CONFIGURATION MANUAL

Version 14.02 - March 2016

XT3

Disclaimer

This manual and the information contained herein are the sole property of EVS Broadcast Equipment SA and/or its affiliates (EVS) and are provided “as is” without any expressed or implied warranties, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. In particular, EVS makes no warranty regarding the use or the consequences of use of this manual and the information contained herein. Furthermore, EVS may not be held liable for any direct or indirect, incidental, punitive or consequential loss, damage, cost or expense of any kind whatsoever and howsoever resulting from the normal or abnormal use of this manual and the information contained herein, even if advised of the possibility of such loss, damage, cost or expense.

While every effort has been made to ensure that the information contained in this manual is accurate, up-to-date and reliable, EVS cannot be held liable for inaccuracies or errors that may appear in this publication. The information in this manual is furnished for informational purpose and use only and subject to change without notice.

This manual cancels and replaces any previous versions thereof.

Copyright

Trademarks

All product and brand names are registered trademarks and trademarks of EVS or of their respective owners.

Improvement Requests

Your comments will help us improve the quality of the user documentation. Please send improvement requests, or report any error or inaccuracy on this user manual by e-mail to doc@evs.com.

Regional Contacts

You will find the full list of addresses and phone numbers on the following webpage: http://www.evs.com/contacts.

User Manuals on EVS Website

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: http://www.evs.com/downloadcenter.

Table of Contents

TABLE OF CONTENTS III

WHAT'S NEW? VII

1. INTRODUCTION 1

1.1. Introduction to the Configuration of EVS Servers 1
1.2. Introduction to the Manual 4
1.3. Starting the EVS Server 4
1.4. Accessing the Web-Based Interface 5

2. MULTICAM SETUP 6

2.1. Overview of User Interfaces 6
2.1.1. Overview of the Setup Areas 6
2.1.2. Navigability and Commands 10
2.2. Configuration Lines 12
2.2.1. Chapter Contents 12
2.2.2. Launching a Configuration 13
2.2.3. Editing a Configuration 14
2.2.4. Renaming Configuration Lines 16
2.2.5. Importing and Exporting Configuration Lines 17
2.2.6. Changing the Position of Configuration Lines 22
2.2.7. Copying, Pasting and Deleting Configuration Lines 22
2.3. Server Parameters 24
2.3.1. Chapter Contents 24
2.3.2. Assigning a Server Facility Name 24
2.3.3. Activating and Deactivating the Password Protection 25
2.3.4. Setting the Server LAN PC Address 27
2.3.5. Setting the Server Date and Time 28
2.3.6. Setting the Default Output To VGA/Video 30
2.3.7. Configuring Server Raids 30
2.4. Licenses and Maintenance 33
2.4.1. Overview on Options Codes Management 33
2.4.2. Options Codes Management Window 34
2.4.3. Entering and Removing License Codes 36
2.5. Server Maintenance 38
2.5.1. Chapter Contents 38
2.5.2. Rebooting the EVS Server 38
2.5.3. Hardware Check 39
2.5.4. Clearing Video Disks 43

2.5.5. Record Train Maintenance 45
2.5.6. Importing and Exporting Keyword Files 47
2.5.7. Exporting Log Files 48

3. SUPPORTED CONFIGURATIONS 49

3.1. General Principles 49
3.1.1. About Supported Configurations 49
3.1.2. About Record and Play Channels 49
3.1.3. Channel Assignment Principles 51
3.1.4. About Extended Configurations 52
3.2. SD and HD Base Configurations 54
3.2.1. SD/HD Configurations (4U) 54
3.2.2. SD/HD Configurations (6U) 58
3.3. SLSM Configurations 61
3.3.1. General Information on Supermotion Configurations 61
3.3.2. SLSM Configurations (4U) 64
3.3.3. SLSM Configurations (6U) 79
3.4. 3D Configurations 104
3.4.1. General Information on 3D Configurations 104
3.4.2. 3D Standard Configurations (4U) 105
3.4.3. 3D Standard Configurations (6U) 106
3.4.4. Channel Assignment Principles with 3D SLSM 108
3.4.5. 3D SLSM Configurations (4U) 109
3.4.6. 3D SLSM Configurations (6U) 111
3.5. 1080p Configurations 114
3.5.1. General Information on 1080p Configurations 114
3.5.2. 1080p Standard Configurations (4U) 115
3.5.3. 1080p Standard Configurations (6U) 118
3.5.4. Channel Assignment Principles with 1080p SLSM 122
3.5.5. 1080p SLSM Configurations (4U) 123
3.5.6. 1080p SLSM Configurations (6U) 130
3.6. UHD-4K Configurations 140
3.6.1. General Information on UHD-4K Configurations 140
3.6.2. UHD-4K Configurations (4U) 142
3.6.3. UHD-4K Configurations (6U) 143
3.6.4. UHD-4K SLSM Configurations (6U) 144

4. MULTICAM CONFIGURATION 146

4.1. Overview on User Interfaces 146
4.1.1. Introduction 146
4.1.2. Overview of the Multicam Configuration Window 148
4.1.3. Navigating and Editing in the Multicam Configuration Window 152
4.1.4. Overview of the Setup Menus in the Remote Panel 154
4.1.5. Navigating and Editing in the Setup Menus of the Remote Panel 155
4.1.6. Required Application Reboot 156

4.2. Server Tab 158
4.2.1. Overview 158
4.2.2. Video Codecs and Reference 159
4.2.3. Phase Definition Settings 176
4.2.4. Interpolation Settings 177
4.2.5. PC LAN Settings 178
4.3. Channels Tab 180
4.3.1. Overview 180
4.3.2. Channels 182
4.3.3. Audio 206
4.3.4. Timecode and Data Insertion 230
4.4. Network Tab 239
4.4.1. Overview 239
4.4.2. SDTI Settings 240
4.4.3. Gigabit Connection 242
4.4.4. Gigabit IP Configuration 245
4.4.5. Gigabit Prioritization Settings 246
4.5. Monitoring Tab 249
4.5.1. Overview 249
4.5.2. Multiviewer Settings 250
4.5.3. OSD Settings 254
4.5.4. Monitoring Settings 256
4.6. Protocol Tab 259
4.6.1. Overview 259
4.6.2. RS422 Protocols Settings 261
4.6.3. Clip Identifiers 262
4.6.4. Sony BVW Settings 263
4.6.5. EditRec 264
4.6.6. RS422 VarID Settings 271
4.7. GPI Tab 275
4.7.1. Overview 275
4.7.2. GPI Settings 275
4.7.3. Tally Settings 280
4.8. Operation Tab 282
4.8.1. Overview 282
4.8.2. OSD Settings 287
4.8.3. Audio Meters OSD Settings 288
4.8.4. Clips Settings 289
4.8.5. Playlist Settings 296
4.8.6. Timeline Settings 302
4.8.7. Protection Settings 303
4.8.8. Keywords Settings 305
4.8.9. Push Settings 307
4.8.10. Audio Settings 310
4.8.11. EVS Controller Settings 312
4.8.12. Hypermotion Management 318

4.8.13. Hypermotion Controller Settings 320
4.8.14. Special Effects Settings 323

5. MONITORING 328

5.1. Server Monitoring 328
5.1.1. Overview on Server Monitoring Windows 328
5.1.2. General Information Window 329
5.1.3. Raid and Disk Status Window 331
5.1.4. Timecode Status Window 334
5.1.5. Timecode Monitoring Window 336
5.1.6. Log Management 338
5.2. SDTI Network Monitoring 339
5.2.1. Overview on SDTI Network Monitoring Windows 339
5.2.2. SDTI Network Schema 340
5.2.3. Hardware Error Counters 342
5.2.4. Disconnecting a Machine from the XNet Network 342
5.3. Protocols 343
5.3.1. Introduction 343
5.3.2. Sony BVW75 343
5.3.3. XTENDD35 346
5.3.4. Odetics 347
5.3.5. VDCP 348

6. TRUCK MANAGER PLUGIN 351

6.1. Introduction 351
6.2. Plugin Overview 352
6.3. Contextual Menu 354
6.4. Configuration Area 355
6.5. Server Area 356
6.6. Channels Area 358
6.7. Network Area 364

GLOSSARY 367

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 14.02.

The changes linked to new features in version 14.02 are listed below:

New ChannelMax configurations

- See section "SD/HD Configurations (6U)" on page 58
- See section "SD/HD Configurations (4U)" on page 54
- See section "1080p Standard Configurations (6U)" on page 118

ChannelMax configurations supported on XT3 4U

- See section "About Supported Configurations" on page 49
- See section "About Record and Play Channels" on page 49
- See section "About Extended Configurations" on page 52
- See section "SD/HD Configurations (4U)" on page 54
- See section "SLSM Configurations (4U)" on page 64
- See section "1080p Standard Configurations (4U)" on page 115
- See section "1080p SLSM Configurations (4U)" on page 123

Migration of some SLSM configurations from ChannelMax into XRec mode

These are not individually highlighted as these are not new configurations

- See section "SLSM Configurations (6U)" on page 79

Changes in cabling for some SLSM 2x, 6x and 8x on 3G

These are not individually highlighted as these are not new configurations

- See section "SLSM Configurations (6U)" on page 79

U-Motion configurations (10x) included into the SLSM configurations

- See section "General Information on Supermotion Configurations" on page 61

Direct Input supported on the Multiviewer (IN1 and IN2)

- See section "Multiviewer Settings" on page 250

New Spotbox and XSense Fill & Key base configurations

- See section "Base Config. " on page 183

Make Changes to Threshold Values Persistent for TC Jump Tables

- See section "How to Make Changes to Threshold Values Persistent" on page 336

Changes in possible audio configurations

- See section "Audio Connectors" on page 207

Changes in Gigabit connections

- See section "Gigabit Connection" on page 242

1. Introduction

1.1. Introduction to the Configuration of EVS Servers

Configuration Module

The Multicam Setup application is used for configuration and maintenance operations on EVS video servers. It is also used to select which application to run, since EVS disk recorders have the ability to run various dedicated applications (Video Server, Slow Motion, …).

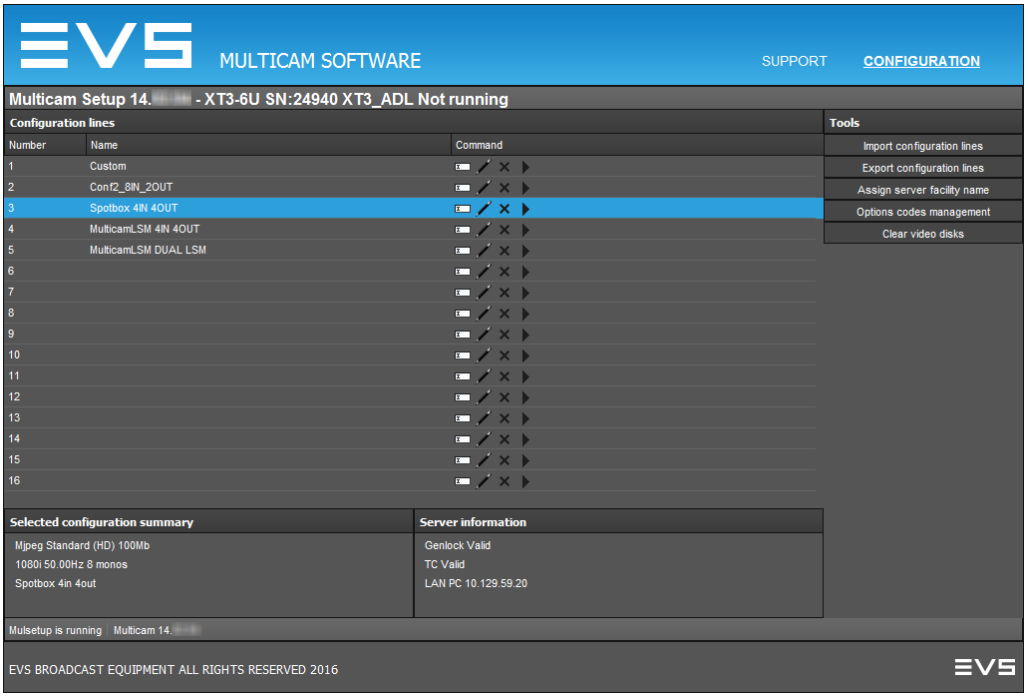
The configuration module has been developed along the lines presented in this section.

Consolidation into a Single User Interface

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

The user interface includes:

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



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

Simple User Interface

The user interface is simple and clear thanks to:

- the separation of basic and advanced parameters

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

- the filtering of the parameters displayed

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

Parameter Changes While Server is Running

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

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 Analog 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 newly designed 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**
Server-Based Application	Yes	Yes (tabs 1-6)	Yes (tab 7)
Web-Based Interface	Yes (except some Tools commands)	Yes (tabs 1-6)	Yes (tab 7)
Remote Panel	No	Yes (Technical Setup F0)	Yes (Setup Menu SHIFT+D)

1.2. Introduction to the Manual

Documented User Interfaces

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

- On the one hand, the information on navigability and editing commands, specific to the user interface, is described in clearly separated sections.
- On the other hand, the reference information on and the description of configuration parameters are described in common sections valid for all user interfaces. A clear overview shows whether and where the parameters are available in each user interface.

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 146.

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 fo r 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.

Procedure

To be able to open the web-based interface in a browser, you need to know the IP address of the PC LAN of the EVS server. See section "Setting the Server LAN PC Address" on page 27 for more information.

In your browser, enter the following URL: http://xxx.xxx.xxx.xxx/cfgweb/ where the crosses correspond to the PC LAN IP address of the EVS server you want to access.

2. Multicam Setup

2.1. Overview of User Interfaces

2.1.1. Overview of the Setup Areas

General Description

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

The Multicam Setup window allows users to:

- view and manage the various configuration lines.
- perform some administration and maintenance tasks on the EVS server.
- view summary information on the EVS server and the selected configuration line.

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

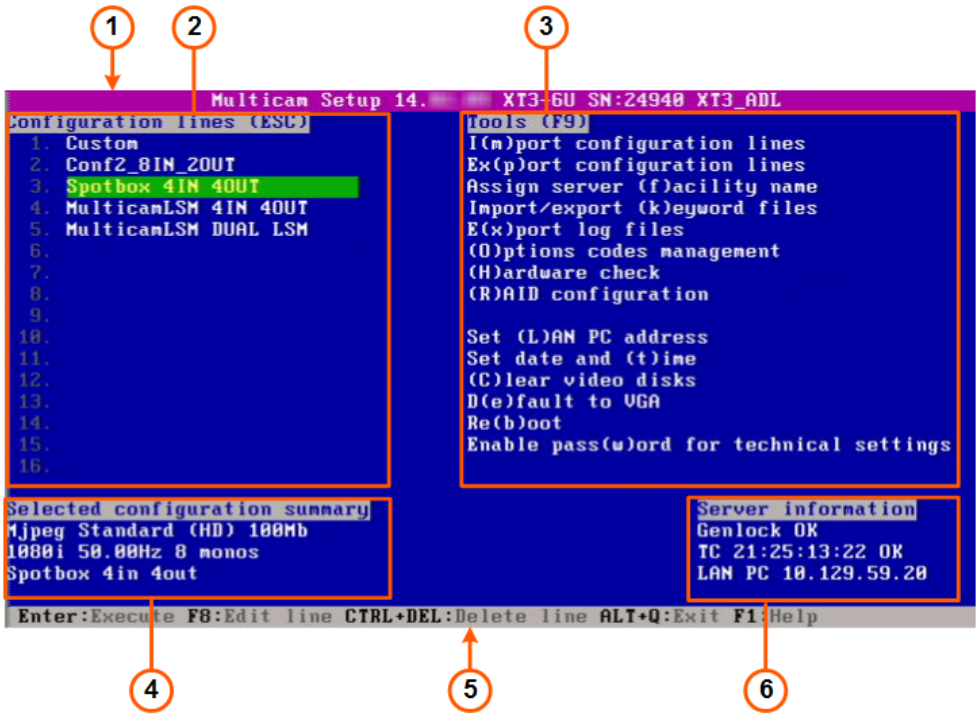
Both user interfaces include the same features, except that the Tools menu offers fewer commands in the web-based user interface.

User Interfaces

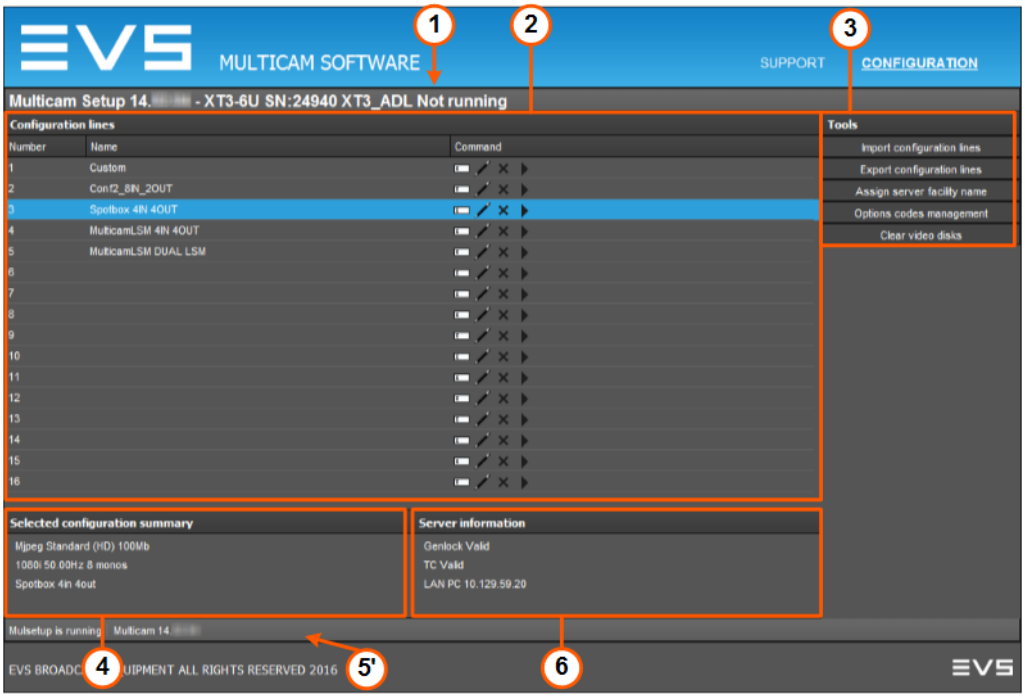
The Multicam Setup window contains six areas highlighted and described below.

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

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



The following screenshot presents the Multicam Setup window in the web-based interface:



Description of the Areas

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

#	Name of area	Description
1.	**Title bar**	The title bar displays the following information: • Multicam version • server facility name (if any) • chassis type • server serial number
2.	**Configuration Lines**	This area shows all configurations the EVS server can run: • 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. See section "Configuration Lines" on page 12 for more information.
3.	**Tools**	This area provides the main commands for server administration and maintenance. For more information, click the **Tools** command below to go to the dedicated sections in the Multicam Setup chapter: • Import/export configuration lines • Assign server facility name • Import/export keyword files • Export log files • Options code management • Hardware check • Raid Configuration • Set LAN PC address • Set date and time • Clear video disks • Default to VGA • Reboot • Enable password for technical settings
4.	**Configuration Summary**	This area shows a summary of the server parameters for the configuration line selected in the Configuration Lines area. The summary displays the following information: 1. codec type - bitrate - video standard (for each active codec) 2. based config - INs/OUTs - No. audios 3. SDTI No. - server name - server type

#	Name of area	Description
5.	**Task bar**	The Task bar (Server-based application) displays commands for the main actions in the window. See section "Navigability and Commands" on page 10 for more information.
5'.	**Status bar**	The Status bar (web-based interface) displays: • the Multicam Setup application status • the date and time of the last refresh • the **Refresh** button
6.	**Server Information**	This area displays the following information on the EVS server: • genlock status (OK or bad) • timecode and timecode status (OK or bad) • IP address of the LAN PC

2.1.2. Navigability and Commands

In the Server-Based Application

General Navigability

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

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

Configuration Lines

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

The main commands for configuration line management are presented below:

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

See section "Configuration Lines" on page 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	**ENTER** 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.

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

Compatible Multi-Essence Configurations

On the same SDTI network, it is not allowed to have:

- EVS servers with mixed multi-essence configurations;

  or

- a combination of EVS servers supporting and not supporting multi-essence configurations.

In such situations, you will get the following message when you try to launch a configuration on the EVS server: "`Incompatible multi-codec configuration on the network`".

You have the option to:

- come back to the Multicam Setup window to select a configuration compatible with the other EVS servers;
- work in standalone mode. This mode will prevent you from browsing the content of other EVS servers and from transferring content to other EVS servers.

Change of Multi-Essence Configuration

To make sure the video material is available in the required essences on the EVS server, you need to perform a clear clip before launching a configuration in the following situations:

- after upgrading from Multicam 11.XX to Multicam 12.XX.
- in specific changes from one to another multi-essence configuration

See section "Clearing Video Disks" on page 43 for detailed information on when a clear clip is required.

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 146 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:

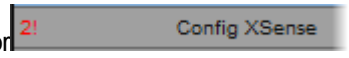
1. Click the **Edit** icon  for the configuration line you want to configure.

   The Configuration window opens. See section "Multicam Configuration" on page 146 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:

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

2.2.4. Renaming Configuration Lines

Introduction

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

In the Server-Based Application

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

1. Press the **UP ARROW** or **DOWN ARROW** key to respectively move up and down in the list of configuration lines until the requested line is highlighted.
2. Press **CTRL+F1**.

   The line if highlighted in pink and the cursor blinks on the first character.
3. Type the new name for the configuration line taking the following into account:
   - The space bar allows you to delete the selected character.
   - The **LEFT ARROW** and **RIGHT ARROW** keys allow you to move the cursor position on the line.
4. Press **ENTER** to validate the new name.

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

In the Web-Based Interface

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

1. Click the **Rename** button  next to the configuration line you want to rename.
2. In the **Rename** dialog box, type the new configuration name.
3. Click **OK**.

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

2.2.5. Importing and Exporting Configuration Lines

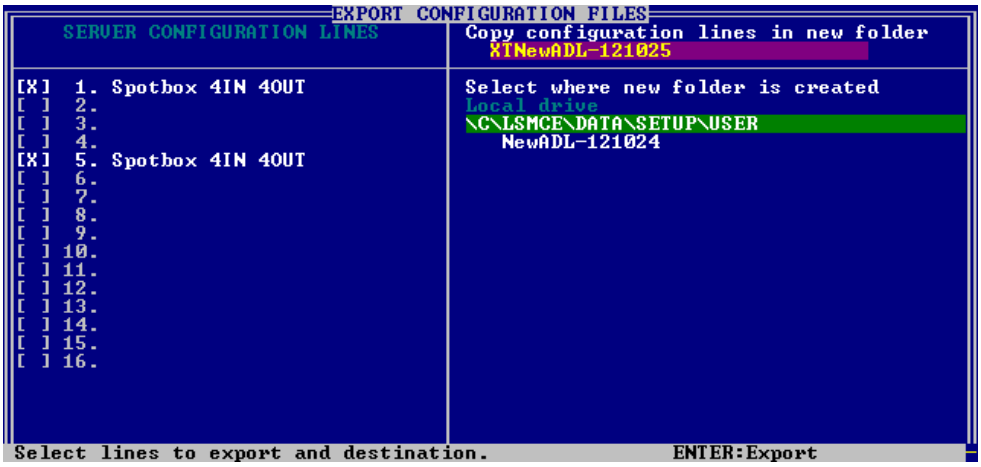
How to Export Configuration Lines

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

In the Server-Based Application

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

1. In the Multicam Setup window, press **P** to call the **Export Configuration Lines** command. The Export Configuration Lines window opens:
   - The left pane allows the selection of the configuration lines to be exported
   - The right pane allows the selection of the location where the export folder will be created on the USB key, or on the local drive folder `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:

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

The export file is saved at the requested location.

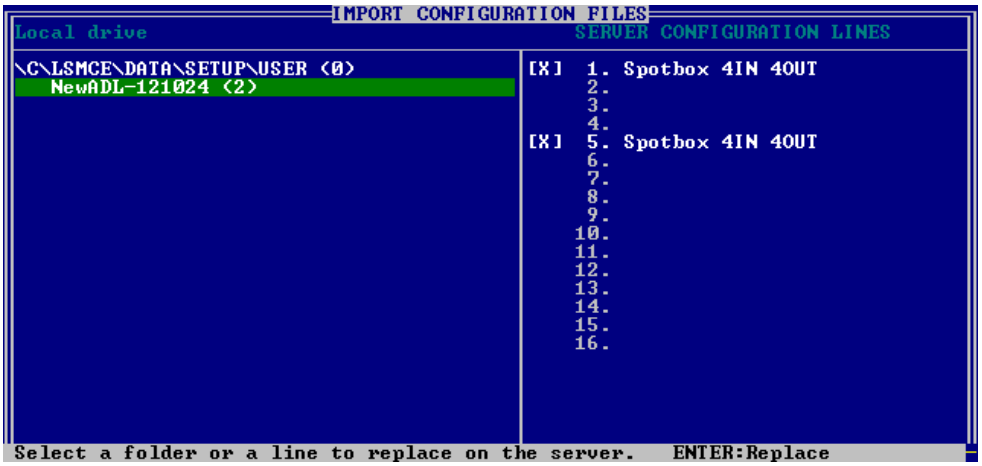
If you want to export several configuration lines, repeat this operation for all requested configuration lines.

