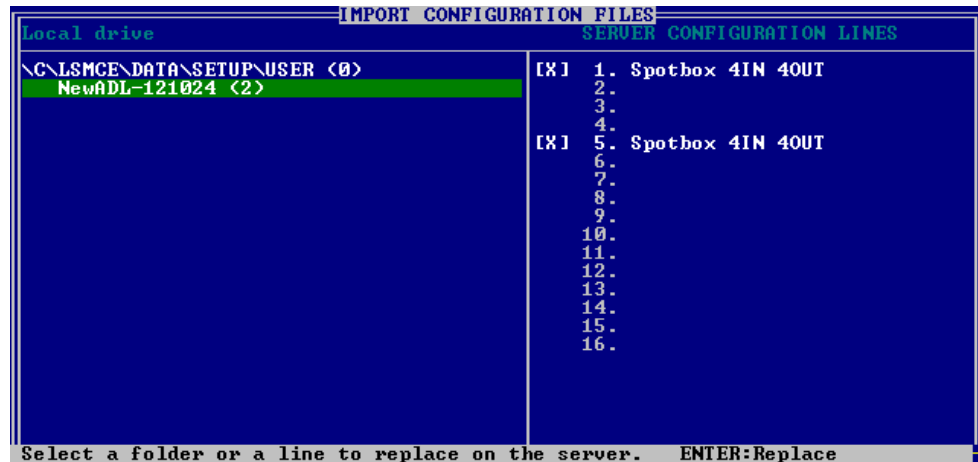
### In the Server-Based Application



#### 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.

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



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



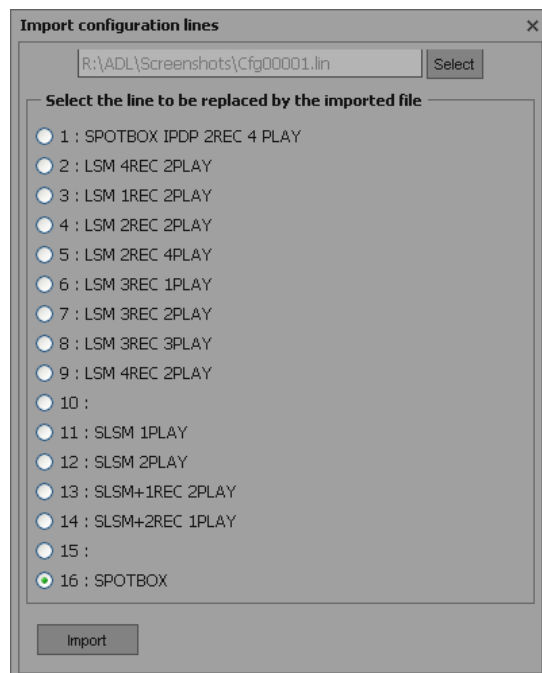
### NOTE

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 erase 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
"Setting the Server Date and Time"	2.3.5	Yes	No
"Configuring Server Raids"	2.3.6	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:

Facility Name : XXXXXXXXXX  
ENTER : validate      ESC : quit without saving

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

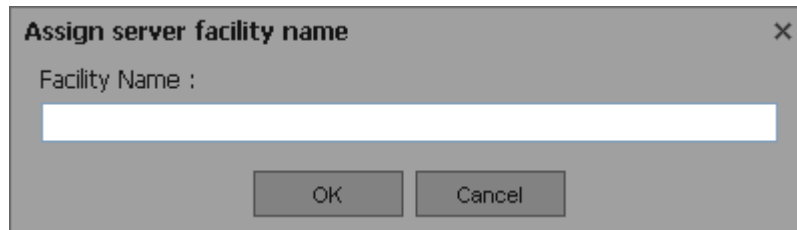
If the server facility name, also used as hostname for the PC LAN connections, does not comply with naming rules for hostnames, a warning will be displayed.

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:

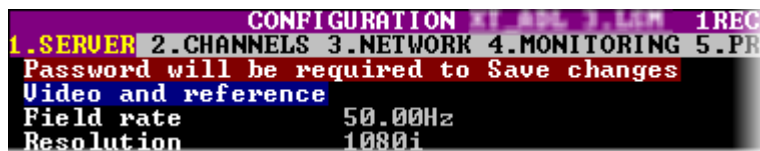
1. In the Multicam Setup window, press **W** to call the Enable password command. A warning message opens.
2. Read the warning message carefully. Press the **RIGHT ARROW** key to select 'Yes' and press **ENTER** to activate the password protection.

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.

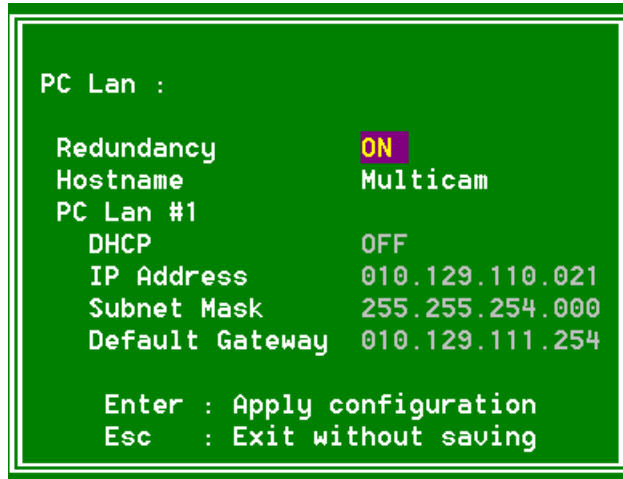
## 2.3.4. Setting the Server PC LAN Connection

### 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** option.

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



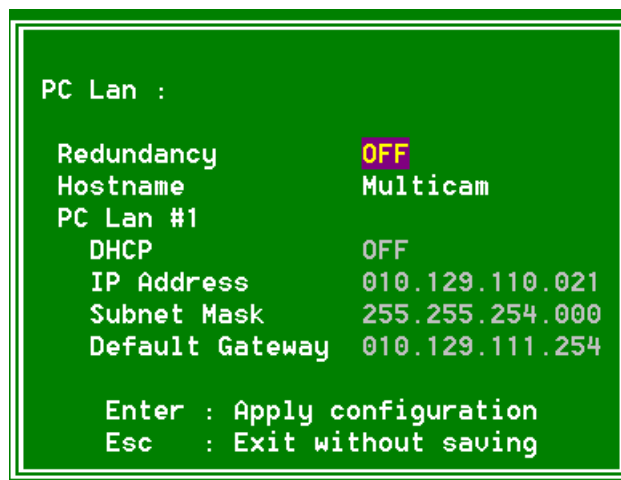
PC Lan :

Redundancy	ON
Hostname	Multicam
PC Lan #1	
DHCP	OFF
IP Address	010.129.110.021
Subnet Mask	255.255.254.000
Default Gateway	010.129.111.254

Enter : Apply configuration  
Esc : Exit without saving

## How to Set the PC LAN Connection

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



PC Lan :

Redundancy	OFF
Hostname	Multicam
PC Lan #1	
DHCP	OFF
IP Address	010.129.110.021
Subnet Mask	255.255.254.000
Default Gateway	010.129.111.254

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 DHCP 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.
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. 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

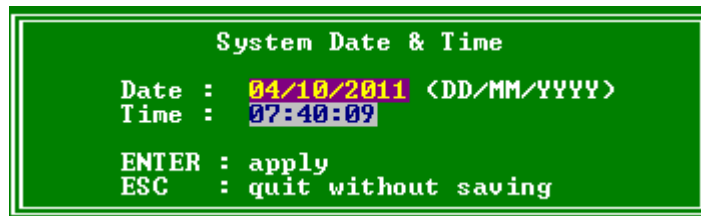
- 22:58:00 for 22 h 58 min 00 sec (24-hour display)

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:



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.

## 2.3.6. 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.





## 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:

```
RAID configurationlticam Setup 11.000.4% XT2* SN:26410 XT_ADL
Requested configuration
Use Internal only
1 (5+1) raids + 0 spare(s)

Current configuration
Use Internal only
RAID type
1 (5+1) raids + 0 spare(s)
RAID status
01 ---
EXT4 ---
EXT3 ---
EXT2 ---
EXT1 ---
INT2 ---
INT1 01 01 01 01
Legend OK Disconnected Rebuilding Spare Not present
<Tab>Edit <Esc>Quit
```

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 216.

## 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.
- (5+1) raid configuration with a maximum of 5 spares is used. First, all the 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
<b>Storage type</b>	Specifies which storage type you will use. When both storage types are available, the following values are possible: <ul style="list-style-type: none"><li>• Internal only</li><li>• External + Internal</li><li>• External only</li></ul>
<b>Number of raids</b>	Specifies the number of raids you want to use. Type the number of raids you want to use.
<b>Raid configuration type</b>	Specifies the raid configuration type. The software is able to handle two raid organizations: <ul style="list-style-type: none"><li>• (4+1): raid of 5 disks</li><li>• (5+1): raid of 6 disks</li></ul>

## 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 216 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:

```

=====
Key Settings
System ID      161055326      Serial number 161050      User EVS DEMO
Chassis type   XS-4K          PSU type      Hot Swap
Key date and time are 05/12/16 16:26:25
=====
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  UHD TV-4K
28         Permanent  4-channel configurations
29         Permanent  6-channel configurations
30         Permanent  XRec
31         Permanent  Mix on 1 channel
90         Permanent  XS open Config

validation code - - -

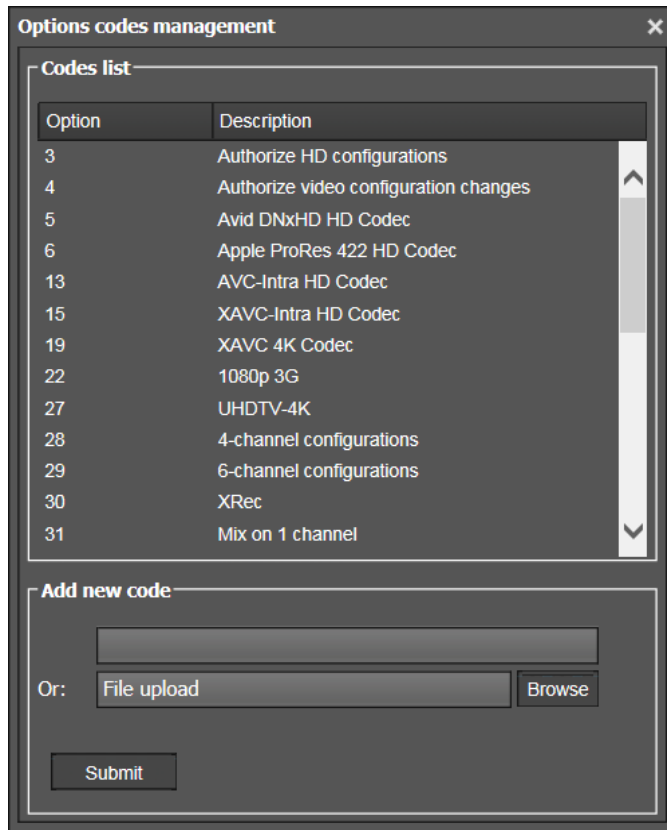
<ALT-F>Update from local file  <ALT-U>Update from USB key  <Esc>Quit
=====

```

Area	Description
Upper area	<p>List of key settings related to the EVS server:</p> <ul style="list-style-type: none"> <li>• <b>System ID:</b> ID code of the hardware key, necessary for license code calculation.</li> <li>• <b>Serial number:</b> Serial number of the mainframe, also written on the back plate of the mainframe.</li> <li>• <b>User:</b> The user name is a label for information's sake only.</li> <li>• <b>Chassis type:</b> Type of mainframe. If this value is wrong, audio and video routing inside the system will not work properly.</li> <li>• <b>PSU type:</b> Type of PSU installed on the chassis: standard or hot swap.</li> <li>• <b>Key date and time:</b> Expiration date &amp; time for temporary license codes. Not available when the permanent codes are installed.</li> </ul>
Central area	<p>All codes <b>available for the given server chassis</b>.            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.</p>
Lower area	<p>Area where you can enter new license codes manually.            The commands on how to import new license code from files are specified.</p>

## In the Web-Based Interface

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



**Options codes management**

**Codes list**

Option	Description
3	Authorize HD configurations
4	Authorize video configuration changes
5	Avid DNxHD HD Codec
6	Apple ProRes 422 HD Codec
13	AVC-Intra HD Codec
15	XAVC-Intra HD Codec
19	XAVC 4K Codec
22	1080p 3G
27	UHDTV-4K
28	4-channel configurations
29	6-channel configurations
30	XRec
31	Mix on 1 channel

**Add new code**

Or:

Area	Description
Central area	All codes <b>available for the given server chassis</b> for which a license key has been granted and is still valid. 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 C:\ drive of the EVS server.
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:



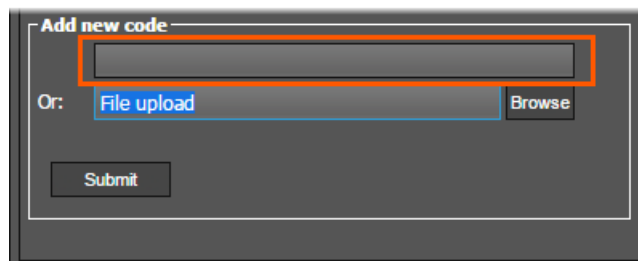
3. Press **ENTER**.

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"	38	Yes	No
"Hardware Check"	39	Yes	No
"Clearing Video Disks"	43	Yes	No
"Record Train Maintenance"	45	Yes	No
"Importing and Exporting Keyword Files"	46	Yes	No
"Exporting Log Files"	47	Yes	No

### 2.5.2. Rebooting the EVS Server

To reboot the EVS server 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

### 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
- H3XP 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 H3XP board is initialized.

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

## 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.

## Rebuild Process

### Introduction

The XS4K 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 40, 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**

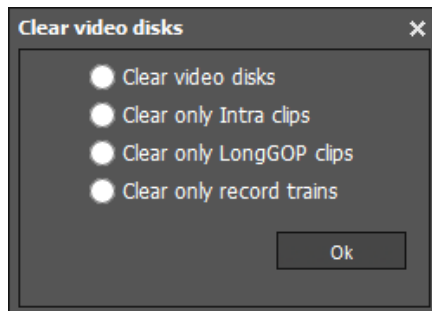
By default, the online rebuild process takes up 10% of the disk bandwidth. If you want to change this, contact EVS support.

## 2.5.4. 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)



#### NOTE

The options Clear only Intra clips, and Clear only LongGOP clips are not relevant on XS4K , which does not support the LongGOP essence.

### NEW !

### 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 45)	Clear Record Trains
Change in the multi-essence configuration (See below for details)	Clear Record Trains

## Which Clear Action is Required with Multi-Essence Changes?

When you change the multi-essence configuration, you may have to clear the record trains in some cases detailed in the table below.

When nothing is specified in the table, you do not have to perform any clear command.

A clear video disks or a partial clear clip command can always be called if requested, but is not required when you change the multi-essence configuration.

The Lo-Res clips associated to Hi-Res clips will be cleared when the user clears the clips of the on-air codec.

S o u r c e	C o n f i g.	Target Configuration		
			Intra	Intra+ Proxy
		Intra		Record trains
		Intra+ Proxy		

## 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.

## 2.5.5. Record Train Maintenance

### Preventing the Overflow of the Record Trains Field Counter

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 43

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 214

### 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.

## 2.5.6. 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 C : \LSMCE\DATA\KWD directory of the server. 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.

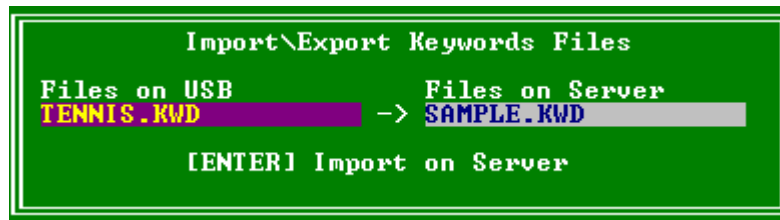
### How to Import a Keyword File

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:





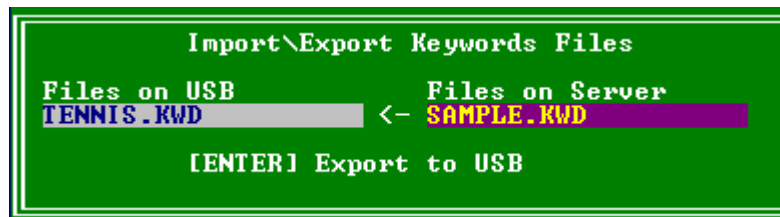
3. If several keyword files are stored on the USB key, press **SPACEBAR** until the requested file is selected on the left field.
4. Press **ENTER** to import the keyword file from the USB key to the EVS server.
5. Press **OK** to close the message box that appears when the keyword file has been imported.
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.

### 2.5.7. 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 C : \LSMCE\DATA folder of the EVS server
- 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 `C:\LSMCE\DATA\LOG` and `C:\LSMCE\DATA\DUMP` 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

##### **NEW !** 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 the Google Play or the Apple store.

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

The XS4K server supports the following configuration types:

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

The following configurations are available with the XS4K 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

See section "About Extended Configurations" on page 51 for more information about the extended configurations, that means configurations using more than 8 channels.

### Requirements and Limitations

- The **3D** configurations are not supported.
- The **Mix on one channel** for play channels is available on all configurations.

## 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 93.

The number of play and record channels available may differ depending on the installed license codes, and on the configurations running on the XS4K server:

- XSense mode, when the EVS server is controlled by the Remote Panel.
- Spotbox modes, when the EVS server is controlled by the industry-standard protocols.

**NEW !**

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

	<b>XSense</b>	<b>Spotbox</b>
<b>Max. # channels</b>	10	12
<b>Min. # REC</b>	1	0
<b>Max. # REC</b>	10	12
<b>Min. # PLAY</b>	1	0
<b>Max. # PLAY</b>	6	6



#### NOTE

Based on the above-mentioned limitations, among others, some configurations described in the section Supported Configurations are only available in 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

- 1 REC ==> 2 REC: Record trains are lost.
- 4 REC ==> 3 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. About Extended Configurations

#### Definition

**NEW !**

Extended configurations are configurations included into the 10-channel and 12-channel modes which use the C&D links of the V4X modules.

#### Requirements

The extended configuration modes require the following license codes:

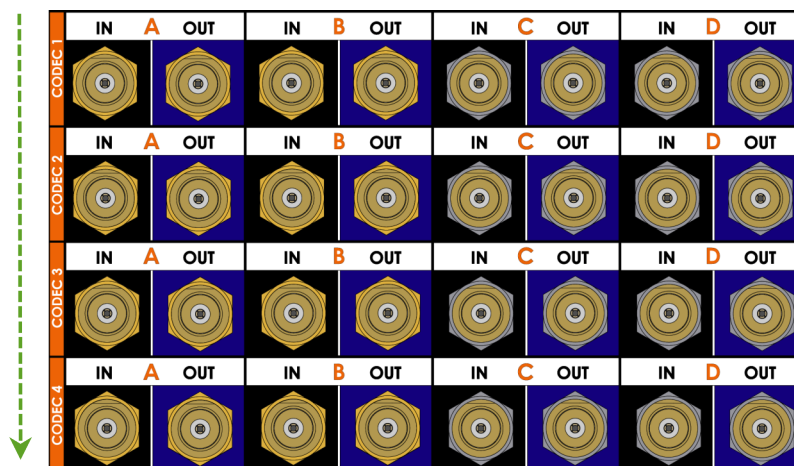
- 10-Channel mode with license code 36
- 12-Channel mode with license code 35

### 3.1.4. Channel Assignment Principles

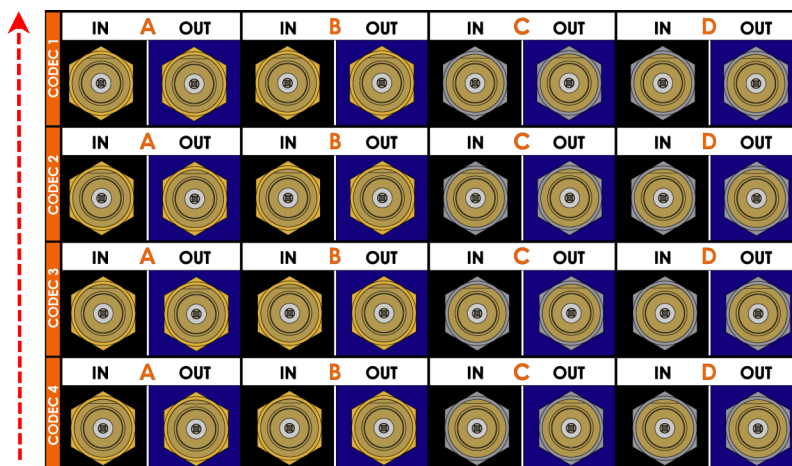
#### General Principles

The following general principles apply to all configurations on the XS4K server:

- On hybrid panels, the channel distribution among the codec modules is identical in IP and in SDI.
- The connectors within a codec module are only able to work in play or record mode.
- The **play channels** (OUT connectors) are always assigned from top to bottom, whether working in UHD-4K or HD:



- The record channels (IN connectors) are always assigned from bottom to top, whether working in UHD-4K or HD.



## Cabling Procedure for HD

First, assign the **play channels** from top to bottom using only connectors A and B of a V4X module.

Then, assign the **record channels** from bottom to top in the following order:

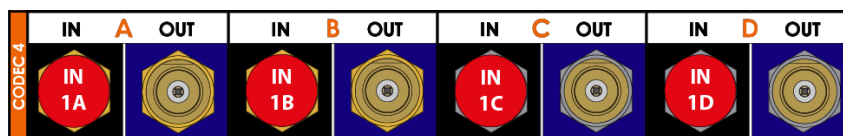
1. Assign the A & B connectors of the codec modules from bottom to top.  
**Start with the SLSM recorders.**
2. Continue the channel assignment using connectors C & D from bottom to top.

**Do not use** the V4X modules already cabled for SLSM 3G recorders.

## Cabling Procedure for UHD-4K

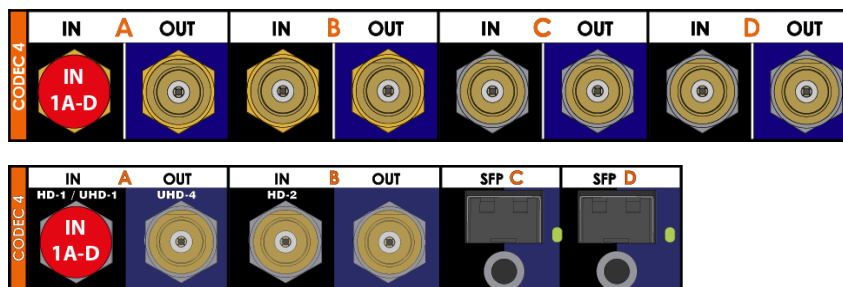
When using the **3G-SDI** interfaces, cable the UHD-4K input or output on the connectors A to D of the codec module.

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 SDI&IP hybrid panels:



## 3.2. HD Standard Configurations

### Introduction

The tables below show the available HD configurations (720p, 1080i) with an XS4K server, as well as how the BNC connectors should be cabled.

The 4-channel mode includes the 2- and 4-channel configurations.

The 6-channel mode and 8-channel mode require separate license codes.

**NEW !**

The configurations in 10-Channel and 12-Channel modes make use of the C and D connectors of the codec module as an independent record channel. See section "About Extended Configurations" on page 51.



#### WARNING

The HD base configurations without any recorder or player are only supported in Spotbox mode.