How to Import Configuration Lines

In the Server-Based Application

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

1. In the Multicam Setup window, press **M** to call the Import Configuration Lines command.
2. The Import Configuration Files window opens:
   - The left pane allows the selection of the folder containing the configuration files to be imported.
   - The right pane allows the selection of the configuration lines to be imported onto the EVS server.



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.

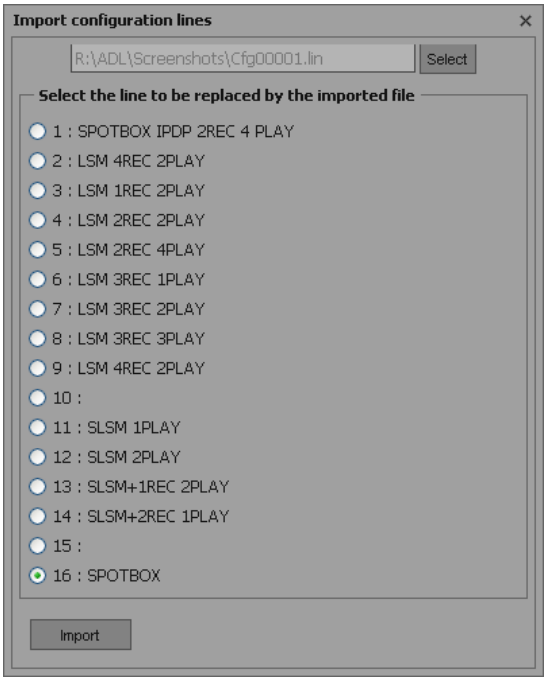
In the Web-Based Interface

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 LAN PC Address"	2.3.4	Yes	No
"Setting the Server Date and Time"	2.3.5	Yes	No
"Setting the Default Output To VGA/Video"	2.3.6	Yes	No
"Configuring Server Raids"	2.3.7	Yes	No

2.3.2. Assigning a Server Facility Name

Introduction

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

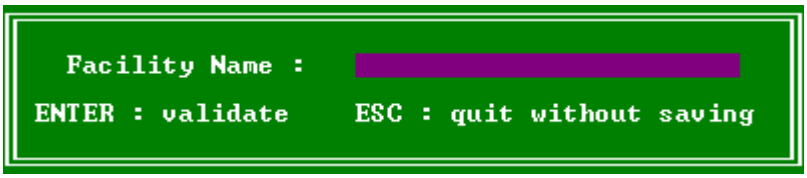
The server facility name differs from the server net name, which can vary from a configuration to the other as it is defined in the configuration parameters.

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

In the Server-Based Application

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

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



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

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**.

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 LAN PC Address

Introduction

The MTPC board of an EVS server allows interaction with other EVS hardware on a setup via the LAN PC address. The port #1 of the MTPC board is used. The communication is established through telnet or FTP access. XNet Monitor will also use the LAN IP connection to transfer the monitoring data.

Note
You can only define the settings associated with the LAN PC address from the server-based application.

Settings

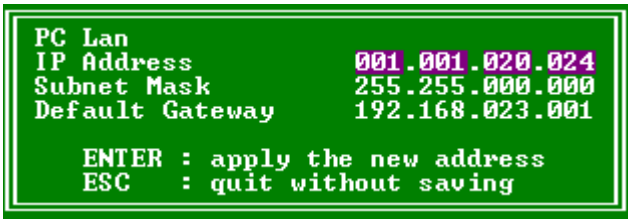
The MTPC board connection settings are described in the table below:

Setting	Description
IP Address	Specifies the IP address to connect to the port #1 of the MTPC board on the server. The IP addresses 0.0.0.0 and 255.255.255.255 are not allowed.
Subnet Mask	Specifies the range of logical addresses within the address space assigned to the MTPC board connection.
Default Gateway	Specifies the IP address of the router on the network that the MTPC board can use as an access point to external networks.

How to Set the LAN PC

To set up the LAN PC on the EVS server, proceed as follows:

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



2. In this window, type the IP address, subnet mask, and default gateway. Use the **TAB** key to move from one field to the other.
3. Press **ENTER** to validate the definition of the LAN PC settings.

The LAN PC settings will automatically be taken into account when you launch a configuration line.

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

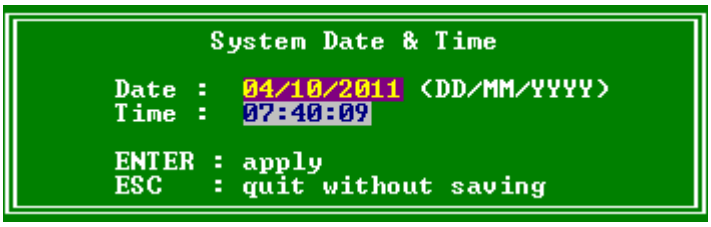
- 22:58:00 for 22 h 58 min 00 sec (24-hour display)

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. Setting the Default Output To VGA/Video

Introduction

Between the PC boot and the I/O boot, the video driver is loaded. The **Default Output to VGA/Video** command allows you to switch the video display from and to one of the following modes:

- VGA mode
- B&W video mode. This mode sends a video CVBS output on the VGA connector, which allows the VGA screen to be displayed on a standard composite video monitor using the VGA <==> BNC adapter provided with the unit.

Note
When a configuration has been launched, you can still switch from one mode to the other with **ALT** + **BACKSPACE**.

How to Change the Default Output

Pressing **E** allows you to toggle from one mode to the other, and so changing the default output mode.

The parameter displayed on the Multicam Setup window corresponds to the active value. This means that when the parameter displayed is 'Default to VGA', the active mode is the VGA mode.

2.3.7. Configuring Server Raids

Introduction

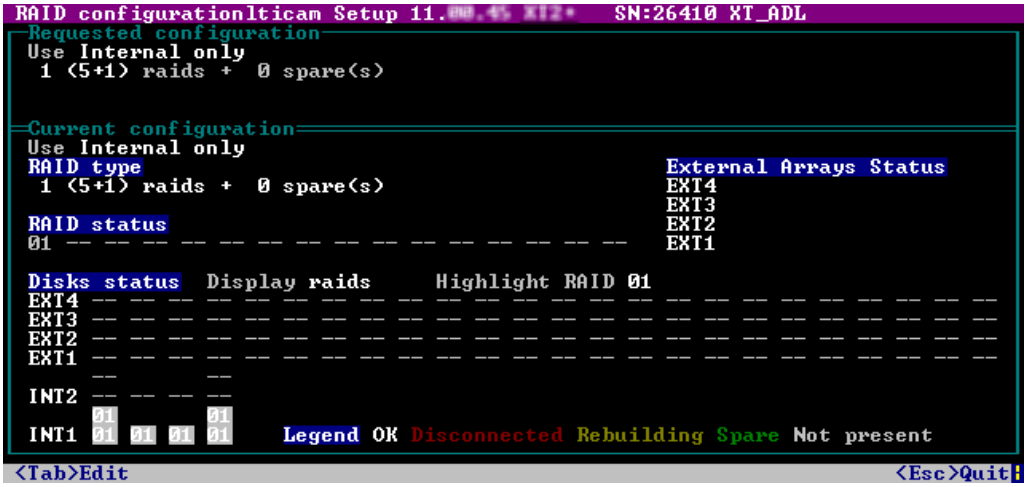
When the EVS server is started, the server raids are automatically detected, and built based on the default settings described in the 'Default Raid Configuration' section below.

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

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

Overview on the Raid Configuration Window

The Raid Configuration window is available from the Multicam Setup window, when pressing **R** to call the **Raid Configuration** command in the **Tools** menu:



The Requested Configuration area, in the upper part of the window, displays the default raid configuration. You can modify the default raid configuration in this area. You will find more information on editable parameters below.

The Current Configuration area, in the lower part of the Raid Configuration window, provides raid and disk status information. This is dealt with in the section "Raid and Disk Status Window" on page 331.

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
Storage type	Specifies which storage type you will use. When both storage types are available, the following values are possible: • Internal only • External + Internal • External only
Number of raids	Specifies the number of raids you want to use. Type the number of raids you want to use.
Raid configuration type	Specifies the raid configuration type. The software is able to handle two raid organizations: • (4+1): raid of 5 disks • (5+1): raid of 6 disks

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 331 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

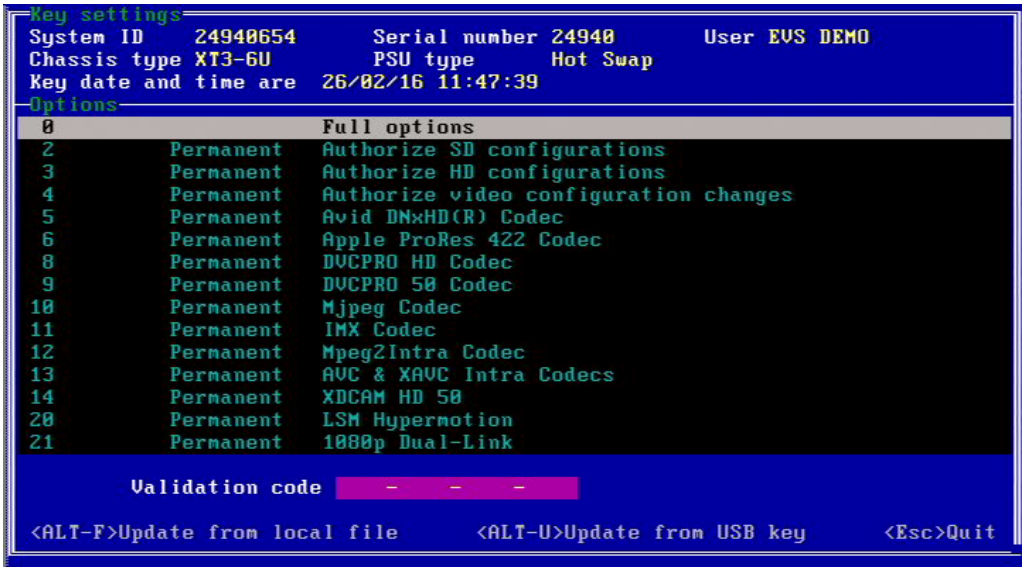
To open the Options codes management window in the server-based application, press **O** from the Multicam Setup window.

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

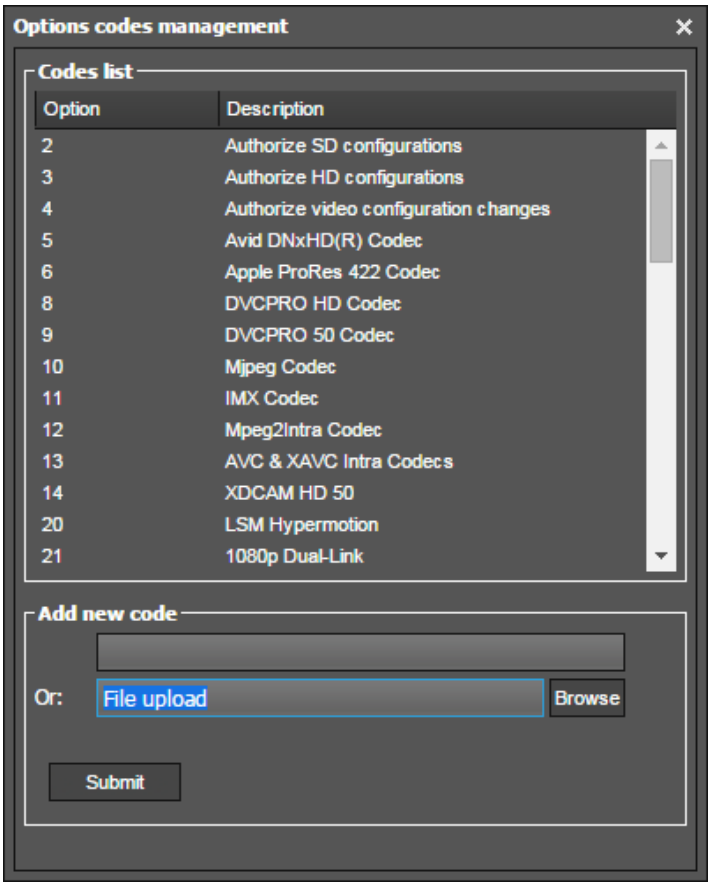
The window features three areas which contain the information mentioned below:



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

In the Web-Based Interface

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



Area	Description
Central area	All codes **available for the given server chassis** for which a license key has been granted and is still valid. 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:

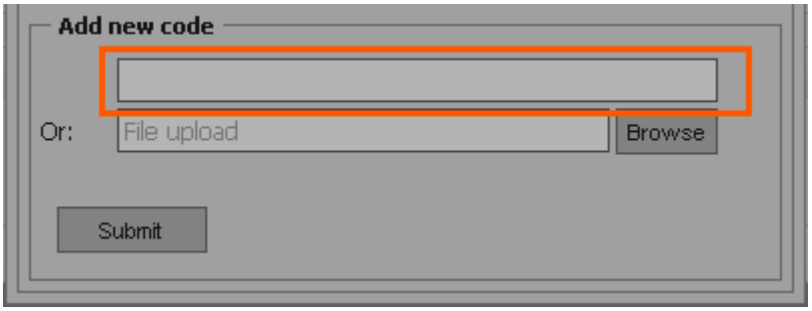
3. Press **ENTER**.

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"	47	Yes	No
"Exporting Log Files"	48	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 :

1. MTPC check
2. H3XP check
3. Video Codec check
4. Quad booting
5. GbE download
6. Disk check
7. 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 ST9300603SS   3SE10H1J   0006  279GB 02 07
```

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

```
[ Bad ] SEAGATE ST9300603SS   3SE10H1J   0006  279GB 02 07
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.

Retrieving Logs

If you suspect that the drive disconnection in operation was not due to a severe disk failure, but perhaps to the server being too prompt to disconnect a drive, you must run a hardware check immediately after ending the session during which the disk was disconnected.

Don’t rebuild the RAID, but press simultaneously the **ALT+L** keys to generate the log file `C:\LSMCE\DATA\SCSI.LOG`, and send this file to EVS for detailed analysis. Note that this procedure is only valid if the drive is disconnected during operation, not for a drive being disconnected when booting the system.

Rebuild Process

Introduction

The XT3 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.

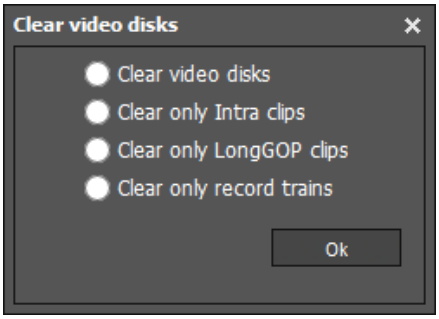
Warning
By default, the online rebuild process takes up 10% of the disk bandwidth. If you want to change this, contact EVS support.

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)
- the Intra clips only (Clear only Intra clips)
- the LongGOP clips only (Clear only LongGOP clips)

The last two modes are also referred to as partial clear clip in this manual.

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
Downgrade from Multicam 14.00 to Multicam 12.05 or older	Clear Video Disks

Clearing action required when:	Clear Action
Swap from H3XP to H3X	Clear Video Disks
Swap from SAS tray managed by H3X to SAS tray managed by H3XP	Clear Video Disks

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 no longer 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.

Source Configuration	Target Configuration					
		Intra	**Intra+ LongGOP**	**LongGOP**	**LongGOP+ Proxy**	**Intra+ Proxy**
	Intra		Record trains		Record trains	Record trains
	Intra+ LongGOP				Record trains	Record trains
	LongGOP		Record trains		Record trains	Record trains
	LongGOP+ Proxy		Record trains			
	Intra+ Proxy		Record trains		Record trains	

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

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

1. In the Multicam Setup window, press **C** to call the **Clear Video Disks** command.
2. Select one of the available options and press **ENTER**.

   A confirmation message is displayed.
3. Press **RIGHT ARROW**, and **ENTER** to select **Yes** and validate the deletion.

   OR

   Press **ENTER** to cancel the deletion.

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

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

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

1. In the Multicam Setup window, click the **Clear video disks** command from the **Tools** area to open the **Clear Video Disks** window.
2. Select one of the available options and press **OK**.

   A confirmation message is displayed.
3. Click **Yes** to validate the deletion or **No** to cancel the deletion.

2.5.5. 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 329

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.

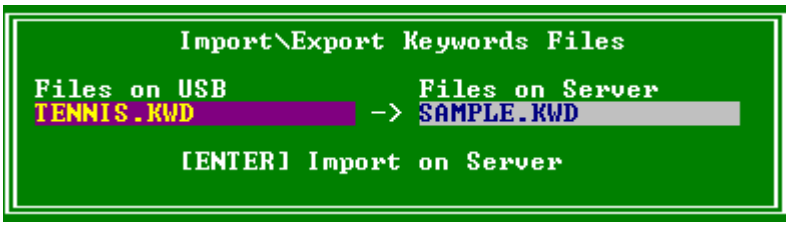
You can only perform this action in the server-based application.

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

Generalities

The main supported configurations on the various EVS servers are presented in a graphical and user-friendly way on the following webpage of the EVS website: http://www.evs.com/backpanel/index.html#

An XT3 server supports the following configurations types:

- **SD/HD** standard and SLSM configurations
- **3D** standard and SLSM configurations
- **1080p** standard and SLSM configurations
- **UHD-4K** standard and SLSM configurations

These configurations can be available in:

- 4-channel mode (4U)
- 6-channel mode (6U)
- XRec mode (4U and 6U) and/or
- ChannelMax mode (4U and 6U)

See section "About Extended Configurations" on page 52 for more information about the extended configurations, that means configurations using more than 6 channels on an 6U server and more than 4 channels on a 4U server.

Requirements and Limitations

NEW !

- The **Mix on one channel** for play channels is available on all SD/HD configurations, except when the Dual Play feature is used.

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 182.

The number of play and record channels available may differ depending on the chassis, on the installed license codes, and on the configurations running on the XT3 server:

- Multicam LSM mode, when the EVS server is controlled by the Remote Panel.
- Spotbox or Server modes, when the EVS server is controlled by the industry-standard protocols.

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

	6U		4U	
	LSM	**Spotbox**	**LSM**	**Spotbox**
Max. # channels	12	12	8	8
Min. # REC	1	0	1	0
Max. # REC	10	12	6	8
Min. # PLAY	1	0	1	0
Max. # PLAY	6	6	6	6

Note
Based on the previously mentioned limitations, some configurations described in the section Supported Configurations are only available in Server or Spotbox mode.

Clip and Record Train Compatibility

- Clips are compatible across all Multicam configurations including SLSM clips.
- Record trains are also compatible as long as the number of record channels (cameras) is not increased in LSM 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.

Enhanced Playout Mode

On EVS servers running an intra-frame codec, both decoders of a V3X codec module can be used in specific conditions to increase the decoding performances during a replay. This enhanced playout mode is configurable per channel.

When the enhanced playout mode is enabled, it is effectively used when the video is played out faster than the standard speed (100% with a standard recorder, 50% in SLSM 2x, 33% in SLSM 3x, ...).

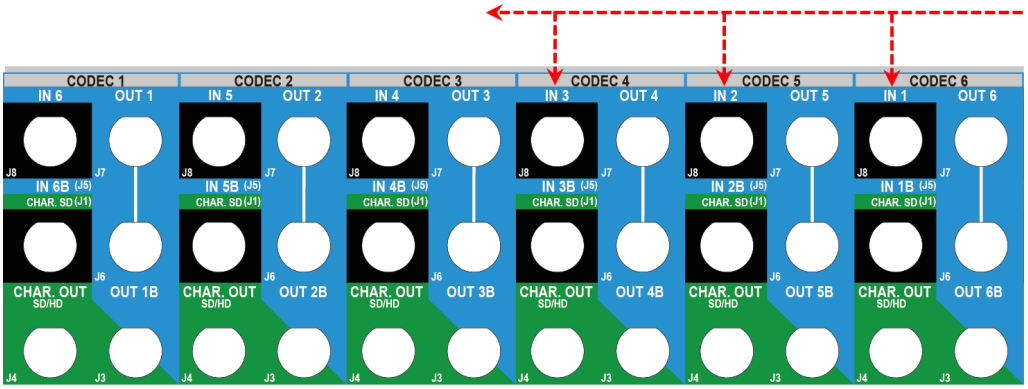
The enhanced playout mode is automatically enabled when all conditions below are fulfilled:

- The EVS server is equipped at least with H3X and V3X boards.
- The EVS server is running a frame codec (AVC Intra, MPEG2-Intra or DVCPro) in 1080i.
- The **Vertical Interpolation** parameter is enabled in the Server tab, Interpolation settings.
- The **Mix on One Channel** parameter for the related play channel is disabled in the Channels tab, Mix on One Channel settings.
- The **3D** parameter is disabled in the Channels tab, Base settings.

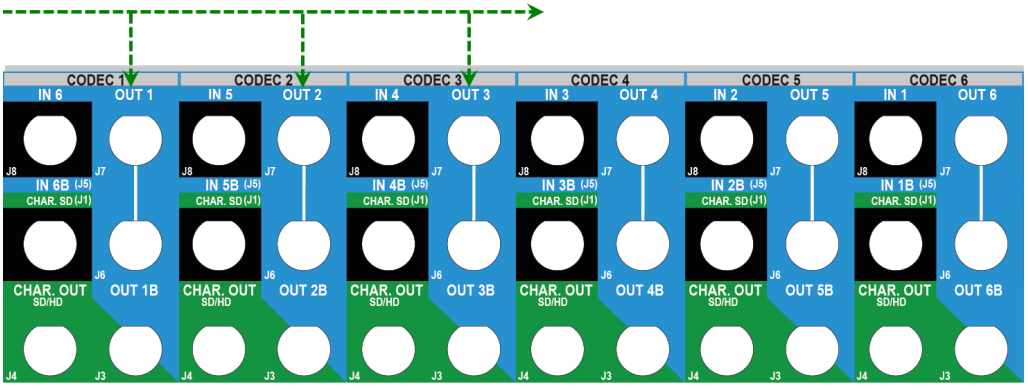
3.1.3. Channel Assignment Principles

The following general principles apply to all configurations, and are valid for all EVS servers:

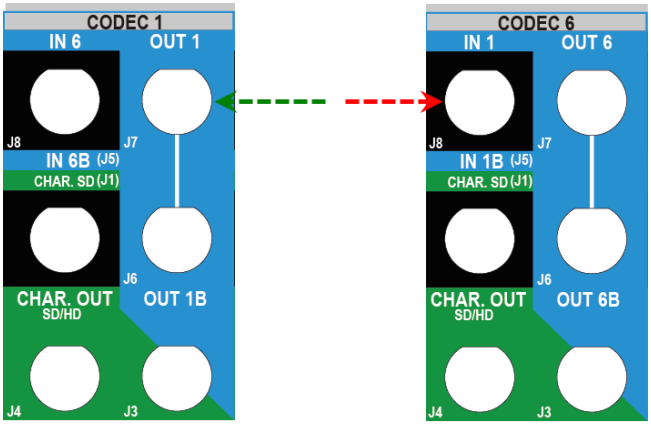
- The record channels (IN connectors) are always assigned from the right to the left.



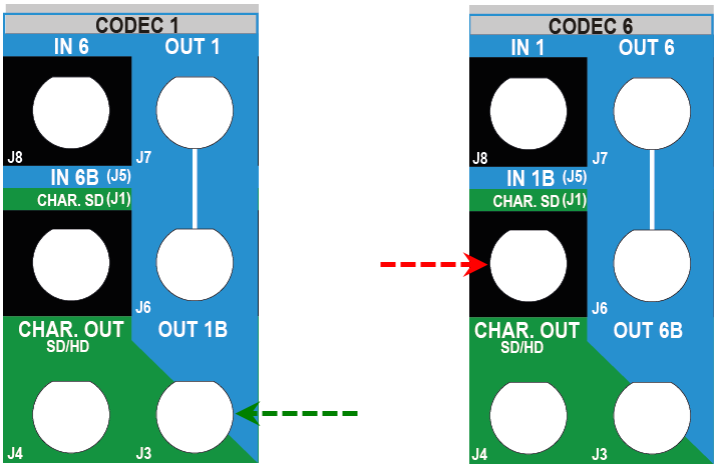
- The play channels (OUT connectors) are always assigned from the left to the right.



- The primary links of the V3X boards mentioned in the tables of this chapter correspond to the upper connectors of a codec module.
  - J8 for IN connectors
  - J7 for OUT connectors (J6 is also equivalent to J7)



- The secondary links of the V3X boards mentioned in the tables of this chapter correspond to the middle connectors of a codec module:
  - J5 for IN connectors
  - J3 for OUT connectors



3.1.4. About Extended Configurations

NEW !

Definition

The configurations categorized into the XRec and ChannelMax modes can use the secondary links of the V3X modules for independent recorders.

From Multicam 14.02, the XRec mode is no longer available as such on new servers delivered by EVS.

All configurations which used to be XRec are however available with the ChannelMax license code.

A server with the ChannelMax license can indeed run all non-extended and XRec configurations.

A server with the XRec license can run all non-extended configurations.

NEW !

Requirements and Limitations

The following **requirements** apply to the extended channel modes:

- The XRec mode on an XT3 4U server and on an XT3 6U server requires:
  - the license code 30 (XRec code).
- The ChannelMax mode on an XT3 4U server and on an XT3 6U server requires:
  - the license code 34 in Multicam LSM mode and 35 in Spotbox mode (Channels Max code);
  - H3XP and A3X boards to be fitted on the EVS server;

The following **limitations** apply to the extended modes:

- When different SLSM 3G recorders are cabled onto the primary and secondary links of a codec module in ChannelMax mode, only the DNxHD codec is supported and the bandwidth is limited to 130 Mbps per connector.

Cabling Principles for XRec Mode

In XRec mode, the configurations should be cabled in the following sequence:

1. Cable the play channels from left to right.
2. Cable the record channels from right to left starting with the primary links, without using the left codec modules already cabled as play channels.
3. Cable the remaining record channels to assign starting from right to left, and using the secondary link for the remaining codec modules.

Cabling Principles for ChannelMax Mode

Principles

In ChannelMax mode, the following rules should be taken into account:

- A codec module is only able to work in play or rec mode. The configurations will therefore have an even number of play and record channels.
- The number of codec modules used for play channels will be kept as low as possible to allow the maximum bandwidth to the record channels.

Standard and SLSM Dual Configurations

In ChannelMax mode, the standard and SLSM (Dual) configurations should be cabled in the following sequence. This general rule may have exceptions.

1. Cable the record channels from right to left:
   - Cable the first half of the record channels on the primary links.

- Cable the remaining record channels on the secondary link of the codec modules whose primary link you have just cabled.

2. Cable the play channels from left to right:
   - Cable the first half of the play channels on the primary links.
   - Cable the remaining play channels on the secondary link of the codec modules whose primary link you have just cabled.

NEW !

SLSM 3G Configurations

In ChannelMax mode, the SLSM on 3G configurations should be cabled in the following sequence. This general rule may have exceptions.

1. Cable the 3G-SDI connectors on the **IN A** links of the recorder channels from right to left.
2. Cable the record channels from right to left:
   - Cable the first half of the remaining record channels on the primary links.
   - Cable the remaining record channels on the secondary link of the codec modules whose primary link you have just cabled.
3. Cable the play channels from left to right:
   - Cable the first half of the play channels on the primary links.
   - Cable the remaining play channels on the secondary link of the codec modules whose primary link you have just cabled.

3.2. SD and HD Base Configurations

3.2.1. SD/HD Configurations (4U)

Introduction

The tables below show the available SD/HD configurations with an XT3 4U server as well as how the BNC connectors should be cabled.

The configurations in 7-channel mode make use of the secondary channel of the codec module as an independent record channel. See section "About Extended Configurations" on page 52.

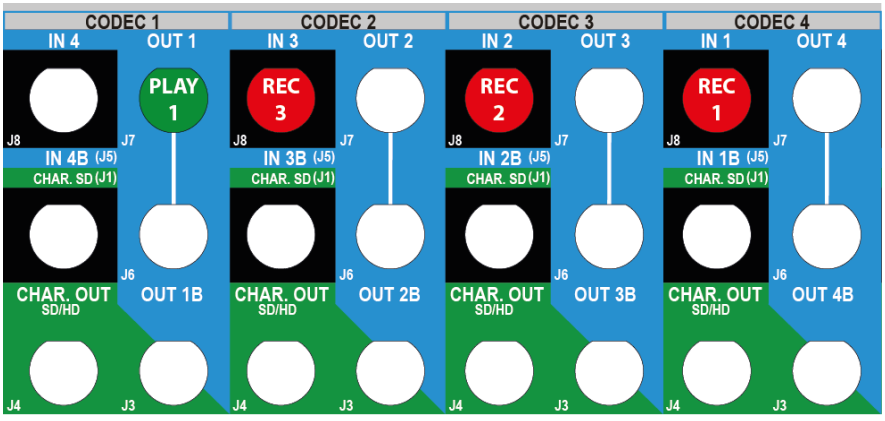
Note
When the option 'mix on one channel' is activated on a play channel (Channels tab, page 7), the secondary link of the codec module (J3 on V3X board) of the play channel is used to play transition effects.

Configurations in 4-Channel Mode

		IN4/OUT1		IN3/OUT2		IN2/OUT3		IN1/OUT4	
#REC	#PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
1	0							REC1	
2	0					REC2		REC1	
3	0			REC3		REC2		REC1	
4	0	REC4		REC3		REC2		REC1	
1	1	PLAY1	MIX1					REC1	
1	2	PLAY1	MIX1	PLAY2	MIX2			REC1	
1	3	PLAY1	MIX1	PLAY2	MIX2	PLAY3	MIX3	REC1	
2	1	PLAY1	MIX1			REC2		REC1	
2	2	PLAY1	MIX1	PLAY2	MIX2	REC2		REC1	
3	1	PLAY1	MIX1	REC3		REC2		REC1	
0	1	PLAY1	MIX1						
0	2	PLAY1	MIX1	PLAY2	MIX2				
0	3	PLAY1	MIX1	PLAY2	MIX2	PLAY3	MIX3		
0	4	PLAY1	MIX1	PLAY2	MIX2	PLAY3	MIX3	PLAY4	MIX4

Example in 4-Channel Mode (3REC + 1PLAY)

The BNC connectors to be used as record and play channels in a standard 3REC 1PLAY configuration need to be cabled as shown below:

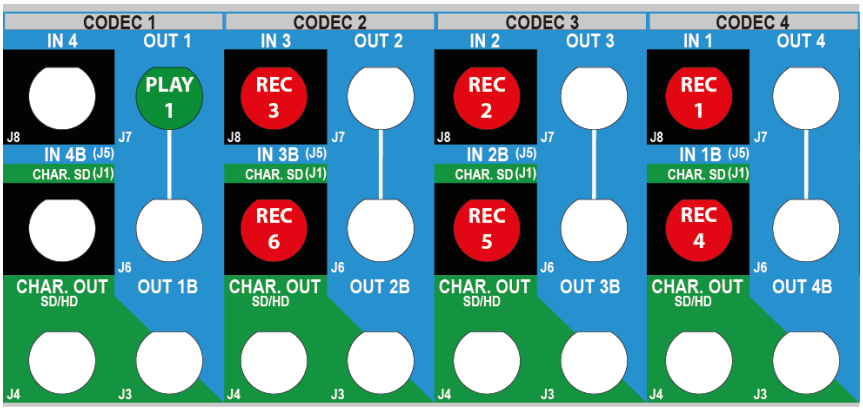


Configurations in XRec Mode

		IN4/OUT1		IN3/OUT2		IN2/OUT3		IN1/OUT4	
#REC	#PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
NEW ! 0	6	PLAY1	PLAY5	PLAY2	PLAY6	PLAY3		PLAY4	
2	3	PLAY1	MIX1	PLAY2	MIX2	PLAY3	MIX3	REC1	REC2
2	4	PLAY1	PLAY4	PLAY2		PLAY3		REC1	REC2
3	2	PLAY1	MIX1	PLAY2	MIX2	REC2		REC1	REC3
3	3	PLAY1	PLAY3	PLAY2		REC2		REC1	REC3
4	1	PLAY1	MIX1	REC3		REC2		REC1	REC4
4	2	PLAY1	MIX1	PLAY2	MIX2	REC2	REC4	REC1	REC3
NEW ! 4	3	PLAY1	PLAY3	PLAY2		REC2	REC4	REC1	REC3
5	1	PLAY1	MIX1	REC3		REC2	REC5	REC1	REC4
NEW ! 6	0	REC4		REC3		REC2	REC6	REC1	REC5
6	1	PLAY1	MIX1	REC3	REC6	REC2	REC5	REC1	REC4

Example in XRec Mode (6REC + 1PLAY)

The BNC connectors to be used as record and play channels in a 6REC 1PLAY configuration need to be cabled as shown below:



NEW! Configurations in ChannelMax Mode

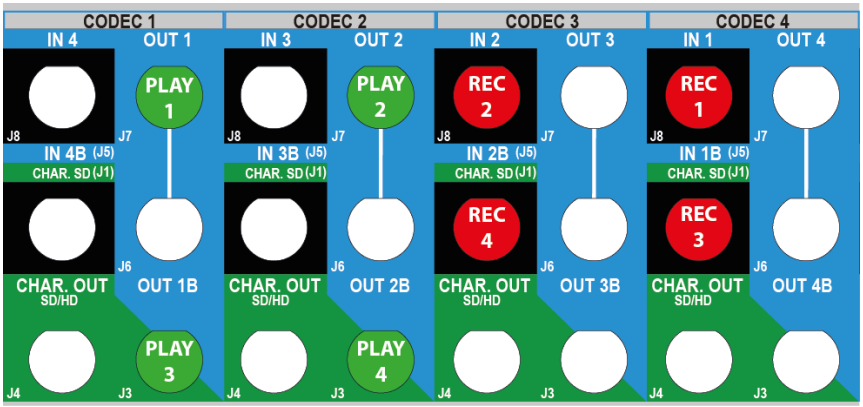
		IN4/OUT1		IN3/OUT2		IN2/OUT3		IN1/OUT4	
#REC	#PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
4	4	PLAY1	PLAY3	PLAY2	PLAY4	REC2	REC4	REC1	REC3
6	2	PLAY1	PLAY2	REC3	REC6	REC2	REC5	REC1	REC4
8	0	REC4	REC8	REC3	REC7	REC2	REC6	REC1	REC5

NEW!

Note
On Dual Play configurations 6 IN - 2 OUT, 4 IN - 4 OUT (two independent play channels assigned to both links of a codec module), the standard mix feature, via the PGM/PRV mode, is only available on the 1st link of the codec module 1 (in 6 IN - 2 OUT) and on the 1st and 2nd links of the codec module 1 (in 4 IN - 4 OUT).

NEW! Example in ChannelMax Mode (4REC + 4PLAY)

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



3.2.2. SD/HD Configurations (6U)

Introduction

The tables below show the available SD/HD configurations with an XT3 6U server, as well as how the BNC connectors should be cabled.

The configurations in XRec or ChannelMax mode make use of the secondary channel of the codec module on the V3X board as an independent record channel. See section "About Extended Configurations" on page 52.

Note
When the option 'mix on one channel' is activated on a play channel (Channels tab, page 7), the secondary link of the codec module (J3 on V3X board) of the play channel is used to play transition effects.

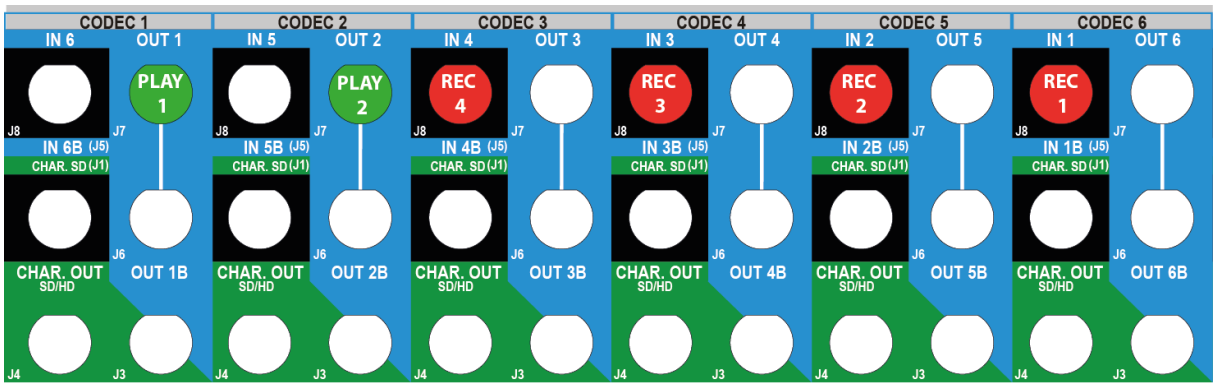
Configurations in 6-Channel Mode

		IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
# REC	# PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
1	0											REC1	
2	0									REC2		REC1	
3	0							REC3		REC2		REC1	
4	0					REC4		REC3		REC2		REC1	
5	0			REC5		REC4		REC3		REC2		REC1	
6	0	REC6		REC5		REC4		REC3		REC2		REC1	
1	1	PLAY1	MIX1									REC1	
1	2	PLAY1	MIX1	PLAY2	MIX2							REC1	
1	3	PLAY1	MIX1	PLAY2	MIX2	PLAY3	MIX3					REC1	
1	4	PLAY1	MIX1	PLAY2	MIX2	PLAY3	MIX3	PLAY4	MIX4			REC1	
1	5	PLAY1	MIX1	PLAY2	MIX2	PLAY3	MIX3	PLAY4	MIX4	PLAY5	MIX5	REC1	
2	1	PLAY1	MIX1							REC2		REC1	
2	2	PLAY1	MIX1	PLAY2	MIX2					REC2		REC1	
2	3	PLAY1	MIX1	PLAY2	MIX2	PLAY3	MIX3			REC2		REC1	
2	4	PLAY1	MIX1	PLAY2	MIX2	PLAY3	MIX3	PLAY4	MIX4	REC2		REC1	
3	1	PLAY1	MIX1					REC3		REC2		REC1	
3	2	PLAY1	MIX1	PLAY2	MIX2			REC3		REC2		REC1	
3	3	PLAY1	MIX1	PLAY2	MIX2	PLAY3	MIX3	REC 3		REC2		REC1	

		IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
# REC	# PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
4	1	PLAY1	MIX1			REC 4		REC3		REC2		REC1	
4	2	PLAY1	MIX1	PLAY2	MIX2	REC4		REC3		REC2		REC1	
5	1	PLAY1	MIX1	REC5		REC 4		REC3		REC2		REC1	
0	1	PLAY1	MIX1										
0	2	PLAY1	MIX1	PLAY2	MIX2								
0	3	PLAY1	MIX1	PLAY2	MIX2	PLAY3	MIX3						
0	4	PLAY1	MIX1	PLAY2	MIX2	PLAY3	MIX3	PLAY4	MIX4				
0	5	PLAY1	MIX1	PLAY2	MIX2	PLAY3	MIX3	PLAY4	MIX4	PLAY5	MIX5		
0	6	PLAY1	MIX1	PLAY2	MIX2	PLAY3	MIX3	PLAY4	MIX4	PLAY5	MIX5	PLAY6	MIX6

Example in 6-Channel Mode (4REC + 2PLAY)

The BNC connectors to be used as record and play channels in a standard 4REC 2PLAY configuration need to be cabled as shown below:



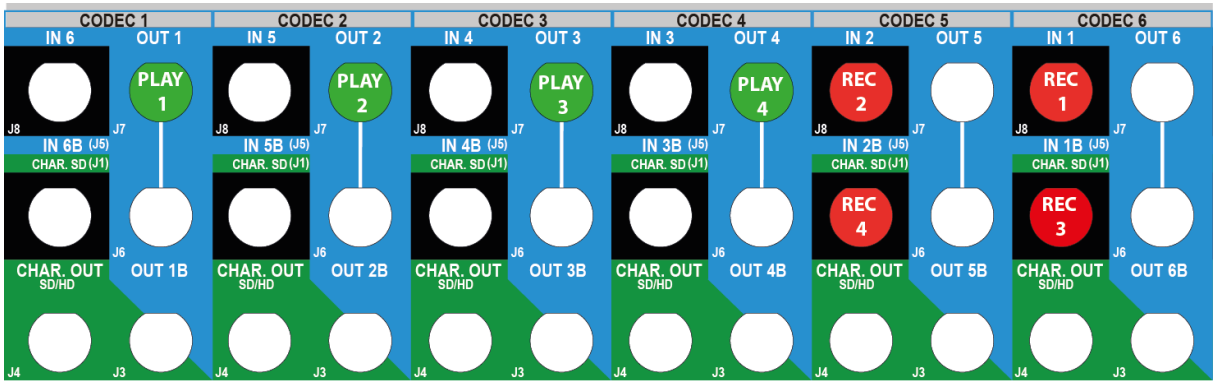
Configurations in XRec Mode

		IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
# REC	# PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
2	5	PLAY1	MIX1	PLAY2	MIX2	PLAY3	MIX3	PLAY4	MIX4	PLAY5	MIX5	REC1	REC2
2	6	PLAY1	PLAY6	PLAY2		PLAY3		PLAY4		PLAY5		REC1	REC6
3	4	PLAY1	MIX1	PLAY2	MIX2	PLAY3	MIX3	PLAY4	MIX4	REC2		REC1	REC3
4	3	PLAY1	MIX1	PLAY2	MIX2	PLAY3	MIX3	REC 3		REC2		REC1	REC4
4	4	PLAY1	MIX1	PLAY2	MIX2	PLAY3	MIX3	PLAY4	MIX4	REC2	REC4	REC1	REC3
5	2	PLAY1	MIX1	PLAY2	MIX2	REC4		REC3		REC2		REC1	REC5
5	3	PLAY1	MIX1	PLAY2	MIX2	PLAY3	MIX3	REC 3		REC2	REC5	REC1	REC4
6	1	PLAY1	MIX1	REC5		REC 4		REC3		REC2		REC1	REC6
6	2	PLAY1	MIX1	PLAY2	MIX2	REC4		REC3		REC2	REC6	REC1	REC5
8	0	REC6		REC5		REC4		REC3		REC2	REC8	REC1	REC7

NEW !

Example in XRec Mode (4 REC + 4 PLAY)

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



Configurations in ChannelMax Mode

		IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
# REC	# PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
6	3	PLAY1	MIX1	PLAY2	MIX2	PLAY3	MIX3	REC3	REC6	REC2	REC5	REC1	REC4
**6	6	PLAY1	PLAY4	PLAY2	PLAY5	PLAY3	PLAY6	REC3	REC6	REC2	REC5	REC1	REC4
8	2	PLAY1	MIX1	PLAY2	MIX2	REC4	REC8	REC3	REC7	REC2	REC6	REC1	REC5

		IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
# REC	# PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
**8	4	PLAY1	PLAY3	PLAY2	PLAY4	REC4	REC8	REC3	REC7	REC2	REC6	REC1	REC5
10	1	PLAY1	MIX1	REC5	REC10	REC4	REC9	REC3	REC8	REC2	REC7	REC1	REC6
10	2	PLAY1	PLAY2	REC5	REC10	REC4	REC9	REC3	REC8	REC2	REC7	REC1	REC6
*12	0	REC6	REC12	REC5	REC11	REC4	REC10	REC3	REC9	REC2	REC8	REC1	REC7

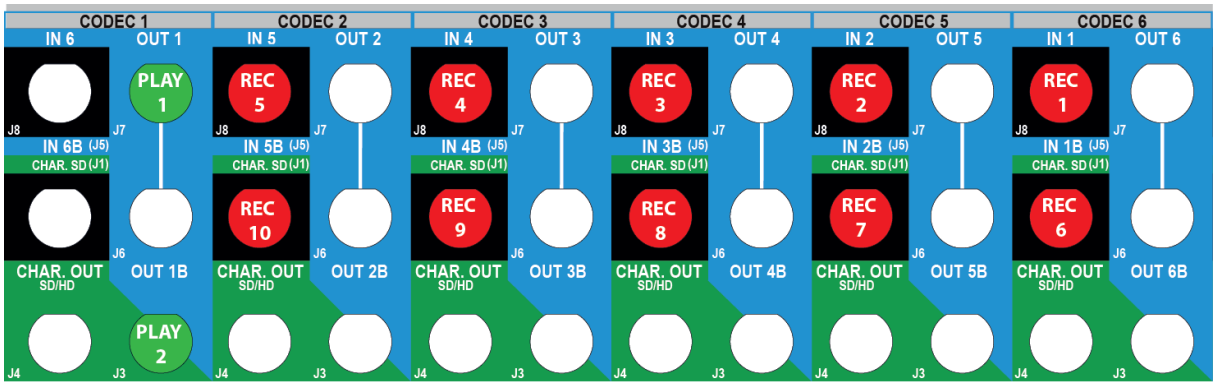
* Only available in Spotbox mode with the license code 35 (Channels Max Spotbox).

** Also available in Dual LSM mode with the license code 116.

Note
On Dual Play configurations 10 IN - 2 OUT, 8 IN - 4 OUT, 6 IN - 6 OUT (two independent play channels assigned to both links of a codec module), the standard mix feature, via the PGM/PRV mode, is only available on the 1st link of the codec module 1 (in 10 IN - 2 OUT) and on the 1st and 2nd links of the codec module 1 (in 8 IN - 4 OUT and 6 IN - 6 OUT).

Example in ChannelMax Mode (10 REC + 2 PLAY)

The BNC connectors to be used as record and play channels in a 10 REC 2 PLAY configuration need to be cabled as shown below:



3.3. SLSM Configurations

3.3.1. General Information on Supermotion Configurations

Concepts

The **Supermotion cameras** are two- to ten-phase cameras, that record the incoming feeds at a frame rate 2, 3, 4, 6, 8 or 10 times higher than a standard camera.

The **Ultra-Motion cameras** are ten-phase cameras, that record the incoming feeds at a frame rate 10 times higher than a standard camera.

The **Hypermotion cameras** should clearly be distinguished from the supermotion and ultramotion cameras in two respects:

- The A/V material from the supermotion and ultramotion cameras is continuously fed into the EVS server, whereas the A/V material from the hypermotion cameras is recorded on the camera buffer, and then ingested into the EVS server when the operator sends a play command to the hypermotion camera.
- The A/V material from supermotion and ultramotion cameras is ingested into the EVS server through one physical record channel per phase, whereas the A/V material from the hypermotion camera is ingested into the EVS server through one physical record channel.

See section "Hypermotion Management" on page 318 for more information on the configuration related to hypermotion cameras.

Introduction

The feeds from supermotion cameras can directly be ingested into EVS servers.

For supermotion cameras with even phases (2x, 4x, 6x, 8x), you can use a 3G-SDI connection: a single cable transports two phases.

If your configuration accounts for up to 12 phases, you use the full bandwidth of the channels. The camera's number of phases directly determines the number of physical record channels used on the EVS server:

- A two-phase camera will use two physical record channels (primary or secondary channel with V3X), a three-phase camera will use three physical record channels, and so on.

If your configuration accounts for more than 12 phases, the bandwidth of the channels is limited. This is only possible with 3G-SDI connectors:

- The two phases transported by the 3G-SDI connector use only a single physical record channel (primary or secondary channel).

Requirements

NEW !

SLSM 2x-3x-4x-6x-8x-10x Configurations

The SLSM **2x-3x** configurations are available with all **SD** codecs natively supported by the EVS server.

The SLSM **2x-3x-4x-6x** configurations are available with all **HD** codecs natively supported by the EVS server.

The SLSM **8x and 10x** configurations are available with all **HD** codecs natively supported by the EVS server, except with Mpeg-2 Intra.

The SLSM **10x** configurations are, in addition, only supported in 720p and 1080i resolutions.

These configurations are valid when the following conditions are fulfilled:

- The license code 110 (Super Motion) is valid.
- The base configuration is Multicam LSM.

Note
The SLSM 6x and 10x configurations are also supported with the license code 26 (Umotion Only).

3G SLSM 2x-4x-6x-8x Configurations

The 3G SLSM **2x, 4x and 6x** configurations are valid with all HD codecs natively supported by the EVS server.

The 3G SLSM **8x** configurations are available with all HD codecs natively supported by the EVS server, except with MPEG-2 Intra.

The SLSM **10x** configurations are not available on 3G.

These configurations are valid when the following conditions are fulfilled:

- The license code 110 (Super Motion) is valid.
- The base configuration is MulticamLSM.
- The parameter 3G/Dual is set to **No**.
- The resolution must be HD 720p or 1080i.

Note
The 3G SLSM configurations are managed via the **On 3G-SDI** parameter in the **SLSM** settings, and not via the **3G/Dual** setting. As the EVS server is operated in HD, this allows the connection of both a standard HD camera and a 3G SLSM camera at the same time.

Limitations

Multi-Essence

With SLSM configurations in multi-essence Intra + LongGOP, the following limitations prevail:

- the Intra codec records all phases
- the LongGOP codec records only the regular speed content (not SLSM) from phase 1.

Extended Configurations

3G configurations using both links of a codec module (4 phases per codec module) are only available with the following limitations:

- in DNxHD codec;
- with a max. bitrate of 120 Mbps in 50Hz (PAL) and 130 Mbps in 60 Hz (NTSC).