### Configurations in 4-Channel Mode

	# I N	# O U T	Codec 1				Codec 2				Codec 3				Codec 4			
			A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Sp	1	0													IN1			
Sp	2	0													IN1	IN2		
	1	1	OUT1												IN1			
Sp	0	1	OUT1															
Sp	0	2	OUT1	OUT2														

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

	# I N	# O U T	Codec 1				Codec 2				Codec 3				Codec 4			
			A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Sp	3	0									IN3				IN1	IN2		
Sp	4	0									IN3	IN4			IN1	IN2		
	2	1	OUT1												IN1	IN2		
	3	1	OUT1								IN3				IN1	IN2		
	1	2	OUT1	OUT2											IN1			
	2	2	OUT1	OUT2											IN1	IN2		
	1	3	OUT1	OUT2			OUT3								IN1			
Sp	0	3	OUT1	OUT2			OUT3											
Sp	0	4	OUT1	OUT2			OUT3	OUT4										

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

## Configurations in 6-Channel Mode

	# I N	# O U T	Codec 1				Codec 2				Codec 3				Codec 4			
			A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Sp	5	0					IN5				IN3	IN4			IN1	IN2		
Sp	6	0					IN5	IN6			IN3	IN4			IN1	IN2		
	4	1	OUT1								IN3	IN4			IN1	IN2		
	5	1	OUT1				IN5				IN3	IN4			IN1	IN2		
	3	2	OUT1	OUT2							IN3				IN1	IN2		
	4	2	OUT1	OUT2							IN3	IN4			IN1	IN2		
	2	3	OUT1	OUT2			OUT3								IN1	IN2		
	3	3	OUT1	OUT2			OUT3				IN3				IN1	IN2		
	1	4	OUT1	OUT2			OUT3	OUT4							IN1			
	2	4	OUT1	OUT2			OUT3	OUT4							IN1	IN2		
	1	5	OUT1	OUT2			OUT3	OUT4			OUT5				IN1			
NEW ! Sp	0	5	OUT1	OUT2			OUT3	OUT4			OUT5							
Sp	0	6	OUT1	OUT2			OUT3	OUT4			OUT5	OUT6						

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



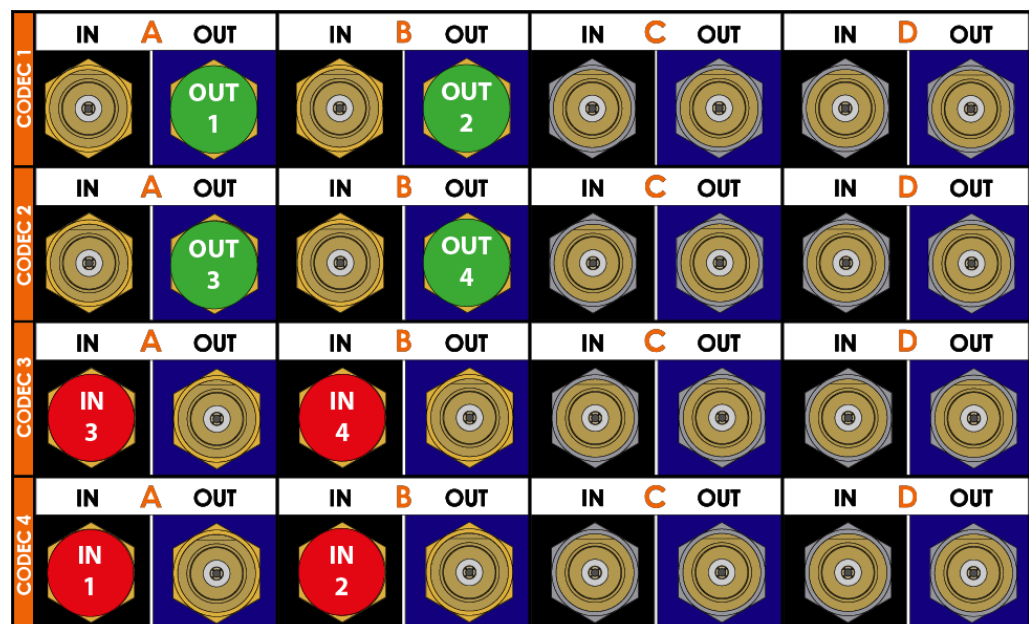
## Configurations in 8-Channel Mode

	# IN	# OUT	Codec 1				Codec 2				Codec 3				Codec 4			
			A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
NEW ! NEW !    NEW !	Sp	8 0	IN7	IN8			IN5	IN6			IN3	IN4			IN1	IN2		
		6 1	OUT1				IN5	IN6			IN3	IN4			IN1	IN2		
		7 1	OUT1				IN5	IN6			IN3	IN4			IN1	IN2	IN7	
		5 2	OUT1	OUT2			IN5				IN3	IN4			IN1	IN2		
		6 2	OUT1	OUT2			IN5	IN6			IN3	IN4			IN1	IN2		
		4 3	OUT1	OUT2			OUT3				IN3	IN4			IN1	IN2		
		5 3	OUT1	OUT2			OUT3				IN3	IN4			IN1	IN2	IN5	
		3 4	OUT1	OUT2			OUT3	OUT4			IN3				IN1	IN2		
		4 4	OUT1	OUT2			OUT3	OUT4			IN3	IN4			IN1	IN2		
		2 5	OUT1	OUT2			OUT3	OUT4			OUT5				IN1	IN2		
		2 6	OUT1	OUT2			OUT3	OUT4			OUT5	OUT6			IN1	IN2		

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

## Example in 8-Channel Mode (4IN + 4OUT)

The BNC connectors to be used as record and play channels in a 4IN 4OUT configuration need to be cabled as shown below:



**NEW !****Configurations in 10-Channel Mode**

	# I N	# O U T	Codec 1				Codec 2				Codec 3				Codec 4			
			A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Sp	9	0	IN7	IN8			IN5	IN6			IN3	IN4			IN1	IN2	IN9	
Sp	10	0	IN7	IN8			IN5	IN6			IN3	IN4			IN1	IN2	IN9	IN10
	9	1	OUT1				IN5	IN6			IN3	IN4	IN9		IN1	IN2	IN7	IN8
	8	2	OUT1	OUT2			IN5	IN6			IN3	IN4			IN1	IN2	IN7	IN8
	6	3	OUT1	OUT2			OUT3				IN3	IN4			IN1	IN2	IN5	IN6
	7	3	OUT1	OUT2			OUT3				IN3	IN4	IN7		IN1	IN2	IN5	IN6
	6	4	OUT1	OUT2			OUT3	OUT4			IN3	IN4			IN1	IN2	IN5	IN6
	4	5	OUT1	OUT2			OUT3	OUT4			OUT5				IN1	IN2	IN3	IN4
	4	6	OUT1	OUT2			OUT3	OUT4			OUT5	OUT6			IN1	IN2	IN3	IN4

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

**NEW !****Configurations in 12-Channel Mode**

	# I N	# O U T	Codec 1				Codec 2				Codec 3				Codec 4			
			A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Sp	11	0	IN7	IN8			IN5	IN6			IN3	IN4	IN11		IN1	IN2	IN9	IN10
Sp	12	0	IN7	IN8			IN5	IN6			IN3	IN4	IN11	IN12	IN1	IN2	IN9	IN10
	10	1	OUT1				IN5	IN6			IN3	IN4	IN9	IN10	IN1	IN2	IN7	IN8
	10	2	OUT1	OUT2			IN5	IN6			IN3	IN4	IN9	IN10	IN1	IN2	IN7	IN8
	8	4	OUT1	OUT2			OUT3	OUT4			IN3	IN4	IN7	IN8	IN1	IN2	IN5	IN6

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

## 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 93.

#### Limitations

##### Codec Limitations

1080p supports AVC-Intra, XAVC-Intra, Avid DNxHD, and Apple ProRes 422 codecs.

##### Configuration Limitations

**NEW !**

1080p configurations using 4 channels per codec module (at least 2 play channels or 4 recorders) are available with the following general limitations:

- Codecs with a bitrate < 250 Mbps: no limitations
- Codecs with a bitrate ≥ 250 Mbps:
  - No Mix on one channel
  - Configurations with max. 8 channels

### 3.3.2. 1080p Standard Configurations

#### Introduction

The tables below show the available 1080p configurations with an XS4K server, as well as how the BNC connectors should be cabled.

The 4-channel mode includes the 2- and 4-channel configurations.

The 6-channel mode and 8-channel mode require separate license codes.

**NEW !**

The configurations in 10-Channel and 12-Channel modes make use of the C and D connectors of the codec module as an independent record channel. See section "About Extended Configurations" on page 51.



#### WARNING

The HD base configurations without any recorder or player are only supported in Spotbox mode.

#### Configurations in 4-Channel Mode

	# I N	# O U T	Codec 1				Codec 2				Codec 3				Codec 4			
			A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Sp	1	0													IN1			
Sp	2	0													IN1	IN2		
	1	1	OUT1												IN1			
Sp	0	1	OUT1															
Sp	0	2	OUT1	OUT2														

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

	# I N	# O U T	Codec 1				Codec 2				Codec 3				Codec 4			
			A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Sp	3	0									IN3				IN1	IN2		
Sp	4	0									IN3	IN4			IN1	IN2		
	2	1	OUT1												IN1	IN2		
	3	1	OUT1								IN3				IN1	IN2		
	1	2	OUT1	OUT2											IN1			
	2	2	OUT1	OUT2											IN1	IN2		
	1	3	OUT1	OUT2			OUT3								IN1			
Sp	0	3	OUT1	OUT2			OUT3											
Sp	0	4	OUT1	OUT2			OUT3	OUT4										

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

## Configurations in 6-Channel Mode

	# I N	# O U T	Codec 1				Codec 2				Codec 3				Codec 4			
			A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Sp	5	0					IN5				IN3	IN4			IN1	IN2		
Sp	6	0					IN5	IN6			IN3	IN4			IN1	IN2		
	4	1	OUT1								IN3	IN4			IN1	IN2		
	5	1	OUT1				IN5				IN3	IN4			IN1	IN2		
	3	2	OUT1	OUT2							IN3				IN1	IN2		
	4	2	OUT1	OUT2							IN3	IN4			IN1	IN2		
	2	3	OUT1	OUT2			OUT3								IN1	IN2		
	3	3	OUT1	OUT2			OUT3				IN3				IN1	IN2		
	1	4	OUT1	OUT2			OUT3	OUT4							IN1			
	2	4	OUT1	OUT2			OUT3	OUT4							IN1	IN2		
	1	5	OUT1	OUT2			OUT3	OUT4			OUT5				IN1			
NEW ! Sp	0	5	OUT1	OUT2			OUT3	OUT4			OUT5							
Sp	0	6	OUT1	OUT2			OUT3	OUT4			OUT5	OUT6						

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

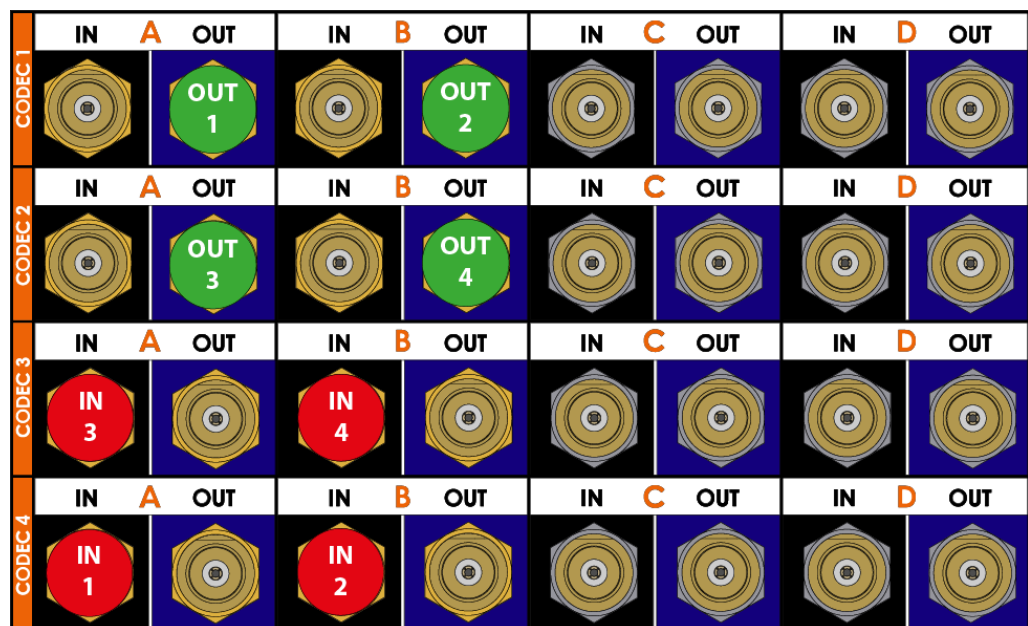
## Configurations in 8-Channel Mode

	# I N	# O U T	Codec 1				Codec 2				Codec 3				Codec 4			
			A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Sp	8	0	IN7	IN8			IN5	IN6			IN3	IN4			IN1	IN2		
	6	1	OUT1				IN5	IN6			IN3	IN4			IN1	IN2		
	7	1	OUT1				IN5	IN6			IN3	IN4			IN1	IN2	IN7	
	5	2	OUT1	OUT2			IN5				IN3	IN4			IN1	IN2		
	6	2	OUT1	OUT2			IN5	IN6			IN3	IN4			IN1	IN2		
	4	3	OUT1	OUT2			OUT3				IN3	IN4			IN1	IN2		
	5	3	OUT1	OUT2			OUT3				IN3	IN4			IN1	IN2	IN5	
	3	4	OUT1	OUT2			OUT3	OUT4			IN3				IN1	IN2		
	4	4	OUT1	OUT2			OUT3	OUT4			IN3	IN4			IN1	IN2		
	2	5	OUT1	OUT2			OUT3	OUT4			OUT5				IN1	IN2		
	2	6	OUT1	OUT2			OUT3	OUT4			OUT5	OUT6			IN1	IN2		

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

## Example in 8-Channel Mode (4IN + 4OUT)

The BNC connectors to be used as record and play channels in a 4IN 4OUT configuration need to be cabled as shown below:



**NEW !** Configurations in 10-Channel Mode

	# I N	# O U T	Codec 1				Codec 2				Codec 3				Codec 4			
			A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Sp	9	0	IN7	IN8			IN5	IN6			IN3	IN4			IN1	IN2	IN9	
Sp	10	0	IN7	IN8			IN5	IN6			IN3	IN4			IN1	IN2	IN9	IN10
	9	1	OUT1				IN5	IN6			IN3	IN4	IN9		IN1	IN2	IN7	IN8
	8	2	OUT1	OUT2			IN5	IN6			IN3	IN4			IN1	IN2	IN7	IN8
	6	3	OUT1	OUT2			OUT3				IN3	IN4			IN1	IN2	IN5	IN6
	7	3	OUT1	OUT2			OUT3				IN3	IN4	IN7		IN1	IN2	IN5	IN6
	6	4	OUT1	OUT2			OUT3	OUT4			IN3	IN4			IN1	IN2	IN5	IN6
	4	5	OUT1	OUT2			OUT3	OUT4			OUT5				IN1	IN2	IN3	IN4
	4	6	OUT1	OUT2			OUT3	OUT4			OUT5	OUT6			IN1	IN2	IN3	IN4

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

**NEW !** Configurations in 12-Channel Mode

	# I N	# O U T	Codec 1				Codec 2				Codec 3				Codec 4			
			A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Sp	11	0	IN7	IN8			IN5	IN6			IN3	IN4	IN11		IN1	IN2	IN9	IN10
Sp	12	0	IN7	IN8			IN5	IN6			IN3	IN4	IN11	IN12	IN1	IN2	IN9	IN10
	10	1	OUT1				IN5	IN6			IN3	IN4	IN9	IN10	IN1	IN2	IN7	IN8
	10	2	OUT1	OUT2			IN5	IN6			IN3	IN4	IN9	IN10	IN1	IN2	IN7	IN8
	8	4	OUT1	OUT2			OUT3	OUT4			IN3	IN4	IN7	IN8	IN1	IN2	IN5	IN6

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

## 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 consists of four 1080p frames transported via four 3G-SDI links. Each UHD-4K image therefore requires 4 physical channels in the EVS server.

#### Requirements

The UHD-4K is available by default on all XS4K servers.

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

- The license code 27 is granted on the EVS server, in combination with the code for the configuration mode.
- The **Resolution** parameter is set to **UHDTV-4K**.  
See section "Video and Reference Settings" on page 77.
- The **Interface** parameter is set to a **3G** or **12G** value.  
The **No** value is automatically excluded.  
See section "Base Settings" on page 93.

#### Limitations

##### Codec Limitations

- UHD-4K can be used with the XAVC-Intra 4K codec.

##### Configuration Limitations

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

##### Audio Limitations

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



## Assignment Principles

An UHD-4K image consists of four 1080p frames transported via four 3G-SDI links.

When the 4K images are transported using the square division UHD format (see "Base Settings" on page 93), 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:

A = Top Left	B = Top Right
C = Bottom Left	D = Bottom Right

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

## 3.4.2. UHD-4K Configurations

### Introduction

The tables below show the available 4K configurations on a XS4K server. They show the channel assignment on the back panel.



#### WARNING

The UHD-4K configurations without any recorder or player are only supported in Spotbox mode.

### Configurations in 2-Channel Mode

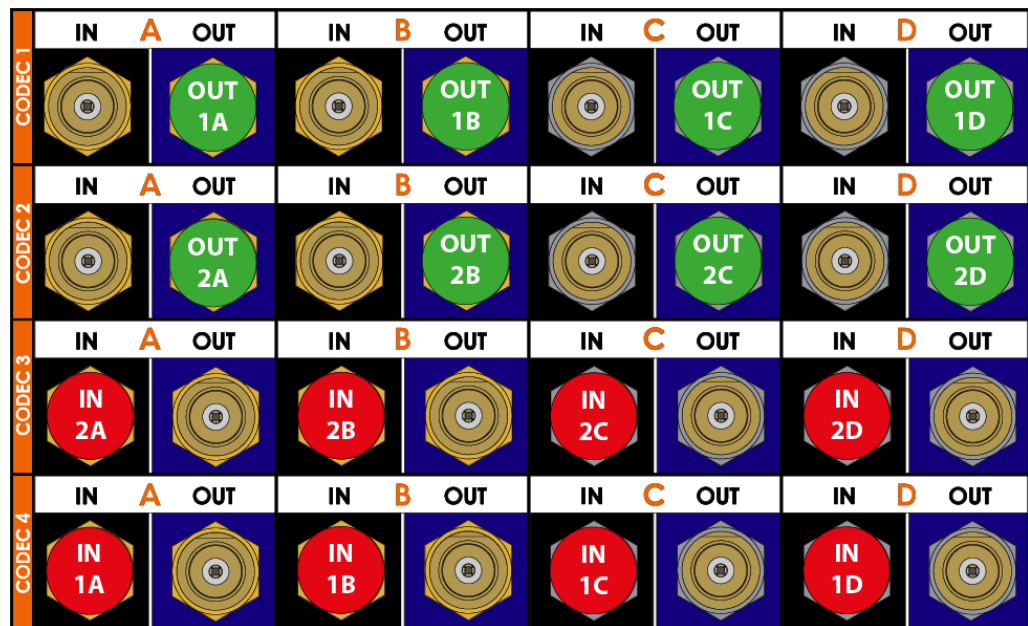
#IN	#OUT	Codec 1				Codec 2				Codec 3				Codec 4			
		A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
1	0													IN1			
2	0									IN2				IN1			
1	1		OUT1											IN1			
0	1		OUT1														
0	2		OUT1			OUT2											

## Configurations in 4-Channel Mode

#IN	#OUT	Codec 1				Codec 2				Codec 3				Codec 4			
		A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
3	0					IN3				IN2				IN1			
4	0	IN4				IN3				IN2				IN1			
2	1	OUT1								IN2				IN1			
3	1	OUT1				IN3				IN2				IN1			
1	2	OUT1				OUT2								IN1			
2	2	OUT1				OUT2				IN2				IN1			
1	3	OUT1				OUT2				OUT3				IN1			
0	3	OUT1				OUT2				OUT3							
0	4	OUT1				OUT2				OUT3				OUT4			

## Example in UHD-4K (2IN + 2OUT)

The BNC connectors to be used as recorder and play channels in an UHD-4K configuration 2IN + 2OUT need to be cabled as shown below with 3G-SDI:



## 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
<b>Server-Based Application</b>	Yes (tabs 1-6)	Yes (tab 7)
<b>Web-Based Interface</b>	Yes (tabs 1-6)	Yes (tab 7)
<b>Remote Panel</b>	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.

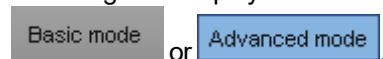
Two display modes are consequently available:

- 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

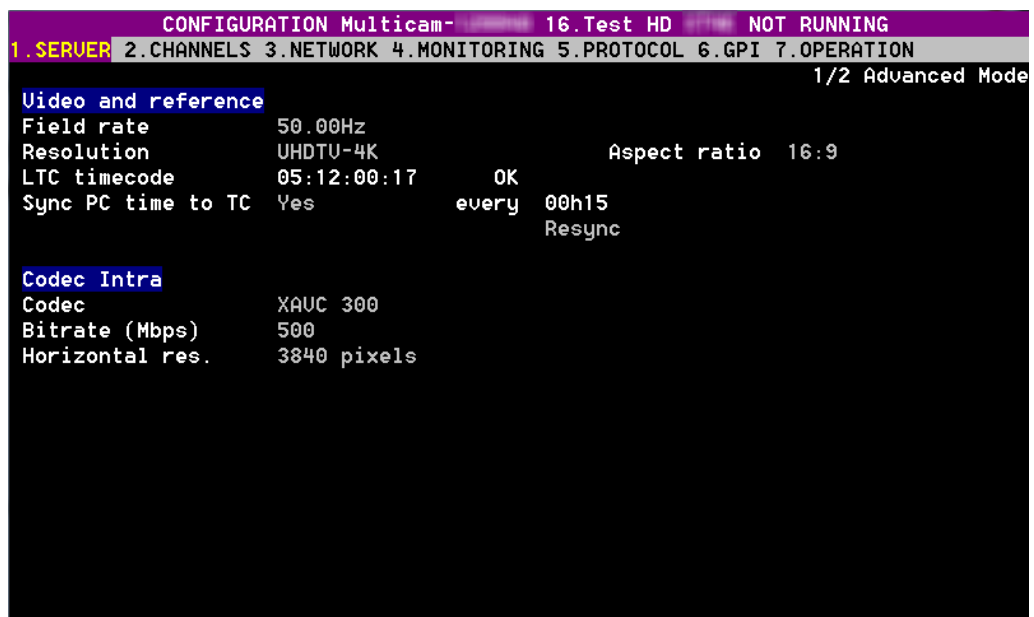


## User Interfaces

### Server-Based User Interface

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

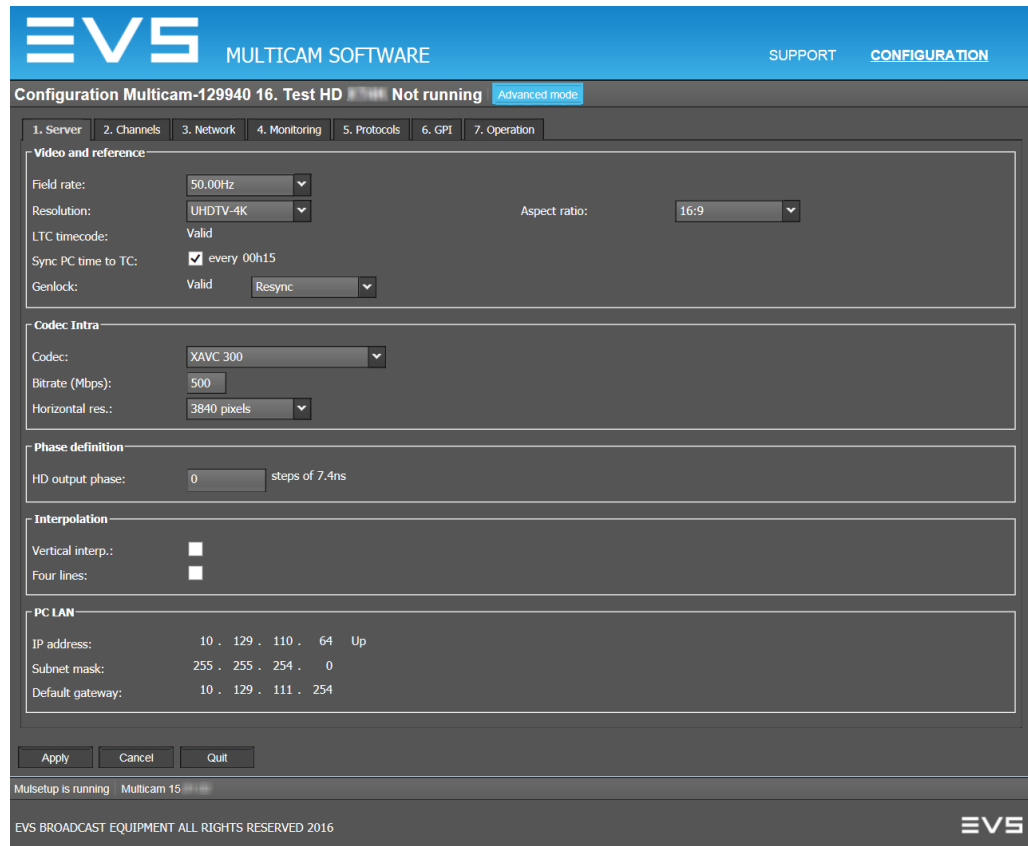
- The title bar displays the selected configuration, and specifies whether the configuration has been launched (running) or not (not running).
- The selected tab is highlighted in pink.
- The current page and number of pages in the tab are specified in the top right corner.
- The display mode (basic or advanced) is specified in the top right corner.



### Web-Based User Interface

The following screenshot presents the 1<sup>st</sup> tab of the Multicam Configuration window of an XS4K 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	<b>CTRL + tab number</b>
Moving from one tab to the other (when the tab is selected, i.e. rose highlighted)	<b>LEFT ARROW / RIGHT ARROW</b>
Moving down/up in the pages of the active tab	<b>PAGE DOWN</b> or <b>PAGE UP</b>
Moving down in the list of editable settings	<b>TAB</b>
Moving up in the list of editable settings	<b>SHIFT + TAB</b>
Toggling between Basic and Advanced display mode	<b>F3</b>



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

## 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

## 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 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 1<sup>st</sup> 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	<b>SHIFT+F_</b> key corresponding to the section
Moving to the next page inside a section When you are on the last page of a section, you will go to the 1 <sup>st</sup> page of the next section.	<b>F10</b>
Moving to the previous page inside a section When you are on the first page of a section, you will go to the last page of the previous section.	<b>F9</b>
Exiting the Setup menu	<b>Menu</b>
Scrolling through section pages with the jog wheel	<b>ENTER</b> (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	<b>F_</b> key corresponding to the requested setting
Modifying the setting value	Turn the jog wheel
Validating the modification to a setting value	<b>ENTER</b>
Restoring the default value for the selected setting	<b>CLEAR + F_</b> key corresponding to the requested setting
Restoring the default values on the entire Setup menu	<b>CLEAR + F0</b>
Validating the changes in the Setup menu (to answer to the message when you try to leave the menu)	<b>MENU</b>
Canceling the changes in the Setup menu (to answer to the message when you try to leave the menu)	<b>CLEAR</b>
Staying in the Setup menu (to answer to the message when you try to leave the menu)	<b>ENTER</b>

## 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: <ul style="list-style-type: none"> <li>• Field rate</li> <li>• Resolution</li> <li>• LTC timecode</li> </ul>
Server tab	All codec settings
Server tab	All PC LAN settings (only editable from the Multicam Setup window)
Channels tab	Some base settings: <ul style="list-style-type: none"> <li>• Inputs</li> <li>• Outputs</li> <li>• Base config</li> </ul>
Channels tab	One audio setting: <ul style="list-style-type: none"> <li>• Number of tracks</li> </ul>
Channels tab	One recorder setting: <ul style="list-style-type: none"> <li>• REC capacity</li> </ul>
Network tab	All SDTI settings: <ul style="list-style-type: none"> <li>• Speed</li> <li>• Net name</li> <li>• Net number</li> <li>• Type</li> </ul>
Network tab	All Gigabit settings: <ul style="list-style-type: none"> <li>• Gigabit connection</li> <li>• Gigabit IP configuration</li> </ul>

## 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

**NEW !**

Setting Name	Basic	Advanced	Technical Setup
<a href="#">Video and reference settings</a>			
Field rate	X	X	—
Aspect ratio	X	X	—
Resolution	X	X	—
HDR Profile	—	X	—
LTC Timecode	X	X	—
Sync PC Time to TC	—	X	—
Genlock	X	X	—
<a href="#">Codec Settings</a> (Intra / Proxy)			
Codec	X	X	—
Bitrate	X	X	—
Horizontal Res.	—	X	—
<a href="#">Phase definition settings</a>			
HD output phase	—	X	X
<a href="#">Interpolation settings</a>			
Vertical interp.	—	X	X
Four Lines	—	X	X
<a href="#">PC LAN settings</a>			
IP Address	X	X	—
Subnet Mask	X	X	—
Default Gateway	X	X	—

## 4.2.2. Video Codecs and Reference

### Video and Reference Settings

#### User Interface

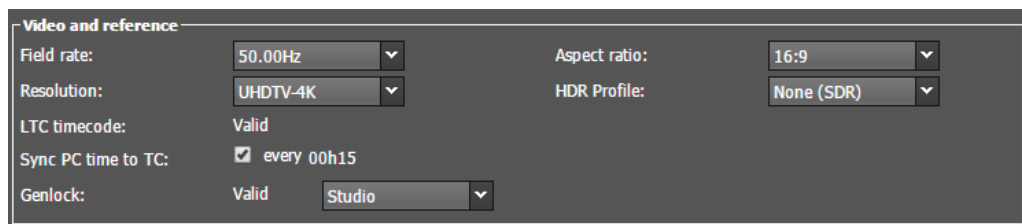
The Video and Reference settings are available on the Server tab in the server-based application (1<sup>st</sup> page) and web-based interface. These settings are not available in the Technical Setup menu of the Remote Panel.