See all bitrate data with SLSM configurations in the section "Bitrates for SLSM Configurations in HD 720p/1080i" on page 174.

Enhanced Playout Mode

On EVS servers running an intra-frame codec, both channels of a V3X codec module can be used in specific conditions to increase the decoding performances during a replay. This enhanced playout mode is configurable per channel and is available in SLSM configurations.

The way to enable and use the enhnaced playout mode is described in more details in the section "Enhanced Playout Mode" on page 50.

3.3.2. SLSM Configurations (4U)

Introduction

SLSM Principles

This section details the available multi-phase SLSM configurations on XT3 4U servers.

In SLSM configurations, a supermotion recorder of a two-, three-, four- or six-phase camera accounts for one logical channel, but corresponds respectively to two, three, four or six physical channels.

In 3G SLSM configurations, a supermotion recorder of a two- or six-phase camera accounts for one logical channel. On the rear panel, it uses respectively one or three connector(s), and is cabled on the primary connector of the codec module. On the V3X board, it uses both primary and secondary channels of that codec module.

About Tables and Examples

This chapter presents the available SLSM configurations with an XT3 4U server, as well as some examples of connections on the rear panel.

The tables and examples reflect how the BNC connectors should be cabled on the rear panel for the given configuration.

The configurations in 7-channel mode make use of the secondary channel of the codec module on the V3X board as an independent record channel. This is available in given conditions. See also the section "About Extended Configurations" on page 52.

Note
For SLSM configurations in 1080p and 3D configurations, refer to sections "Channel Assignment Principles with 3D SLSM" on page 108 and "Channel Assignment Principles with 1080p SLSM" on page 122.

SLSM 2-Phase Configurations

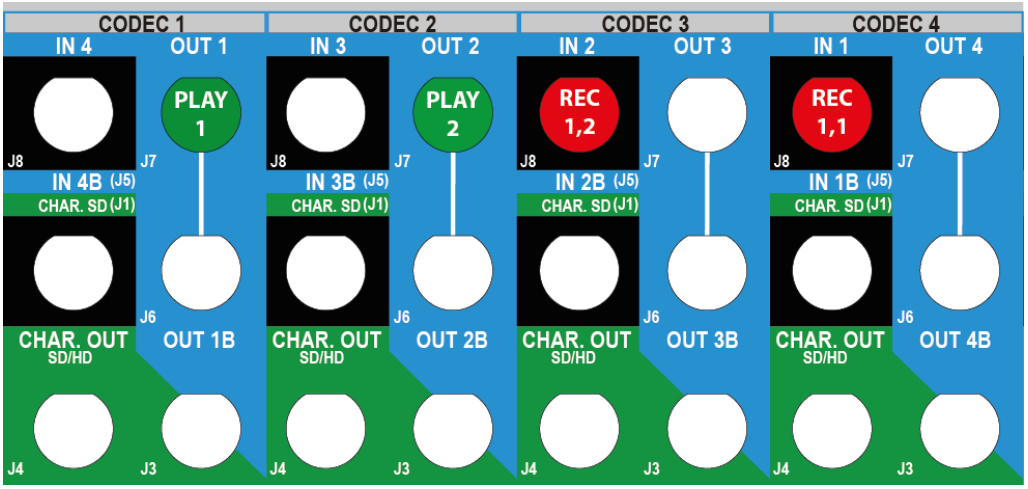
The table below shows the available SLSM 2 Phase configurations in HD with an XT3 4U server.

A separate channel is used for each phase. The table shows how the BNC connectors should be assigned on the rear panel, which corresponds to the channel assignment at the level of the codec module of the V3X board.

			IN4/OUT1		IN3/OUT2		IN2/OUT3		IN1/OUT4	
#REC SLSM 2x	**# REC**	**# PLAY**	**Prim. Chan.**	**Sec. Chan.**	**Prim. Chan.**	**Sec. Chan.**	**Prim. Chan.**	**Sec. Chan.**	**Prim. Chan.**	**Sec. Chan.**
4-Channel Mode										
1	0	0					REC1,2		REC1,1	
1	1	0			REC2		REC1,2		REC1,1	
1	2	0	REC3		REC2		REC1,2		REC1,1	
1	0	1	PLAY1	MIX1			REC1,2		REC1,1	
1	0	2	PLAY1	MIX1	PLAY2	MIX2	REC1,2		REC1,1	
1	1	1	PLAY1	MIX1	REC2		REC1,2		REC1,1	
2	0	0	REC2,2		REC2,1		REC1,2		REC1,1	
XRec Mode										
1	2	2	PLAY1	MIX1	PLAY2	MIX2	REC1,2	REC3	REC1,1	REC2
2	0	2	PLAY1	MIX1	PLAY2	MIX2	REC1,2	REC2,2	REC1,1	REC2,1
3	0	1	PLAY1	MIX1	REC2,1	REC3,2	REC1,2	REC3,1	REC1,1	REC2,2
NEW ! **ChannelMax Mode**										
1	2	4	PLAY1	PLAY3	PLAY2	PLAY4	REC1,2	REC3	REC1,1	REC2
1	4	2	PLAY1	PLAY2	REC2	REC5	REC1,2	REC4	REC1,1	REC3
2	0	4	PLAY1	PLAY3	PLAY2	PLAY4	REC1,2	REC2,2	REC1,1	REC2,1
2	2	2	PLAY1	PLAY2	REC2,1	REC4	REC1,2	REC3	REC1,1	REC2,2
3	0	2	PLAY1	PLAY2	REC2,1	REC3,2	REC1,2	REC3,1	REC1,1	REC2,2

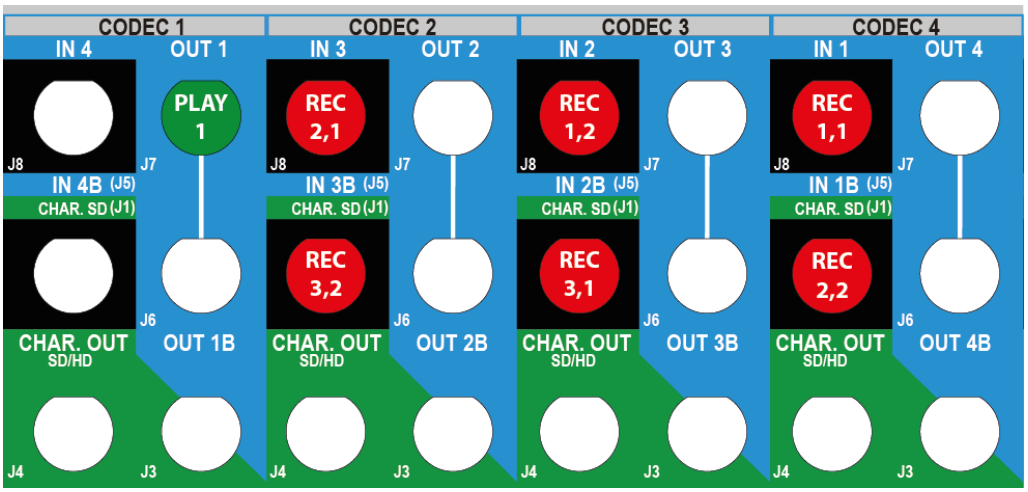
Example in 4-Channel Mode (1xSLSM 2PH + 2PLAY)

The BNC connectors to be used as record and play channels in an SLSM configuration with 1xSLSM 2PH + 2 PLAY need to be cabled as shown below:



Example in XRec Mode (3xSLSM 2PH + 1PLAY)

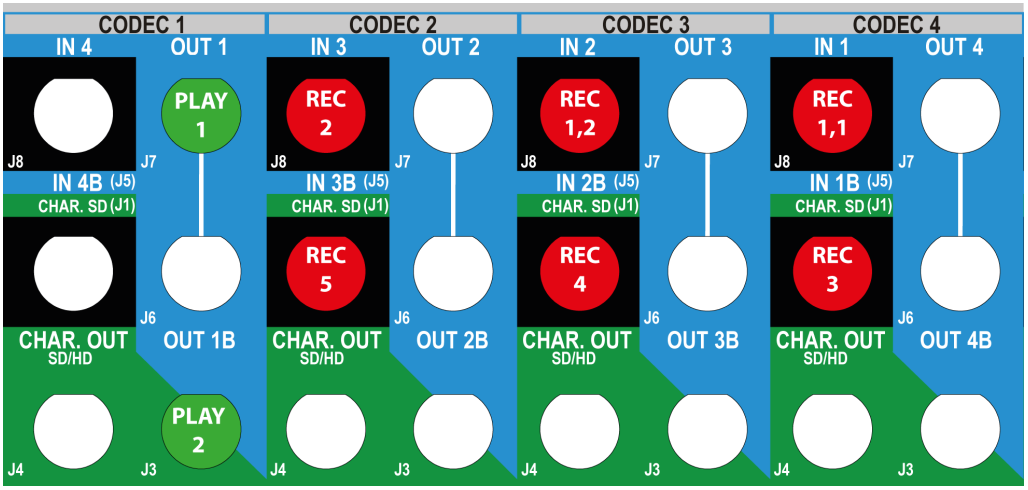
The BNC connectors to be used as record and play channels in an SLSM configuration with 3xSLSM 2PH + 1PLAY need to be cabled as shown below.



NEW !

Example in ChannelMax Mode (1xSLSM 2PH + 4REC + 2PLAY)

The BNC connectors to be used as record and play channels in an SLSM configuration with 1xSLSM 2PH + 4REC + 2PLAY need to be cabled as shown below.



SLSM 2-Phase Configurations on 3G

The table below shows the available 3G SLSM 2 Phase configurations in HD with an XT3 4U server.

Each 3G cable transports two phases. It is connected to the primary connector of the codec module on the rear panel, but accounts for two channels on the V3X board.

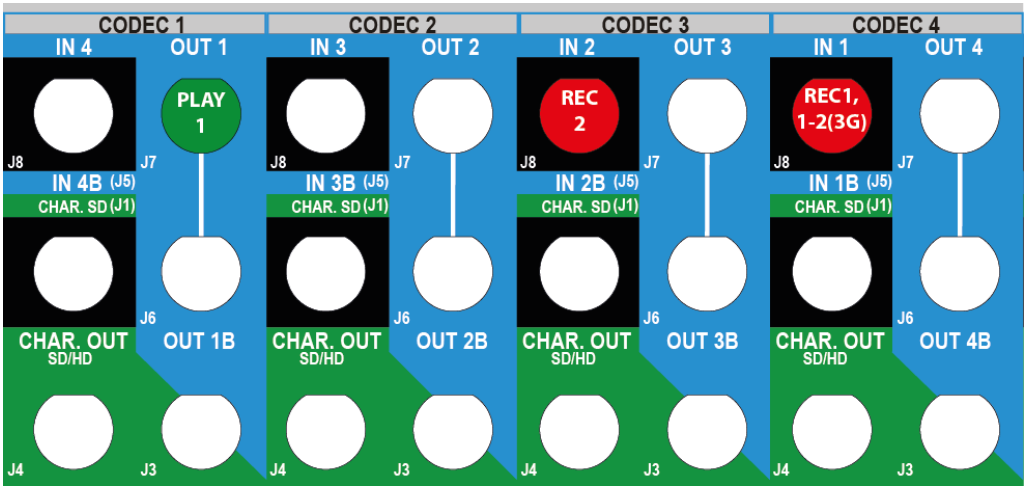
			IN4/OUT1		IN3/OUT2		IN2/OUT3		IN1/OUT4	
#REC SLSM 2x	#REC	#PLAY	Prim. Chan.	Sec. Chan.	Prim. Chan.	Sec. Chan.	Prim. Chan.	Sec. Chan.	Prim. Chan.	Sec. Chan.
4-Channel Mode										
1	0	0							REC1 1-2	
1	1	0					REC2		REC1 1-2	
1	2	0			REC3		REC2		REC1 1-2	
1	0	1	PLAY1	MIX1					REC1 1-2	
1	0	2	PLAY1	MIX1	PLAY2	MIX2			REC1 1-2	
1	1	1	PLAY1	MIX1			REC2		REC1 1-2	
2	0	0					REC 2 1-2		REC1 1-2	
XRec Mode										
1	1	2	PLAY1	MIX1	PLAY2	MIX2	REC2		REC1 1-2	
1	2	1	PLAY1	MIX1	REC3		REC2		REC1 1-2	
2	0	1	PLAY1	MIX1			REC 2 1-2		REC1 1-2	
2	0	2	PLAY1	MIX1	PLAY2	MIX2	REC 2 1-2		REC1 1-2	
2	1	1	PLAY1	MIX1	REC3		REC2 1-2		REC1 1-2	
3	0	0			REC 3 1-2		REC 2 1-2		REC1 1-2	
3	0	1	PLAY1	MIX1	REC 3 1-2		REC 2 1-2		REC1 1-2	
NEW ! **ChannelMax Mode**										
1	2	4	PLAY1	PLAY3	PLAY2	PLAY4	REC2	REC3	REC1, 1-2	

			IN4/OUT1		IN3/OUT2		IN2/OUT3		IN1/OUT4	
#REC SLSM 2x	#REC	#PLAY	Prim. Chan.	Sec. Chan.	Prim. Chan.	Sec. Chan.	Prim. Chan.	Sec. Chan.	Prim. Chan.	Sec. Chan.
1	4	2	PLAY1	PLAY2	REC3	REC5	REC2	REC4	REC1, 1-2	
2	0	4	PLAY1	PLAY3	PLAY2	PLAY4	REC2, 1-2		REC1, 1-2	
2	2	2	PLAY1	PLAY2	REC3	REC4	REC2, 1-2		REC1, 1-2	
3	0	2	PLAY1	PLAY2	REC3, 1-2		REC2, 1-2		REC1, 1-2	

Example in 4-Channel Mode (1x3G SLSM 2PH + 1REC + 1PLAY)

The BNC connectors to be used as record and play channels in a 3G SLSM configuration with 1x3G SLSM 2PH + 1 REC + 1 PLAY need to be cabled as shown below.

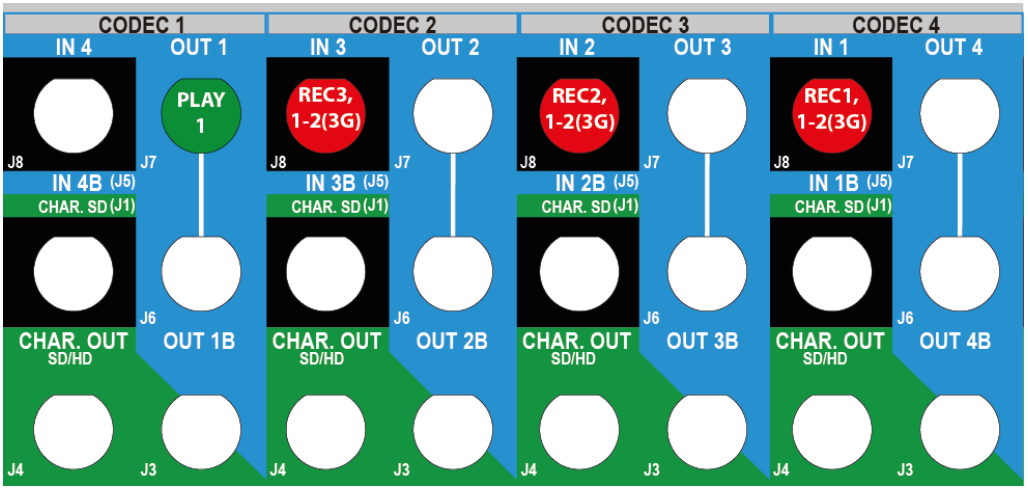
For a 3G cable connected to a primary connector on the rear panel, both primary and secondary channels are used on the codec module of the V3X board.



Example in XRec Mode (3x3G SLSM 2PH + 1PLAY)

The BNC connectors to be used as record and play channels in a 3G SLSM configuration with 3x3G SLSM 2PH + 1PLAY need to be cabled as shown below.

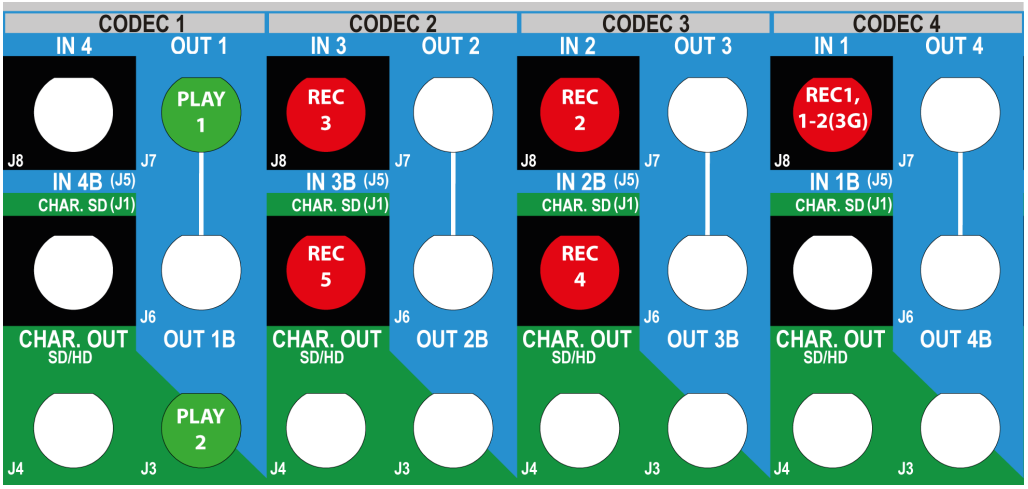
For a 3G cable connected to a primary connector on the rear panel, both primary and secondary channels are used on the codec module of the V3X board.



NEW !

Example in ChannelMax Mode (1xSLSM 2PH + 4REC + 2PLAY)

The BNC connectors to be used as record and play channels in a 3G SLSM configuration with 1xSLSM 2PH + 4REC + 2PLAY need to be cabled as shown below.



SLSM 3-Phase Configurations

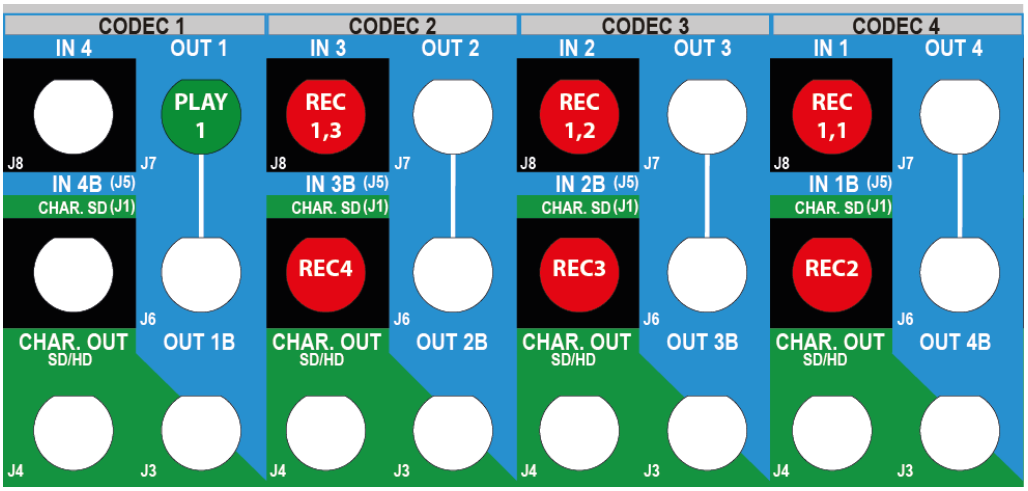
The table below shows the available SLSM 3 Phase configurations in HD with an XT3 4U server.

A separate channel is used for each phase. The table shows how the BNC connectors should be assigned on the rear panel, which corresponds to the channel assignment at the level of the codec module of the V3X board.

			IN4/OUT1		IN3/OUT2		IN2/OUT3		IN1/OUT4	
#REC SLSM 3x	**# REC**	**#PLAY**	**Prim. Chan.**	**Sec. Chan.**	**Prim. Chan.**	**Sec. Chan.**	**Prim. Chan.**	**Sec. Chan.**	**Prim. Chan.**	**Sec. Chan.**
4-Channel Mode										
1	0	0			REC1,3		REC1,2		REC1,1	
1	1	0	REC2		REC1,3		REC1,2		REC1,1	
1	0	1	PLAY1	MIX1	REC1,3		REC1,2		REC1,1	
XRec Mode										
1	1	2	PLAY1	MIX1	PLAY2	MIX2	REC1,2	REC2	REC1,1	REC1,3
1	3	1	PLAY1	MIX1	REC1,3	REC4	REC1,2	REC3	REC1,1	REC2
2	0	1	PLAY1	MIX1	REC1,3	REC2,3	REC1,2	REC2,2	REC1,1	REC2,1
NEW ! **ChannelMax Mode**										
1	1	4	PLAY1	PLAY3	PLAY2	PLAY4	REC1,2	REC2	REC1,1	REC1,3
1	3	2	PLAY1	PLAY2	REC1,3	REC4	REC1,2	REC3	REC1,1	REC2
2	0	2	PLAY1	PLAY2	REC1,3	REC2,3	REC1,2	REC2,2	REC1,1	REC2,1

Example in XRec Mode (1xSLSM 3PH + 3REC + 1PLAY)

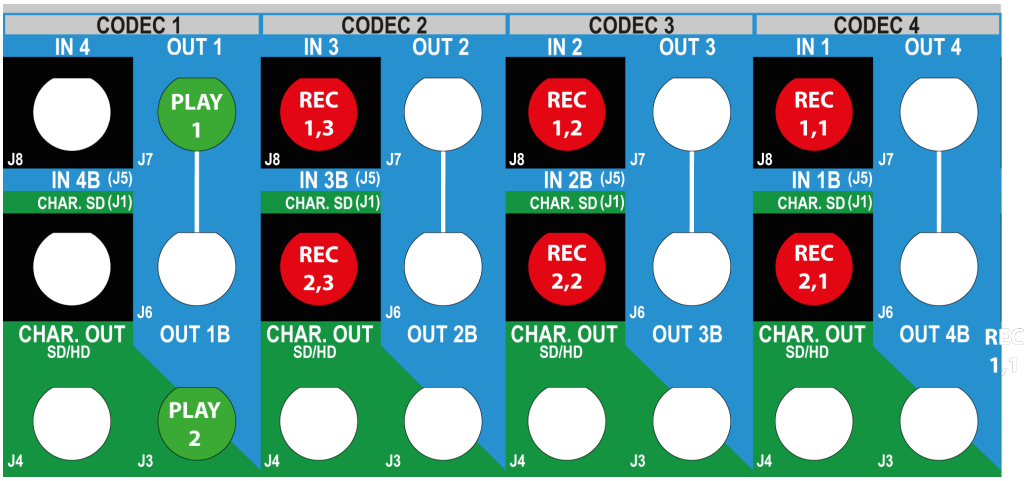
The BNC connectors to be used as record and play channels in an SLSM configuration with 1xSLSM 3PH + 3REC + 1PLAY need to be cabled as shown below:



NEW !

Example in ChannelMax Mode (2xSLSM 3PH + 2PLAY)

The BNC connectors to be used as record and play channels in an SLSM configuration with 2xSLSM 3PH + 2PLAY need to be cabled as shown below:



SLSM 4-Phase Configurations

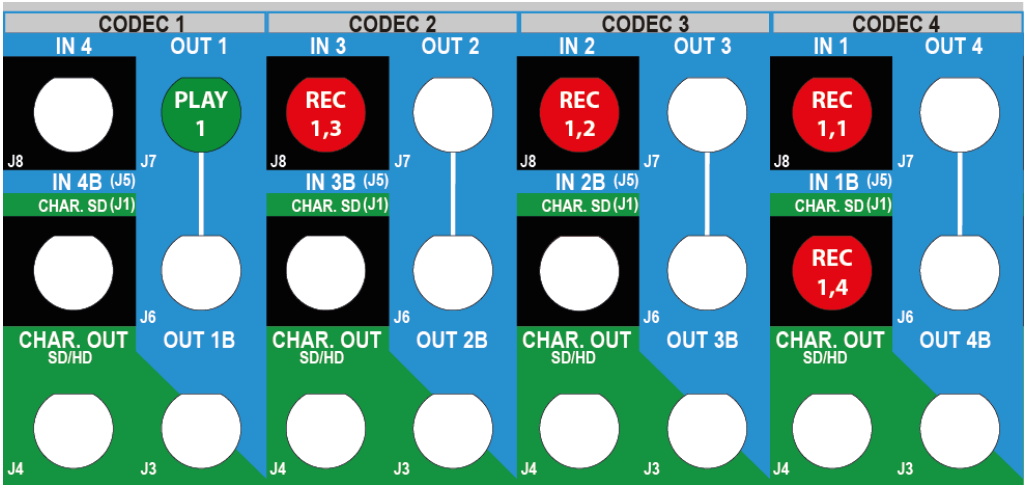
The table below shows the available SLSM 4 Phase configurations in HD with an XT3 4U server.