#### 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

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

#### Aspect Ratio

<b>Description</b>	Specifies the aspect ratio of the content provided on the input video signal.
<b>Values</b>	The following values are available: <ul style="list-style-type: none"> <li>• <b>16:9</b></li> <li>• <b>16.9 Pillarbox</b></li> </ul>
<b>Default value</b>	16:9

## Resolution

<b>Description</b>	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). Both field rate and resolution correspond to the video standard.
<b>Values</b>	In HD: <ul style="list-style-type: none"> <li>• <b>720p</b></li> <li>• <b>1080i</b></li> <li>• <b>1080p</b> (only available with code 22)</li> </ul> In UHD-4K: <ul style="list-style-type: none"> <li>• <b>UHDTV-4K</b></li> </ul>

**NEW !**

## HDR Profile

<b>Availability</b>	The parameter is only available in advanced mode.
<b>Description</b>	Specifies the conversion 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.
<b>Values</b>	<ul style="list-style-type: none"> <li>• None (SDR = Standard Dynamic Range)</li> <li>• HLG (= Hybrid Log-Gamma, developed by BBC and NHK)</li> <li>• PQ (= Perceptual Quantizer, developed by Dolby Lab. Inc.)</li> <li>• S-Log3 (developed by Sony)</li> <li>• V-Log (developed by Panasonic)</li> </ul>
<b>Default value</b>	None (SDR)

## LTC Timecode

<b>Description</b>	Longitudinal timecode (timecode information stored on a separate track from the video) delivered to the EVS server, and timecode status.
<b>Values</b>	The timecode is given as hh:mm:ss:fr (only on the server-based application). The timecode status can be: <b>OK</b> or <b>Valid</b> , <b>BAD</b> , <b>LOST</b> or <b>DRIFT</b> (defined by the EVS server).



## Sync PC Time to TC

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

## Genlock

<b>Description</b>	Specifies the status of the genlock signal, as well as the frame synchronizer mode. The type of genlock is automatically defined on an XS4K server.
<b>Values</b>	Status: (defined by the EVS server) <ul style="list-style-type: none"> <li>• <b>Valid</b></li> <li>• <b>Bad</b></li> </ul> Mode: <ul style="list-style-type: none"> <li>• <b>Studio</b>: no correction of a shifted video signal</li> <li>• <b>Resync</b>: resynchronization of a shifted video signal</li> </ul>

## About Multi-Essence

**NEW !**

### Introduction

The XS4K 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 XS4K server in multi-essence.

### Essence Combinations

The essences can be combined as follows:

- Intra + Proxy
- Intra only

## 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 can not 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

- Only one essence can be played out at a time. The codec used for playout is specified in the Server tab, after the codec sections.
- If the on-air essence is not available, a black clip is displayed.
- The Proxy essence is never played out.

## Limitations

### With Proxy Codec

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 XS4K 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 XS4K server.

Only the codec sections corresponding to the essences available on the EVS server will be displayed. See section "Codec Availability" on page 84 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.

**NEW !**

## User Interface

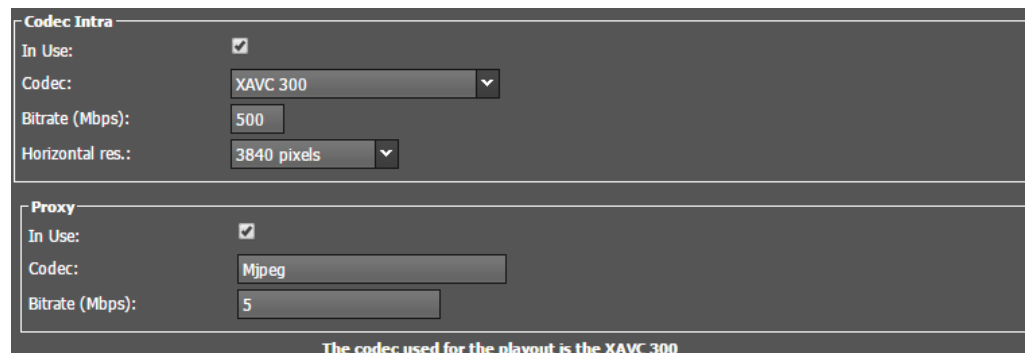
The Codec settings are available on the Server tab in the server-based application (1<sup>st</sup> page) and web-based interface. These settings are not available in the Technical Setup menu of the Remote Panel.



### WARNING

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

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



The screenshot shows the Codec settings interface with two sections: **Codec Intra** and **Proxy**. Both sections have an "In Use:" checkbox checked. The **Codec Intra** section shows "Codec:" set to "XAVC 300", "Bitrate (Mbps):" set to "500", and "Horizontal res.:" set to "3840 pixels". The **Proxy** section shows "Codec:" set to "Mjpeg" and "Bitrate (Mbps):" set to "5". At the bottom, a status bar indicates "The codec used for the playout is the XAVC 300".

## In Use

<b>Description</b>	Specifies, in each essence section, whether the given essence is encoded or not on the EVS server.
<b>Values</b>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>
<b>Default value</b>	Yes in <b>Intra Codec</b> section No in <b>Proxy</b> sections

## Codec (Codec Intra)

**NEW !**

<b>Description</b>	Algorithm used to compress and decompress the video signal. With Intra codecs, the compression techniques are performed exclusively relative to information contained within the current frame.
<b>Values</b>	<p>In HD:</p> <ul style="list-style-type: none"> <li>• Avid DNxHD 120, 185 or 185x (only in 50 Hz)</li> <li>• Avid DNxHD 145, 220 or 220x (only in 59.94 Hz)</li> <li>• Apple ProRes 422, 422 LT, 422 HQ</li> <li>• AVC-Intra 100</li> <li>• XAVC-Intra 100</li> </ul> <p>In UHD-4K:</p> <ul style="list-style-type: none"> <li>• XAVC-Intra 300</li> </ul> <p>See section "Codec Availability" on page 84 for detailed information on codec availability.</p>
<b>Default values</b>	<ul style="list-style-type: none"> <li>• Avid DNxHD 120 in HD 50Hz</li> <li>• Avid DNxHD 145 in HD 59.94 Hz</li> <li>• XAVC-Intra 300 in UHD-4K</li> </ul>



### 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.

**NEW !**

## Proxy

<b>Description</b>	Algorithm used to compress and decompress the video signal in low resolution. It is used for remote browsing purposes. It is not possible to run an EVS server with the Proxy essence only.
<b>Values</b>	Mjpeg

## Bitrate

<b>Description</b>	Number of megabits processed per second (Mbps). The bitrate depends on the codec.
<b>Values</b>	See section "Codec-Related Information" on page 85 for detailed information on bitrates per codec.

## Horizontal Res. (HD)

<b>Description</b>	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.
<b>Values</b>	See section "Codec-Related Information" on page 85 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.

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

On an XS4K server, several license codes are available as standard codecs on the base server hardware.

**NEW !**

## 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 XS4K server depending on the license code.

Proxy codec	V4X Codec Board
Mjpeg (Proxy codec)	code 32

**NEW !**

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

**NEW !**

UHD codecs	V4X Codec Board
XAVC-Intra 4K	code 19

## Codec-Related Information

### **NEW !** 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	185	185	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 table presents the bitrate for the whole UHD-4K image:

Field rate	50 Hz	59.94 Hz
Codec	XAVC-Intra 300	XAVC-Intra 300
Bitrate (Mbps)	500	600
Default bitrate	500	600
Horizontal Resolution	3840	3840

**NEW !**

## Properties of the Proxy Codec

The Mjpeg Proxy codec has the following properties:

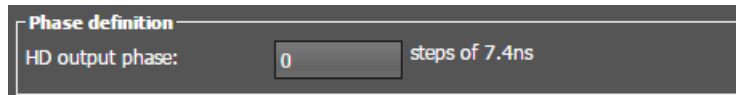
Property	Value
Bitrate (Mbps)	3 or 5
Default bitrate	3
Resolution	SD NTSC 352 x 240 pixels CIF 352 x 288 pixels CIF is used in all modes other than SD NTSC

## 4.2.3. Phase Definition Settings

### User Interface

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

The following screenshot displays the Phase Definition settings:



### HD Output Phase

<b>Description</b>	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.
<b>Values</b>	Steps of half pixels (7.4 ns): <ul style="list-style-type: none"><li>• from -4504500 to 4504500 in NTSC</li><li>• from -5400000 to 5400000 in PAL.</li></ul>
<b>Default value</b>	0

## 4.2.4. Interpolation Settings

### User Interface

The Interpolation settings are available on the Server tab in the server-based application (2<sup>nd</sup> 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)

<b>Description</b>	Enables or disables the two-line interpolation process.
<b>Values</b>	<ul style="list-style-type: none"> <li>• No (default)</li> <li>• Yes</li> </ul>

## Four Lines

<b>Description</b>	Enables or disables the four-line interpolation process.
<b>Values</b>	<ul style="list-style-type: none"> <li>• No (default)</li> <li>• Yes</li> </ul>

## 4.2.5. PC LAN Settings

### User Interface

The PC LAN settings allow the H3XP 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 (2<sup>nd</sup> 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 27 for more information.

## IP Address

<b>Description</b>	IP address to connect to the port #1 of the internal switch module on the H3XP board on the server. 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. When the redundancy is enabled, the status of both PC LAN connections is specified.
<b>Values</b>	The IP addresses 0.0.0.0 and 255.255.255.255 are not allowed. The connection status can be <b>Up</b> or <b>Down</b> .

## Subnet Mask

<b>Description</b>	Range of logical addresses within the address space assigned to port #4 of the the internal switch module.
--------------------	--

## Default Gateway

<b>Description</b>	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.
--------------------	---

## 4.3. Channels Tab

### 4.3.1. 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
<a href="#">Base settings</a>			
Inputs	X	X	X
Outputs	X	X	X
Base config	X	X	X
UHD Format	X	X	X
Interface	X	X	X
<a href="#">Port settings</a>			
RS422 #1-#6	X	X	X
<a href="#">Channels and control settings</a>			
OUT1-6 / IN1-6	X	X	X
Name	X	X	X
Main ctrl	X	X	X
Sec. ctrl	–	X	X
Mode	–	X	X
OSD	–	X	–
<a href="#">IP Stream settings</a>			
Input Stream <ul style="list-style-type: none"> <li>• IP Address</li> <li>• Port</li> <li>• Source Address</li> <li>• Source Port</li> <li>• SFP</li> </ul>	X	X	–

Setting Name	Basic	Advanced	Technical Setup
Output Stream <ul style="list-style-type: none"> <li>Source Port</li> <li>Destination Address</li> <li>Destination Port</li> <li>SFP</li> </ul>	X	X	—
Output Monitoring Stream <ul style="list-style-type: none"> <li>Source Port</li> <li>Destination Address</li> <li>Destination Port</li> <li>SFP</li> </ul>	X	X	—
Input Monitoring Stream <ul style="list-style-type: none"> <li>Source Port</li> <li>Destination Address</li> <li>Destination Port</li> <li>SFP</li> </ul>	X	X	—
<a href="#">Audio I/Os settings</a>			
MADI	X	X	X
Analog	X	X	X
Digital	X	X	X
<a href="#">Audio settings</a>			
Number of tracks	X	X	X
Audio full scale	—	X	X
Sample rate conv.	—	X	X
<a href="#">Audio monitoring settings</a>	X	X	X
Mon #1-#4	X	X	X
<a href="#">Advanced audio settings</a> (Inputs)	—	X	—
Advanced audio settings (Embedded outputs)	—	X	—
<a href="#">Advanced audio settings</a> (Digital AES/EBU outputs)	—	X	—
<a href="#">Advanced audio settings</a> (Analog outputs)	—	X	—
<a href="#">Recorder settings</a>			
Loop recording	—	X	X
Rec auto start	—	X	X
Clip Capacity	—	X	X
Rec capacity	—	X	X
<a href="#">Mix on one channel setting</a>			

Setting Name	Basic	Advanced	Technical Setup
OUT1-6	—	X	X
<a href="#">Timecode settings</a>			
LTC	—	X	—
User	—	X	X
Primary TC	—	X	X
<a href="#">SMPTE 334M packets management settings</a>			
Decoding	—	X	X
Encoding	—	X	X
Custom 1 / 2	—	X	—
SD OUT Encoding	—	X	—
<a href="#">Timecode insertion settings</a>			
IN Loop settings	—	X	—
SD OUT settings	—	X	—
HD OUT settings	—	X	—

**NOTE**

The following features are not supported on XS4K :

- 3D
- TwinRec
- SD Autosense

## 4.3.2. Channels

### 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)

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

The screenshot shows a 'Base settings' panel with the following configuration:

- Inputs:** 2
- Outputs:** 2
- Base config:** XSense (dropdown menu)
- UHD Format:** Square division (dropdown menu)
- Interface:** 3G Level-A (dropdown menu)

## Inputs

<b>Description</b>	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.
<b>Values</b>	<p>The number of supported channels depends on the chassis, and the mode:</p> <ul style="list-style-type: none"> <li>• on XS4K : 0-12 (Spotbox), 1-10 (XSense)</li> </ul> <p>See section "About Supported Configurations" on page 49 for more information on number of record channels and on supported configurations.</p>

## Outputs

<b>Description</b>	Number of logical play channels in the given configuration.
<b>Values</b>	<p>The number of supported channels depends on the chassis, and the mode:</p> <ul style="list-style-type: none"> <li>• on XS4K : 0-6 (Spotbox), 1-6 (XSense)</li> </ul> <p>See section "About Supported Configurations" on page 49 for more information on number of record channels and on supported configurations.</p>



## Base Config.

<b>Description</b>	Mode the EVS server is working in. The base configurations available depend on the server type, and on the valid license codes.
<b>Values</b>	<ul style="list-style-type: none"> <li>• <b>Spotbox:</b> 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</li> <li>• <b>XSense:</b> 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: 90 ... 95 + 111 + 96</li> <li>• <b>Video Delay:</b> mode where the server is used to play out the input with a video delay. License codes: 90 ... 95 + 127</li> </ul>

## UHD Format

<b>Availability</b>	The parameter is only available when the UHDTV-4K resolution is selected in the Server tab, Video and Reference settings, <b>Resolution</b> field.
<b>Description</b>	Defines the format used to transfer the UHD-4K image to and from the EVS server.
<b>Values</b>	<p>The following values are possible:</p> <ul style="list-style-type: none"> <li>• <b>two-sample interleave:</b> the UHD-4K is transported as four 1080p images at 1/4 of the original 4K resolution.</li> <li>• <b>square division:</b> the UHD-4K is transported as four 1080p quadrants.</li> </ul>
<b>Default value</b>	two-sample interleave

## Interface

<b>Availability</b>	The parameter is only available with a UHD-4K resolution, 3G interface or XIP rear panel.
<b>Description</b>	<p>Defines the interface the EVS server will use with the 1080p, UHD-4K resolutions or XIP rear panels:</p> <ul style="list-style-type: none"> <li>• The <b>3G-SDI interface</b> consists of a single serial link that provides 2.970 Gbit/s.</li> <li>• The <b>12G-SDI interface</b> consists of a single serial link corresponding to 4 x 3G-SDI links. This provides an uncompressed interface for UHD-4K.</li> <li>• The <b>IP SFP+ connectors</b> with the XIP rear panel.</li> </ul>
<b>Values</b>	<p>The following values are possible, but their availability depends on several conditions:</p> <ul style="list-style-type: none"> <li>• <b>HD-SDI</b>: HD-SDI connection for 720p or 1080i. It is available with the above-mentioned resolutions.</li> <li>• <b>3G Level-A</b>: 3G-SDI connection for 1080p, or each 1080p frame of an UHD-4K image. It is available with code 22 (1080p 3G) or code 27 (UHDTV-4K).</li> <li>• <b>12G</b>: 12G-SDI connection for an UHD-4K image. It is available with code 27 (UHDTV-4K).</li> <li>• <b>XIP</b>: SFP+ connection for IP streams. It is available with an XIP rear panel with 720p, 1080i or 1080p resolutions.</li> </ul>

## Port Settings

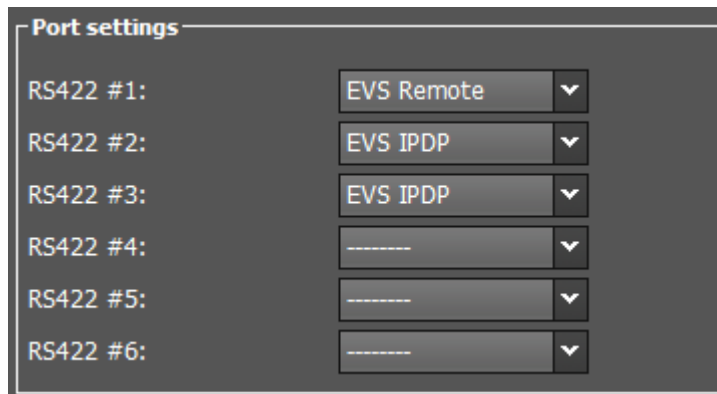
### User Interface

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:



The screenshot shows a 'Port settings' window with six rows, each representing an RS422 port. The first three ports are configured with 'EVS Remote', 'EVS IPDP', and 'EVS IPDP' respectively. The last three ports are currently set to a default value represented by a dashed line. Each port has a dropdown arrow to its right.

Port	Device
RS422 #1:	EVS Remote
RS422 #2:	EVS IPDP
RS422 #3:	EVS IPDP
RS422 #4:	-----
RS422 #5:	-----
RS422 #6:	-----

## RS422 #1 - #6

Description	Specifies what type of device/controller is connected to each RS422 port of the EVS server.
Values	<p>The following values can be available if the required license codes are active:</p> <ul style="list-style-type: none"> <li>• EVS Remote for XSense Remote Panel (code between 103 and 109 or code 96)</li> <li>• EVS IPDP (code 120 or 121)</li> <li>• Sony BVW75 (code 118)</li> <li>• XtenDD35 (code 118)</li> <li>• Odetics (code 119)</li> <li>• VDCP (code 119)</li> <li>• EVS AVSP (code 120 or 121)</li> <li>• LinX (code 123)</li> </ul>

## 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)

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

Channel and control settings									
		Name	Main ctrl	Port	Sec. ctrl	Port	Mode	OSD	
OUT1	PGM1	PGM1	EVS Remote		-----		Exclus	Main	
OUT2	PGM2	PGM2	EVS Remote		-----		Exclus	Main	
IN1	REC1	REC1	EVS Remote		-----				
IN2	REC2	REC2	EVS Remote		-----				

## Name

<b>Description</b>	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)

<b>Description</b>	Name of the main device/controller allowed to control the given play or record channel.
<b>Values</b>	For a controller to be available in the list of values, it must first be assigned to an RS422 port in the port settings. 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. See section "Rules for Controller Assignment" on page 105 for more information. 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)

<b>Description</b>	Name of the main device/controller allowed to control the given play or record channel.
<b>Values</b>	For a controller to be available in the list of values, it must first be assigned to an RS422 port in the port settings. 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. See section "Rules for Controller Assignment" on page 105 for more information. 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

<b>Description</b>	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.
<b>Values</b>	<p>Two control modes are possible:</p> <ul style="list-style-type: none"><li>• <b>Exclusive mode:</b> The main controller can decide at any time to pass the control to, or to retrieve the control from the secondary controller.</li><li>• <b>Parallel mode:</b> 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.</li></ul>

## OSD

<b>Description</b>	Specifies which device (main or secondary controller) will manage the OSD display characters in parallel mode.
<b>Values</b>	<p>Two values are possible:</p> <ul style="list-style-type: none"><li>• <b>Main:</b> The OSD display is managed by the main controller.</li><li>• <b>Sec.:</b> The OSD display is managed by the secondary controller.</li></ul>

# IP Stream Settings

## Introduction

The IP Stream settings allow to configure the IP settings of each incoming and outgoing IP stream, as well as the corresponding monitoring streams.

## User Interface

The **IP Stream** settings are available:

- in the Multicam Configuration window, Channels tab, in the basic and advanced display modes in the server-based application and web-based interface.

IP input stream settings													
		IP address				Port		Source address				Source port	SFP
IN1	<input checked="" type="checkbox"/>	225	0	0	1	7001	<input type="checkbox"/>	192	168	10	10	8100	SFP 4-C
IN2	<input checked="" type="checkbox"/>	225	0	0	2	7002	<input type="checkbox"/>	192	168	10	10	8100	SFP 4-C

IP output stream settings								
		Source port	Destination address				Destination port	SFP
OUT1	<input checked="" type="checkbox"/>	6000	225	0	0	10	7001	SFP 1-C
OUT2	<input checked="" type="checkbox"/>	6001	225	0	0	10	7002	SFP 1-C

all OUTs on C / D

IP output monitoring stream settings								
		Source port	Destination address				Destination port	SFP
Mon - OUT1	<input type="checkbox"/>	6000	225	0	0	10	7001	SFP 1-C
Mon - OUT2	<input type="checkbox"/>	6001	225	0	0	10	7002	SFP 1-C

all OUTs on C / D

IP input monitoring stream settings								
		Source port	Destination address				Destination port	SFP
Mon - IN1	<input type="checkbox"/>	6000	225	0	0	10	7001	SFP 4-D
Mon - IN2	<input type="checkbox"/>	6001	225	0	0	10	7002	SFP 4-D

all INs on C / D

## IP Input Stream Settings

The IP address and port settings act as filters to allow input streams into the given IN port of the EVS server. Should all filtered be disabled, no stream would be allowed to pass through to the SFP IP port.

### IP Address

<b>Description</b>	Multicast IP address the incoming stream is sent to and filtered on: <ul style="list-style-type: none"><li>• If the filter is enabled (check box selected), only incoming streams having this multicast address in their header will be passed through to the corresponding IN connector of the EVS server.</li><li>• If the filter is disabled, the incoming streams are not filtered based on the multicast address.</li></ul>
<b>Values</b>	This must be a valid multicast address, included in the range 225.0.0.0 - 238.255.255.255.

### Port

<b>Description</b>	Port number the incoming stream is sent to and filtered on: <ul style="list-style-type: none"><li>• If the filter is enabled (check box selected), only incoming streams having this port (and multicast address) in their header will be passed through to the corresponding IN connector of the EVS server.</li><li>• If the filter is disabled, the incoming streams are not filtered based on the port number (nor multicast address).</li></ul>
<b>Values</b>	This must be a valid port number.

### Source Address

<b>Description</b>	Source IP address the incoming stream is sent from and filtered on: <ul style="list-style-type: none"><li>• If the filter is enabled (check box selected), only incoming streams with this source IP address in their header will be passed through to the corresponding IN connector of the EVS server.</li><li>• If the filter is disabled, the incoming streams are not filtered based on the source IP address.</li></ul>
<b>Values</b>	This must be a valid IP address.

## Source Port

<b>Description</b>	Source port number the incoming stream is sent from and filtered on: <ul style="list-style-type: none"><li>• If the filter is enabled (check box selected), only incoming streams having this source port in their header will be passed through to the corresponding IN connector of the EVS server.</li><li>• If the filter is disabled, the incoming streams are not filtered based on the source port number.</li></ul>
<b>Values</b>	This must be a valid port number.

## SFP

<b>Description</b>	Name of the SFP IP port (IN connector) on the EVS server that receives the incoming streams.
<b>Values</b>	The same assignment principles are valid for SDI and IP connectors.

## IP Output Stream Settings

If an outgoing stream is disabled (check box unselected), no outgoing stream is sent from the associated SFP port.

The source IP address of an outgoing stream is that of the associated SFP port and is defined in the [IP IO settings](#).

## Source Port

<b>Description</b>	Port number on which the outgoing stream is sent from the EVS server.
<b>Values</b>	This must be a valid port number.

## Destination Address

<b>Description</b>	Multicast IP address to which the outgoing stream is sent.
<b>Values</b>	This must be a valid multicast address, included in the range 225.0.0.0 - 238.255.255.255.

## Destination Port

<b>Description</b>	Port number to which the outgoing stream is sent.
<b>Values</b>	This must be a valid port number.



## SFP

<b>Description</b>	Name of the SFP IP port (OUT connector) on the EVS server from which the outgoing stream is sent.
<b>Values</b>	The same assignment principles are valid for SDI and IP connectors.

## IP Output Monitoring Stream Settings

### Source Port

<b>Description</b>	Port number on which the monitoring of the outgoing stream is sent from the EVS server.
<b>Values</b>	This must be a valid port number.

### Destination Address

<b>Description</b>	Multicast IP address to which the monitoring of the outgoing stream is sent.
<b>Values</b>	This must be a valid multicast address, included in the range 225.0.0.0 - 238.255.255.255.

### Destination Port

<b>Description</b>	Port number to which the monitoring of the outgoing stream is sent.
<b>Values</b>	This must be a valid port number.

## SFP

<b>Description</b>	Name of the SFP IP port (OUT connector) on the EVS server from which the monitoring of the outgoing stream will be sent.
<b>Values</b>	The same assignment principles are valid for SDI and IP connectors.

## IP Input Monitoring Stream Settings

The source IP address of the monitoring of the incoming stream is that of the associated SFP port and is defined in the [IP IO settings](#).

### Source Port

<b>Description</b>	Source port number from which the monitoring of the incoming stream is sent.
<b>Values</b>	This must be a valid port number.

### Destination Address

<b>Description</b>	Multicast IP address to which the monitoring of the incoming stream is sent.
<b>Values</b>	This must be a valid multicast address, included in the range 225.0.0.0 - 238.255.255.255.

### Destination Port

<b>Description</b>	Port number to which the monitoring of the incoming stream is sent.
<b>Values</b>	This must be a valid port number.

### SFP

<b>Description</b>	Name of the SFP IP port (IN connector) on the EVS server from which the monitoring of the incoming stream is sent.
<b>Values</b>	The same assignment principles are valid for SDI and IP connectors.

## Rules for Controller Assignment

### Main Rules for XS4K server

On an XS4K 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 channel and play 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
<b>Main Controller</b>											
1 PGM											
2 PGM											
> 2 PGM											
1 PGM + 1 REC <sup>1</sup>											
1 REC											
> 1 REC											
Several PGM + 1 REC <sup>1</sup>											
Several PGM + Several REC <sup>1</sup>											
<b>Secondary Controller</b>											
1 PGM							2				
2 PGM											
> 2 PGM											
1 PGM + 1 REC <sup>1</sup>											
1 REC											
Several PGM + 1 REC <sup>1</sup>											
Several PGM + Several REC <sup>1</sup>											

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.

## 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								2			
2 PGM											
> 2 PGM											
1 REC											
> 1 REC											
1 PGM + 1 REC											
Several PGM + 1 REC											
Several PGM + Several REC											

3. Only if Mix on one channel is enabled.

## 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									-		
VDCP F&K										-	
VDCP Mix											-

## 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	-			*		*	*				
IPDP	-	-		*		*	*				
AVSP	-		-								
VDCP	-	*		-							-
Sony	-				-						
Odetics	-	*				-					
DD35	-	*					-				
LinX	-							-			
Odetics F&K	-								-		
VDCP F&K	-									-	
VDCP Mix	-			-							-

\* 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

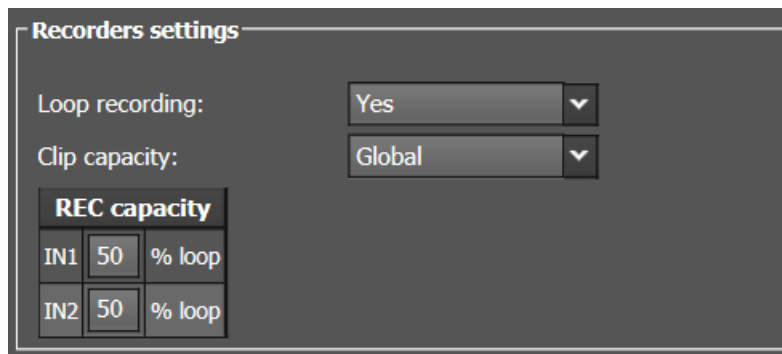
### User Interface

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).