A separate channel is used for each phase. The table shows how the BNC connectors should be assigned on the rear panel, which corresponds to the channel assignment at the level of the codec module of the V3X board.

			IN4/OUT1		IN3/OUT2		IN2/OUT3		IN1/OUT4	
#REC SLSM 4x	#REC	#PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
4-Channel Mode										
1	0	0	REC1,4		REC1,3		REC1,2		REC1,1	
XRec Mode										
1	0	1	PLAY1	MIX1	REC1,3		REC1,2		REC1,1	REC1,4
1	1	1	PLAY1	MIX1	REC1,3		REC1,2	REC2	REC1,1	REC1,4
1	0	2	PLAY1	MIX1	PLAY2	MIX2	REC1,2	REC1,4	REC1,1	REC1,3
NEW ! **ChannelMax Mode**										
1	2	2	PLAY1	PLAY2	REC1,3	REC3	REC1,2	REC2	REC1,1	REC1,4

Example in XRec Mode (1xSLSM 4PH + 1PLAY)

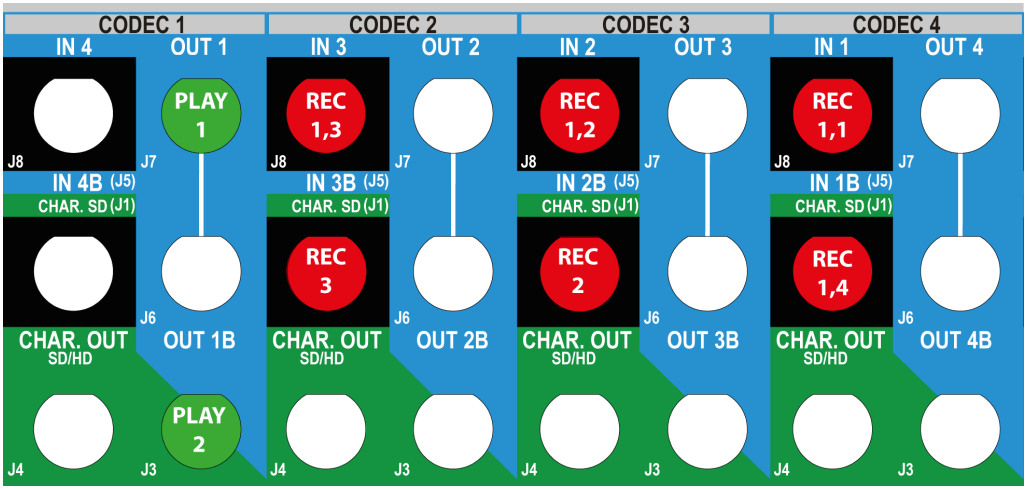
The BNC connectors to be used as record and play channels in an SLSM configuration with 1xSLSM 4PH + 1PLAY need to be cabled as shown below:



NEW !

Example in ChannelMax Mode (1xSLSM 4PH + 2REC + 2PLAY)

The BNC connectors to be used as record and play channels in an SLSM configuration with 1xSLSM 4PH + 2REC + 2PLAY need to be cabled as shown below:



SLSM 4-Phase Configurations on 3G

The table below shows the available 3G SLSM 4 Phase configurations in HD with an XT3 4U server.

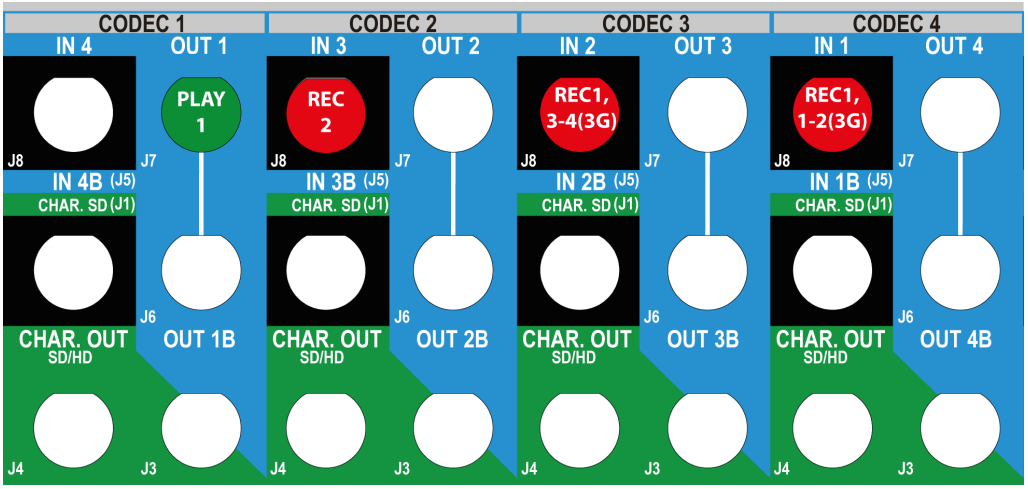
Each 3G cable transports two phases. It is connected to the primary connector of the codec module on the rear panel, but accounts for two channels on the V3X board.

			IN4/OUT1		IN3/OUT2		IN2/OUT3		IN1/OUT4	
#REC SLSM 4x	**#REC**	**#PLAY**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**
XRec Mode										
1	0	1	PLAY1	MIX1			REC1 3-4		REC1 1-2	
1	1	1	PLAY1	MIX1	REC2		REC1 3-4		REC1 1-2	
1	0	2	PLAY1	MIX1	PLAY2	MIX2	REC1 3-4		REC1 1-2	
NEW ! **ChannelMax Mode**										
1	2	2	PLAY1	PLAY2	REC2	REC3	REC1 3-4		REC1 1-2	

Example in XRec Mode (1x3G SLSM 4PH + 1 REC + 1 PLAY)

The BNC connectors to be used as record and play channels in an 3G SLSM configuration with 1x3G SLSM 4PH + 1 REC + 1 PLAY need to be cabled as shown below.

For a 3G cable connected to a primary connector on the rear panel, both primary and secondary channels are used on the codec module of the V3X board.

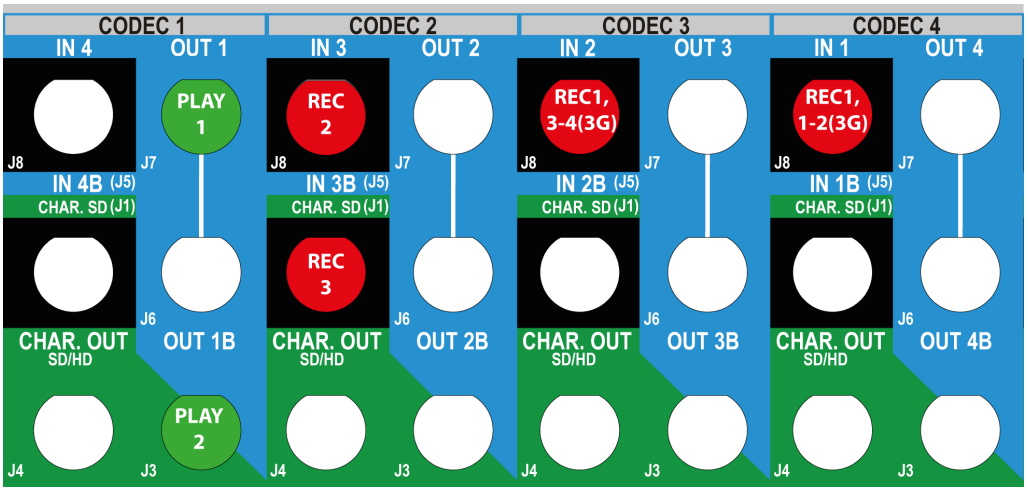


NEW !

Example in ChannelMax Mode (1x3G SLSM 4PH + 2 REC + 2 PLAY)

The BNC connectors to be used as record and play channels in an 3G SLSM configuration with 1x3G SLSM 4PH + 2 REC + 2 PLAY need to be cabled as shown below.

For a 3G cable connected to a primary connector on the rear panel, both primary and secondary channels are used on the codec module of the V3X board.



SLSM 6-Phase Configurations

The table below shows the available SLSM 6 Phase configurations in HD with an XT3 4U server.

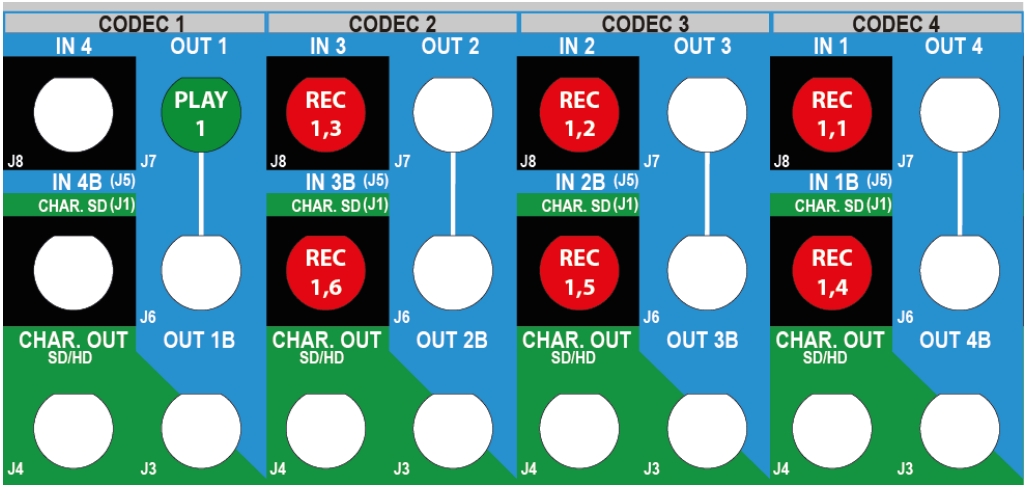
A separate channel is used for each phase. The table shows how the BNC connectors should be assigned on the rear panel, which corresponds to the channel assignment at the level of the codec module of the V3X board.

			IN4/OUT1		IN3/OUT2		IN2/OUT3		IN1/OUT4	
#REC SLSM 6x	**#REC**	**#PLAY**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**
XRec Mode										
1	0	1	PLAY1	MIX1	REC 1,3	REC 1,6	REC 1,2	REC 1,5	REC 1,1	REC 1,4
ChannelMax Mode										
1	0	2	PLAY1	PLAY2	REC 1,3	REC 1,6	REC 1,2	REC 1,5	REC 1,1	REC 1,4

NEW !

Example in XRec Mode (1xSLSM 6PH + 1 PLAY MIX)

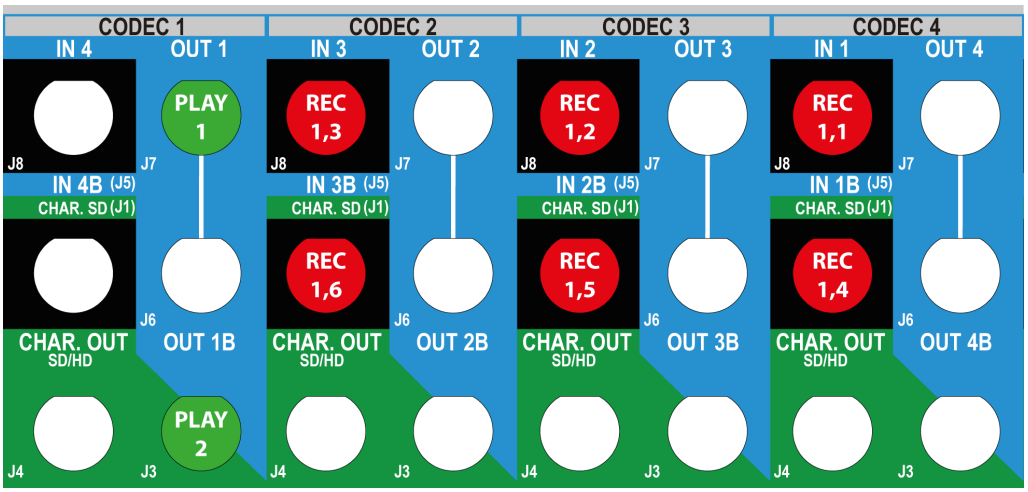
The BNC connectors to be used as record and play channels in an SLSM configuration with 1xSLSM 6PH + 1 PLAY MIX need to be cabled as shown below:



NEW !

Example in ChannelMax Mode (1xSLSM 6PH + 2 PLAY MIX)

The BNC connectors to be used as record and play channels in an SLSM configuration with 1xSLSM 6PH + 2 PLAY MIX need to be cabled as shown below:



SLSM 6-Phase Configurations on 3G

The table below shows the available SLSM 6 Phase configurations in HD with an XT3 4U server.

Each 3G cable transports two phases. It is connected to the primary connector of the codec module on the rear panel, but accounts for two channels on the V3X board.

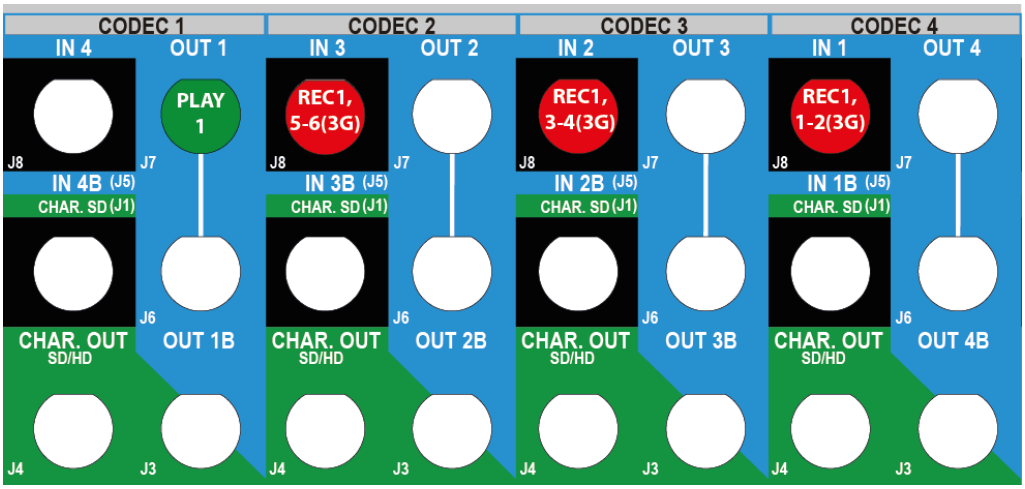
			IN4/OUT1		IN3/OUT2		IN2/OUT3		IN1/OUT4	
#REC SLSM 6x	#REC	#PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
XRec Mode										
1	0	1	PLAY1	MIX1	REC1 5-6		REC1 3-4		REC1 1-2	
ChannelMax Mode										
1	0	2	PLAY1	PLAY2	REC1 5-6		REC1 3-4		REC1 1-2	

NEW !

Example in XRec Mode (1x3G SLSM 6PH + 1 PLAY)

The BNC connectors to be used as record and play channels in an 3G SLSM configuration with 1x3G SLSM 6PH + 1 PLAY need to be cabled as shown below.

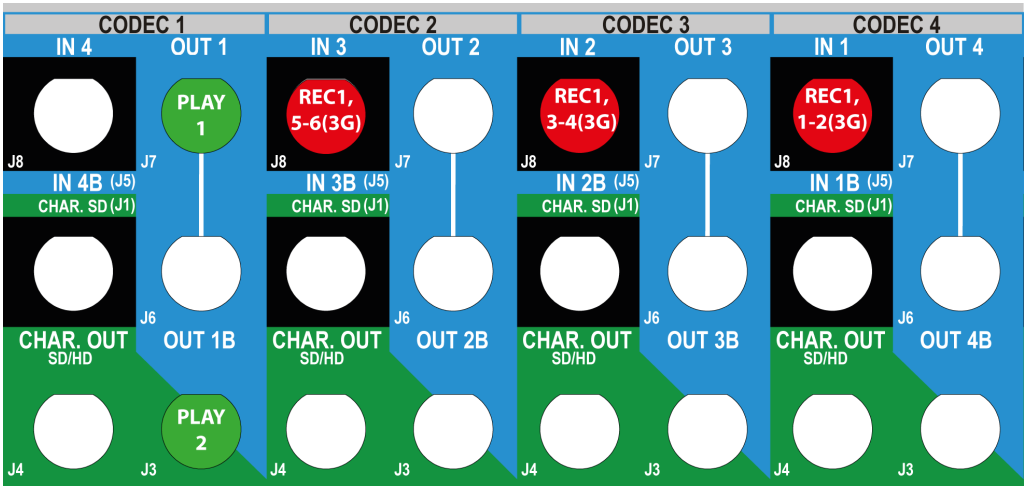
For a 3G cable connected to a primary connector on the rear panel, both primary and secondary channels are used on the codec module of the V3X board.



NEW ! Example in ChannelMax Mode (1x3G SLSM 6PH + 2 PLAY)

The BNC connectors to be used as record and play channels in an 3G SLSM configuration with 1x3G SLSM 6PH + 2 PLAY need to be cabled as shown below.

For a 3G cable connected to a primary connector on the rear panel, both primary and secondary channels are used on the codec module of the V3X board.



3.3.3. SLSM Configurations (6U)

Introduction

Note
Several SLSM configurations have been moved from the ChannelMax section to the

SLSM Principles

This section details the available multi-phase SLSM configurations on XT3 6U servers.

In SLSM configurations, a supermotion recorder of a 2-, 4-, 6- or 8-phase camera accounts for one logical channel, but corresponds respectively to 2, 4, 6 or 8 physical channels.

In 3G SLSM configurations, a supermotion recorder of a 2-, 4-, 6- or 8-phase camera accounts for one logical channel. On the rear panel, it uses respectively 1, 2, 3 or 4 connections, each cabled onto the primary connector of the codec module. On the V3X board, it uses both primary and secondary channels of that codec module.

In U-Motion configurations, an ultramotion recorder of a ten-phase camera accounts for one logical channel, but corresponds respectively to ten physical channels.

About Tables and Examples

This chapter presents the available SLSM and U-Motion configurations with an XT3 6U server, as well as some examples of connections on the rear panel.

The tables and examples reflect how the BNC connectors should be cabled on the rear panel for the given configuration.

The configurations in XRec and ChannelMax mode make use of the secondary channel of the codec module on the V3X board as an independent record channel. This is available in given conditions. See section "About Extended Configurations" on page 52.

Note
For SLSM configurations in 1080p and 3D configurations, refer to sections "Channel Assignment Principles with 3D SLSM" on page 108 and "Channel Assignment Principles with 1080p SLSM" on page 122.

SLSM 2-Phase Configurations

The table below shows the available SLSM 2 Phase configurations in HD with an XT3 6U server server.

A separate channel is used for each phase. The table shows how the BNC connectors should be assigned on the rear panel, which corresponds to the channel assignment at the level of the codec module of the V3X board.

			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
#REC SLSM 2x	**# REC**	**# PLAY**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**
6-Channel Mode														
1	0	0									REC 1,2		REC 1,1	
1	1	0							REC 2		REC 1,2		REC 1,1	
1	2	0					REC 3		REC 2		REC 1,2		REC 1,1	
1	3	0			REC 4		REC 3		REC 2		REC 1,2		REC 1,1	
1	4	0	REC 5		REC 4		REC 3		REC 2		REC 1,2		REC 1,1	
1	0	1	PLAY 1	MIX 1							REC 1,2		REC 1,1	
1	0	2	PLAY 1	MIX 1	PLAY 2	MIX 2					REC 1,2		REC 1,1	
1	0	3	PLAY 1	MIX 1	PLAY 2	MIX 2	PLAY 3	MIX 3			REC 1,2		REC 1,1	
1	0	4	PLAY1	MIX 1	PLAY 2	MIX 2	PLAY 3	MIX 3	PLAY 4	MIX 4	REC 1,2		REC 1,1	

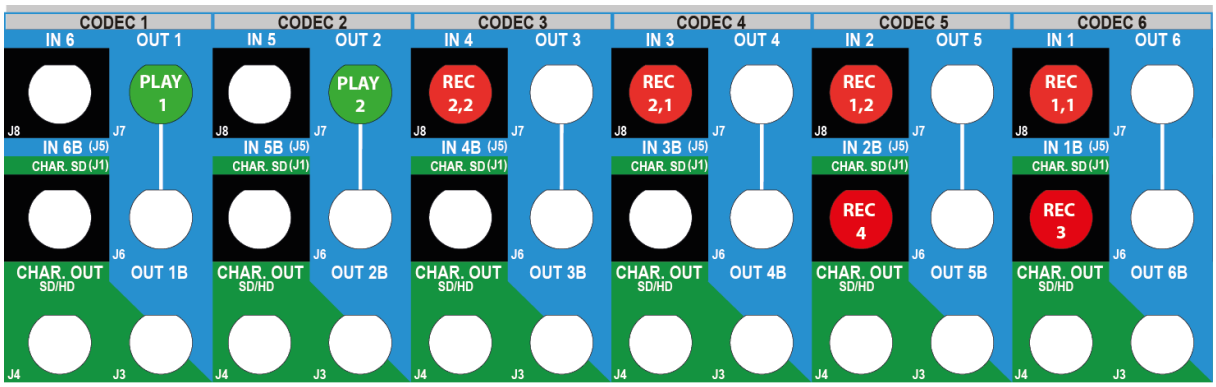
			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
#REC SLSM 2x	# REC	# PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
1	1	1	PLAY 1	MIX 1					REC 2		REC 1,2		REC 1,1	
1	1	2	PLAY 1	MIX 1	PLAY 2	MIX 2			REC 2		REC 1,2		REC 1,1	
1	1	3	PLAY 1	MIX 1	PLAY 2	MIX 2	PLAY 3	MIX 3	REC 2		REC 1,2		REC 1,1	
1	2	1	PLAY 1	MIX 1			REC 3		REC 2		REC 1,2		REC 1,1	
1	2	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC 3		REC 2		REC 1,2		REC 1,1	
1	3	1	PLAY 1	MIX 1	REC 4		REC 3		REC 2		REC 1,2		REC 1,1	
2	0	0					REC 2,2		REC 2,1		REC 1,2		REC 1,1	
2	1	0			REC 3		REC 2,2		REC 2,1		REC 1,2		REC 1,1	
2	2	0	REC 4		REC 3		REC 2,2		REC 2,1		REC 1,2		REC 1,1	
2	0	1	PLAY 1	MIX 1			REC 2,2		REC 2,1		REC 1,2		REC 1,1	
2	0	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC 2,2		REC 2,1		REC 1,2		REC 1,1	
2	1	1	PLAY 1	MIX 1	REC 3		REC 2,2		REC 2,1		REC 1,2		REC 1,1	
3	0	0	REC 3,2		REC 3,1		REC 2,2		REC 2,1		REC 1,2		REC 1,1	
XREC Mode														
1	2	4	PLAY 1	MIX 1	PLAY 2	MIX 2	PLAY 3	MIX 3	PLAY 4	MIX 4	REC 1,2	REC 3	REC 1,1	REC 2
1	3	3	PLAY 1	MIX 1	PLAY 2	MIX 2	PLAY 3	MIX 3	REC 3		REC 1,2	REC 5	REC 1,1	REC 4
1	4	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC 3		REC 2		REC 1,2	REC 5	REC 1,1	REC 4
2	0	4	PLAY 1	MIX 1	PLAY 2	MIX 2	PLAY 3	MIX 3	PLAY 4	MIX 4	REC 1,2	REC 2,2	REC 1,1	REC 2,1
2	2	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC 2,2		REC 2,1		REC 1,2	REC 4	REC 1,1	REC 3
3	0	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC 2,2		REC 2,1		REC 1,2	REC 3,2	REC 1,1	REC 3,1
4	0	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC 2,2	REC 4,2	REC 2,1	REC 4,1	REC 1,2	REC 3,2	REC 1,1	REC 3,1

			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
#REC SLSM 2x	**# REC**	**# PLAY**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**
ChannelMax Mode														
2	4	4	PLAY 1	PLAY 3	PLAY 2	PLAY 4	REC 2,2	REC 6	REC 2,1	REC 5	REC 1,2	REC 4	REC 1,1	REC 3
4	1	1	PLAY 1	MIX 1	REC 3,1		REC 2,2	REC5	REC 2,1	REC 4,2	REC 1,2	REC 4,1	REC 1,1	REC 3,2
*4	4	0	REC 3,2	REC 8	REC 3,1	REC 7	REC 2,2	REC 6	REC 2,1	REC 5	REC 1,2	REC 4,2	REC 1,1	REC 4,1
4	0	4	PLAY 1	PLAY 3	PLAY 2	PLAY 4	REC 2,2	REC 4,2	REC 2,1	REC 4,1	REC 1,2	REC 3,2	REC 1,1	REC 3,1

* Only in Spotbox mode, with license code 35 (Channels Max Spotbox)

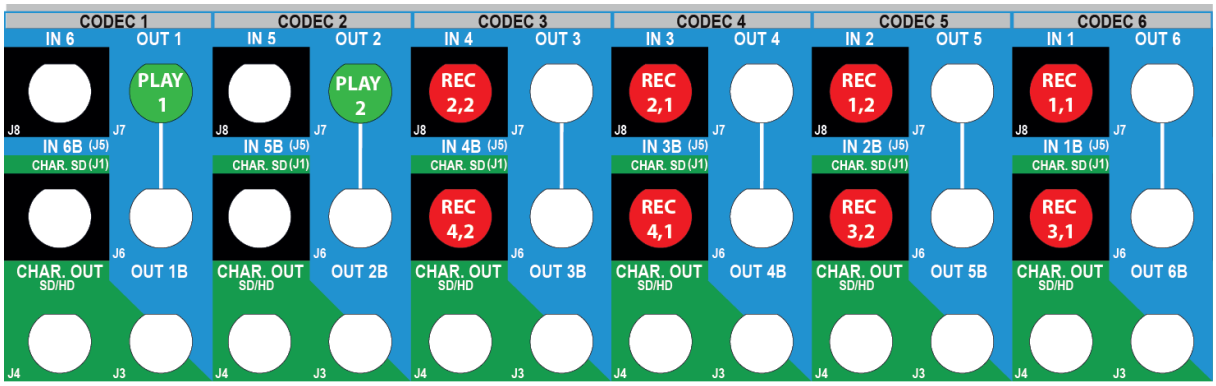
Example in XRec Mode (2xSLSM 2PH + 2 REC + 2 PLAY MIX)

The BNC connectors to be used as record and play channels in an SLSM configuration with 2xSLSM 2PH + 2REC + 2PLAY MIX in XRec mode need to be cabled as shown below:



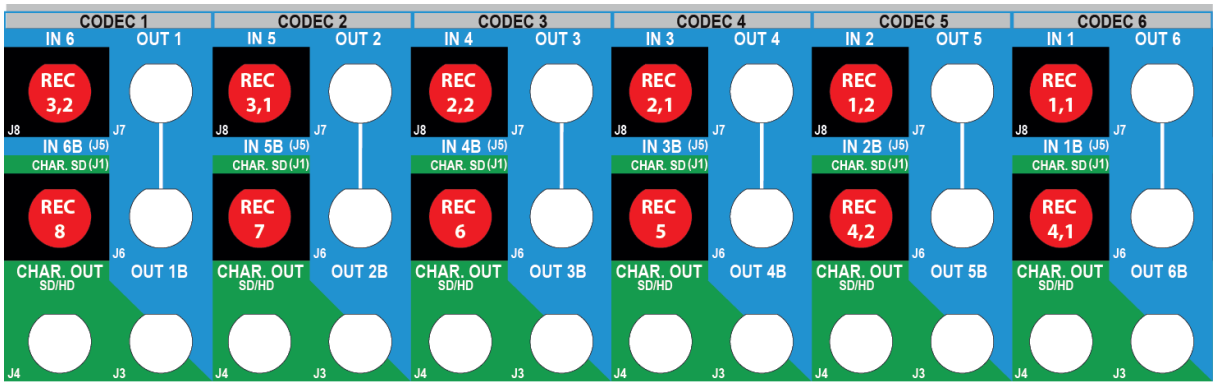
Example in XRec Mode (4xSLSM 2PH + 2 PLAY MIX)

The BNC connectors to be used as record and play channels in an SLSM configuration with 4xSLSM 2PH + 2 PLAY MIX in XRec mode need to be cabled as shown below:



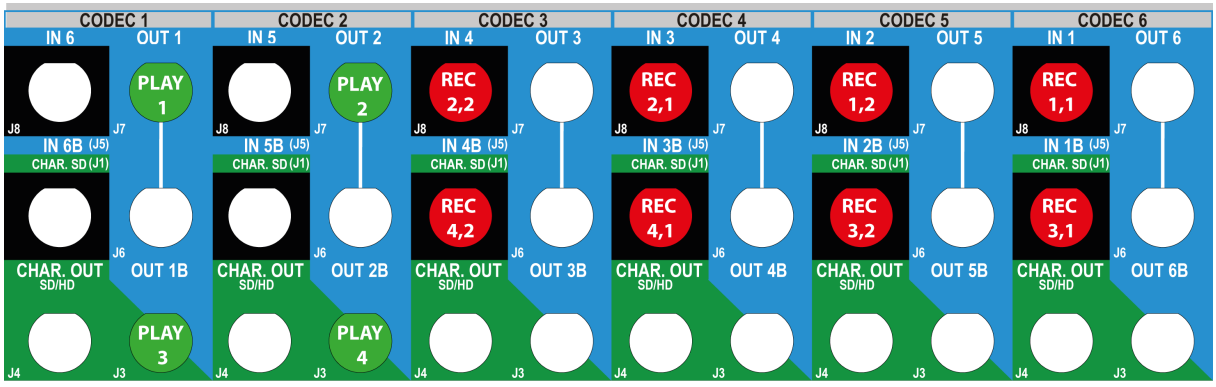
Example in ChannelMax Mode (4xSLSM 2PH + 4 REC)

The BNC connectors to be used as record and play channels in an SLSM configuration with 4xSLSM 2PH + 4 REC in ChannelMax mode need to be cabled as shown below:



Example in ChannelMax Mode (4xSLSM 2PH + 4 PLAY)

The BNC connectors to be used as record and play channels in an SLSM configuration with 4xSLSM 2PH + 4 PLAY in ChannelMax mode need to be cabled as shown below:



SLSM 2-Phase Configurations on 3G

The table below shows the available 3G SLSM 2 Phase configurations in HD with an XT3 6U server server.

Each 3G cable transports two phases. It is connected to the primary connector of the codec module on the rear panel, but accounts for two channels on the V3X board.

			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
#REC SLSM 2x	**#REC**	**#PLAY**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**
6-Channel Mode														
1	0	0											REC 1 1-2	
1	1	0									REC 2		REC 1 1-2	
1	2	0							REC 3		REC 2		REC 1 1-2	
1	3	0					REC 4		REC 3		REC 2		REC 1 1-2	
1	4	0			REC 5		REC 4		REC 3		REC 2		REC 1 1-2	
1	0	1	PLAY 1	MIX 1									REC 1 1-2	
1	0	2	PLAY 1	MIX 1	PLAY 2	MIX 2							REC 1 1-2	
1	0	3	PLAY 1	MIX 1	PLAY 2	MIX 2	PLAY 3	MIX 3					REC 1 1-2	
1	0	4	PLAY1	MIX 1	PLAY 2	MIX 2	PLAY 3	MIX 3	PLAY 4	MIX 4			REC 1 1-2	
1	1	1	PLAY 1	MIX 1							REC 2		REC 1 1-2	
1	1	2	PLAY 1	MIX 1	PLAY 2	MIX 2					REC 2		REC 1 1-2	
1	2	1	PLAY 1	MIX 1					REC 3		REC 2		REC 1 1-2	

			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
#REC SLSM 2x	#REC	#PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
1	2	2	PLAY 1	MIX 1	PLAY 2	MIX 2			REC 3		REC 2		REC 1 1-2	
1	3	1	PLAY 1	MIX 1			REC 4		REC 3		REC 2		REC 1 1-2	
2	0	0									REC 2 1-2		REC 1 1-2	
2	1	0							REC 3		REC 2 1-2		REC 1 1-2	
2	2	0					REC 4		REC 3		REC 2 1-2		REC 1 1-2	
2	0	1	PLAY 1	MIX 1							REC 2 1-2		REC 1 1-2	
2	0	2	PLAY 1	MIX 1	PLAY 2	MIX 2					REC 2 1-2		REC 1 1-2	
2	1	1	PLAY 1	MIX 1					REC 3		REC 2 1-2		REC 1 1-2	
3	0	0							REC 3 1-2		REC 2 1-2		REC 1 1-2	
XREC Mode														
1	1	4	PLAY 1	MIX 1	PLAY 2	MIX 2	PLAY 3	MIX 3	PLAY 4	MIX 4	REC 2		REC 1 1-2	
1	2	3	PLAY 1	MIX 1	PLAY 2	MIX 2	PLAY 3	MIX 3	REC 3		REC 2		REC 1 1-2	
1	3	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC 4		REC 3		REC 2		REC 1 1-2	
2	3	0			REC 5		REC 4		REC 3		REC 2 1-2		REC 1 1-2	
2	4	0	REC 6		REC 5		REC 4		REC 3		REC 2 1-2		REC 1 1-2	
2	0	3	PLAY 1	MIX 1	PLAY 2	MIX 2	PLAY 3	MIX 3			REC 2 1-2		REC 1 1-2	

			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
#REC SLSM 2x	#REC	#PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
2	0	4	PLAY 1	MIX 1	PLAY 2	MIX 2	PLAY 3	MIX 3	PLAY 4	MIX 4	REC 2 1-2		REC 1 1-2	
2	1	2	PLAY 1	MIX 1	PLAY 2	MIX 2			REC 3		REC 2 1-2		REC 1 1-2	
2	1	3	PLAY 1	MIX 1	PLAY 2	MIX 2	PLAY 3	MIX 3	REC 3		REC 2 1-2		REC 1 1-2	
2	2	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC 4		REC 3		REC 2, 1-2		REC 1 1-2	
3	1	0					REC 4		REC 3 1-2		REC 2 1-2		REC 1 1-2	
3	2	0			REC 5		REC 4		REC 3 1-2		REC 2 1-2		REC 1 1-2	
*3	3	0	REC 6		REC 5		REC 4		REC 3 1-2		REC 2 1-2		REC 1 1-2	
3	0	1	PLAY 1	MIX 1					REC 3 1-2		REC 2 1-2		REC 1 1-2	
3	0	2	PLAY 1	MIX 1	PLAY 2	MIX 2			REC 3 1-2		REC 2 1-2		REC 1 1-2	
3	0	3	PLAY 1	MIX 1	PLAY 2	MIX 2	PLAY 3	MIX 3	REC 3 1-2		REC 2 1-2		REC 1 1-2	
3	1	1	PLAY 1	MIX 1			REC 4		REC 3 1-2		REC 2 1-2		REC 1 1-2	
3	1	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC 4		REC 3 1-2		REC 2 1-2		REC 1 1-2	
3	2	1	PLAY 1	MIX 1	REC 5		REC 4		REC 3 1-2		REC 2 1-2		REC 1 1-2	
4	0	0					REC 4 1-2		REC 3 1-2		REC 2 1-2		REC 1 1-2	
*4	1	0			REC 5		REC 4 1-2		REC 3 1-2		REC 2 1-2		REC 1 1-2	
4	0	1	PLAY 1	MIX 1			REC 4 1-2		REC 3 1-2		REC 2 1-2		REC 1 1-2	

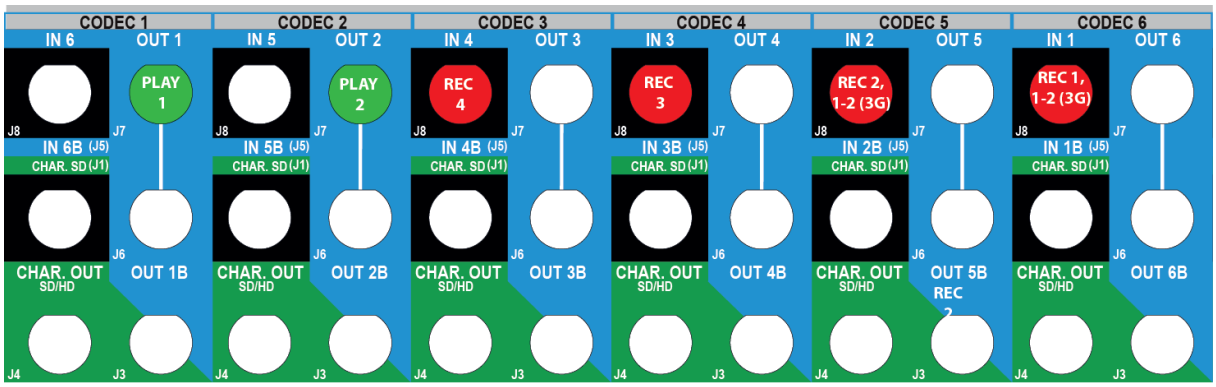
			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
#REC SLSM 2x	#REC	#PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
*4	2	0	REC 6		REC 5		REC 4 1-2		REC 3 1-2		REC 2 1-2		REC 1 1-2	
4	0	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC 4 1-2		REC 3 1-2		REC 2 1-2		REC 1 1-2	
ChannelMax Mode														
2	4	4	PLAY 1	PLAY 4	PLAY 2		PLAY 3		REC 4	REC 6	REC 3	REC 5	REC 1 1-2	REC 2, 1-2
4	1	1	PLAY 1	MIX 1	REC 5		REC 4 1-2		REC 3 1-2		REC 2 1-2		REC 1 1-2	
*4	4	0	REC 8		REC 7		REC 6		REC 5		REC 2, 1-2	REC 4, 1-2	REC 1, 1-2	REC 3, 1-2
4	0	4	PLAY 1	MIX 1	PLAY 2	MIX 2	PLAY 3	MIX 3	PLAY 4	MIX 4	REC 2 1-2	REC 4 1-2	REC 1 1-2	REC 3 1-2

* Only in Spotbox mode, with license code 35 (Channels Max Spotbox)

Example in XRec Mode (2x3G SLSM 2PH + 2 REC + 2 PLAY MIX)

The BNC connectors to be used as record and play channels in a 3G SLSM configuration with 2x3G SLSM 2PH + 2REC + 2PLAY MIX need to be cabled as shown below.

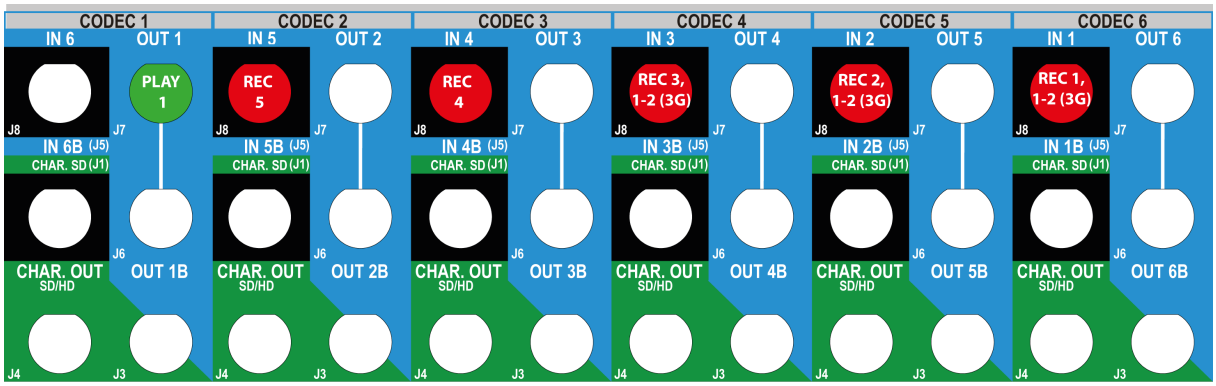
For a 3G cable connected to a primary connector on the rear panel, both primary and secondary channels are used on the codec module of the V3X board.



Example in XRec Mode (3x3G SLSM 2PH + 2 REC + 1 PLAY)

The BNC connectors to be used as record and play channels in an SLSM configuration with 3x3G SLSM 2PH + 2REC + 1PLAY MIX need to be cabled as shown below.

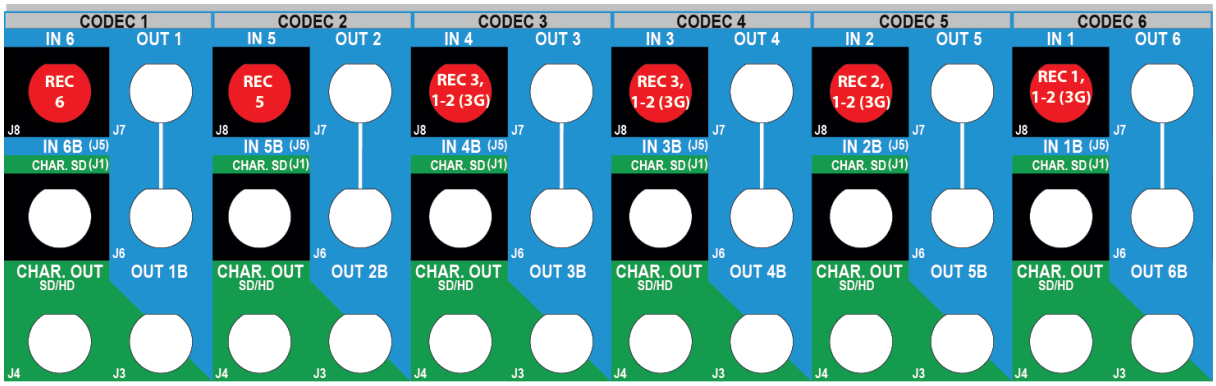
For a 3G cable connected to a primary connector on the rear panel, both primary and secondary channels are used on the codec module of the V3X board.



Example in XRec Mode (4x3G SLSM 2PH + 2 REC)

The BNC connectors to be used as record and play channels in an SLSM configuration with 4x3G SLSM 2PH + 2REC need to be cabled as shown below.

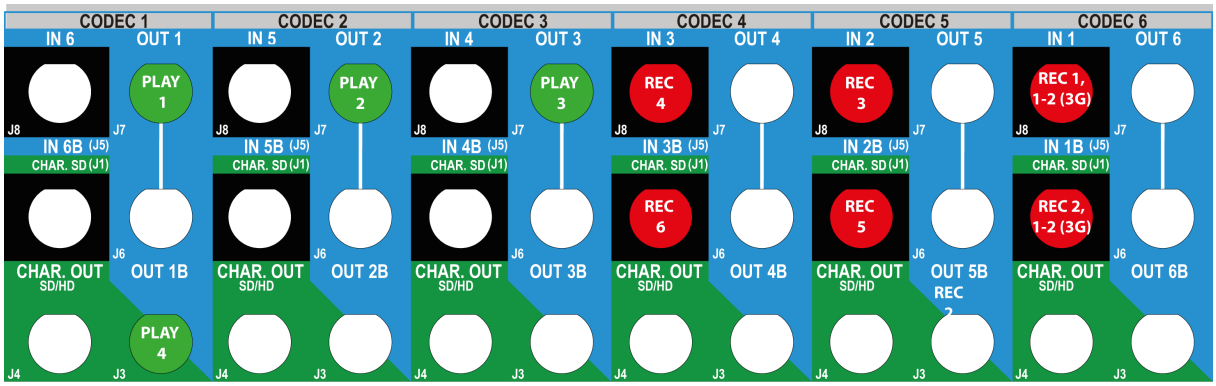
For a 3G cable connected to a primary connector on the rear panel, both primary and secondary channels are used on the codec module of the V3X board.



Example in ChannelMax Mode (2x3G SLSM 2PH + 4 REC + 4 PLAY)

The BNC connectors to be used as record and play channels in an SLSM configuration with 2x3G SLSM 2PH + 4 REC + 4 PLAY need to be cabled as shown below.

For a 3G cable connected to a primary connector on the rear panel, both primary and secondary channels are used on the codec module of the V3X board.



SLSM 3-Phase Configurations

The table below shows the available SLSM 3 Phase configurations in SD/HD with an XT3 6U server.

A separate channel is used for each phase. The table shows how the BNC connectors should be assigned on the rear panel, which corresponds to the channel assignment at the level of the codec module of the V3X board.

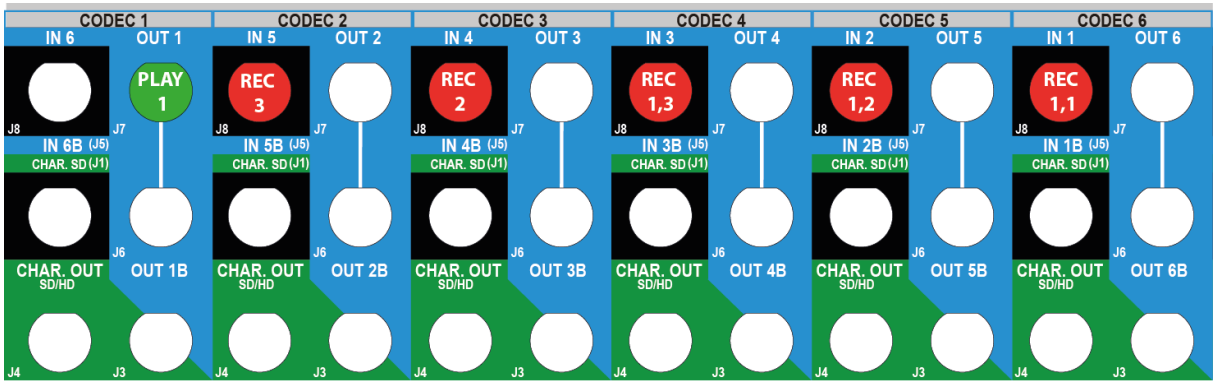
			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
#REC SLSM 3x	**#REC**	**#PLAY**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**
6-Channel Mode														
1	0	0							REC 1,3		REC 1,2		REC 1,1	
1	1	0					REC 2		REC 1,3		REC 1,2		REC 1,1	
1	2	0			REC 3		REC 2		REC 1,3		REC 1,2		REC 1,1	
1	3	0	REC 4		REC 3		REC 2		REC 1,3		REC 1,2		REC 1,1	
1	0	1	PLAY 1	MIX 1					REC 1,3		REC 1,2		REC 1,1	
1	0	2	PLAY 1	MIX 1	PLAY 2	MIX 2			REC 1,3		REC 1,2		REC 1,1	
1	0	3	PLAY 1	MIX 1	PLAY 2	MIX 2	PLAY 3	MIX 3	REC 1,3		REC 1,2		REC 1,1	
1	1	1	PLAY 1	MIX 1			REC 2		REC 1,3		REC 1,2		REC 1,1	
1	1	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC 2		REC 1,3		REC 1,2		REC 1,1	
1	2	1	PLAY 1	MIX 1	REC 3		REC 2		REC 1,3		REC 1,2		REC 1,1	
2	0	0	REC 2,3		REC 2,2		REC 2,1		REC 1,3		REC 1,2		REC 1,1	
XREC Mode														
1	1	4	PLAY 1	MIX 1	PLAY 2	MIX 2	PLAY 3	MIX 3	PLAY 4	MIX 4	REC 1,2	REC 2	REC 1,1	REC 1,3
1	3	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC 2		REC 1,3		REC 1,2	REC 4	REC 1,1	REC 3
1	3	3	PLAY 1	MIX 1	PLAY 2	MIX 2	PLAY 3	MIX 3	REC 1,3	REC 4	REC 1,2	REC 3	REC 1,1	REC 2
1	4	1	PLAY 1	MIX 1	REC 3		REC 2		REC 1,3		REC 1,2	REC 5	REC 1,1	REC 4
2	0	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC 2,1		REC 1,3		REC 1,2	REC 2,3	REC 1,1	REC 2,2

			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
#REC SLSM 3x	#REC	#PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
2	2	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC 2,1	REC 4	REC 1,3	REC 3	REC 1,2	REC 2,3	REC 1,1	REC 2,2
ChannelMax Mode														
1	5	4	PLAY 1	PLAY 3	PLAY 2	PLAY 4	REC 4	REC 8	REC 1,3	REC 7	REC 1,2	REC 6	REC 1,1	REC 5
*1	9	0	REC 4	REC 10	REC 3	REC 9	REC 2	REC 8	REC 1,3	REC 7	REC 1,2	REC 6	REC 1,1	REC 5
2	2	4	PLAY 1	PLAY 3	PLAY 2	PLAY 4	REC 2,1	REC 4	REC 1,3	REC 3	REC 1,2	REC 2,3	REC 1,1	REC 2,2
*2	6	0	REC 2,3	REC 8	REC 2,2	REC 7	REC 2,1	REC 6	REC 1,3	REC 5	REC 1,2	REC 4	REC 1,1	REC 3
3	0	1	PLAY 1	MIX 1	REC 2,2		REC 2,1	REC 3,3	REC 1,3	REC 3,2	REC 1,2	REC 3,1	REC 1,1	REC 2,3
3	1	2	PLAY 1	PLAY 2	REC 2,2	REC 4	REC 2,1	REC 3,3	REC 1,3	REC 3,2	REC 1,2	REC 3,1	REC 1,1	REC 2,3
*3	3	0	REC 2,3	REC 6	REC 2,2	REC 5	REC 2,1	REC 4	REC 1,3	REC 3,3	REC 1,2	REC 3,2	REC 1,1	REC 3,1

* Only in Spotbox mode, with license code 35 (Channels Max Spotbox)