The following screenshot shows the Recorder settings defined on the Channels tab in the web-based application:



### Loop Recording

<b>Description</b>	The <b>Loop recording</b> setting enables/disables the endless loop recording of all record channels of the EVS server.
<b>Values</b>	Yes (default) / No The value is forced to <b>Yes</b> in all configurations, except Spotbox configurations.

## Clip Capacity

<b>Description</b>	The <b>Clip capacity</b> setting specifies the recording mode on the record channels.
<b>Values</b>	<p>The following values are available: Global / Per channel</p> <ul style="list-style-type: none"> <li>• <b>Global:</b> In this mode, the clip capacity is shared between the different record trains. <b>Example:</b> 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.</li> <li>• <b>Per channel:</b> In this mode, the clip capacity is only relevant to the individual record train. <b>Example:</b> When 3 record trains are used, creating a clip of 30 min on REC1 will take 30 min of recording capacity from the 1<sup>st</sup> record train, but will not affect the recording capacity of the other two record trains.</li> </ul>
<b>Default value</b>	<p>The default value depends on the base configuration:</p> <ul style="list-style-type: none"> <li>• <b>Global (locked):</b> <ul style="list-style-type: none"> <li>◦ in XSense configurations</li> <li>◦ in Video delay configurations</li> </ul> </li> </ul>

## Rec Auto Start

<b>Availability</b>	This setting is displayed when a Spotbox configuration is running.
<b>Description</b>	<p>Automatic start of the record channels after the EVS server has initialized.</p> <p>In a XSense configuration, the setting is not displayed and the <b>Rec Auto Start</b> is automatically activated in the background.</p>
<b>Values</b>	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.

<b>Description</b>	<p>This parameter contains two types of information on the specified recorder:</p> <p><b>Recording Capacity: XX%</b> percentage of the disk space allocated to each channel.</p> <p><b>Loop / No Loop:</b> indicates whether the Loop Recording parameter is enabled or not.</p>
<b>Values</b>	<p>The following values are possible:</p> <ul style="list-style-type: none"> <li>• <b>Recording Capacity:</b> The value is defined by the user. The total of all values must not exceed 100%. By default, the recording capacity is evenly distributed among all recorders. <b>Example:</b> In a 2 REC 2 PLAY configuration, the recording capacity will be 50% for each recorder by default.</li> <li>• <b>Loop / No Loop:</b></li> <li>• The value directly depends on the Loop Recording setting: <ul style="list-style-type: none"> <li>◦ If the Loop Recording is enabled, the value will be 'Loop'.</li> <li>◦ If the Loop Recording is disabled, the value will be 'No Loop'.</li> </ul> </li> </ul>

## 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?	V4X Mod 1		V4X Mod 2	
			OUT A	OUT B	OUT A	OUT B
2 PGM	No	Conditional	Cut		Cut	
2 PGM	Yes	Conditional	Mix		Mix	
2 PGM	No	Always	Mix		PRV	
2 PGM	Yes	Always	Mix		PRV	

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:

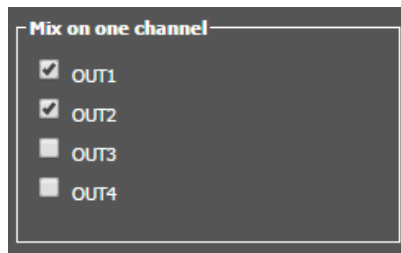
- in the Multicam Configuration window, Channels tab, in the advanced display mode of the server- and web-based interfaces;
- in the Technical menu of the Remote Control Panel (T2.X).



#### 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

<b>Description</b>	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), and with all supported codecs and resolutions.
<b>Values</b>	Yes / No (default)

### 4.3.3. 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:

The screenshot shows a web-based interface for 'Audio I/Os' settings. It contains three rows of settings, each with a label and a dropdown menu:

- Madi:** The dropdown menu is set to '128/128'.
- Analog:** The dropdown menu is set to '8/8'.
- Digital:** The dropdown menu is set to '16/16'.

## MADI

<b>Availability</b>	This parameter is available even if the connectors are not fitted on the EVS server.
<b>Description</b>	Number of IN and OUT MADI audio mono channels available on the EVS server rear panel.
<b>Values</b>	<ul style="list-style-type: none"> <li>• <b>None</b></li> <li>• <b>128/128</b> <ul style="list-style-type: none"> <li>◦ 128 IN mono audio channels</li> <li>◦ 128 OUT mono audio channels</li> </ul> </li> </ul> <p>Refer to the technical reference manual for more information about the number of mono channels provided with each physical connector.</p>

## Analog

<b>Availability</b>	This parameter is available even if the connectors are not fitted on the EVS server.
<b>Description</b>	<p>This parameter is not relevant on an XS4K server.</p> <p>Number of IN and OUT analog audio mono channels available on the EVS server rear panel.</p>
<b>Values</b>	<ul style="list-style-type: none"> <li>• <b>None</b></li> <li>• <b>4/4</b> <ul style="list-style-type: none"> <li>◦ 4 IN mono audio channels</li> <li>◦ 4 OUT mono audio channels</li> </ul> </li> <li>• <b>8/8</b> <ul style="list-style-type: none"> <li>◦ 8 IN mono audio channels</li> <li>◦ 8 OUT audio channels</li> </ul> </li> </ul> <p>Refer to the technical reference manual for more information about the number of mono channels provided with each physical connector.</p>

## Digital

<b>Availability</b>	This parameter is always available even if the connectors are not fitted on the EVS server.
<b>Description</b>	Number of IN and OUT digital audio mono channels available on the EVS server rear panel.
<b>Values</b>	<ul style="list-style-type: none"> <li>• <b>None</b></li> <li>• <b>8/8</b> <ul style="list-style-type: none"> <li>◦ 8 IN mono audio channels</li> <li>◦ 8 OUT audio channels</li> </ul> </li> <li>• <b>16/16</b> <ul style="list-style-type: none"> <li>◦ 16 IN mono audio channels</li> <li>◦ 16 OUT mono audio channels</li> </ul> </li> </ul> <p>Refer to the technical reference manual for more information about the number of mono channels provided with each physical connector.</p>

## Audio Settings

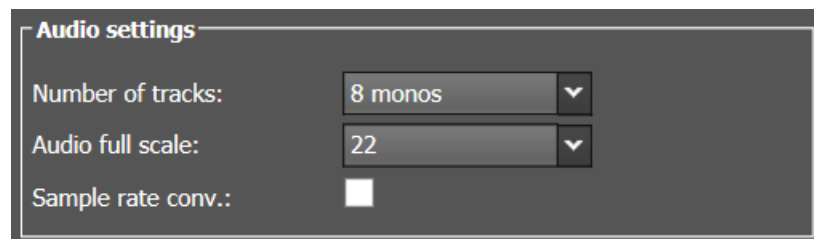
### User Interface

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.

<b>Description</b>	Number of mono audio tracks associated to each video channel. See section "Number of Audio Tracks" on page 119
<b>Values</b>	4 Monos (default), 8 Monos, 16 Monos

## Audio Full Scale

<b>Description</b>	This parameter is not relevant on an XS4K server. Maximum audio level for the analog outputs on the server (in dB). It allows indirectly defining the head room, as the audio full scale is 4 dB higher than the head room. As the default value for the audio full scale is 22 dB, the default value for the head room is 18.
<b>Values</b>	Range of values: [10...30] dB
<b>Default value</b>	22 dB

## Sample Rate Conv. (Conversion)

<b>Description</b>	Specifies whether the input sample rate is converted. This parameter is only available with the digital AES/EBU audio format. If this parameter is set to 'No', the user has to ensure that the signals are properly synchronized.
<b>Values</b>	Yes (default) / No

## Audio Monitoring Settings

### User Interface

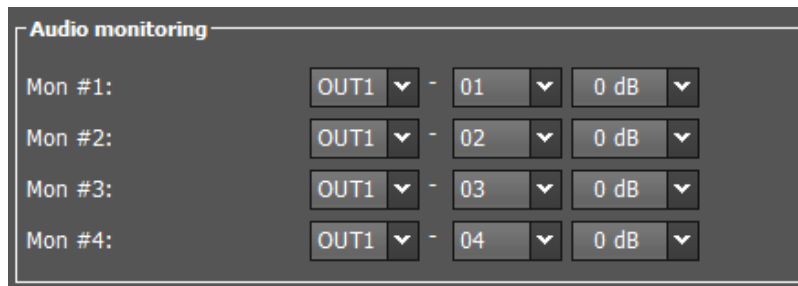
The Audio Monitoring settings allow users to specify which audio signals are monitored on the 4 XLR audio monitoring outputs located on the right of the rear panel.



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

<b>Description</b>	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).
<b>Value</b>	For each audio monitoring connector, the audio signal to be monitored is specified by the video channel number and the audio mono channel number. <b>Example:</b> The value 'OUT1-01' for Mon #1 means that the audio signal of the 1 <sup>st</sup> audio mono channel of the PGM1 is sent to the monitoring connector 1.
<b>Default Values</b>	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.

## Maximum Number of Tracks

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)

## 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 (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:

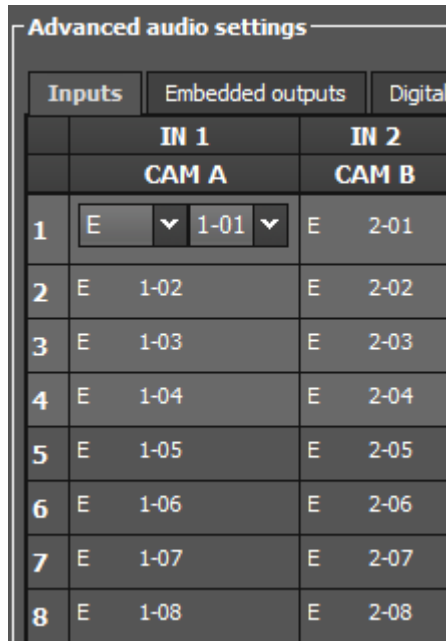
Advanced audio settings					
Inputs		Embedded outputs		Digital	
	IN 1		IN 2		
	CAM A		CAM B		
1	E	▼ 1-01 ▼	E	2-01	
2	E	1-02	E	2-02	
3	E	1-03	E	2-03	
4	E	1-04	E	2-04	
5	E	1-05	E	2-05	
6	E	1-06	E	2-06	
7	E	1-07	E	2-07	
8	E	1-08	E	2-08	

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:



The screenshot shows a window titled "Advanced audio settings" with three tabs: "Inputs", "Embedded outputs", and "Digital". The "Inputs" tab is selected, displaying a table with two main columns: "IN 1" (containing "CAM A") and "IN 2" (containing "CAM B"). Each column has a list of 8 channels. The first channel in "IN 1" is expanded to show a dropdown menu with "E" selected and a text field containing "1-01".

	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.

Advanced audio settings

Inputs

Embedded outputs

Digital outputs

MADI outputs

	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

all E

all D

all A

Tgl Dolby

all M

all None

IN1 on all

Show gain

High level gain

## Example 1

Inputs	Embedded outputs		Digital output
	IN 1		IN 2
	CAM A		CAM B
1	E	1-01	E 2-01 E
2	E	1-02	E 2-02 E
3	E	1-03	E 2-03 E
4	E	1-04	E 2-04 E
5	E	1-05	E 2-05 E

The E2-03 value located in the intersection between row 3 and column IN2 means that the 3<sup>rd</sup> 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

Inputs	Embedded outputs		Digital output
	IN 1		IN 2
	CAM A		CAM B
1	E	1-01	E 2-01 E
2	E	1-01	E 2-01 E
3	E	1-01	E 2-01 E
4	E	1-01	E 2-01 E
5	E	1-05	E 2-05 E
6	E	1-05	E 2-05 E
7	E	1-05	E 2-05 E
8	E	1-05	E 2-05 E

The allocation of the source audio mono channels shown above means that:

- The embedded audio source of the 1<sup>st</sup> 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<sup>th</sup> mono channel of the record channel (IN1 or IN2) will be stored on mono channels 5 to 8 of the recorded material.

### Example 3

Inputs		Embedded outputs		Digital outputs
	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<sup>st</sup> mono channel of the material recorded on the EVS server, and so on.

### Example 4

Inputs		Embedded outputs		Digital outputs
	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 three 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.

See section "Default Mapping for Audio Inputs and Outputs" on page 127 for a full overview on the default mono channel assignment in the various supported configurations.

### Embedded outputs

Advanced audio settings					
Inputs		Embedded outputs		Digital outputs	
		OUT1		OUT2	
		PGM 1		PGM 2	
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

### Digital outputs

Advanced audio settings					
Inputs		Embedded outputs		Digital outputs	
		OUT1		OUT2	
		PGM 1		PGM 2	
1	D	01	D	05	D
2	D	02	D	06	D
3	D	03	D	07	D
4	D	04	D	08	D

### MADI outputs

Advanced audio settings					
Inputs		Embedded outputs		Digital outputs	
		OUT1		OUT2	
		PGM 1		PGM 2	
1	M	1-01	M	1-17	M
2	M	1-02	M	1-18	M
3	M	1-03	M	1-19	M
4	M	1-04	M	1-20	M
5	M	1-05	M	1-21	M



## 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	
	PGM 1		PGM 2		PGM 3	
1	EY	1-02	EY	2-02	EY	3-02
2	EY	1-01	EY	2-01	EY	3-01
3	EY	1-03	EY	2-03	EY	3-03
4	EY	1-04	EY	2-04	EY	3-04
5	EY	1-05	EY	2-05	EY	3-05

## Default Mapping for Audio Inputs and Outputs

### Introduction

The tables below present the channel mapping for audio inputs and outputs in the following configuration:

- XS4K chassis
- Maximum number of recorders or players (see section "About Supported Configurations" on page 49).
- Audio hardware configuration: BNC MADI + 16 BNC 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 players, and an audio configuration with 16 tracks (mono channels):

	OUT 1	OUT 2	OUT 3	OUT 4	OUT 5	OUT 6
<b>Mono1</b>	E 1-01	E 2-01	E 3-01	E 4-01	E 5-01	E 6-01
<b>Mono2</b>	E 1-02	E 2-02	E 3-02	E 4-02	E 5-02	E 6-02
<b>Mono3</b>	E 1-03	E 2-03	E 3-03	E 4-03	E 5-03	E 6-03
<b>Mono4</b>	E 1-04	E 2-04	E 3-04	E 4-04	E 5-04	E 6-04
<b>Mono5</b>	E 1-05	E 2-05	E 3-05	E 4-05	E 5-05	E 6-05
<b>Mono6</b>	E 1-06	E 2-06	E 3-06	E 4-06	E 5-06	E 6-06
<b>Mono7</b>	E 1-07	E 2-07	E 3-07	E 4-07	E 5-07	E 6-07
<b>Mono8</b>	E 1-08	E 2-08	E 3-08	E 4-08	E 5-08	E 6-08
<b>Mono9</b>	E 1-09	E 2-09	E 3-09	E 4-09	E 5-09	E 6-09
<b>Mono10</b>	E 1-10	E 2-10	E 3-10	E 4-10	E 5-10	E 6-10
<b>Mono11</b>	E 1-11	E 2-11	E 3-11	E 4-11	E 5-11	E 6-11
<b>Mono12</b>	E 1-12	E 2-12	E 3-12	E 4-12	E 5-12	E 6-12
<b>Mono13</b>	E 1-13	E 2-13	E 3-13	E 4-13	E 5-13	E 6-13
<b>Mono14</b>	E 1-14	E 2-14	E 3-14	E 4-14	E 5-14	E 6-14
<b>Mono15</b>	E 1-15	E 2-15	E 3-15	E 4-15	E 5-15	E 6-15
<b>Mono16</b>	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
<b>Mono1</b>	E 1-01	E 2-01	E 3-01	E 4-01	E 5-01	E 6-01
<b>Mono2</b>	E 1-02	E 2-02	E 3-02	E 4-02	E 5-02	E 6-02
<b>Mono3</b>	E 1-03	E 2-03	E 3-03	E 4-03	E 5-03	E 6-03
<b>Mono4</b>	E 1-04	E 2-04	E 3-04	E 4-04	E 5-04	E 6-04
<b>Mono5</b>	E 1-05	E 2-05	E 3-05	E 4-05	E 5-05	E 6-05
<b>Mono6</b>	E 1-06	E 2-06	E 3-06	E 4-06	E 5-06	E 6-06
<b>Mono7</b>	E 1-07	E 2-07	E 3-07	E 4-07	E 5-07	E 6-07
<b>Mono8</b>	E 1-08	E 2-08	E 3-08	E 4-08	E 5-08	E 6-08
<b>Mono9</b>	E 1-09	E 2-09	E 3-09	E 4-09	E 5-09	E 6-09
<b>Mono10</b>	E 1-10	E 2-10	E 3-10	E 4-10	E 5-10	E 6-10
<b>Mono11</b>	E 1-11	E 2-11	E 3-11	E 4-11	E 5-11	E 6-11
<b>Mono12</b>	E 1-12	E 2-12	E 3-12	E 4-12	E 5-12	E 6-12
<b>Mono13</b>	E 1-13	E 2-13	E 3-13	E 4-13	E 5-13	E 6-13
<b>Mono14</b>	E 1-14	E 2-14	E 3-14	E 4-14	E 5-14	E 6-14
<b>Mono15</b>	E 1-15	E 2-15	E 3-15	E 4-15	E 5-15	E 6-15
<b>Mono16</b>	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.

### 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 the audio configuration with 8 tracks (mono channels):

	OUT 1	OUT 2	OUT 3	OUT 4	OUT 5	OUT 6
<b>Mono1</b>	D 01	D 09	None	None	None	None
<b>Mono2</b>	D 02	D 10	None	None	None	None
<b>Mono3</b>	D 03	D 11	None	None	None	None
<b>Mono4</b>	D 04	D 12	None	None	None	None
<b>Mono5</b>	D 05	D 13	None	None	None	None
<b>Mono6</b>	D 06	D 14	None	None	None	None
<b>Mono7</b>	D 07	D 15	None	None	None	None
<b>Mono8</b>	D 08	D 16	None	None	None	None

### 4 or 16 Audio Tracks

With audio configurations with 4 or 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 an audio configuration with 16 tracks (mono channels):

	OUT 1	OUT 2	OUT 3	OUT 4	OUT 5	OUT 6
<b>Mono1</b>	D 01	D 05	D 09	D 13	None	None
<b>Mono2</b>	D 02	D 06	D 10	D 14	None	None
<b>Mono3</b>	D 03	D 07	D 11	D 15	None	None
<b>Mono4</b>	D 04	D 08	D 12	D 16	None	None
<b>Mono5</b>	None	None	None	None	None	None
<b>Mono6</b>	None	None	None	None	None	None
<b>Mono7</b>	None	None	None	None	None	None
<b>Mono8</b>	None	None	None	None	None	None
<b>Mono9</b>	None	None	None	None	None	None

	OUT 1	OUT 2	OUT 3	OUT 4	OUT 5	OUT 6
<b>Mono10</b>	None	None	None	None	None	None
<b>Mono11</b>	None	None	None	None	None	None
<b>Mono12</b>	None	None	None	None	None	None
<b>Mono13</b>	None	None	None	None	None	None
<b>Mono14</b>	None	None	None	None	None	None
<b>Mono15</b>	None	None	None	None	None	None
<b>Mono16</b>	None	None	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
<b>Mono1</b>	M1-01	M1-17	M1-33	M1-49	M2-01	M2-17
<b>Mono2</b>	M1-02	M1-18	M1-34	M1-50	M2-02	M2-18
<b>Mono3</b>	M1-03	M1-19	M1-35	M1-51	M2-03	M2-19
<b>Mono4</b>	M1-04	M1-20	M1-36	M1-52	M2-04	M2-20
<b>Mono5</b>	M1-05	M1-21	M1-37	M1-53	M2-05	M2-21
<b>Mono6</b>	M1-06	M1-22	M1-38	M1-54	M2-06	M2-22
<b>Mono7</b>	M1-07	M1-23	M1-39	M1-55	M2-07	M2-23
<b>Mono8</b>	M1-08	M1-24	M1-40	M1-56	M2-08	M2-24
<b>Mono9</b>	M1-09	M1-25	M1-41	M1-57	M2-09	M2-25
<b>Mono10</b>	M1-10	M1-26	M1-42	M1-58	M2-10	M2-26
<b>Mono11</b>	M1-11	M1-27	M1-43	M1-59	M2-11	M2-27
<b>Mono12</b>	M1-12	M1-28	M1-44	M1-60	M2-12	M2-28
<b>Mono13</b>	M1-13	M1-29	M1-45	M1-61	M2-13	M2-29
<b>Mono14</b>	M1-14	M1-30	M1-46	M1-62	M2-14	M2-30
<b>Mono15</b>	M1-15	M1-31	M1-47	M1-63	M2-15	M2-31
<b>Mono16</b>	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	<b>CTRL+E</b>	<b>all E</b>
Set all audio channels to Digital	<b>CTRL+D</b>	<b>all D</b>
Set all audio channels to MAD1	<b>CTRL+M</b>	<b>all M</b>
Toggle all audio channels to Dolby Audio	<b>CTRL+Y</b>	<b>Tgl Dolby</b>
Set all audio channels to None	<b>CTRL+N</b>	<b>all None</b> applicable to all E,D or A outputs at a time
Reset all the audio configuration (also on other pages) to default values	<b>F5</b>	-
Route all audio input channels of REC1 to the other record channels (only audio inputs)	<b>CTRL+0</b>	<b>Rec 1 on all</b>
Validating the changes	<b>ALT+A</b>	<b>Apply</b>

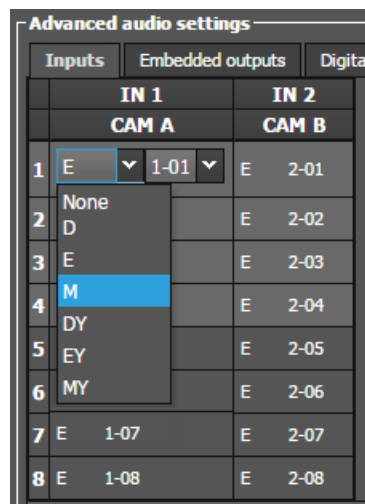
### Individual Editing Actions in the Server-Based Application

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	<b>TAB</b>
Scrolling down in the list of the possible values for the selected field	<b>SPACEBAR</b>
Scrolling up in the list of the possible values for the selected field	<b>SHIFT + SPACEBAR</b>
Increasing the audio channel number by 8 audio mono channels (valid when the audio channel is selected)	<b>CTRL + RIGHT ARROW</b>
Decreasing the audio channel number by 8 audio mono channels. This is valid when the audio channel is selected.	<b>CTRL + LEFT ARROW</b>
Increasing by 1 the ID of the audio source channel. This is valid with audio channels with ID - embedded or MADI - when the channel number is selected.	<b>CTRL + ARROW UP</b>
Decreasing by 1 the ID of the audio source channel. This is valid with audio channels with ID - embedded or MADI - when the channel number is selected.	<b>CTRL + ARROW DOWN</b>

## 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

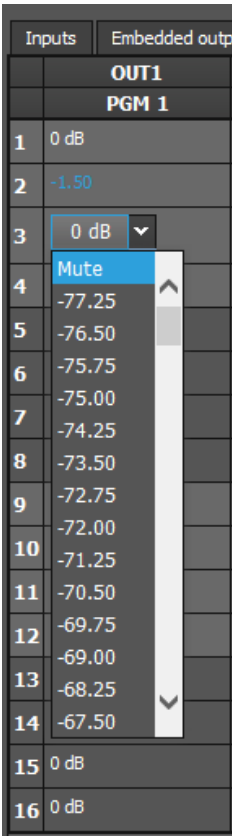
When an audio input is used for multiple tracks, the value of the gain shall be the same for all tracks.

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	<b>CTRL+G</b>
Muting the selected audio channel	<b>CTRL+M</b>
Un-muting the selected audio channel	<b>CTRL+U</b>
Increasing by 0.75dB the audio level of the selected audio channel	<b>SPACEBAR</b>
Lowering by 0.75dB the audio level of the selected audio channel	<b>SHIFT + SPACEBAR</b>
Increasing by 3dB the audio level of the selected audio channel	<b>CTRL+ARROW RIGHT</b>
Lowering by 3dB the audio level of the selected audio channel	<b>CTRL+ARROW LEFT</b>
Increasing by 6dB the audio level of the selected audio channel	<b>CTRL+ARROW UP</b>
Lowering by 6dB the audio level of the selected audio channel	<b>CTRL+ARROW DOWN</b>

## 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.

**NEW !**

### 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 Configurations

### Case 1: The 5.1 audio signal is carried on 6 discrete PCM audio channels

- It is available on an XS4K server in all configurations.
- The audio can be digital or embedded depending on the configuration.
- In AES audio, if the audio is correctly genlocked to the video, the sample rate converter can be switched off.

### 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.

If the sample rate converter is activated and the audio configuration is a mix between PCM audio over AES and Dolby E over AES, the sample rate converter will only be applied to the PCM over AES signal.

- Dolby E Embedded in the HD SDI stream
  - Set the configuration of the pair of channels carrying the Dolby E signal to “EY” in the Multicam Configuration window, Channels tab. This will force the transition to a hard cut.
  - The sample rate converter parameter does not apply to embedded audio.

The Dolby E transitions will be correct as long as:

- the configuration is correct
- the AES stream containing Dolby E is correctly synchronized with the video

Dolby E transitions will not be correct (2 frames of mute at the transitions) if the audio type is set to E instead of EY or D instead of DY.

Audio effects (scrub, slow motion) are not possible in Dolby E. If they are used anyway, the audio will be muted.

## 4.3.4. Timecode and Data Insertion

### Timecode Settings

#### User Interface

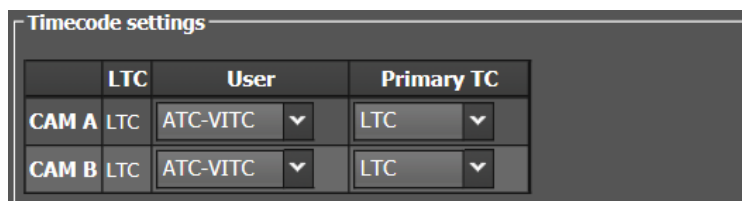
The Timecode settings allow specifying which type of timecode the users want to use as the reference to work on a given recorder of an EVS server.

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	User	Primary TC
CAM A	LTC	ATC-VITC ▼	LTC ▼
CAM B	LTC	ATC-VITC ▼	LTC ▼

## LTC

<b>Description</b>	Longitudinal timecode (timecode defined on or plugged into the EVS server) automatically stored in the first timecode jump table (LTC table). This is not possible to modify the timecode type stored in the first timecode jump table.
<b>Values</b>	LTC (non-editable)

## User

<b>Description</b>	Timecode type stored in the second timecode jump table (User TC table).
<b>Values</b>	In HD and UHD-4K: <ul style="list-style-type: none"> <li>• LTC</li> <li>• ATC-LTC (Ancillary LTC Timecode)</li> <li>• ATC-VITC (Ancillary VITC Timecode)</li> </ul>

## Primary TC

<b>Description</b>	Timecode type that is displayed at the bottom the VGA and is used to work with the video material stored on the given recorder. 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.
<b>Values</b>	<ul style="list-style-type: none"> <li>• <b>LTC:</b> LTC timecode, which is automatically stored in the LTC table. It is specified in the <b>LTC</b> field.</li> <li>• <b>User:</b> User-defined timecode, which is stored in the USER TC table and specified in the <b>User</b> field.</li> </ul>
<b>OSD Display</b>	Depending on the value selected for this setting, the timecode displayed at the bottom of the user's OSD will have a different color: <ul style="list-style-type: none"> <li>• If the LTC timecode is selected, the timecode color will be white.</li> <li>• If the USER timecode is selected, the timecode color will be yellow.</li> </ul>

# 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.

The screenshot below shows the Timecode Insertion settings in HD on the Channels tab in the web-based application:

**Timecode insertion settings**

Inputs Outputs

	CAM A	CAM B
IN LOOP		
D-VITC		
Lines	19-21 ▼	19-21 ▼

**Timecode insertion settings**

Inputs Outputs

	PGM1	PGM2
HD OUT		
ATC-LTC	LTC ▼	LTC ▼
Userbits	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ATC-VITC	LTC ▼	LTC ▼
Userbits	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SD OUT		
D-VITC	No ▼	No ▼
Lines	19-21 ▼	19-21 ▼

## Input Tab

### In Loop: D-VITC

The D-VITC (Digital Vertical Interval Timecode) and userbits are always written on the monitoring SD outputs of the record codec and are the same as on the source video.

### In Loop: Lines

<b>Description</b>	Lines on which the VITC must be written on the output connectors of the record codec.
<b>Values</b>	From 06-08 to 20-22
<b>Default Values</b>	14-16 in NTSC 19-21 in PAL

## Output Tab

### HD OUT (in HD): ATC-LTC / ATC-VITC

<b>Description</b>	Enables/disables the insertion of the embedded timecode (ATC-LTC or ATC-VITC) in the HD output.
<b>Values</b>	<p>The values specified for the ATC-LTC and ATC-VITC fields have to be the same. The values can be as follows:</p> <ul style="list-style-type: none"> <li>• <b>No</b> No new timecode inserted in the output.</li> <li>• <b>In</b> Same timecode as in the input inserted in the output.</li> <li>• <b>LTC</b> Timecode from the LTC table inserted in the output.</li> <li>• <b>USER</b> User-defined timecode inserted in the output. 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.</li> <li>• <b>TC 0</b></li> </ul>
<b>Default value</b>	No

## HD OUT (in HD): UserBits

<b>Description</b>	Enables/disables the insertion of the user bits in the HD output. The values specified for the ATC-LTC and ATC-VITC fields have to be the same. 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.
<b>Values</b>	Yes (default) / No



### NOTE

The SD OUT settings are not relevant with an XS4K server.

## SMPTE Package Settings

### User Interface

The SMPTE Package 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).

The following screenshot shows the SMPTE Package settings defined on the Channels tab in the web-based application:

	CAM A	CAM B
Decoding	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Custom 1	<input type="checkbox"/>	<input type="checkbox"/>
Custom 2	<input type="checkbox"/>	<input type="checkbox"/>

	PGM1	PGM2	PGM3	PGM4
Encoding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SD OUT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Encoding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>





## 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

<b>Description</b>	Enables/disables the decoding of SMPTE 334M data packets on each record channel.
<b>Values</b>	Yes (default) / No

### Custom 1/2

<b>Description</b>	Enables/disables a customized decoding of the SMPTE 334M data packets. See section "Customizing the Decoding of SMPTE Data" on page 144 for more information.
<b>Values</b>	Yes / No (default)

## Encoding Tab

### Encoding

<b>Description</b>	Enables/disables the encoding of the SMPTE 334M data onto each play channel in HD.
<b>Values</b>	Yes / No (default)

## SD OUT Encoding

<b>Description</b>	This setting is not relevant with an XS4K 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 Package Settings" on page 142 for more information.
<b>Values</b>	Yes / No (default)

## 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 the SDTI 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
<a href="#">SDTI settings</a>			
Speed	X	X	X
Net name	X	X	–
Net number	X	X	X
Type	X	X	X
<a href="#">SDTI Priorities settings</a>			
High priority	–	X	X
<a href="#">Gigabit Connection settings</a>			
Physical interface	X	X	X
Link aggregation	X	X	X
<a href="#">Gigabit IP Configuration settings</a>			
IP address	X	X	X
Subnet mask	X	X	X
Default gateway	X	X	X
<b>NEW !</b> <a href="#">Gigabit Prioritization settings</a>			
Configuration mode	X	X	X
Connections (Lo-Res/Unreserved)	X	X	X
<a href="#">IP IO Configuration settings</a>			
IP Address	X	X	X
Subnet Mask	X	X	X
Default Gateway	X	X	X

## 4.4.2. SDTI Settings

### Introduction

The SDTI settings allow specifying the settings related to the SDTI network. This network allows the content between EVS servers to be visible across the network, and easily transferable.



#### WARNING

Changes to the SDTI parameters require an application reboot (**ALT+Q** from the operational windows) to be applied.

### User Interface

The **SDTI** and **SDTI Priorities** 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 SDTI settings will only be displayed if the SDTI board is present on the EVS server and if the SDTI license code (117) is valid.

The following screenshots display the SDTI and SDTI Priorities settings on the Network tab in the web-based interface:

**SDTI**

Speed: No relay 2970 ▼

Net name: X

Net number: 4

Type: Master ▼

**SDTI priorities**

High Priority ☐ PGM1 ☐ PGM2 ☐

## Speed

<b>Description</b>	<p>Enables the selection of the SDTI option and the bandwidth for the XNet network.</p> <p>On the XS4K server, there is one pair of SDTI connectors: XNet2 No Relay connectors are used at 2970 Mbps.</p> <p>The SDTI circuit is closed only when the Multicam software is started.</p>
<b>Values</b>	<p>The following values are available:</p> <ul style="list-style-type: none"> <li>• No Relay 2970 (Mbps)</li> <li>• Off</li> </ul>
<b>Default value</b>	Off

## Net Name

<b>Description</b>	<p>Machine name on the SDTI network.</p> <p>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.</p> <p>The Net Name will be displayed even if the SDTI code is not valid.</p>
<b>Values</b>	The Net Name is user-defined and cannot exceed 8 characters.
<b>Default value</b>	By default, no Net Name is assigned.

## Net Number

<b>Description</b>	<p>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.</p>
<b>Values</b>	Range between 1 and 29
<b>Default value</b>	1

## Type

<b>Description</b>	Defines the privileges of the EVS server on the SDTI network.
<b>Values</b>	<p>The following values are possible:</p> <ul style="list-style-type: none"> <li>• <b>Client:</b> It cannot access the content on other EVS servers.</li> <li>• <b>Master:</b> It can access all content on other EVS servers.</li> <li>• <b>Server:</b> It manages the SDTI network, and it can access all content on other EVS servers.</li> </ul> <p>Only one EVS server on the network should be set to Server type. If no Server type is defined on the network, XNet will not be established. If more than one EVS server is defined as Server type, only the first one to connect will be the actual Server.</p> <p>Whatever the server type defined, the content of an EVS server can be accessed without restrictions by the other EVS servers (with type Master or Server) on the SDTI network.</p>
<b>Default value</b>	Server

## High Priority

<b>Description</b>	Defines a higher priority for a play channel of the local server whenever they play network clips/trains. This higher priority will only apply in play, not in shuttle mode.
<b>Values</b>	Yes / No (default)



### NOTE

Activating this setting will not prevent a freeze on the SDTI network if the network is completely stalled. It is always worth checking the network status and defining clear network usage rules if you wish to play footage across the network.

## 4.4.3. Gigabit Connection

### Introduction

The Gigabit connection allows the backup and transfer of the audio and video data without going through the SDTI 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 and two 10GbE ports.

The 1GbE **or** 10GbE ports can be used to provide the internal Gigabit connection.



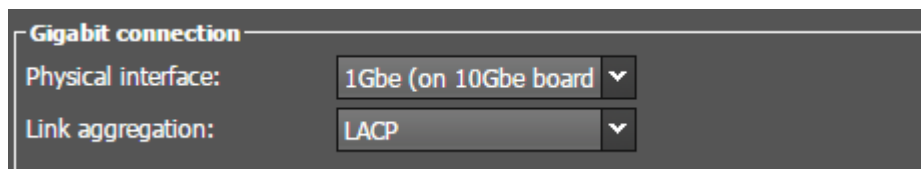
#### WARNING

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

<b>Availability</b>	This section is only available if the server is equipped with a GbE board.
<b>Description</b>	Specifies the physical interface that provides the Gigabit Ethernet connection.
<b>Values</b>	<p>The following values are available:</p> <ul style="list-style-type: none"> <li>• <b>None</b> No gigabit interface is present.</li> <li>• <b>1 GbE (on 10GbE board)</b> One or two of the 1GbE connections on the GbE board is/are used.</li> <li>• <b>10 GbE</b> One or two of the 10GbE connections of the GbE board is/are used.</li> </ul>
<b>Default Value</b>	The default value corresponds to the most efficient physical interface installed on the EVS server.

## Link aggregation

<b>Description</b>	Specifies the teaming method when using the 1GbE or the 10GbE ports of the GbE board.
<b>Values</b>	<p>The following values are available:</p> <ul style="list-style-type: none"> <li>• <b>None</b> No link aggregation method is applied, and no teaming is provided.</li> <li>• <b>LACP</b> The Link Aggregation Control Protocol is used to provide teaming.</li> <li>• <b>Adapter Fault Tolerance</b> The Adapter Fault Tolerance (AFT) method is used to provide teaming.</li> <li>• <b>Switch Fault Tolerance</b> The Switch Fault Tolerance (SFT) method is used to provide teaming.</li> </ul>
<b>Default Value</b>	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 IP configuration												
	Port 1				Port 2							
IP Address	10	129	59	21	192	168	12	10				
Subnet Mask	255	255	255	0	255	255	255	0				
Default Gateway	10	129	59	1	192	168	12	1				

### 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)

<b>Description</b>	IP address to connect to the port1/port2 of the Gigabit Ethernet connection on the EVS server.
<b>Values</b>	The IP addresses 0.0.0.0 and 255.255.255.255 are not allowed.

## Subnet Mask (Port 1/Port 2)

<b>Description</b>	Range of logical addresses within the address space assigned to the Gigabit Ethernet connection. 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)

<b>Description</b>	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

**NEW !**

### 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**

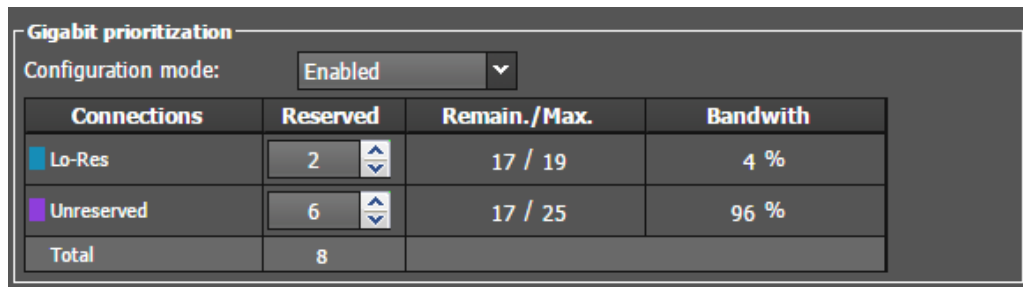
- Changes to the Gigabit Prioritization settings require an application reboot (**ALT+Q** from the operational windows) to be applied.
- When the Truck Manager is used in a given workflow, it automatically configures the Gigabit Prioritization settings to take into account the connection needs of all 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:



Connections	Reserved	Remain./Max.	Bandwidth
Lo-Res	2	17 / 19	4 %
Unreserved	6	17 / 25	96 %
Total	8		

## 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 priority 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

<b>Description</b>	Specifies whether and how you want to configure the priorities for the Gigabit connections.
<b>Values</b>	<p>Two configuration modes are available:</p> <ul style="list-style-type: none"> <li><b>Disabled:</b> <ul style="list-style-type: none"> <li>The parameters for setting prioritization are hidden: you cannot reserve connections.</li> <li>The number of unreserved connections is automatically set to the maximum (25 connections).</li> </ul> </li> <li><b>Enabled:</b> <ul style="list-style-type: none"> <li>You can set the number of Lo-Res connections.</li> <li>The number of unreserved connections is computed and set automatically (never lower than 6).</li> </ul> </li> </ul>
<b>Default value</b>	Disabled

## Connections (Lo-Res)

<b>Availability</b>	The setting is only available in Enabled configuration mode, and if the Lo-Res codec essence is active on the EVS server.
<b>Description</b>	Allows configuring the number of Lo-Res connections allowed to the bandwidth of the EVS server. Each Lo-Res connection has a priority profile optimized for a smooth browsing of Lo-Res media, without impacting other transfers.
<b>Values</b>	The values is set in the <b>Reserved</b> column. The number of remaining and maximum Lo-Res connections for the given server configuration is specified in the <b>Remain./Max.</b> column.
<b>Default value</b>	0

## Connections (Unreserved)

<b>Availability</b>	The setting is only displayed in Enabled configuration mode.
<b>Description</b>	Specifies the number of unreserved connections allowed to the Gigabit interface of the EVS server.
<b>Values</b>	6-25 A minimum of six unreserved connections is necessary to provide the same number of connections as in earlier versions of Multicam.
<b>Default value</b>	6

## 4.4.6. IP IO Configuration

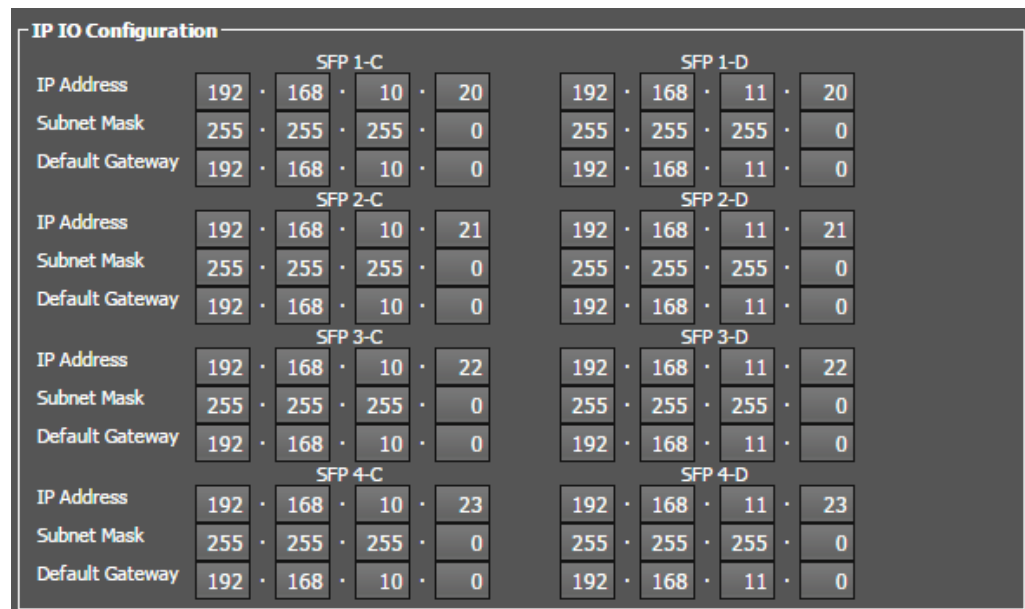
### Introduction

The IP IO configuration allows to configure the IP addresses of the SFP+ ports (10GbE) used to send or receive video from or onto the EVS server over an IP network.

### 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.



The screenshot shows the 'IP IO Configuration' window with a grid of settings for eight SFP ports. Each port has fields for IP Address, Subnet Mask, and Default Gateway, each represented as a four-part dotted decimal value.

Port	IP Address	Subnet Mask	Default Gateway
SFP 1-C	192 · 168 · 10 · 20	255 · 255 · 255 · 0	192 · 168 · 10 · 0
SFP 1-D	192 · 168 · 11 · 20	255 · 255 · 255 · 0	192 · 168 · 11 · 0
SFP 2-C	192 · 168 · 10 · 21	255 · 255 · 255 · 0	192 · 168 · 10 · 0
SFP 2-D	192 · 168 · 11 · 21	255 · 255 · 255 · 0	192 · 168 · 11 · 0
SFP 3-C	192 · 168 · 10 · 22	255 · 255 · 255 · 0	192 · 168 · 10 · 0
SFP 3-D	192 · 168 · 11 · 22	255 · 255 · 255 · 0	192 · 168 · 11 · 0
SFP 4-C	192 · 168 · 10 · 23	255 · 255 · 255 · 0	192 · 168 · 10 · 0
SFP 4-D	192 · 168 · 11 · 23	255 · 255 · 255 · 0	192 · 168 · 11 · 0

### IP Address (SFP Ports)

<b>Description</b>	IP address of the specified SFP port used to transmit or receive video from or onto the EVS server.
<b>Values</b>	The IP addresses 0.0.0.0 and 255.255.255.255 are not allowed.

### Subnet Mask (SFP Ports)

<b>Description</b>	Range of logical addresses within the address space assigned to the LiveIP network (video-over-IP network).
--------------------	---

## Default Gateway (SFP Ports)

<b>Description</b>	IP address of the router on the LiveIP network that serves as an access point to external networks.
--------------------	---

## 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
<a href="#">Multiviewer Settings</a>		
Layout	X	—
Audio Monitoring from video	X	—
Audio Monitoring left-right tracks	X	—
HD output format	X	—
<a href="#">OSD Settings</a>		
Genlock Error	X	X
Disk Error	X	X
Network error	X	X
Clip name	X	X
Tally	X	—
<a href="#">Monitoring Settings</a>		
Char OUT, format	X	X

## 4.5.2. Multiviewer Settings

### Introduction

On EVS servers equipped with the new MV4 multiviewer on the MTPC board and with the internal LAN, four ports are available on the rear panels to allow the connection of four independent HD-SDI multiviewers.

This allows the following uses:

- operators working independently on the same EVS server.
- 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.

### OSD with MV4 Multiviewers

The monitoring outputs of the MV4 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

<b>Description</b>	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.
<b>Values</b>	The following layouts are available: <ul style="list-style-type: none"> <li>• <b>4 (2+2)</b></li> <li>• <b>6 (4+2)</b></li> <li>• <b>6 (3+3)</b></li> <li>• <b>8 (3+3+2)</b> (not useful on all servers)</li> <li>• <b>1</b></li> </ul>
<b>Default value</b>	<ul style="list-style-type: none"> <li>• <b>4 (2+2)</b> on Multiviewers 1 and 2</li> </ul>

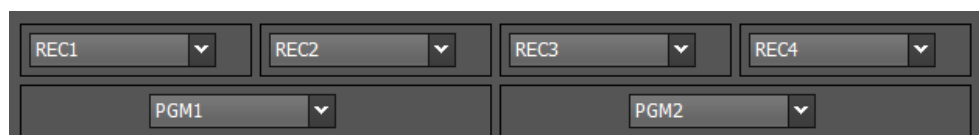
### Available Layouts

The available layouts are:

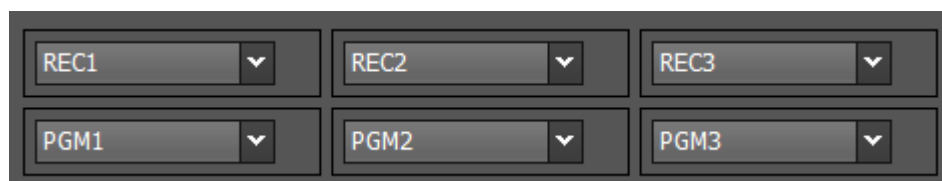
- **4 (2+2)**: 4 identical size images, 2 at the top, 2 at the bottom.



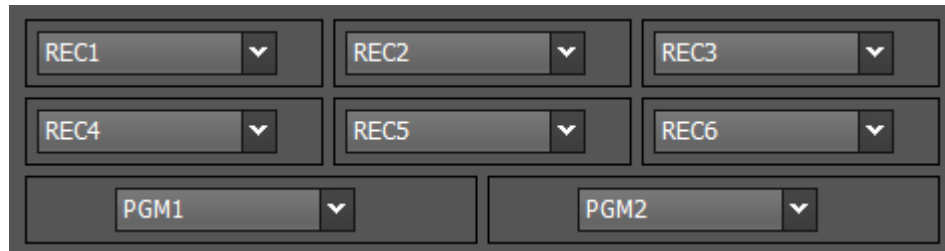
- **6 (4+2)**: 4 small size images at the top, 2 larger images at the bottom.



- **6 (3+3)**: 6 identical size images, 3 at the top, 3 at the bottom.



- **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.



- **1:** It is available (with an MV4 multiviewer) with any configuration.



## Display 1 to 8

<b>Description</b>	Specifies the source linked to the corresponding display in the selected layout. You can select: <ul style="list-style-type: none"> <li>• no image (none).</li> <li>• play channels (PGM)</li> <li>• record channels (REC)</li> <li>• direct input into the Multiviewer I1 connectors on the back panel for external feeds.</li> </ul>
<b>Values</b>	The values available for recorder or player channels correspond to the names the channels have been assigned in the <b>Channels</b> tab, <b>Channel and control</b> settings, which are the following by default: <ul style="list-style-type: none"> <li>• <b>none</b></li> <li>• <b>PGM1</b> to <b>PGM6</b></li> <li>• <b>REC1</b> to <b>REC8</b></li> <li>• <b>EXT1</b> and <b>EXT2</b></li> </ul>

## Audio Monitoring from Video

<b>Description</b>	Specifies the channel for which the audio will be monitored via the SDI outputs. This is selectable individually for each multiviewer.
<b>Values</b>	The list of values includes the channels selected above for multiviewer display.
<b>Default value</b>	<b>None</b>

## Audio Monitoring Left-Right Tracks

<b>Description</b>	Specifies the pair of stereo audio tracks of the selected channel to monitor. This is selectable individually for each multiviewer.
<b>Values</b>	From <b>1/2</b> up to <b>15/16</b> , depending on the value defined for the <b>Number of tracks</b> setting in the Channels tab, Audio settings.
<b>Default value</b>	<b>1/2</b> : By default, the first stereo pair of the source is selected.

## Multiviewer Format

### HD Output Format

<b>Description</b>	Specifies the format for the HD output of the multiviewer. Both multiviewers use the same HD output format.
<b>Values</b>	The following values are available: <ul style="list-style-type: none"> <li>• <b>1080i</b></li> <li>• <b>1080p</b></li> </ul>
<b>Default value</b>	• <b>1080i</b>

## 4.5.3. OSD Settings

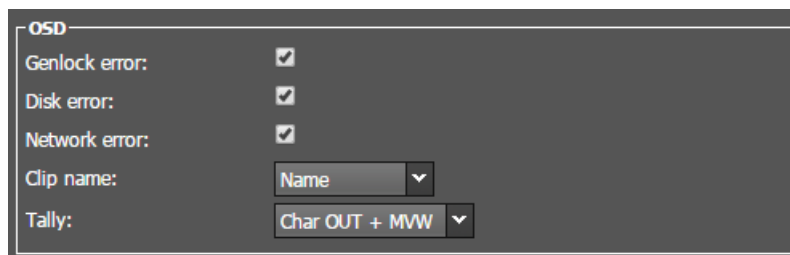
### User Interface

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

<b>Description</b>	Enables or disables the Genlock information display on the monitoring output. If the Genlock reference is not correct, the <b>!GkV</b> message appears on the monitoring output.
<b>Values</b>	<b>Yes</b> (default) / <b>No</b>

## Disk Error

<b>Description</b>	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 <b>!Raid</b> 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.
<b>Values</b>	<b>Yes</b> (default) / <b>No</b>

## Network Error

<b>Description</b>	Enables or disables the network error information display on the monitoring output. If there is an problem with the network connection, the <b>!Net</b> message appears on the monitoring output. When the network is available again, the system will try to reconnect and the → <b>Net</b> message appears on the monitoring output.
<b>Values</b>	<b>Yes</b> (default) / <b>No</b>

## Clip Name

<b>Description</b>	Specifies how the clip name is displayed.
<b>Values</b>	<b>VarID</b> / <b>Name</b>
<b>Default</b>	<b>Name</b>

## Tally

<b>Description</b>	Defines on which monitoring outputs the Tally signal will be displayed.
<b>Values</b>	<p>The following values are available:</p> <ul style="list-style-type: none"> <li>• <b>Char OUT:</b> The tally signal will be displayed on the discrete OSD of the Char OUT monitoring outputs.</li> <li>• <b>Multiviewer:</b> The tally signal will be displayed on the OSD of the Multiviewer monitoring outputs.</li> <li>• <b>Char OUT + MVW:</b> The tally signal will be displayed both on the OSD of the Multiviewer and of the Chart OUT monitoring outputs.</li> </ul>
<b>Default value</b>	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

<b>Description</b>	Allows enabling or disabling the OSD on the monitoring outputs, and setting the format of the monitoring output.
<b>Values</b>	<p>The values available for the <b>Char OUT</b> setting are:</p> <ul style="list-style-type: none"> <li>• <b>No:</b> OSD is disabled on the monitoring outputs.</li> <li>• <b>Yes:</b> OSD is enabled on the monitoring outputs.</li> </ul> <p>The values for the <b>Format</b> setting is read-only and depends on the current resolution:</p> <ul style="list-style-type: none"> <li>• <b>3G</b> in UHD-4K and 1080p.</li> <li>• <b>HD</b> in 720p and 1080i.</li> </ul>
<b>Default value</b>	No

**NOTE**

See section "Configuring OSD Display" on page 164 for more information on how the OSD-related settings can be configured with an XS4K 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 MV4 multiviewer.

Below the overview table, you will find details on how to configure the settings in the various possible cases.