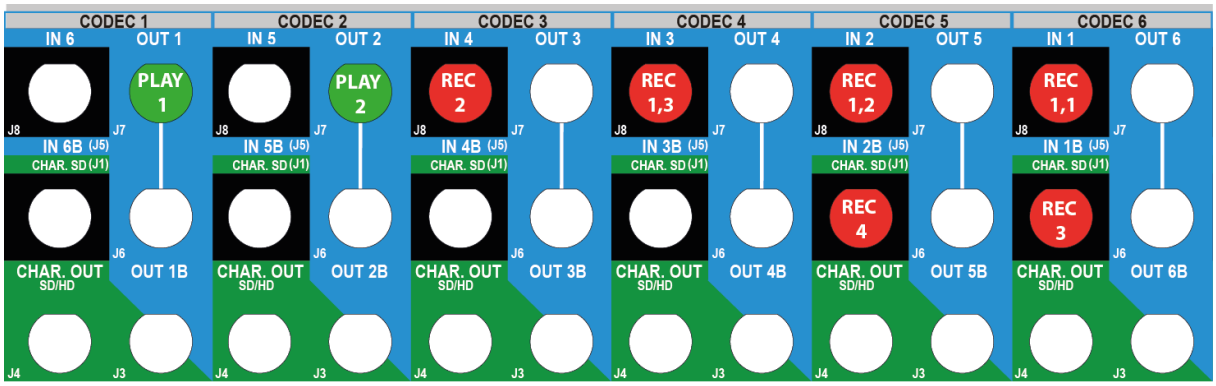
Example in 6-Channel Mode (1xSLSM 3PH + 2REC + 1PLAY MIX)

The BNC connectors to be used as record and play channels in an SLSM configuration with 1xSLSM 3PH + 2REC + 1PLAY MIX need to be cabled as shown below:



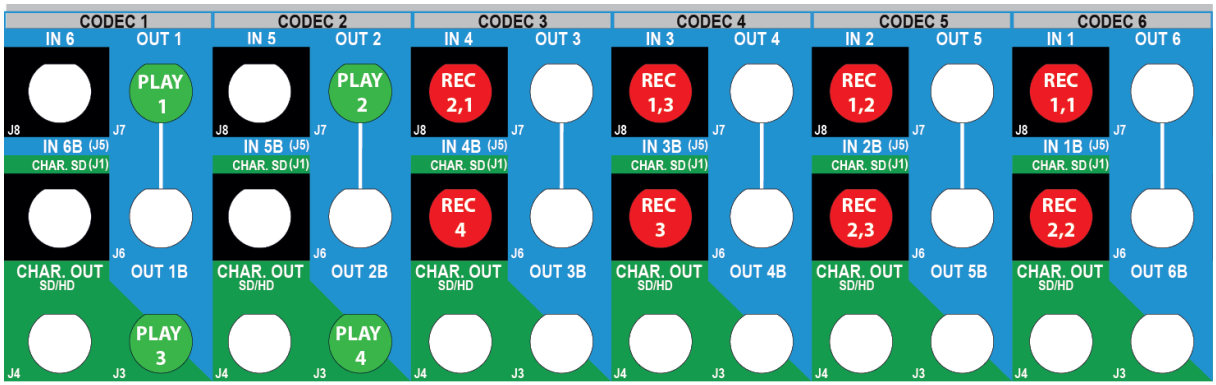
Example in XRec Mode (1xSLSM 3PH + 3 REC + 2 PLAY MIX)

The BNC connectors to be used as record and play channels in an SLSM configuration with 1xSLSM 3PH + 3 REC + 2 PLAY MIX in XRec mode need to be cabled as shown below:



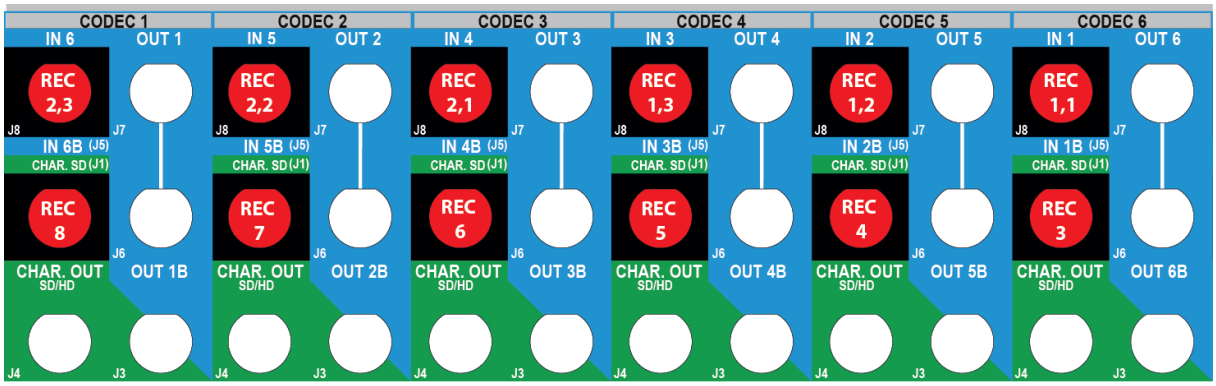
Example in ChannelMax Mode (2xSLSM 3PH + 2 REC + 4 PLAY)

The BNC connectors to be used as record and play channels in an SLSM configuration with 2xSLSM 3PH + 2 REC + 4 PLAY (No Mix) in ChannelMax mode need to be cabled as shown below:



Example in ChannelMax Mode (2xSLSM 3PH + 6 REC)

The BNC connectors to be used as record and play channels in an SLSM configuration with 2xSLSM 3PH + 6 REC in ChannelMax mode need to be cabled as shown below:



SLSM 4-Phase Configurations

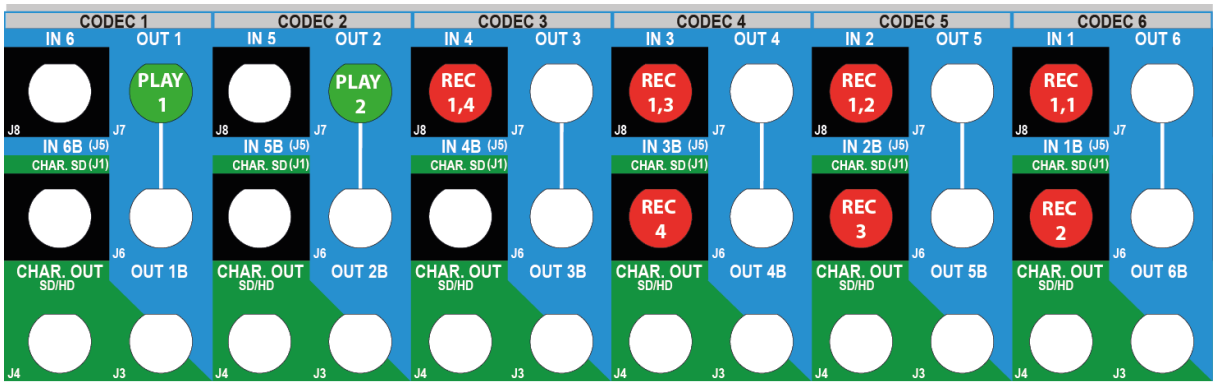
The table below shows the available SLSM 4 Phase configurations in HD with an XT3 6U server.

A separate channel is used for each phase. The table shows how the BNC connectors should be assigned on the rear panel, which corresponds to the channel assignment at the level of the codec module of the V3X board.

			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
#REC SLSM 4x	**#REC**	**#PLAY**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**
6-Channel Mode														
1	0	0					REC 1,4		REC 1,3		REC 1,2		REC 1,1	
1	1	0			REC 2		REC 1,4		REC 1,3		REC 1,2		REC 1,1	
1	2	0	REC 3		REC 2		REC 1,4		REC 1,3		REC 1,2		REC 1,1	
1	0	1	PLAY 1	MIX 1			REC 1,4		REC 1,3		REC 1,2		REC 1,1	
1	0	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC 1,4		REC 1,3		REC 1,2		REC 1,1	
1	1	1	PLAY 1	MIX 1	REC 2		REC 1,4		REC 1,3		REC 1,2		REC 1,1	
XREC Mode														
1	2	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC 1,4		REC 1,3		REC 1,2	REC 3	REC 1,1	REC 2
1	3	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC 1,4		REC 1,3	REC 4	REC 1,2	REC 3	REC 1,1	REC 2
2	0	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC 1,4	REC 2,4	REC 1,3	REC 2,3	REC 1,2	REC 2,2	REC 1,1	REC 2,1

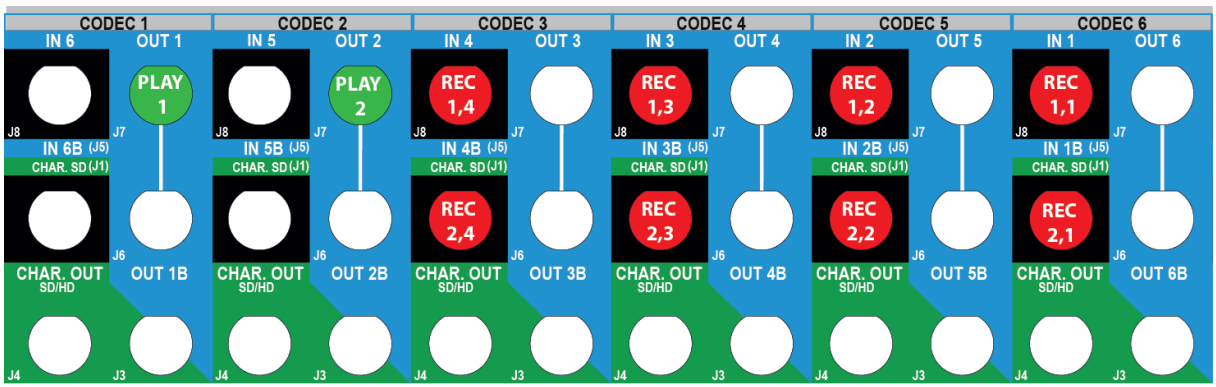
Example in XRec Mode (1xSLSM 4PH + 3REC + 2PLAY)

The BNC connectors to be used as record and play channels in an SLSM configuration with 1xSLSM 4PH + 3REC + 2PLAY in XRec mode need to be cabled as shown below:



Example in XRec Mode (2xSLSM 4PH + 2PLAY)

The BNC connectors to be used as record and play channels in an SLSM configuration with 2xSLSM 4PH + 2PLAY in XRec mode need to be cabled as shown below:



SLSM 4-Phase Configurations on 3G

The table below shows the available 3G SLSM 4 Phase configurations in HD with an XT3 6U server.

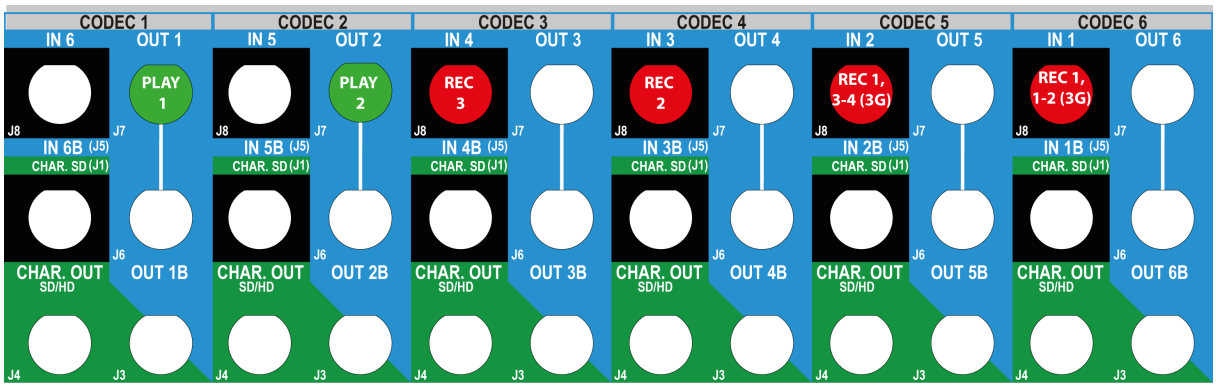
Each 3G cable transports two phases. It is connected to the primary connector of the codec module on the rear panel, but accounts for two channels on the V3X board.

			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
#REC SLSM 4x	**#REC**	**#PLAY**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**
6-Channel Mode														
1	0	1	PLAY 1	MIX 1							REC1 3-4		REC1 1-2	
1	0	2	PLAY 1	MIX 1	PLAY 2	MIX 2					REC1 3-4		REC1 1-2	
XRec Mode														
1	2	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC 3		REC 2		REC1 3-4		REC1 1-2	
ChannelMax Mode														
2	0	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC2 3-4		REC2 1-2		REC1 3-4		REC1 1-2	

Example in XRec mode (1x3G SLSM 4PH + 2REC + 2 PLAY)

The BNC connectors to be used as record and play channels in an 3G SLSM configuration with 1x3G SLSM 4PH + 2REC + 2PLAY in XRec mode need to be cabled as shown below.

For a 3G cable connected to a primary connector on the rear panel, both primary and secondary channels are used on the codec module of the V3X board.



SLSM 6-Phase Configurations

The table below shows the available SLSM 6 Phase configurations in HD with an XT3 6U server.

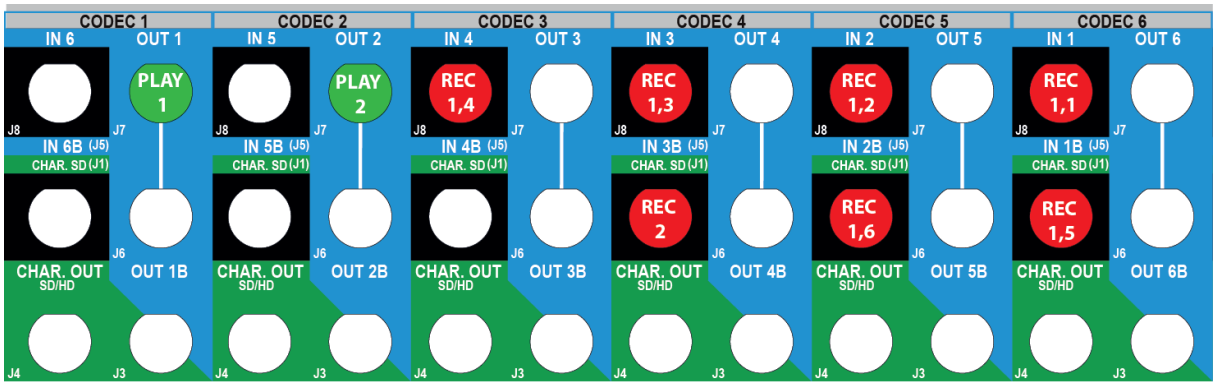
A separate channel is used for each phase. The table shows how the BNC connectors should be assigned on the rear panel, which corresponds to the channel assignment at the level of the codec module of the V3X board.

			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
#REC SLSM 6x	**#REC**	**#PLAY**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**
XRec Mode														
1	0	1	PLAY 1		PLAY 2		REC 1,4		REC 1,3	REC 1,6	REC 1,2	REC 1,5	REC 1,1	REC 1,4
1	0	2	PLAY 1		PLAY 2		REC 1,4		REC 1,3		REC 1,2	REC 1,6	REC 1,1	REC 1,5
1	1	1	PLAY 1		REC 1,5		REC 1,4		REC 1,3		REC 1,2	REC 2	REC 1,1	REC 1,6
1	1	2	PLAY 1		PLAY 2		REC 1,4		REC 1,3	REC 2	REC 1,2	REC 1,6	REC 1,1	REC 1,5
1	2	1	PLAY 1		REC 1,5		REC 1,4		REC 1,3	REC 3	REC 1,2	REC 2	REC 1,1	REC 1,6
ChannelMax Mode														
1	3	2	PLAY 1	PLAY 2	REC 1,5		REC 1,4	REC 4	REC 1,3	REC 3	REC 1,2	REC 2	REC 1,1	REC 1,6
*1	6	0	REC 1,6	REC 7	REC 1,5	REC 6	REC 1,4	REC 5	REC 1,3	REC 4	REC 1,2	REC 3	REC 1,1	REC 2
*2	0	0	REC 1,6	REC 2,6	REC 1,5	REC 2,5	REC 1,4	REC 2,4	REC 1,3	REC 2,3	REC 1,2	REC 2,2	REC 1,1	REC 2,1

* Only in Spotbox mode, with license code 35 (Channels Max Spotbox)

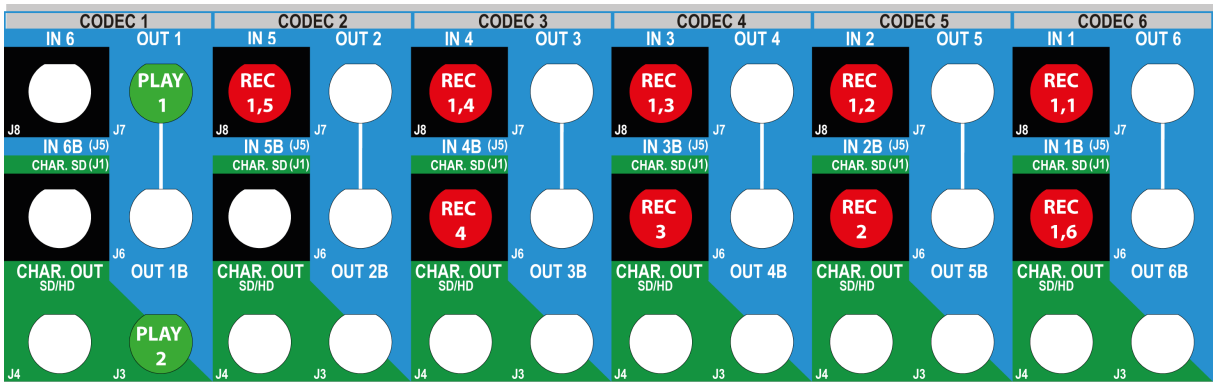
Example in XRec Mode (1xSLSM 6PH + 1REC + 2 PLAY MIX)

The BNC connectors to be used as record and play channels in an SLSM configuration with 1xSLSM 6PH +1 REC + 2 PLAY MIX in XRec mode need to be cabled as shown below:



Example in ChannelMax Mode (1xSLSM 6PH + 3REC + 2 PLAY MIX)

The BNC connectors to be used as record and play channels in an SLSM configuration with 1xSLSM 6PH +3 REC + 2 PLAY MIX in ChannelMax mode need to be cabled as shown below:



SLSM 6-Phase Configurations on 3G

The table below shows the available 3G SLSM 6 Phase configurations in HD with an XT3 6U server.

Two situations can occur depending on the mode and configuration:

- Each 3G cable transports two phases. It is connected to the primary connector of the codec module on the rear panel, but accounts for two channels on the V3X board.
- Each single 3G cable transports two phases. It is connected to the primary connector of the codec module on the rear panel, but uses only one channel on the V3X board.

			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
#RECSLSM 6x	**#REC**	**#PLAY**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**
6-Channel Mode														
1	0	0							REC 1 5-6		REC 1 3-4		REC 1 1-2	
XRec Mode														
1	0	1	PLAY 1	MIX1					REC 1 5-6		REC 1 3-4		REC 1 1-2	
1	0	2	PLAY 1	MIX1	PLAY 2	MIX2			REC 1 5-6		REC 1 3-4		REC 1 1-2	
1	0	3	PLAY 1	MIX1	PLAY 2	MIX2	PLAY 3	MIX3	REC 1 5-6		REC 1 3-4		REC 1 1-2	
1	1	1	PLAY 1	MIX1			REC2		REC 1 5-6		REC 1 3-4		REC 1 1-2	
1	1	2	PLAY 1	MIX1	PLAY 2	MIX 2	REC2		REC 1 5-6		REC 1 3-4		REC 1 1-2	
1	2	1	PLAY 1	MIX1	REC3		REC2		REC 1 5-6		REC 1 3-4		REC 1 1-2	
ChannelMax Mode														
1	3	2	PLAY 1	MIX1	PLAY 2	MIX 2	REC 3		REC 2	REC 4	REC 1 3-4		REC 1 1-2	REC 1 5-6
*1	6	0	REC 4	REC 7	REC3	REC 6	REC2	REC 5	REC 1 5-6		REC 1 3-4		REC 1 1-2	
*2	0	0	REC2 5-6		REC2 3-4		REC2 1-2		REC 1 5-6		REC 1 3-4		REC 1 1-2	

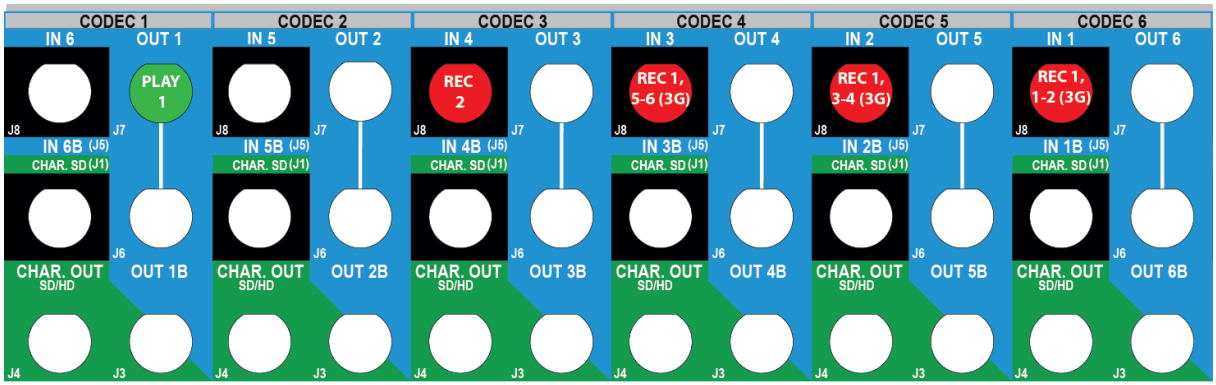
			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
#REC SLSM 6x	#REC	#PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
2	0	1	PLAY 1	MIX1					REC 1 5-6	REC 2 5-6	REC 1 3-4	REC 2 3-4	REC 1 1-2	REC 2 1-2
2	0	2	PLAY 1	MIX 1	PLAY 2	MIX 2			REC 1 5-6	REC 2 5-6	REC 1 3-4	REC 2 3-4	REC 1 1-2	REC 2 1-2
2	1	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC 3		REC 1 5-6	REC 2 5-6	REC 1 3-4	REC 2 3-4	REC 1 1-2	REC 2 1-2
2	2	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC 3	REC 4	REC 1 5-6	REC 2 5-6	REC 1 3-4	REC 2 3-4	REC 1 1-2	REC 2 1-2

* Only in Spotbox mode, with license code 35 (Channels Max Spotbox)

Example in XRec Mode (1x3G SLSM 6PH + 1REC + 1 PLAY)

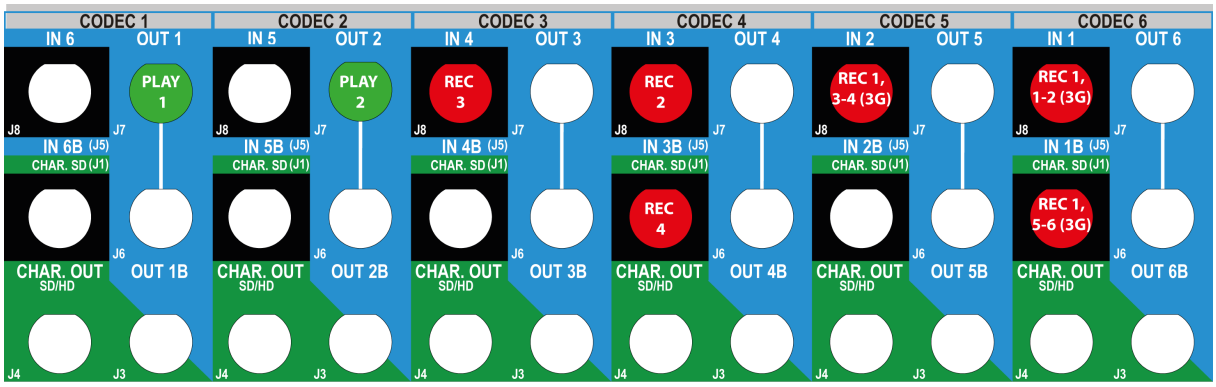
The BNC connectors to be used as record and play channels in an 3G SLSM configuration with 1x3G SLSM 6PH + 1REC + 1 PLAY in XRec mode need to be cabled as shown below.

For a 3G cable connected to a primary connector on the rear panel, both primary and secondary channels are used on the codec module of the V3X board.