		OSD Char. OUT REC	OSD Char. OUT PGM	OSD MV4 REC	OSD MV4 PGM
<b>Monit. Char. OUT = YES</b>	OSD on Outputs = <b>YES</b>		Yes		Yes
	OSD on Outputs = <b>NO</b>		No		No
	OSD on Inputs = <b>YES</b>	Yes		Yes	
	OSD on Inputs = <b>NO</b>	No		No	
<b>Monit. Char. OUT = NO</b>	OSD on Outputs = <b>YES</b>	No	No		Yes
	OSD on Outputs = <b>NO</b>	No	No		No
	OSD on Inputs = <b>YES</b>	No	No	Yes	
	OSD on Inputs = <b>NO</b>	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
<a href="#">RS422 Protocols Settings</a>			
Id Type	X	X	X
<a href="#">Sony BVW Settings</a>			
FFW/REW speed	X	X	X
Use guardband	X	X	X
List Remote CAM	X	X	X
SONY Parallel Status	X	X	X
<a href="#">Tally/UMD Settings</a>			
Protocol	X	X	—
UMD O/W	X	X	—
Display Index	X	X	—
<a href="#">RS422 VarID Settings</a>			
Uniqueness	—	read only	—
Length	—	read only	—
Format	—	read only	—
<a href="#">VDCP visibility Settings</a>			
Port #1...6	—	read only	—



#### NOTE

The following features are not supported on XS4K :

- Edit Rec



## 4.6.2. RS422 Protocols Settings

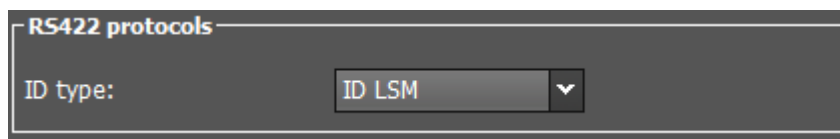
### User Interface

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

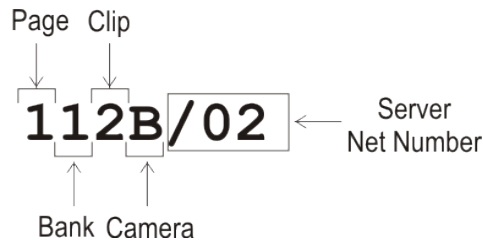
<b>Description</b>	Specifies the clip ID used by the protocols to access and identify the clips. Please note that at any time, the VDCP protocol can decide to use either the default value or the VarID (see <a href="#">RS422 VarID Settings</a> ). See section "Clip Identifiers" on page 168 for more information on clip identifiers.
<b>Values</b>	<ul style="list-style-type: none"><li>• ID LSM</li><li>• UmID</li></ul>
<b>Default value</b>	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 SDTI 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 SDTI 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:

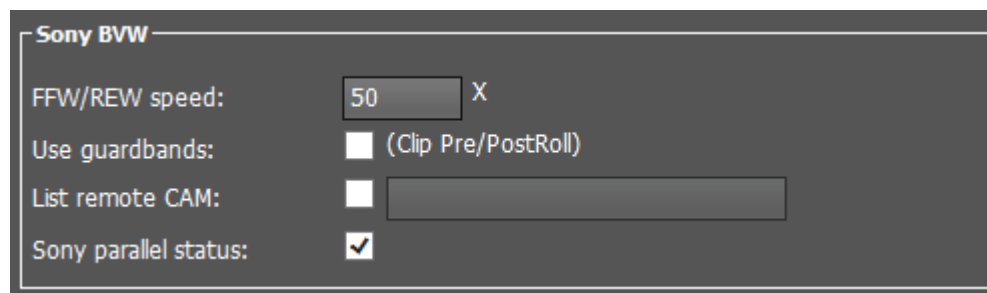
- in the Multicam Configuration window, Protocol tab, on page 1 in the basic and advanced display mode in the server- and web-based interfaces
- in the Technical menu of the Remote Control Panel (T5.X)



#### 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

<b>Description</b>	Specifies the speed used by the protocol for forward and rewind operations.
<b>Values</b>	2 to 50 times the normal speed
<b>Default value</b>	50

### Use Guardband

<b>Description</b>	Makes the OUT guardband available to the protocol.
<b>Values</b>	<ul style="list-style-type: none"> <li>• <b>Yes</b>, meaning that the protocol has access to the IN and OUT guardbands.</li> <li>• <b>No</b>, meaning that the protocol has only access to the IN guardband.</li> </ul>
<b>Default value</b>	No

## List Remote CAM

<b>Description</b>	Allows access to the CAM recorders of the remote server specified in the field next to the check box.
<b>Values</b>	<ul style="list-style-type: none"> <li><b>Yes</b>, meaning that the recorders of the local server and the remote server are available. When the setting is set to <b>Yes</b>, type the net numbers of the distant servers you want to allow access to as follows: &lt;2; 3; 4&gt;</li> <li><b>No</b>, meaning that only the recorders of the local server are available.</li> </ul>
<b>Default value</b>	<b>No</b>

## SONY Parallel Status

<b>Description</b>	Activates the Sony serial connection status reporting when several controllers are used in parallel mode.
<b>Values</b>	<b>Yes / No</b>
<b>Default value</b>	<b>Yes</b>

## 4.6.5. Tally Feature

### Introduction

The Tally feature allows a protocol to send tally information on the monitoring outputs of the EVS server. The EVS server listens to the port 9800 for tally information:

- Tally information is available with the MV4 multiviewer and internal LAN.
- Tally information is also available 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 > Tally value V	SDI Char Out outputs	MV4 Multiviewer (and Internal LAN)
Char OUT	Channel name highlighted (upper left)	Nothing displayed
Multiviewer	Nothing displayed	Colored frame around channel thumbnail + Colored rectangles (lower left and right)
Char OUT + MVW	Channel name highlighted (upper left)	Colored frame around channel thumbnail + Colored rectangles (lower left and right) + 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 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.

## 4.6.6. 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

<b>Description</b>	Specifies the UMD protocol used to communicate with the control system that provides the UMD and Tally information.
<b>Values</b>	<ul style="list-style-type: none"> <li>• <b>Off:</b> No communication protocol is defined, and the Tally/UMD features are disabled.</li> <li>• <b>TSL 5.0:</b> The TSL protocol is used to communicate with the control system to provide the Tally/UMD information.</li> </ul>
<b>Default value</b>	Off

### UMD O/W

<b>Description</b>	<p>Allows the UMD protocol to overwrite the name of the corresponding external MVW input or REC/PGM (Channels tab, Channel and Control settings, <b>Name</b> field) with the name defined in the control system.</p> <p>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 <b>UMD O/W</b> field.</p>
<b>Values</b>	<ul style="list-style-type: none"> <li>• <b>Yes:</b> The channel names are overwritten.</li> <li>• <b>No:</b> The channel names are preserved.</li> </ul>
<b>Default value</b>	No

## Display Index

<b>Description</b>	Display number assigned to each EVS server output (REC/PGM or external MVW inputs). It should logically correspond to the display number defined in the control system. Only the first number is defined manually. The following ones are incrementally assigned.
<b>Values</b>	<b>0 to 65,535</b> (maximum value with TSL 5.0 protocol)
<b>Default value</b>	10 (1st number)

## 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.	<b>CTRL + Y</b>
Disable	Disables the overwrite command for all channels (Rec/Play) and external inputs that can be displayed in a monitoring output.	<b>CTRL + N</b>

### 4.6.7. 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.

The following screenshot displays the RS422 VarID and the VDCP visibility settings on the Protocols tab in the web-based interface:

The screenshot shows two configuration sections. The first section, titled 'RS422 VarID', contains three input fields: 'Uniqueness' set to 'Local', 'Length' set to '32', and 'Format' set to 'ASCII'. The second section, titled 'VDCP visibility', contains six rows, each with a port number and a value: 'Port #1:' to 'Port #6:' are all set to '01;'.

RS422 VarID	
Uniqueness:	Local
Length:	32
Format:	ASCII

VDCP visibility	
Port #1:	01;
Port #2:	01;
Port #3:	01;
Port #4:	01;
Port #5:	01;
Port #6:	01;

## 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 SDTI 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 `C:\LSMCE\DATA` directory.

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..29,*
;             default= empty is converted to local XNet number
;             * for all XNet
;
;-----
Uniqueness=Local
Length=32
Format=ASCII
1=
2=
3=
4=
5=
6=
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;

```

## Uniqueness

<b>Description</b>	Specifies whether the VarID will be unique at the XNet network level or at the EVS server level. This parameter is valid with AVSP and LinX protocols.
<b>Values</b>	<ul style="list-style-type: none"> <li><b>Global</b>, the VarID is unique at the XNet network level.</li> <li><b>Local</b>, the VarID is unique at the EVS server level.</li> </ul>
<b>Default value</b>	<b>Local</b>

## Length

<b>Description</b>	Specifies whether the VarID has a fixed length of 8 bytes or a variable length of 32 bytes.
<b>Values</b>	<ul style="list-style-type: none"> <li><b>8</b>, fixed length.</li> <li><b>32</b>, variable length.</li> </ul>
<b>Default value</b>	<b>32</b>

## Format

<b>Description</b>	Specifies whether the VarID has an ASCII or binary format.
<b>Values</b>	<ul style="list-style-type: none"><li>• <b>ASCII</b></li><li>• <b>Binary</b></li></ul>
<b>Default value</b>	<b>ASCII</b>

## VDCP Visibility

<b>Description</b>	<p>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.</p> <p>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.</p>
<b>Values</b>	<ul style="list-style-type: none"><li>• (empty), the local server is used (converted to the local XNet number).</li><li>• <b>1</b> to <b>29</b>, the servers available on XNet.</li><li>• *, for all XNet servers.</li></ul>
<b>Default value</b>	<b>1</b>

## 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
<a href="#">GPI Settings</a>		
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
<a href="#">Tally Playlist Settings</a>		
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:

**GPI settings**

TTL GPIs set as GPIs: In ▼

**GPIs IN**

#	Channel/ Device	Port	Function	Delay
1	PGM1 ▼	-- ▼	----- ▼	<input type="checkbox"/> 0 s 0 fr
2	PGM2 ▼	-- ▼	----- ▼	<input type="checkbox"/> 0 s 0 fr
3	----- ▼	-- ▼	----- ▼	<input type="checkbox"/> 0 s 0 fr
4	----- ▼	-- ▼	----- ▼	<input type="checkbox"/> 0 s 0 fr
5	RMT1 ▼	-- ▼	----- ▼	<input type="checkbox"/> 0 s 0 fr
6	RMT1 ▼	-- ▼	Previous ▼	<input type="checkbox"/> 0 s 0 fr
7	RMT1 ▼	-- ▼	Next ▼	<input type="checkbox"/> 0 s 0 fr
8	RMT1 ▼	-- ▼	Play ▼	<input type="checkbox"/> 0 s 0 fr

**GPIs OUT**

#	Function	Type	Advance	Pulse duration
1	----- ▼	----- ▼	<input type="checkbox"/> 0 s 0 fr	<input type="checkbox"/> 0 s 0 fr
2	----- ▼	----- ▼	<input type="checkbox"/> 0 s 0 fr	<input type="checkbox"/> 0 s 0 fr
3	----- ▼	----- ▼	<input type="checkbox"/> 0 s 0 fr	<input type="checkbox"/> 0 s 0 fr
4	----- ▼	----- ▼	<input type="checkbox"/> 0 s 0 fr	<input type="checkbox"/> 0 s 0 fr



#### 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

<b>Description</b>	Defines the 4 configurable GPIs as inputs or outputs.
<b>Values</b>	In / Out
<b>Default value</b>	In

## GPIs IN - Channel/Device

<b>Description</b>	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.
<b>Values</b>	<p>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):</p> <ul style="list-style-type: none"> <li>• <b>PGMx</b>: The GPI is sent to the specified play channel.</li> <li>• <b>RECx</b>: The GPI is sent to the specified record channel.</li> <li>• <b>RMTx</b>: The GPI is sent to the remote controller.</li> <li>• <b>&lt;Protocol Name&gt;</b>: The GPI is sent to the third-party controlling device.</li> </ul>

## GPIs IN - Port

<b>Description</b>	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.
<b>Values</b>	The possible values are from 1 to 6: it corresponds to the RS422 port to which the controller specified in the <b>Channel/Device</b> field is assigned in the Port settings (Channels tab, page 1).

## GPIs IN - Function

<b>Description</b>	Specifies the function associated to the GPI input line. According the configured protocol some or all of the functions described below are available.
<b>Values</b>	<ul style="list-style-type: none"> <li>• <b>Play</b>: sends a play command at 100% speed on the selected channel.</li> <li>• <b>Pause</b>: sends a pause command on the selected channel.</li> <li>• <b>Recue</b>: 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.)</li> <li>• <b>Previous</b>: sends a command to go to the previous clip of a playlist on the selected channel.</li> <li>• <b>Next</b>: sends a command to go to the next clip of a playlist on the selected channel.</li> <li>• <b>Skip</b>: sends a command to skip the clip being played on the selected channel.</li> <li>• <b>Tally</b>: activates or deactivates the on-air flag on the selected channel. (This GPI is only used by IPDirector.)</li> <li>• <b>Mark IN</b>: sets an IN point on the corresponding record channel.</li> <li>• <b>Mark OUT</b>: sets an OUT point on the corresponding record channel.</li> <li>• <b>Mark Tly</b>: 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.</li> <li>• <b>Exit ASP</b>: 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.)</li> <li>• <b>Exit OUT</b>: 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.)</li> <li>• <b>None</b>: no value is defined.</li> </ul>
<b>Default value</b>	<b>None</b>





## GPIs IN - Delay

<b>Description</b>	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.
<b>Values</b>	<ul style="list-style-type: none"> <li>• <b>00s00fr to 02s00fr</b></li> <li>• <b>Disable</b></li> </ul>
<b>Default value</b>	<b>Disable</b>

## GPIs OUT - Function

<b>Description</b>	Specifies the function that activates the output line.
<b>Values</b>	The following function can trigger a GPI OUT: <ul style="list-style-type: none"> <li>• <b>Replace</b></li> </ul>

## GPIs OUT - Type

<b>Description</b>	Specifies the type of GPI output signal that will trigger the specified function.
<b>Values</b>	The following values are possible: <ul style="list-style-type: none"> <li>• <b>close</b>  The level changes to high level at activation.</li> <li>• <b>close pulse</b>  A rising edge pulse is generated at activation.</li> <li>• <b>open</b>  The level changes to low level at activation.</li> <li>• <b>open pulse</b>  A falling edge pulse is generated at activation.</li> </ul>

## GPIs OUT - Advance

<b>Description</b>	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.
<b>Values</b>	<ul style="list-style-type: none"> <li>• <b>00s00fr to 02s00fr</b></li> <li>• <b>Disable</b></li> </ul>
<b>Default value</b>	<b>Disable</b>

## GPIs OUT - Pulse duration

<b>Description</b>	Defines the pulse duration (number of seconds and/or frames) for pulse type output lines.
<b>Values</b>	<ul style="list-style-type: none"> <li>• <b>00s00fr</b> to <b>02s00fr</b> (2fr steps)</li> <li>• <b>Disable</b></li> </ul>
<b>Default value</b>	<b>Disable</b>

### 4.7.3. Tally Playlist Settings

#### Introduction

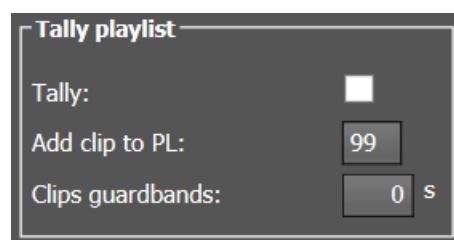
The **Tally Playlist settings** allow specifying the settings related to the tally feature. This feature allows the user to automatically create a clip for each change of camera performed with the Director's Cut and to add these clips to a playlist. The clips are created automatically by the server as 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

<b>Description</b>	Activate or deactivate the tally function.
<b>Values</b>	<b>Yes/No</b>
<b>Default Value</b>	<b>Yes</b>

## Add Clip to PL

<b>Description</b>	Selects the LSM ID of the playlist to which the tally clips will be added.
<b>Values</b>	<b>10 to 99</b>
<b>Default Value</b>	<b>99</b>

## Clips Guardbands

<b>Description</b>	Specifies the guardbands length of the tally clips, in seconds.
<b>Values</b>	<b>0 to 250</b>
<b>Default Value</b>	<b>0</b>

## 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.

#### OSD Settings

Setting Name	Basic	Operational Setup
<a href="#">OSD settings</a>		<b>1.x</b>
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
<a href="#">Audio meters OSD settings</a>		<b>1.x</b>
Audio Meters	X	X
DB Adjust	X	X
Style	X	X
Thickness	X	X

#### Clips Settings

Setting Name	Basic	Operational Setup
<a href="#">Clips settings</a>		<b>2.x</b>
Automake clip for cam A to F	X	X



**NEW !**

Setting Name	Basic	Operational Setup
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
<a href="#">Playlist settings</a>		<b>3.x</b>
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
Fade to/from color	X	X
Load playlist	X	X

## Miscellaneous Settings

Setting Name	Basic	Operational Setup
<a href="#">Protection settings</a>		<b>5.x</b>
Protect pages	X	X

Setting Name	Basic	Operational Setup
Clip edit by network	X	X
Confirm delete clips/playlists	X	X
<a href="#">Keywords settings</a>		<b>6.x</b>
Keyword files	X	X
Keyword mode	X	X
<a href="#">Push settings</a>		<b>7.x</b>
Push target	X	X
Codec target	X	X
Push target 1/2	X	X
Push mode	X	X
Push receive page	X	X
Push receive slots	X	X
<a href="#">Audio settings</a>		<b>8.x</b>
Audio slow motion	X	X
Lipsync value	X	X
Aux track output	X	X

## EVS Controller Settings

Setting Name	Basic	Operational Setup
<a href="#">EVS Controller settings</a>		<b>9.x</b>
Effect duration for take	X	X
Fast jog	X	X
PGM Speed	X	X
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 XS4K :

- Internal loop mode
- Paint/target
- Offside line (internal and external)

## 4.8.2. OSD Settings

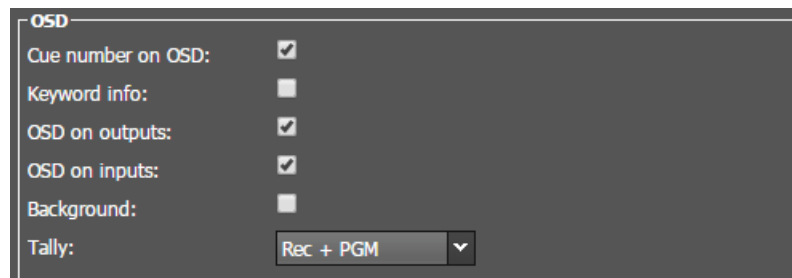
### User Interface

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

<b>Description</b>	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.
<b>Values</b>	Yes (default) / No

### Keyword Info

<b>Description</b>	Shows / hides the defined keywords and ranking on the OSD of the monitoring outputs when the clip is loaded on its Short IN point. 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.
<b>Values</b>	Yes / No (default)

## OSD on Outputs

<b>Description</b>	Enables / disables the OSD on the play channels on the Multiviewer (MV4) and discrete monitoring outputs. See section "Configuring OSD Display" on page 164 for more information on how to configure OSD-related settings on anXS4K equipped with V4X boards.
<b>Values</b>	Yes (default) / No

## OSD on Inputs

<b>Description</b>	Enables / disables the OSD on the record channels on the Multiviewer (MV4) and discrete monitoring outputs. See section "Configuring OSD Display" on page 164 for more information on how to configure OSD-related settings on anXS4K equipped with V4X boards.
<b>Values</b>	Yes (default) / No

## Background

<b>Description</b>	Applies a dark gray background to the OSD display.
<b>Values</b>	Yes / No (default)

## Tally

<b>Description</b>	Defines whether the Tally signal will be displayed on the record and/or play channels.
<b>Values</b>	<p>The following values are available:</p> <ul style="list-style-type: none"> <li>• <b>No:</b> The Tally signal is not displayed at all on the monitoring outputs.</li> <li>• <b>Rec only:</b> The Tally signal is displayed on the monitoring outputs of the record channels.</li> <li>• <b>PGM only:</b> The Tally signal is displayed on the monitoring outputs of the play channels.</li> <li>• <b>Rec + PGM:</b> The Tally signal is displayed on the monitoring outputs of the record and play channels.</li> </ul>
<b>Default value</b>	PGM + REC

## 4.8.3. Audio Meters OSD Settings

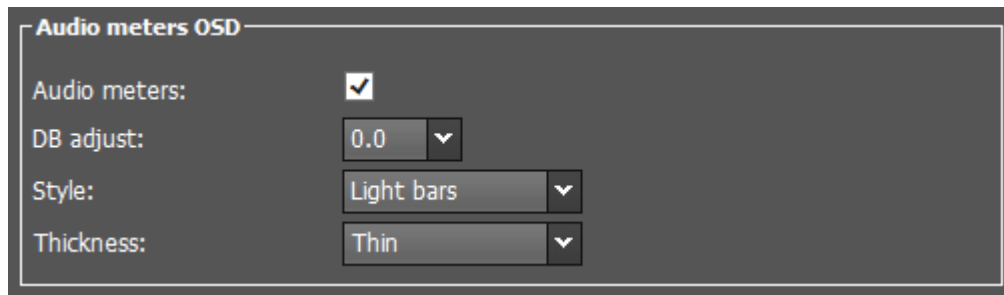
### User Interface

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:



### Audio Meters

<b>Description</b>	Shows/hides the audio meters on the OSD.
<b>Values</b>	Yes / No
<b>Default value</b>	Yes

### DB Adjust

<b>Description</b>	Adjusts the value of the displayed audio meters.
<b>Values</b>	From - 83.2 to 0.0 dB, with a variable increments (larger in low values, and smaller with increasing values)
<b>Default value</b>	0.0

## Style

<b>Description</b>	Specifies the style of the audio meters; The <b>Style</b> parameter impacts the audio meters of the discrete OSD (Char OUT), but not those of the MV4-LAN multiviewer .
<b>Values</b>	Light Bars , Glowing Boxes , Dark Boxes , Light Boxes , Dark Bars
<b>Default value</b>	Light Bars

## Thickness

<b>Description</b>	Specifies the thickness of the audio meters; The <b>Thickness</b> parameter impacts the audio meters of the discrete OSD (Char OUT), but not those of the MV4-LAN multiviewer .
<b>Values</b>	Thin, Medium, Thick
<b>Default value</b>	Thin

### 4.8.4. Clips Settings

#### User Interface

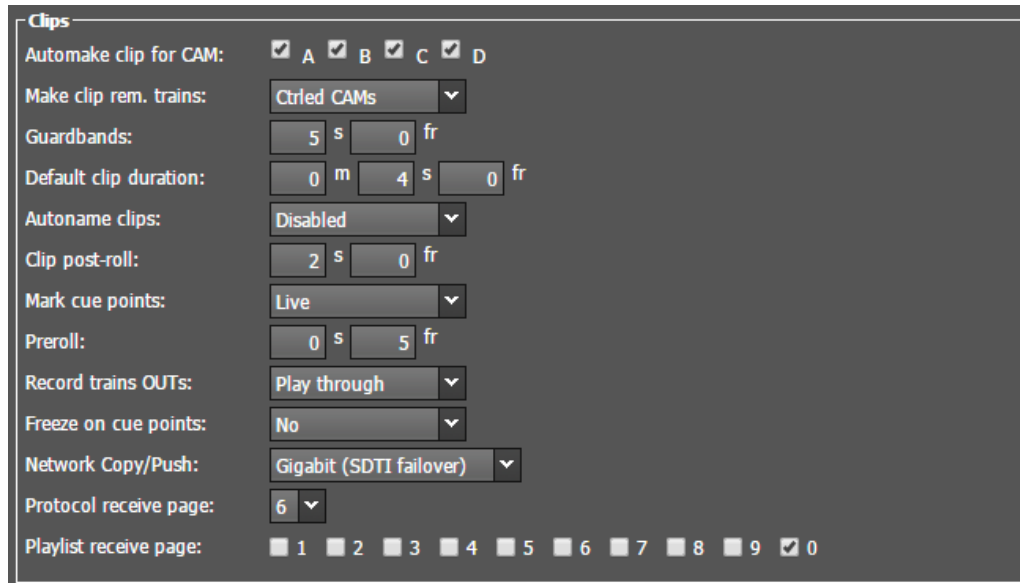
The Clips settings relate to various aspects of the clip management: clip definition, storage location, metadata, and cue points.

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 F

<b>Availability</b>	This parameter is only displayed in XSense configurations.
<b>Introduction</b>	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. Only cameras letters applicable to the logical channels are displayed.
<b>Description</b>	Specifies that clips have to be created on the given cameras (A to F) even if no IN or OUT point has been marked on that camera.
<b>Values</b>	Yes / No
<b>Default value</b>	Yes

## Make Clip Rem. Trains

<b>Availability</b>	The setting <b>Make clip remote trains</b> is only available if the license code 117 is valid.
<b>Description</b>	Allows users to clip all cameras of a remote EVS server if at least one record train of that server is controlled.
<b>Values</b>	Ctrl'd Cams / All cams
<b>Default value</b>	Ctrl'd Cams

## Guardbands

<b>Description</b>	Specifies the amount of A/V material that remains available before and after a clip (called 'guardbands') when the clip is created.
<b>Values</b>	From 00s00fr to 60s00fr
<b>Default value</b>	05s00fr

## Default Clip Duration

<b>Description</b>	Specifies the duration of clips created with only one reference point (IN or OUT point).
<b>Values</b>	<p>Disable, or from 00s01fr to 4h.</p> <p>When set to 'Disable', both IN and OUT points are required to be able to create a clip.</p> <p>The duration can be set:</p> <ul style="list-style-type: none"> <li>• With second granularity up to 1 minute</li> <li>• With minute granularity from 1 minute up to 4 hours.</li> </ul>
<b>Default value</b>	04s00fr

## Autaname Clips

<b>Description</b>	If this function is enabled, the value of the selected field will automatically be used to name the clip upon creation.
<b>Values</b>	<p>The values from the following fields can be used to automatically name clips:</p> <ul style="list-style-type: none"> <li>• <b>Disable:</b> No name is assigned to a clip when it is created.</li> <li>• <b>TC IN:</b> The timecode of the IN point of the clip is automatically assigned to a clip when it is created.</li> <li>• <b>CAM Name:</b> The name of the record channel is automatically assigned to a clip when it is created.</li> <li>• <b>ID Louth:</b> 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.</li> <li>• <b>VarID 32:</b> The VarID of the clip is assigned to a clip when it is created. 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.</li> </ul>
<b>Default value</b>	Disable

## Clip Post-Roll

<b>Description</b>	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. This is also valid inside record trains if the Record Train OUTs parameter is set to 'Freeze'.
<b>Values</b>	From 00s00fr to 600s00fr
<b>Default value</b>	02s00fr

## Mark Cue Point

<b>Description</b>	Specifies how the cue point timecode will be memorized.
<b>Values</b>	Two values are possible for this parameter: <ul style="list-style-type: none"> <li>• <b>Live:</b> Memorizes cue points based on the timecode of the LIVE input.</li> <li>• <b>Playback:</b> Memorizes cue points based on the timecode of the field loaded on the main play channel.</li> </ul>
<b>Default value</b>	Live

## Preroll

<b>Description</b>	Preroll duration used when recalling a cue point.
<b>Values</b>	From 0s01fr to 5s00fr.
<b>Default value</b>	0s05fr

## Record Trains OUTs

<b>Description</b>	Specifies whether Multicam will freeze or play through when it reaches an OUT point marked on the record train that is being played back.
<b>Values</b>	<p>Two values are possible for this parameter:</p> <ul style="list-style-type: none"> <li>• <b>Play through:</b> Multicam will still countdown to the OUT point, but will keep playing through this point.</li> <li>• <b>Freeze:</b> Multicam will countdown to the OUT point and will automatically freeze: <ul style="list-style-type: none"> <li>◦ on that picture if the post-roll mode is disabled</li> <li>◦ on that picture + the post-roll duration if the post-roll mode is enabled.</li> </ul> </li> </ul> <p>When playing a clip, Multicam always freezes on the OUT point (or OUT point + post-roll duration when post-roll mode is enabled).</p>
<b>Default value</b>	Play through

## Freeze on Cue Points

<b>Description</b>	<p>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.</p> <p>The post-roll parameter is not taken into account for this functionality.</p>
<b>Values</b>	<ul style="list-style-type: none"> <li>• <b>No:</b> The playout plays through the cue points when playing clips or record trains.</li> <li>• <b>Clips + Trains:</b> The playout freezes on the cue points when playing clips or record trains where cue points have been defined.</li> <li>• <b>Clips:</b> The playout freezes on the cue points when playing clips where cue points have been defined.</li> <li>• <b>Record Trains:</b> The playout freezes on the cue points when playing record trains where cue points have been defined.</li> </ul>
<b>Default value</b>	No

**NEW !**

## Network Copy/Push (Supersedes 'Default Copy/Move')

<b>Description</b>	Allows you to select the preferred network for copying, pushing and creating a clip on a distant server. This setting is taken into account when the destination machine is visible both on the SDTI and GbE networks.
<b>Values</b>	Two values are possible for this parameter: <ul style="list-style-type: none"> <li>• <b>SDTI:</b> The operations are executed through the SDTI network. There is no failover mechanism to the GbE interface.</li> <li>• <b>Gigabit (SDTI failover):</b> The copy operations are first executed via the GbE interface. If the transfer is not possible (ports not connected, IP address unknown, etc.) <b>and</b> the EVS server is in <b>mono-essence</b> mode, the transfer is then tried through SDTI.</li> </ul> Whatever the value defined for this setting, the following rules are applied if both networks are available: <ul style="list-style-type: none"> <li>• Transfers to GbE targets are always performed via the GbE interface.</li> <li>• Metadata is always transferred via the SDTI interface.</li> </ul> The value is forced to Gigabit if the code 117 (SDTI) is not valid on the EVS server, or if the SDTI network is not active.
<b>Default value</b>	SDTI

## Protocol Receive Page

<b>Description</b>	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.
<b>Values</b>	1 to 10 (=0)
<b>Default value</b>	6

## Playlist Receive Page

<b>Introduction</b>	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.
<b>Availability</b>	The setting is only available if the license code 111 is valid.
<b>Description</b>	Specifies on which page(s) of your EVS server the clips received when using the PLST+CLIPS copy function must be stored. Clip pages can be assigned simultaneously as PUSH and PLST Receive Pages.
<b>Values</b>	1 to 10 (=0)
<b>Default value</b>	0 (page 10)

## Timeline Receive Page

<b>Description</b>	This setting is not relevant on an XS4K server. Specifies on which page(s) the clips automatically created in timeline mode as part of the timeline editing process are stored.
<b>Values</b>	1 to 10 (=0)
<b>Default value</b>	0 (page 10)

### 4.8.5. Playlist Settings

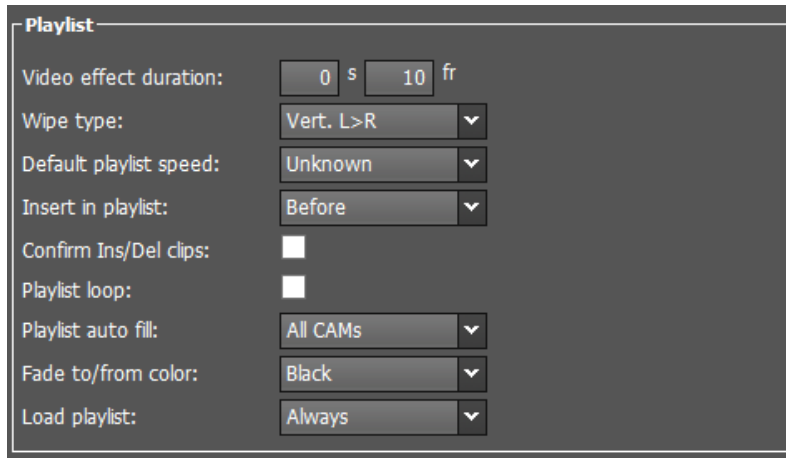
#### User Interface

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:



**Playlist**

Video effect duration: 0 s 10 fr

Wipe type: Vert. L>R

Default playlist speed: Unknown

Insert in playlist: Before

Confirm Ins/Del clips: ☐

Playlist loop: ☐

Playlist auto fill: All CAMs

Fade to/from color: Black

Load playlist: Always

## Availability

The Playlist settings are only available if the license code 111 is valid.

On an XS4K 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.

## Video Effect Duration

<b>Description</b>	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 <b>TAKE</b> button in 1PGM+PRV mode has its own parameter, <b>Effect for take</b> , defined in the EVS Controller section of the Operation tab.
<b>Values</b>	0s00fr to 20s00fr
<b>Default value</b>	00s10fr

## Wipe type

<b>Description</b>	Specifies the vertical wipe effects from Left to Right or from Right to Left.
<b>Values</b>	Vert. L>R / Vert. R>L
<b>Default value</b>	Vert. L > R

## Default Playlist Speed

<b>Description</b>	Defines the default speed used to play clips in a playlist.
<b>Values</b>	<p>The following values are possible Unknown, and from 0% to 100%:</p> <ul style="list-style-type: none"><li>• <b>Unknown</b> means that the speed of the previous clip in the playlist will be used as a reference for the current clip.</li><li>• <b>0%</b> will force the playlist to pause at the end of each clip.</li><li>• <b>1% to 100%</b> will apply the specified speed as default speed for playlist elements.</li></ul>
<b>Default value</b>	Unknown

## Insert in Playlist

<b>Description</b>	Specifies if the clips add to a playlist are insert before or after the active clip in the playlist.
<b>Values</b>	After / Before
<b>Default value</b>	Before

## Confirm Ins/Del Clips

<b>Description</b>	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.
<b>Values</b>	Yes / No
<b>Default value</b>	No

## Playlist Loop

<b>Description</b>	Specifies whether the playlists in play mode will be looped and played back continuously.
<b>Values</b>	Yes / No
<b>Default value</b>	No



## Playlist Auto Fill

<b>Description</b>	Specifies which camera angles will be added to the playlists when using the <b>Fill Playlist (F9)</b> function from the main menu of the Remote Panel.
<b>Values</b>	<p>The following values are possible:</p> <ul style="list-style-type: none"> <li>• <b>All Cam:</b> The clips for all camera angles will be added to the playlist.</li> <li>• <b>Prim+Sec:</b> The clips corresponding to the primary and secondary camera angles will be added to the playlist.</li> <li>• <b>Primary:</b> The clips corresponding to the primary camera angles will be added to the playlist.</li> <li>• <b>Secondary:</b> The clips corresponding to the secondary camera angles will be added to the playlist.</li> <li>• <b>Cam A, Cam B, Cam C, Cam D</b> The clips corresponding to the defined camera angle will be added to the playlist.</li> </ul>
<b>Default value</b>	All Cam

## Fade To/From Color

<b>Description</b>	Specifies the color that is used in the transition effects 'fade to color', 'fade from color' and 'fade to/from color' (V fade).
<b>Values</b>	Black / White
<b>Default value</b>	Black

## Load Playlist

<b>Description</b>	This parameter is only used in 2PGM or 3PGM mode.
<b>Values</b>	<p>The following values are available:</p> <ul style="list-style-type: none"> <li>• <b>Always:</b> This always loads the selected playlist in PGM/PRV mode.</li> <li>• <b>Conditional:</b> 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.</li> </ul>
<b>Default Value</b>	Always

## 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

<b>Description</b>	Specifies the pages on which the clips stored are protected from accidental deletion. The clips stored on these pages are also protected when using the <b>Clear All Clips (F7)</b> function from the main menu of the Remote Panel. See section "Navigating and Editing in the Multicam Configuration Window" on page 70 for more information on how to enable pages.
<b>Values</b>	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

<b>Availability</b>	This setting is only available if the license code 117 is valid.
<b>Description</b>	Allows users to edit clips on the whole SDTI network.
<b>Values</b>	<p>The following values are possible:</p> <ul style="list-style-type: none"> <li>• <b>Yes:</b> Other users on the network can trim, rename, delete, etc. your clips, or modify the keywords and ranking assigned to your clips.</li> <li>• <b>No:</b> Only the local operators can modify or delete clips on the server and edit their metadata.</li> </ul>
<b>Default value</b>	No

## Confirm Delete Clips/Playlists

<b>Description</b>	Enables a confirmation request when users delete clips, playlists or in both situations.
<b>Values</b>	<p>The following values are possible:</p> <ul style="list-style-type: none"> <li>• <b>Off:</b> Clips and playlists are immediately deleted.</li> <li>• <b>Clips:</b> A confirmation is required for a clip deletion, but not for a playlist deletion.</li> <li>• <b>Playlists:</b> A confirmation is required for a playlist deletion, but not for a clip deletion.</li> <li>• <b>Clips &amp; Playlists:</b> A confirmation is required both for a playlist deletion, and for a clip deletion.</li> </ul>
<b>Default Values</b>	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)

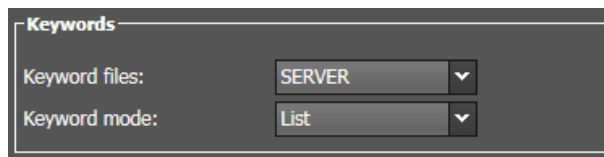


#### WARNING

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

<b>Description</b>	Specifies the keywords file that can be used to assign keywords to clips or to search the clips database.
<b>Values</b>	<p>The following values are possible:</p> <ul style="list-style-type: none"> <li>• <b>-----</b> : No keywords file is selected, and the keyword assignment and related search functions are not available.</li> <li>• <b>SERVER</b>: The keywords file sent by the active EVS server to all systems on the SDTI network will be used. This value is only available if the SDTI network is used.</li> <li>• <b>&lt;Keywords file name&gt;</b>: <ul style="list-style-type: none"> <li>◦ Other file names will appear if keywords files (files with a .KWD extension) have been loaded in the C:\LSMCE\DATA\KWD directory of the system.</li> <li>◦ 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,</li> <li>◦ See the "Keyword Management" section in the Multicam operational manual for details about the keywords file format and keywords-related functions,</li> </ul> </li> </ul>
<b>Default Values</b>	----- (keywords file not selected)

## Keyword Mode

<b>Description</b>	Specifies the keyword assignment/search mode on the EVS Remote Panel.
<b>Values</b>	<p>The following values are possible:</p> <ul style="list-style-type: none"> <li>• <b>List</b>: 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.</li> <li>• <b>Numeric</b>: It doesn't display the keywords list on the LCD, but allows the operator to enter directly the keyword ID using the F_ keys. 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.</li> </ul>
<b>Default Values</b>	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 SDTI 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 SDTI hardware or GbE hardware.

The following screenshot displays the Push settings on the Operation tab in the web-based interface:

**Push**

Push target: Gigabit

Push mode: Short

Push receive page: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☒ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 0

Push receive slots: ☒ A ☒ B ☒ C ☒ D ☐ E ☐ F ☐ G ☐ H ☐ I ☐ J ☐ K ☐ L

## Push Target

<b>Description</b>	<p>Specifies which EVS servers will be listed as possible targets for push actions when the user selects:</p> <ul style="list-style-type: none"> <li>the default Target 1 and Target 2 in the settings, or</li> <li>a target for a specific push action if no default target has been configured.</li> </ul>
<b>Values</b>	<p>The following values are possible:</p> <ul style="list-style-type: none"> <li><b>SDTI:</b> Only SDTI targets will be listed. The servers are listed by their network system name and number.</li> <li><b>Gigabit:</b> Only EVS servers reachable via the GbE network and not present on the same SDTI network will be listed. The servers are listed by their GbE server name, and IP Address.</li> <li><b>SDTI+Gigabit:</b> First the servers on the same SDTI network connected through SDTI are listed, then the servers not on the same SDTI network but reachable via the GbE network are listed. The <b>Gigabit</b> and <b>SDTI+Gigabit</b> values are not available if the EVS server does not have a GbE board.</li> </ul>
<b>Default Value</b>	SDTI

## Push Target 1 / 2

<b>Availability</b>	These parameters are only available in the server-based application, not in the web-based interface.
<b>Description</b>	<p>Specifies to which machine(s) on the network the clips must automatically be sent when the operator uses the <b>PUSH</b> function on the Remote Panel.</p> <p>The machines defined in this setting are also used as default target for clip copies.</p> <p>The users can define two default targets: Target 1/ Target 2.</p> <p>The clips will be pushed in sequential order.</p>
<b>Values</b>	<p>A list of values will be displayed depending on the value assigned to the <b>Target</b> setting:</p> <ul style="list-style-type: none"> <li><b>-----:</b> When no target is defined in these parameters, the user will be able to define the requested target when (s)he calls the <b>PUSH</b> function.</li> <li><b>&lt;network system name and number&gt;</b> are listed and can be assigned for targets belonging to the SDTI network.</li> <li><b>&lt;GbE server name and IP Address&gt;</b> are listed and can be assigned for targets belonging on the GbE network.</li> </ul>
<b>Default Values</b>	----- (No target machine specified)

## Push Mode

<b>Description</b>	Specifies how the clips should be sent using the <b>PUSH</b> function, that is to say with or without the original guardbands.
<b>Values</b>	<p>The following values are possible:</p> <ul style="list-style-type: none"> <li>• <b>Short:</b> The clips are sent from the Short IN to the Short OUT points, to which the guardbands of the destination machine are added.</li> <li>• <b>Long:</b> The clips are sent from the Protect IN to the Protect OUT.</li> </ul>
<b>Default Values</b>	Short

## Push Receive Page

<b>Description</b>	<p>Specifies the page of your machine where clips sent to you by other network operators using the <b>PUSH</b> function must be stored first.</p> <p>When the preferred slots on the first page are full, the clips are stored on the preferred slots of the next page.</p> <p>See section "Navigating and Editing in the Multicam Configuration Window" on page 70 for more information on how to enable pages.</p>
<b>Values</b>	Page 1 to 10 (=0). A single page can be selected.
<b>Default Values</b>	(Page) 5

## Push Receive Slots

<b>Description</b>	<p>Specifies the clip position(s) (A to L) where the pushed clips will be stored in priority, starting on the page specified in the <b>Push Receive Page</b> setting.</p> <p>See section "Navigating and Editing in the Multicam Configuration Window" on page 70 for more information on how to enable slots.</p>
<b>Values</b>	Slot A to L. Several slots can be selected.
<b>Default Values</b>	(CAM) A,B,C,D



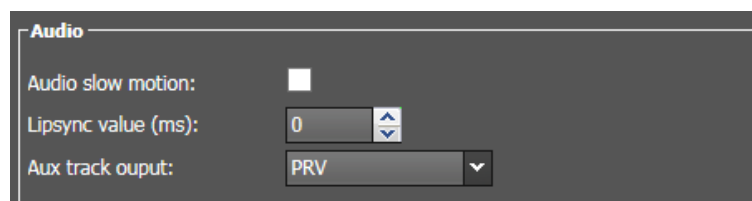
## 4.8.9. Audio Settings

### 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

<b>Description</b>	Allows users to play back or mute the audio track when the playing speed is different than 100%.
<b>Values</b>	<p>The following values are possible:</p> <ul style="list-style-type: none"> <li>• <b>No:</b> The audio track is muted during the playback.</li> <li>• <b>Yes:</b> The audio track is not muted during the playback. It will be faded in, then muted above a given threshold (300%).</li> </ul>
<b>Default value</b>	No

### Lipsync Value (ms)

<b>Description</b>	<p>Specifies the delay (in ms) between video and audio signals:</p> <ul style="list-style-type: none"> <li>• A positive value means video is ahead of audio.</li> <li>• A negative value means audio ahead of video.</li> </ul>
<b>Values</b>	<p>The following values are possible:</p> <ul style="list-style-type: none"> <li>• Range for PAL: from -41,458 ms to 14,708 ms → 848 to 3544 samples, 0 ms → 2838 samples</li> <li>• Range for NTSC: from -34,625 to 12,125 ms → 688 to 2932 (samples), 0 ms → 2350 samples</li> </ul>
<b>Default value</b>	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

<b>Description</b>	Specifies to which audio outputs the auxiliary track of the playlist will be played out.
<b>Values</b>	<p>The following values are possible:</p> <ul style="list-style-type: none"><li>• <b>PRV:</b> 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.</li><li>• <b>PRV&amp;7-8/15-16:</b> 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.</li><li>• <b>PGM:</b> The auxiliary track will use the audio outputs normally assigned to the PGM channel.</li></ul>
<b>Default value</b>	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**

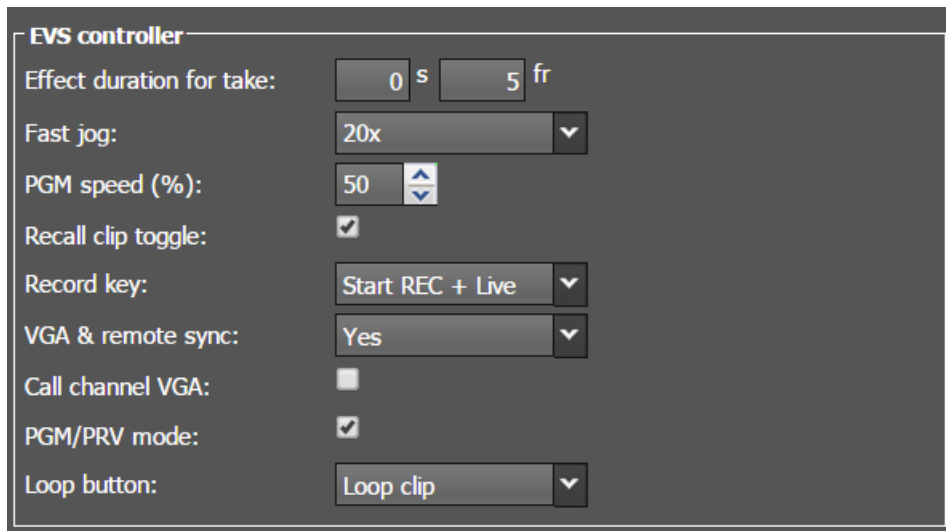
Most of the settings are only available or applicable with base configurations associated to the use of an EVS Remote Panel (XSense Remote).

## User Interface

These fields are available in the following interfaces:

- 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

<b>Description</b>	Defines the duration of the transition when using the <b>TAKE</b> key to chain 2 sequences in PGM+PRV mode.
<b>Values</b>	Range of values: 00s00fr to 20s00fr.
<b>Default value</b>	00s05fr

### Fast Jog

<b>Description</b>	Sets the increment of the jump when the Remote Panel is used in Fast Jog mode.
<b>Values</b>	The values from 1 to 20 times are possible.
<b>Default value</b>	20x

## PGM Speed

<b>Context</b>	During playback, if PGM Speed has been enabled in the secondary menu of the Remote Panel, the lever range will be adapted so that: <ul style="list-style-type: none"> <li>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)</li> </ul>
<b>Description</b>	Specifies the playback speed assigned to the lever when the <b>PGM Speed</b> command is used.
<b>Values</b>	Range of values from 1 to 400 %
<b>Default value</b>	50%

## Recall Clip Toggle

<b>Description</b>	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.
<b>Values</b>	Yes / No
<b>Default value</b>	Yes

## Record Key

<b>Description</b>	Changes the function of the <b>RECORD</b> key on the Remote Panel, as described below.
<b>Values</b>	The following values are possible: <ul style="list-style-type: none"> <li><b>Start REC+Live:</b> Pressing the <b>RECORD</b> key starts the record process and switches to LIVE mode.</li> <li><b>Live:</b> Pressing the <b>RECORD</b> key only switches to last recorded picture, but the record is not restarted if it has been previously stopped by the operator.</li> </ul>
<b>Default value</b>	Start REC+Live

## VGA & Remote Sync

<b>Description</b>	Specifies whether and how the current clips machine, page and bank of VGA screens and Remote Panel must be synchronized.
<b>Values</b>	<p>The following values are possible:</p> <ul style="list-style-type: none"> <li>• <b>No:</b> Clip machine, page and bank can be selected independently on the VGA screen and on the Remote Panel.</li> <li>• <b>Yes:</b> 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.</li> <li>• <b>Server:</b> 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.</li> </ul>
<b>Default value</b>	No

## Call Channel VGA

<b>Description</b>	Enables or disables the <b>Call Channel</b> 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.
<b>Values</b>	Yes / No
<b>Default value</b>	Yes

## PGM/PRV Mode

<b>Description</b>	Allows the user to select the PGM/PRV mode on the LCD display as a function accessible from the <b>A</b> button on the Remote Panel's main menu. Otherwise, the PGM/PRV mode selection is not accessible from the A button.
<b>Values</b>	The following values are possible: <ul style="list-style-type: none"><li>• <b>Yes:</b> The PGM/PRV mode is available from the <b>A</b> key on the Remote Panel.</li><li>• <b>No:</b> The PGM/PRV mode is not available from the <b>A</b> key on the Remote Panel.</li></ul>
<b>Default value</b>	Yes

## Loop Button

<b>Description</b>	Defines the behavior of the loop function enabled with the <b>SHIFT + Loop</b> .
<b>Values</b>	The following values are possible: <ul style="list-style-type: none"><li>• <b>Loop clip:</b> Pressing the loop button loops the loaded clip between its Short IN and Short OUT points, when you are located between these two points.</li><li>• <b>Loop clip bounce:</b> 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.</li><li>• <b>Disable:</b> Pressing the loop button has no effect.</li></ul>
<b>Default value</b>	Loop clip

## 5. Monitoring

### 5.1. Server Monitoring

#### 5.1.1. 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	<a href="#">General Information window</a>	Provides general system information and maintenance commands on the EVS server.
#2	<a href="#">Raid and Disk Status window</a>	Gives information on the disks or raids from internal and/or external storage.
#3	<a href="#">Timecode Status window</a>	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	<a href="#">Timecode Monitoring window</a>	Displays timecode information from recorders (SD or HD).
#5	<a href="#">Log Management window</a>	Allows a user-friendly and easy management of the logs.

## 5.1.2. 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:

```

SERVER MONITORING PAGE 1                                     b2M
Sh+F4:Network Monitoring F9:CLIP F10:PLST

System Information
Multicam version 15.01.
Chassis type      XS-4K
Serial number     129940
Hardware Edition  5.10
Facility Name     Multicam-129940
Net name          XS04_LMC
Net Number       4
SDTI Type        Master
Local clips      6/10800
Network clips    14/32000

Date and Time
Date (dd/mm/yy) - time : 03/08/2016 - 06:11:47 (Synchronized with LTC)

Maintenance
Reset archive status <ENTER>
Resync to TC ref    <ENTER>
Delete keyword file client                               <ENTER>
Record train reset  <ENTER>

TAB:SELECT                               PgDn:Pg2                               ALT+Q:EXIT MULTICAM

```

### 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 <b>Tools</b> menu, <b>Assign server facility name</b> option, in the Multicam setup window.





Field Name	Description
Net name	Machine name on the SDTI network. 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. The Net Name will be displayed even if the SDTI code is not valid. It is defined in the Multicam Configuration window, <b>Network</b> tab, <b>SDTI</b> section, <b>Net name</b> parameter.
Net number	Machine number (from 1 to 29) on the network. This number is user-defined and must be unique for each system on the network.
SDTI type	Role and privileges of the EVS server on the SDTI 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.

## 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 <b>SPACEBAR</b> until you select the keyword file to remove, and press <b>ENTER</b> .
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 45
Reconnect PC LAN	Reinitiates the PC LAN connexion. This option is only available on EVS servers fitted with an HS870 MTPC board. It prevents users from having to reboot the EVS server when the PC LAN has been disconnected and connected again, but the PC LAN connection status does not update properly.

## 5.1.3. Raid and Disk Status Window

### Introduction

The second page gives information on the disks or raids from internal and/or external storage.

```

SERVER MONITORING PAGE 2
SH+ESC:UGA EXPLORER Sh+F4:Network Monitoring F9:CLIP F10:PLST

RAID type
16 (4+1) raids + 04 spares

RAID status
01 02 03 04 05 55% 07 08 09 10 11 12 13 14 15 16

External Arrays Status
EXT4 PSU!
EXT3 OK
EXT2 OK
EXT1 FAN1! FAN3!
INT OK

Disks Status Display disks Highlight raid 01
EXT4 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
EXT3 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
EXT2 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
EXT1 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 -- -- 19 20 21 22 23 24
INT2 07 08 09 10
INT1 01 02 03 04

Legend OK Disconnected Rebuilding Spare Not present

TAB:SELECT <-/->:CHANGE PgUp:Pg1 PgDn:Pg3 ALT+Q:EXIT MULTICAM

```

### Raid Type

The Raid type section displays the number of raids, the type of raid (**4+1** or **5+1**) and the number of spare disks. 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 217 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 41 for more information on the rebuild process.

## External Array Status

This section displays the status of each external array and 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 external and/or internal arrays, as well as their status, which can be as follows:

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 Change the Disk Status Display

Based on the selection made in the **Display** field, two types of representations are available: by disk number or by raid number. Users can change the option by using the Spacebar, the plus (+) and minus (-) keys, as well as the arrow keys.

### Disk Display

This represents each disk by its number in the array, or gray dashes if not present, and uses a color code to display its status.

Disks	Status	Display	Disks																Highlight raid																01
EXT4	!	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24										
EXT3		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24										
EXT2		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24										
EXT1	!	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	--	--	19	20	21	22	23	24										
		11																																	
INT2		07	08	09	10																														
		05				06																													
INT1		01	02	03	04																														

The external arrays can contain up to 24 disks, with a minimum of 5 disks.

The internal arrays organization can be as follows: one array of 6 disks, on array of 12 disks, two arrays with 6 disks each. See section "Raid Status" on page 216 for more information on the raid status.

### Raid Display

This 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**.

Disks	Status	Display	raids				Highlight												raid	01							
EXT4	!	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	sp	sp	sp
EXT3		12	12	12	12	13	13	13	13	13	14	14	14	14	14	15	15	15	15	15	16	16	16	16	16	16	
EXT2		07	07	07	08	08	08	08	08	09	09	09	09	09	10	10	10	10	10	11	11	11	11	11	12	12	
EXT1	!	03	03	03	03	03	04	04	04	04	04	05	05	05	05	05	06	06	06	06	06	07	07	sp	--	--	
		02	02	02	02																						
		01	02	02	02																						
INT1		01	01	01	01																						

### How to Highlight the Disks of a Raid

The **Highlight Raid** field makes it possible to highlight, with a light gray background, the disks belonging to the raid number specified on the right of the field.

## 5.1.4. 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.

SERVER MONITORING PAGE 3												
SH+ESC:UGA EXPLORER						Sh+P4:Network Monitoring F9:CLIP F10:PLST						
<b>Genlock status</b>						<b>Analog LTC status</b>						
OK since 05/03/16 - 07:26:16						07:35:07:11 <OK> Drifts : 000						
<b>TimeCode Status</b>						<b>Recorders</b>						
						01	02	03	04	05	06	07
LTC	LTC jumps	001	001	001	001	001	001	001	001	001	001	001
	LTC threshold	050	050	050	050	050	050	050	050	050	050	050
	Peak alerts	001	001	001	001	000	000	000	000	000	000	000
	Peak Limit (sec)	010	010	010	010	010	010	010	010	010	010	010
	Frequency alerts	000	000	000	000	000	000	000	000	000	000	000
	Frequency: Number	010	010	010	010	010	010	010	010	010	010	010
	Frequency: Time	050	050	050	050	050	050	050	050	050	050	050
USER	USER jumps	001	001	001	001	001	001	001	001	001	001	001
	USER threshold	050	050	050	050	050	050	050	050	050	050	050
TAB:SELECT <-/->:CHANGE PgUp:Pg2 PgDn:Pg4 ALT+S:Save ALT+Q:EXIT MULTICAM!												

### 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. 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 XS4K 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.

See section "Timecode Settings" on page 138 for more information on this setting.

### LTC Timecode

LTC	Description	Default Values
<b>LTC jumps</b>	Number of timecode jumps calculated in the LTC timecode jump table for the given recorder since the last start of the server.	1
<b>LTC threshold</b>	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
<b>Peak alerts</b>	Number of peak alerts generated for the recorder since the last start of the server. A peak alert is generated each time the peak limit specified in the Peak Limit field is reached. In this case, this field is automatically incremented by one.	0
<b>Peak limits (sec)</b>	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
<b>Frequency alert</b>	Number of frequency alerts generated for the recorder since the last start of the server. A frequency alert is generated when X timecode jumps have been detected in Y seconds. The X value is defined in the Frequency Number field. The Y value is defined in the Frequency Time field. In this case, this field is automatically incremented by one.	0
<b>Frequency number</b>	Number of timecode jumps detected for the recorder after which a frequency alert can be generated.	10
<b>Frequency time</b>	Period of time (in seconds) after which a frequency alert can be generated.	50

## User Timecode

VITC	Description	Default Values
<b>VITC jumps</b>	Number of timecode jumps calculated in the VITC timecode jump table for the given recorder since the last start of the server.	1
<b>VITC threshold</b>	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.

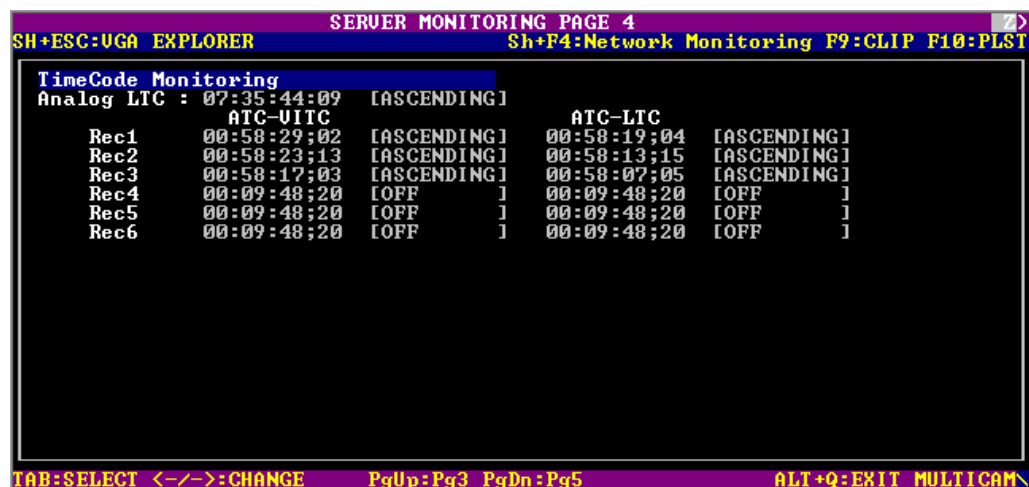
## 5.1.5. Timecode Monitoring Window

### Introduction

The Timecode Monitoring Window displays the various timecodes used in the running configuration. It varies somewhat depending on whether you work in HD.

When the server runs an HD codec, the following timecode information is displayed:

- LTC timecode
- ATC timecodes on the various recorders



SERVER MONITORING PAGE 4									
SH+ESC:UGA EXPLORER					Sh+F4:Network Monitoring F9:CLIP F10:PLST				
<b>TimeCode Monitoring</b>									
Analog LTC : 00:35:44:09 [ASCENDING]									
ATC-VITC									
Rec1	00:58:29:02	[ASCENDING]	ATC-LTC	00:58:19:04	[ASCENDING]				
Rec2	00:58:23:13	[ASCENDING]		00:58:13:15	[ASCENDING]				
Rec3	00:58:17:03	[ASCENDING]		00:58:07:05	[ASCENDING]				
Rec4	00:09:48:20	[OFF]	1	00:09:48:20	[OFF]	1			
Rec5	00:09:48:20	[OFF]	1	00:09:48:20	[OFF]	1			
Rec6	00:09:48:20	[OFF]	1	00:09:48:20	[OFF]	1			
TAB:SELECT <-/->:CHANGE PgUp:Pg3 PgDn:Pg5 ALT+Q:EXIT MULTICAM									

## 5.1.6. Log Management

### Introduction

The Log Management window displays a menu dedicated to log management. This window allows a user-friendly and easy management of the logs where log files can be accessed from a remote computer while the Multicam is still in use.

SERVER MONITORING PAGE 5			
SH+ESC:UGA EXPLORER		Sh+F4:Network Monitoring F9:CLIP F10:PLST	
MicroCode Logs		Log Management Menu	
		Multicam Logs	
0	mC_Boot - Critical	64	Mul_Gbe - Critical
1	mC_HAL - Critical	65	Mul_General - Critical
2	mC_SYSMon - Critical	66	Mul_Database - Critical
3	mC_General - Critical	67	Mul_Sdti_Cmd - Critical
4	mC_GBE_Driver - Critical	68	Mul_Console - Critical
5	mC_SCSI - Critical	69	Mul_Remote_0 - Critical
6	mC_Cache - Critical	70	Mul_Remote_1 - Critical
7	mC_AvIndex - Critical	71	Mul_Remote_2 - Critical
8	mC_DataTrfSched - Critical	72	Mul_Remote_3 - Critical
9	mC_CnlMgr - Critical	73	Mul_Remote_4 - Critical
10	mC_DataSave - Critical	74	Mul_Remote_5 - Critical
11	mC_SystemBackup - Critical	75	Mul_PlayList - Critical
12	mC_Audio_Recs - Critical	76	Mul_TimeLine - Critical
13	mC_Sdti - Critical	77	Mul_Incrust - Critical
14	mC_SdtiUser - Critical	78	Mul_Player_0 - Critical
15	mC_CnlLgRec - Critical	79	Mul_Player_1 - Critical
16	mC_CnlLgPly - Critical	80	Mul_Player_2 - Critical

### 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 extract 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 `C:\LSMCE\DATA\LOG`. Their name starts with an underscore: 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.

## 5.2. SDTI Network Monitoring

### 5.2.1. Overview on SDTI Network Monitoring Windows

The SDTI Network monitoring windows can be accessed via the server-based application when the EVS server is running in a given configuration. To access the SDTI Network Monitoring section, press **SHIFT+F4**.

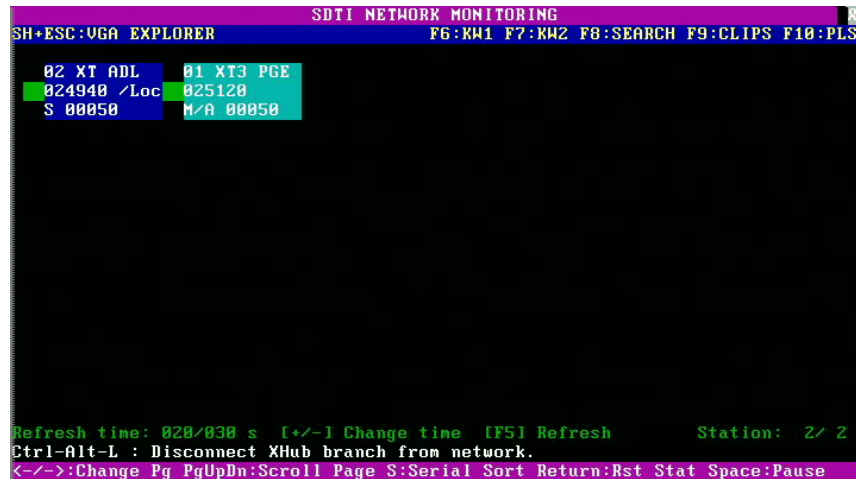
It consists in the following pages:

- The **SDTI Network Schema** (page 1) shows a schematic representation of the SDTI network.
- The **Hardware Error Counters** (page 2) provides a list of the hardware for which an SDTI-related error has been returned .

## 5.2.2. SDTI Network Schema

### Overview

This page shows a schematic representation of the SDTI network. This allows you to check the SDTI network status, and to see how hardware devices are interconnected on the SDTI network.



### 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 (server, master or client) as defined in the EVS application.

### Background Color

The background color of the data related to a given machine means:

- **blue:** effective server
- **gray:** not currently server

## Text Color

The color of the text indicates the video network overload, based on how many SDTI 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

The color of the link indicates the physical link status between two machines:

- **green:** OK
- **red:** errors

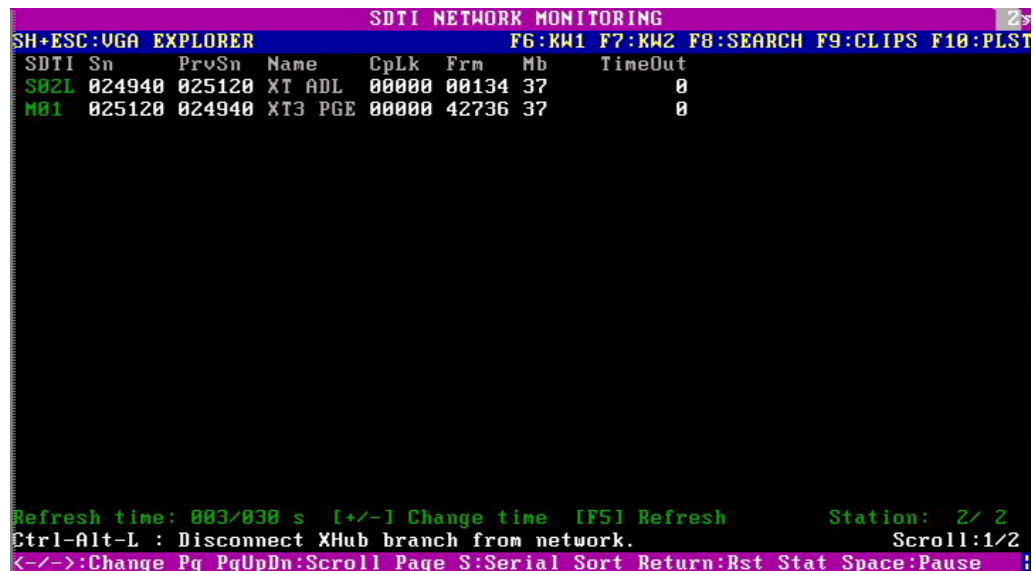
## Possible Actions

- Pressing **S** changes the presentation of the SDTI 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 SDTI network schema
- Pressing **RIGHT ARROW** to display the second SDTI 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 226 for more information.

## 5.2.3. Hardware Error Counters

The second page of the SDTI monitoring section provides a list of the hardware devices present on the SDTI network, sorted by serial number, with error counters information.



SDTI NETWORK MONITORING							
SH+ESC:UGA EXPLORER				F6:KW1 F7:KW2 F8:SEARCH F9:CLIPS F10:PLST			
SDTI	Sn	ProSn	Name	CpLk	Frm	Mb	TimeOut
S02L	024940	025120	XT ADL	00000	00134	37	0
M01	025120	024940	XT3 PGE	00000	42736	37	0

Refresh time: 003/030 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

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.

## 5.2.4. 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 you are working on is connected to. This can be useful when setting up an SDTI network or troubleshooting an SDTI 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 SDTI 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 SDTI 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.'

## 5.3. Protocols

### 5.3.1. 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.

### 5.3.2. Sony BVW75

#### Protocol Capabilities

This Sony protocol is able to:

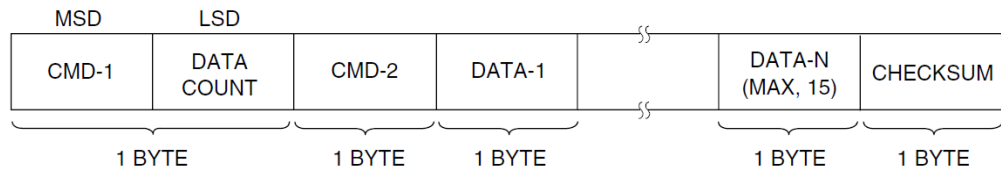
- use the transport command
- get the channel status
- get the channel TC

#### 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 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)



Command	Return
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
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)

Command	Return
61.0A Request TCGen	74.08 : GEN TIME DATA 74.09 : GEN UB DATA 78.08 : GEN TC & UB DATA
61.0C Request TimeCode	74.00 TIMER-1 DATA 74.04 LTC TIME DATA 74.05 LTC UB DATA 78.04 LTC TIME & UB DATA 74.06 VITC TIME DATA 74.07 VITC UB DATA 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

### 5.3.3. XTENDDD35

#### 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.

### 5.3.4. 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
A0.1c Longest 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.

## 5.3.5. 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:

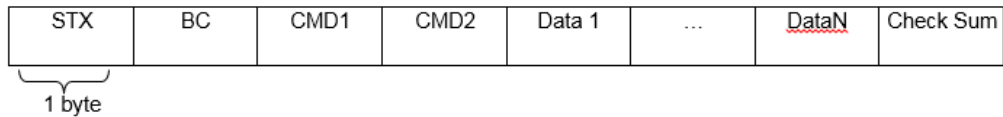
- control several channels with one serial connection
- preload and chain clips
- create clips
- get the server database

## Characteristics

### Bitrates

38.4 kilobits/s

### Command Construction



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

Command		Return
VarID mode	8-bytes ID mode	
-	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
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.

## 6. Truck Manager Plugin

### 6.1. 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.

### 6.2. Plugin Overview

#### Introduction

The Multicam plugin contains the elements highlighted on the screenshot below:

The screenshot shows the 'Multicam Settings' window. The interface is organized into several sections: 'Server', 'Channels', and 'Network'. Numbered callouts point to specific elements: 1 points to the 'Multicam Settings' title bar; 2 points to the 'Apply' button; 3 points to a menu icon; 4 points to the 'Advanced' button; 5 points to the 'Video' section; 6 points to the 'Channels' section; and 7 points to the 'Network' section.

**1** Multicam Settings

**2** Apply

**3** [Menu Icon]

**4** Advanced

Configuration name: [Text Field]

**Server**

Video

Field rate: 50.00Hz Resolution: 1080p

Codec Intra

Codec: AVID DNxHD 240 Bitrate (Mbps): 242

**Channels**

**Base settings**

Inputs: 4 Outputs: 4

Base config: XSense

Interface: No

**Audio settings**

Number of tracks: 8 monos

**Port settings**

Port #1: EVS Remote

Port #2: EVS Remote

Port #3: EVS Remote

Port #4: EVS Remote

Port #5: EVS IPDP

Port #6: [Empty]

**Channel and control settings**

	Name	Main ctrl	Port
OUT1 PGM1	PGM1	EVS Remote	
OUT2 PGM2	PGM2	EVS Remote	
OUT3 PGM3	PGM3	EVS Remote	
OUT4 PGM4	PGM4	EVS Remote	
IN1 REC1	REC1	EVS Remote	
IN2 REC2	REC2	EVS Remote	
IN3 REC3	REC3	EVS Remote	
IN4 REC4	REC4	EVS Remote	

**Network**

**SDI**

Speed: No relay 2970 Net name: JMU\_XT03

Type: Master Net number: 3

**Gigabit IP configuration**

	Port 1	Port 2
Network	Custom	Custom
IP address	10.129.110.31	10.129.113.3
Subnet mask	255.255.254.0	255.255.255.0
Default gateway	0.0.0.0	0.0.0.0

**5**

**6**

**7**

## 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.	<b>Apply</b> button	Button to apply the parameter values to Multicam.
3.	<b>Menu</b> icon	Icon to open the contextual menu, which provides general commands, or commands specific to Multicam. See section "Contextual Menu" on page 238.
4.	Configuration Area	Area that allows users to select the configuration line, and access the advanced Multicam parameters. See section "Configuration Area" on page 239.
5.	Server Area	Area that allows users to set the main server parameters of Multicam. See section "Server Area" on page 240.
6.	Channels Area	Area that allows users to set the main channels parameters of Multicam. See section "Channels Area" on page 242.
7.	Network Area	Area that allows users to set the main network parameters of Multicam. See section "Network Area" on page 245

## 6.3. Contextual Menu

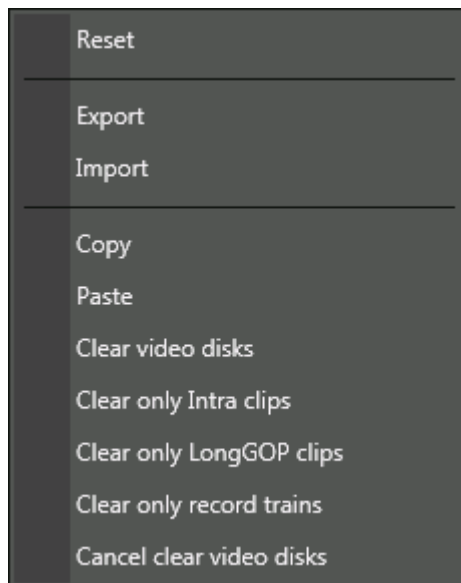
### Introduction

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 ...
<b>Reset</b>	Reset the values defined in the plugin to the values currently defined in the Multicamapplication.
<b>Export</b>	Export all setting values associated to the Multicam application to a .cnf file named according to the following pattern <Name>-<ProductName>.cnf.
<b>Import</b>	Import the setting values stored in a .cnf file into the application plugin.
<b>Copy</b>	Copy to the clipboard the parameters associated to the Multicam application.
<b>Paste</b>	Paste to another application the parameters previously copied to the clipboard.
<b>Clear video disks</b>	Delete all clips, playlists and record trains on the EVS server when users launch a new configuration.

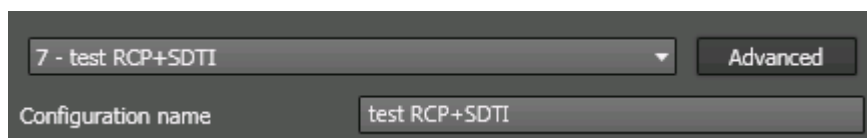


Command Name	Select that command to ...
<b>Clear only Intra clips</b>	Delete all clips and playlists in an Intra essence on the EVS server. Not applicable on XS4K server.
<b>Clear only LongGOP clips</b>	Delete all clips and playlists in a LongGOP essence on the EVS server. Not applicable on XS4K server.
<b>Clear only record trains</b>	Delete the record trains on the EVS server.
<b>Cancel clear video disks</b>	Cancel the clear video disks command previously issued.

## 6.4. 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 from top to bottom:

Item	Use this item to ...
<b>Configuration Selection</b> field	Select the Multicam configuration you want to edit in the Truck Manager.
<b>Advanced</b> button	Access the web-based interface of the Multicam Configuration window, and to access the advanced parameters not available in the Truck Manager.
<b>Configuration Name</b> field	Change the name of the selected configuration.

## 6.5. 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

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

#### Resolution

<b>Description</b>	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). Both field rate and resolution correspond to the video standard.
<b>Values</b>	In HD: <ul style="list-style-type: none"><li>• <b>720p</b></li><li>• <b>1080i</b></li><li>• <b>1080p</b> (only available with code 22)</li></ul> In UHD-4K: <ul style="list-style-type: none"><li>• <b>UHDTV-4K</b></li></ul>

## Codec Intra

### Codec

<b>Description</b>	Algorithm used to compress and decompress the video signal. With Intra codecs, the compression techniques are performed exclusively relative to information contained within the current frame.
<b>Values</b>	<p>In HD:</p> <ul style="list-style-type: none"> <li>• Avid DNxHD 120, 185 or 185x (only in 50 Hz)</li> <li>• Avid DNxHD 145, 220 or 220x (only in 59.94 Hz)</li> <li>• Apple ProRes 422, 422 LT, 422 HQ</li> <li>• AVC-Intra 100</li> <li>• XAVC-Intra 100</li> </ul> <p>In UHD-4K:</p> <ul style="list-style-type: none"> <li>• XAVC-Intra 300</li> </ul> <p>See section "Codec Availability" on page 84 for detailed information on codec availability.</p>

### Bitrate

<b>Description</b>	Number of megabits processed per second (Mbps). The bitrate depends on the codec.
<b>Values</b>	See section "Codec-Related Information" on page 85 for detailed information on bitrates per codec.

## Codec Proxy

### Codec

<b>Description</b>	Algorithm used to compress and decompress the video signal in low resolution. It is used for remote browsing purposes. It is not possible to run an EVS server with the Proxy essence only.
<b>Values</b>	Mjpeg

### Bitrate

See section "Bitrate" on page 241.

## 6.6. 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

<b>Description</b>	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.
<b>Values</b>	The number of supported channels depends on the chassis, and the mode: <ul style="list-style-type: none"><li>• on XS4K : 0-12 (Spotbox), 1-10 (XSense)</li></ul> See section "About Supported Configurations" on page 49 for more information on number of record channels and on supported configurations.

#### Outputs

<b>Description</b>	Number of logical play channels in the given configuration.
<b>Values</b>	The number of supported channels depends on the chassis, and the mode: <ul style="list-style-type: none"><li>• on XS4K : 0-6 (Spotbox), 1-6 (XSense)</li></ul> 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.

<b>Description</b>	Mode the EVS server is working in. The base configurations available depend on the server type, and on the valid license codes.
<b>Values</b>	<ul style="list-style-type: none"> <li>• <b>Spotbox:</b> 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</li> <li>• <b>XSense:</b> 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: 90 ... 95 + 111 + 96</li> <li>• <b>Video Delay:</b> mode where the server is used to play out the input with a video delay. License codes: 90 ... 95 + 127</li> </ul>

## Interface

<b>Availability</b>	The parameter is only available with a UHD-4K resolution, 3G interface or XIP rear panel.
<b>Description</b>	<p>Defines the interface the EVS server will use with the 1080p, UHD-4K resolutions or XIP rear panels:</p> <ul style="list-style-type: none"> <li>• The <b>3G-SDI interface</b> consists of a single serial link that provides 2.970 Gbit/s.</li> <li>• The <b>12G-SDI interface</b> consists of a single serial link corresponding to 4 x 3G-SDI links. This provides an uncompressed interface for UHD-4K.</li> <li>• The <b>IP SFP+ connectors</b> with the XIP rear panel.</li> </ul>
<b>Values</b>	<p>The following values are possible, but their availability depends on several conditions:</p> <ul style="list-style-type: none"> <li>• <b>HD-SDI:</b> HD-SDI connection for 720p or 1080i. It is available with the above-mentioned resolutions.</li> <li>• <b>3G Level-A:</b> 3G-SDI connection for 1080p, or each 1080p frame of an UHD-4K image. It is available with code 22 (1080p 3G) or code 27 (UHDTV-4K).</li> <li>• <b>12G:</b> 12G-SDI connection for an UHD-4K image. It is available with code 27 (UHDTV-4K).</li> <li>• <b>XIP:</b> SFP+ connection for IP streams. It is available with an XIP rear panel with 720p, 1080i or 1080p resolutions.</li> </ul>

## Audio Settings

<b>Description</b>	Number of mono audio tracks associated to each video channel. See section "Number of Audio Tracks" on page 119
<b>Values</b>	4 Monos (default), 8 Monos, 16 Monos

## Port Settings

### Port #1 - #6

The default value is only applicable to the settings in the Multicam application, not to the settings in the Truck Manager plugin.

<b>Description</b>	Specifies what type of device/controller is connected to each RS422 port of the EVS server.
<b>Values</b>	The following values can be available if the required license codes are active: <ul style="list-style-type: none"><li>• EVS Remote for XSense Remote Panel (code between 103 and 109 or code 96)</li><li>• EVS IPDP (code 120 or 121)</li><li>• Sony BVW75 (code 118)</li><li>• XtenDD35 (code 118)</li><li>• Odetics (code 119)</li><li>• VDCP (code 119)</li><li>• EVS AVSP (code 120 or 121)</li><li>• LinX (code 123)</li></ul>

## Channel and Control Settings

### Name

<b>Description</b>	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)

<b>Description</b>	Name of the main device/controller allowed to control the given play or record channel.
<b>Values</b>	<p>For a controller to be available in the list of values, it must first be assigned to an RS422 port in the port settings.</p> <p>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. See section "Rules for Controller Assignment" on page 105 for more information.</p> <p>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.</p>

## 6.7. 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.

### SDTI

#### Speed

<b>Description</b>	<p>Enables the selection of the SDTI option and the bandwidth for the XNet network.</p> <p>On the XS4K server, there is one pair of SDTI connectors: XNet2 No Relay connectors are used at 2970 Mbps.</p> <p>The SDTI circuit is closed only when the Multicam software is started.</p>
<b>Values</b>	<p>The following values are available:</p> <ul style="list-style-type: none"> <li>No Relay 2970 (Mbps)</li> <li>Off</li> </ul>

## Net Name

<b>Description</b>	Machine name on the SDTI network. 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.
<b>Values</b>	The Net Name is user-defined and cannot exceed 8 characters.

## Type

<b>Description</b>	Defines the privileges of the EVS server on the SDTI network.
<b>Values</b>	<p>The following values are possible:</p> <ul style="list-style-type: none"><li>• <b>Client:</b> It cannot access the content on other EVS servers.</li><li>• <b>Master:</b> It can access all content on other EVS servers.</li><li>• <b>Server:</b> It manages the SDTI network, and it can access all content on other EVS servers.</li></ul> <p>Only one EVS server on the network should be set to Server type. If no Server type is defined on the network, XNet will not be established. If more than one EVS server is defined as Server type, only the first one to connect will be the actual Server.</p> <p>Whatever the server type defined, the content of an EVS server can be accessed without restrictions by the other EVS servers (with type Master or Server) on the SDTI network.</p>

## Net Number

<b>Description</b>	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.
<b>Values</b>	Range between 1 and 29



## Gigabit IP Configuration

### IP Address (Port 1/Port 2)

<b>Description</b>	IP address to connect to the port1/port2 of the Gigabit Ethernet connection on the EVS server.
<b>Values</b>	The IP addresses 0.0.0.0 and 255.255.255.255 are not allowed.

### Subnet Mask (Port 1/Port 2)

<b>Description</b>	Range of logical addresses within the address space assigned to the Gigabit Ethernet connection. 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)

<b>Description</b>	IP address of the router on the Gigabit Ethernet network that serves as an access point to external networks.
--------------------	---



# Glossary

## 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.

### **3G Level-B**

3G-SDI interface in which the 3G digital video stream is still transferred as 2 HD SDI streams, and not as a single one.

## 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.

### **Dual-Link**

SDI interface in which the digital video stream is transferred as 2 HD SDI streams via two physical links.

## **E**

### **Encoder**

Processing unit that actually encodes the video signal.

### **Extended Configurations**

This feature allows using the secondary channel of the codec module as an independent record channel. With an XS server, the possible extended modes is the 12-channel mode with the 6U chassis.

## **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 material into the server. Intra+ XDCAM is an example of a multi-essence configuration.

### **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 from 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.



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