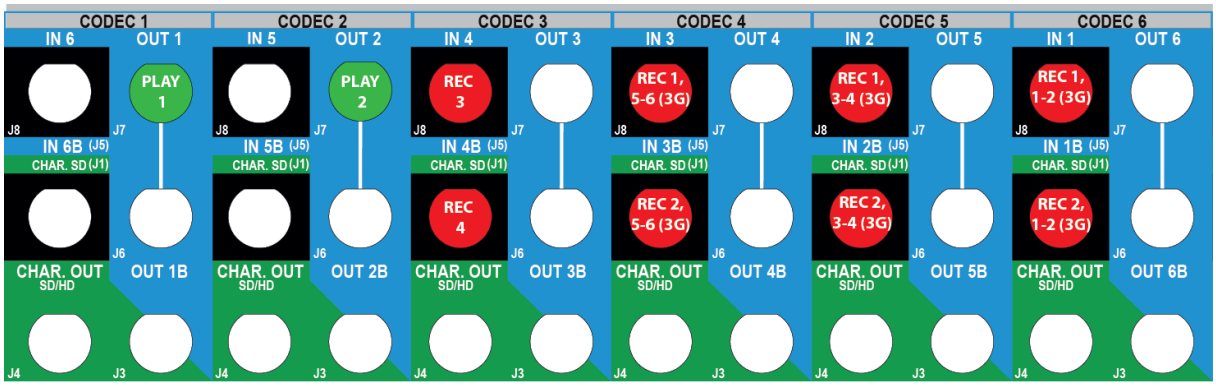
Example in ChannelMax Mode (1x3G SLSM 6PH + 3REC + 2 PLAY)

The BNC connectors to be used as record and play channels in an 3G SLSM configuration with 1x3G SLSM 6PH + 3REC + 2PLAY in ChannelMax mode need to be cabled as shown below.



Example in ChannelMax Mode (2x3G SLSM 6PH + 2REC + 2 PLAY)

The BNC connectors to be used as record and play channels in an 3G SLSM configuration with 2x3G SLSM 6PH + 2REC + 2PLAY in ChannelMax mode need to be cabled as shown below.



SLSM 8-Phase Configurations

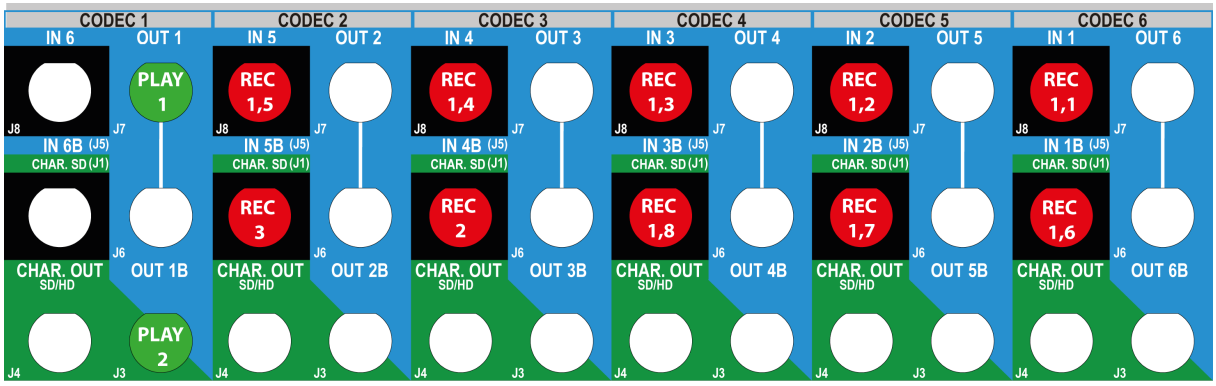
The table below shows the available SLSM 8 Phase configurations in HD with an XT3 6U server.

A separate channel is used for each phase. The table shows how the BNC connectors should be assigned on the rear panel, which corresponds to the channel assignment at the level of the codec module of the V3X board.

			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
#REC SLSM 8x	**#REC**	**#PLAY**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**
ChannelMax Mode														
1	0	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC 1,4	REC 1,5	REC 1,3	REC 1,7	REC 1,2	REC 1,6	REC 1,1	REC 1,5
1	2	2	PLAY 1	PLAY 2	REC 1,5	REC 3	REC 1,4	REC 2	REC 1,3	REC 1,8	REC 1,2	REC 1,7	REC 1,1	REC 1,6

Example in ChannelMax Mode (1x SLSM 8PH + 2REC + 2 PLAY)

The BNC connectors to be used as record and play channels in a SLSM configuration with 1 SLSM 8PH + 2REC + 2PLAY in ChannelMax mode need to be cabled as shown below.



SLSM 8-Phase Configurations on 3G

The table below shows the available 3G SLSM 8 Phase configurations in HD with an XT3 6U server.

Two situations can occur depending on the mode and configuration:

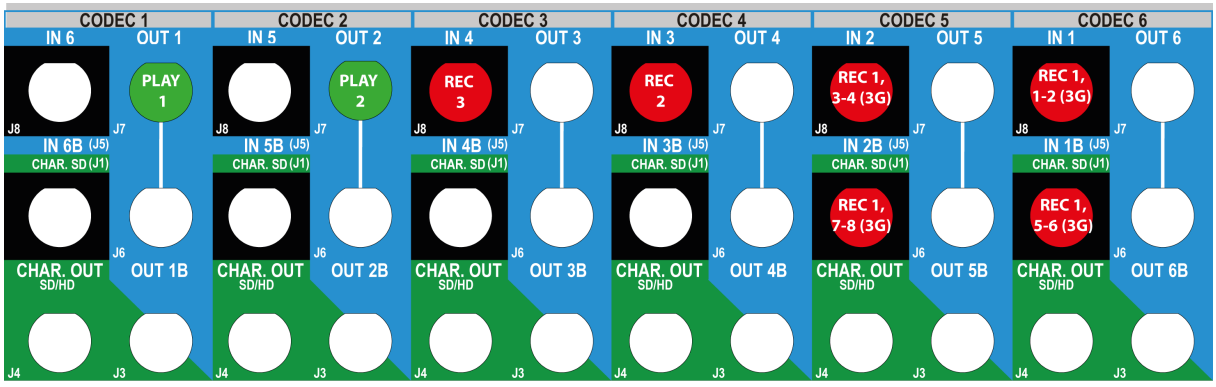
- Each 3G cable transports two phases. It is connected to the primary connector of the codec module on the rear panel, but accounts for two channels on the V3X board.
- Each 3G cable transports two phases. It is connected to the primary connector of the codec module on the rear panel, but uses only one channel on the V3X board. This implies a limited bandwidth.

			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
#REC SLSM 8x	**#REC**	**#PLAY**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**
ChannelMax Mode														
1	0	1	PLAY 1	MIX 1			REC1 7-8		REC1 5-6		REC1 3-4		REC1 1-2	
1	0	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC1 7-8		REC1 5-6		REC1 3-4		REC1 1-2	
1	2	2	PLAY 1	MIX 1	PLAY 2	MIX 2	REC 3		REC 2		REC1 3-4	REC1 7-8	REC1 1-2	REC1 5-6
2	0	1	PLAY 1	MIX 1			REC1 7-8	REC2 7-8	REC1 5-6	REC2 5-6	REC1 3-4	REC2 3-4	REC1 1-2	REC2 1-2
2	2	1	PLAY 1	MIX 1	REC 3	REC 4	REC1 7-8	REC2 7-8	REC1 5-6	REC2 5-6	REC1 3-4	REC2 3-4	REC1 1-2	REC2 1-2

Example in ChannelMax Mode (1x3G SLSM 8PH + 2REC + 2 PLAY)

The BNC connectors to be used as record and play channels in an 3G SLSM configuration with 1x3G SLSM 8PH + 2REC + 2PLAY in ChannelMax mode need to be cabled as shown below.

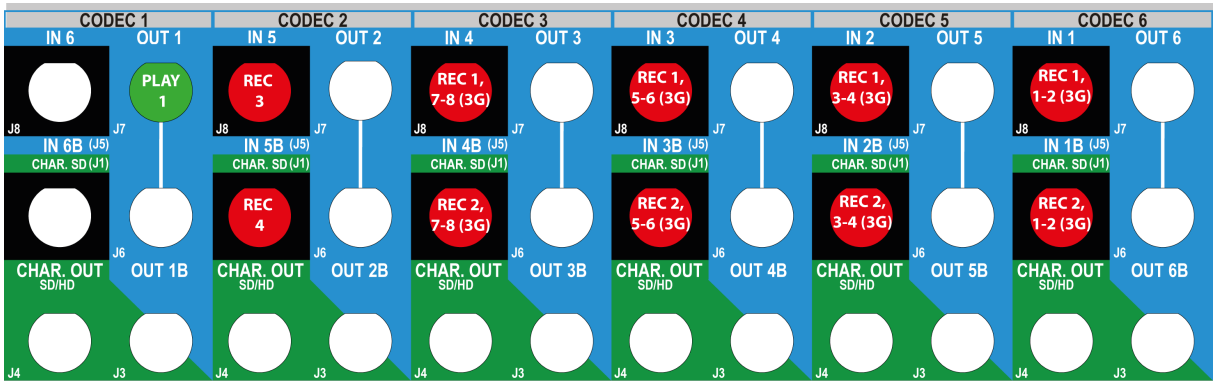
For a 3G cable connected to a primary connector on the rear panel, both primary and secondary channels are used on the codec module of the V3X board.



Example in ChannelMax Mode (2x3G SLSM 8PH + 2REC + 1 PLAY)

The BNC connectors to be used as record and play channels in an 3G SLSM configuration with 2x3G SLSM 8PH + 2REC + 1PLAY in ChannelMax mode need to be cabled as shown below.

For a 3G cable connected to a primary connector on the rear panel, only the primary channel is used on the codec module of the V3X board. The secondary channel is used independently.



SLSM 10-Phase Configurations

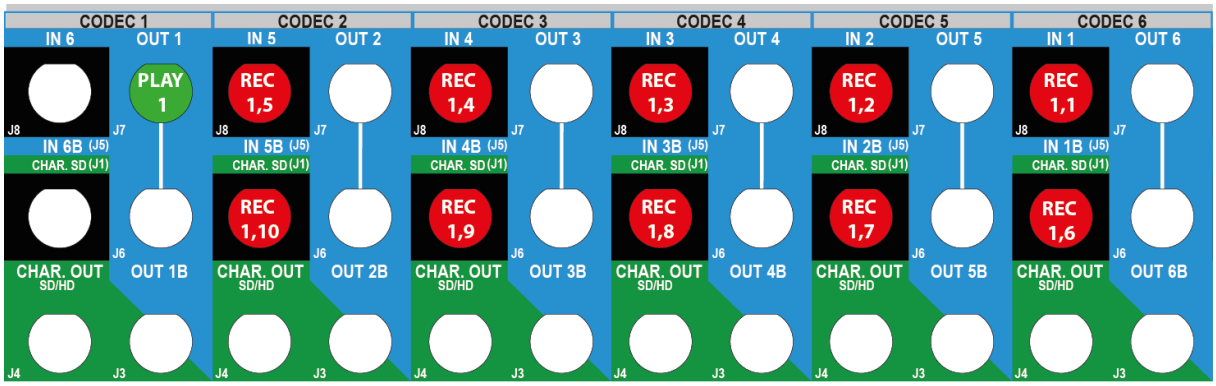
The table below shows the available U-Motion 10 Phase configurations in HD with an XT3 6U server.

A separate channel is used for each phase. The table shows how the BNC connectors should be assigned on the rear panel, which corresponds to the channel assignment at the level of the codec module of the V3X board.

			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
#REC SLSM 10x	**#REC**	**#PLAY**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**
XRec Mode														
1	0	1	PLAY 1		REC 1,5	REC 1,10	REC 1,4	REC 1,9	REC 1,3	REC 1,8	REC 1,2	REC 1,7	REC 1,1	REC 1,6

Example in XRec Mode (1xSLSM 10PH + 1 PLAY MIX)

The BNC connectors to be used as record and play channels in an SLSM configuration with 1xSLSM 10PH + 1 PLAY MIX need to be cabled as shown below:



3.4. 3D Configurations

3.4.1. General Information on 3D Configurations

Requirements

The 3D is available when the following software requirements are met:

- The license code 23 or 24 is activated on the EVS server.
- The **3D** parameter is set to **Yes**.
- The **3G/Dual** parameter is set to a proper value.

  See section "Base Settings" on page 182.

Connectivity

On the rear panel, a 3D feed is cabled with one of the following interfaces:

- Dual Link interface:

  Two cables, seen as one logical channel (record or play channel) by the EVS server, are connected to both connectors of a codec module, for example IN1 and IN1B in REC.

- 3G interface:

  A single cable, corresponding to a logical channel, is connected to the primary connector of a codec module.

On the V3X board, a 3D connection is connected as follows:

- Both primary and secondary channels of the codec module (COD A or COD B) on the V3X board are used whatever the connection interface to the rear panel (Dual Link or 3G).

3.4.2. 3D Standard Configurations (4U)

Available Configurations

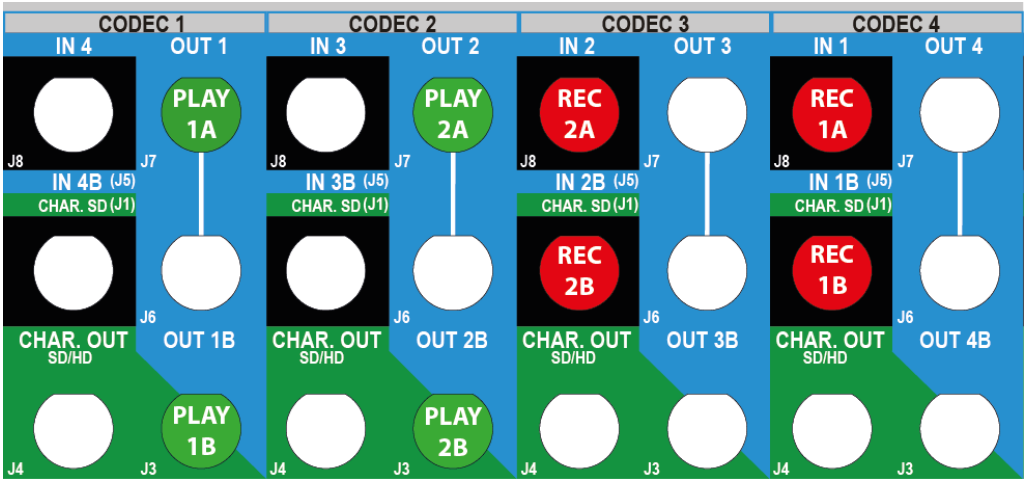
The tables below show the available 3D configurations with standard cameras on an XT3 4U server.

They show the channel assignment at the level of the codec module of a V3X board. This is valid whatever the type of cable connected to the rear panel (Dual Link or 3G).

#REC	#PLAY	IN4/OUT1		IN3/OUT2		IN2/OUT3		IN1/OUT4	
		Prim. Chan.	Sec. Chan.	Prim. Chan.	Sec. Chan.	Prim. Chan.	Sec. Chan.	Prim. Chan.	Sec. Chan.
1	0							REC1A	REC1B
2	0					REC2A	REC2B	REC1A	REC1B
3	0			REC3A	REC3B	REC2A	REC2B	REC1A	REC1B
4	0	REC4A	REC4B	REC3A	REC3B	REC2A	REC2B	REC1A	REC1B
1	1	PLAY1A	PLAY1B					REC1A	REC1B
1	2	PLAY1A	PLAY1B	PLAY2A	PLAY2B			REC1A	REC1B
1	3	PLAY1A	PLAY1B	PLAY2A	PLAY2B	PLAY3A	PLAY3B	REC1A	REC1B
2	1	PLAY1A	PLAY1B			REC2A	REC2B	REC1A	REC1B
2	2	PLAY1A	PLAY1B	PLAY2A	PLAY2B	REC2A	REC2B	REC1A	REC1B
3	1	PLAY1A	PLAY1B	REC3A	REC3B	REC2A	REC2B	REC1A	REC1B
0	1	PLAY1A	PLAY1B						
0	2	PLAY1A	PLAY1B	PLAY2A	PLAY2B				
0	3	PLAY1A	PLAY1B	PLAY2A	PLAY2B	PLAY3A	PLAY3B		
0	4	PLAY1A	PLAY1B	PLAY2A	PLAY2B	PLAY3A	PLAY3B	PLAY4	PLAY4B

Example in 3D Dual Link (2REC + 2PLAY)

The BNC connectors to be used as recorder and play channels in a 3D Dual Link configuration 2REC + 2PLAY need to be cabled as shown below:



3.4.3. 3D Standard Configurations (6U)

Available Configurations

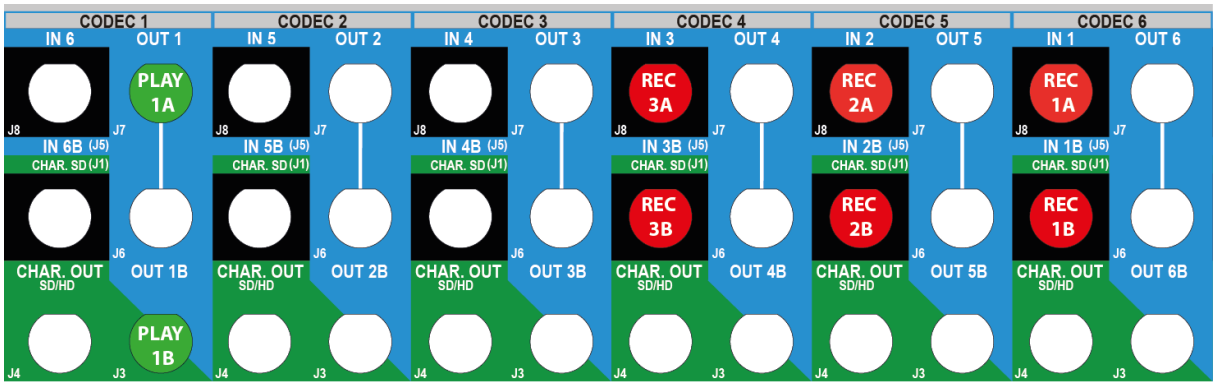
The tables below show the available 3D configurations with standard cameras on a XT3 6U server. They show the channel assignment at the level of the codec module of a V3X board. This is valid whatever the type of cable connected to the rear panel (Dual Link or 3G).

#REC	#PLAY	IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
		Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
1	0											REC 1A	REC 1B
2	0									REC 2A	REC 2B	REC 1A	REC 1B
3	0							REC 3A	REC 3B	REC 2A	REC 2B	REC 1A	REC 1B
4	0					REC 4A	REC 4B	REC 3A	REC 3B	REC 2A	REC 2B	REC 1A	REC 1B
5	0			REC 5A	REC 5B	REC 4A	REC 4B	REC 3A	REC 3B	REC 2A	REC 2B	REC 1A	REC 1B
6	0	REC 6A	REC 6B	REC 5A	REC 5B	REC 4A	REC 4B	REC 3A	REC 3B	REC 2A	REC 2B	REC 1A	REC 1B
1	1	PLAY 1A	PLAY 1B									REC 1A	REC 1B

#REC	#PLAY	IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
		Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
1	2	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B							REC 1A	REC 1B
1	3	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B	PLAY 3A	PLAY 3B					REC 1A	REC 1B
1	4	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B	PLAY 3A	PLAY 3B	PLAY 4A	PLAY 4B			REC 1A	REC 1B
1	5	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B	PLAY 3A	PLAY 3B	PLAY 4A	PLAY 4B	PLAY 5A	PLAY 5B	REC 1A	REC 1B
2	1	PLAY 1A	PLAY 1B							REC 2A	REC 2B	REC 1A	REC 1B
2	2	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B					REC 2A	REC 2B	REC 1A	REC 1B
2	3	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B	PLAY 3A	PLAY 3B			REC 2A	REC 2B	REC 1A	REC 1B
2	4	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B	PLAY 3A	PLAY 3B	PLAY 4A	PLAY 4B	REC 2A	REC 2B	REC 1A	REC 1B
3	1	PLAY 1A	PLAY 1B					REC 3A	REC 3B	REC 2A	REC 2B	REC 1A	REC 1B
3	2	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B			REC 3A	REC 3B	REC 2A	REC 2B	REC 1A	REC 1B
3	3	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B	PLAY 3A	PLAY 3B	REC 3A	REC 3B	REC 2A	REC 2B	REC 1A	REC 1B
4	1	PLAY 1A	PLAY 1B			REC 4A	REC 4B	REC 3A	REC 3B	REC 2A	REC 2B	REC 1A	REC 1B
4	2	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B	REC 4A	REC 4B	REC 3A	REC 3B	REC 2A	REC 2B	REC 1A	REC 1B
5	1	PLAY 1A	PLAY 1B	REC 5A	REC 5B	REC 4A	REC 4B	REC 3A	REC 3B	REC 2A	REC 2B	REC 1A	REC 1B
0	1	PLAY 1A	PLAY 1B										
0	2	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B								
0	3	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B	PLAY 3A	PLAY 3B						
0	4	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B	PLAY 3A	PLAY 3B	PLAY 4A	PLAY 4B				
0	5	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B	PLAY 3A	PLAY 3B	PLAY 4A	PLAY 4B	PLAY 5A	PLAY 5B		
0	6	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B	PLAY 3A	PLAY 3B	PLAY 4A	PLAY 4B	PLAY 5A	PLAY 5B	PLAY 6A	PLAY 6B

Example in 3D Dual Link (3REC + 1PLAY)

The BNC connectors to be used as recorder and play channels in a 3D Dual Link configuration 3REC + 1PLAY need to be cabled as shown below:



Note
In an equivalent configuration with a single link 3G interface, only the J8 connectors are cabled. However the primary and secondary channels on the codec module of the V3X board are both used.

3.4.4. Channel Assignment Principles with 3D SLSM

The combination of 3D standards and SLSM configurations associates the following individual rules for connector assignments on the rear panel:

- For **3D** in **Dual Link**, the first cable arrives into the primary connector of a codec module, and the second cable arrives into the secondary connector of the same codec module.
- For **3D** in **3G (single link)**, the single cable arrives into the primary connector of the codec module.

  Whatever the type of connection to the rear pane, both primary and secondary channels of the corresponding codec module on the V3X board are used.
- For the SLSM 2 Phase configurations, one SLSM recorder accounts for one logical channel, but corresponds to two physical channels.
- For the SLSM 3 Phase configurations, one SLSM recorder accounts for one logical channel, but corresponds to three physical channels.
- For the SLSM 4, 6 or 8 Phase configurations, one SLSM recorder accounts for one logical channel, but corresponds respectively to four, sic or eight physical channels.

3.4.5. 3D SLSM Configurations (4U)

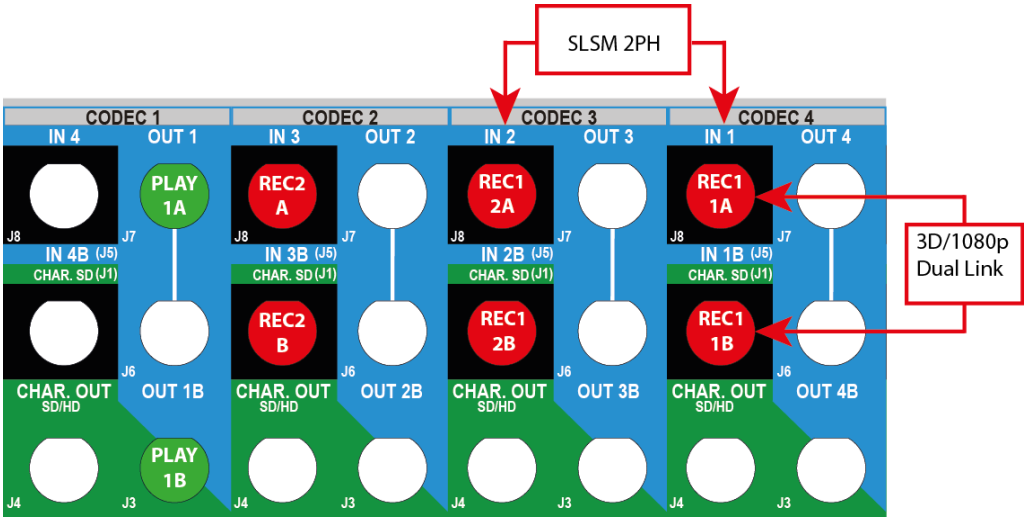
SLSM 2x Configurations

The table below shows the available 3D configurations with SLSM 2 Phase cameras on an XT3 4U server. The table shows the channel assignment at the level of the codec module of a V3X board. This is valid whatever the type of cable connected to the rear panel (Dual Link or 3G).

			IN4/OUT1		IN3/OUT2		IN2/OUT3		IN1/OUT4	
#REC SLSM 2x	**#REC**	**#PLAY**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**
1	0	0					REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	1	0			REC 2A	REC 2B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	2	0	REC 3A	REC 3B	REC 2A	REC 2B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	0	1	PLAY 1A	PLAY 1B			REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	0	2	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	1	1	PLAY 1A	PLAY 1B	REC 2A	REC 2B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
2	0	0	REC 2,2A	REC 2,2B	REC 2,1A	REC 2,1B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B

Example in 3D Dual Link (1SLSM 2x + 1REC+ 1PLAY)

The BNC connectors to be used as record and play channels in a 3D Dual Link configuration 1SLSM 2PH + 1REC + 1 PLAY need to be cabled as shown below:



Note
In an equivalent configuration with a 3G interface, only the J8 connectors are cabled. However the primary and secondary channels on the codec module of the V3X board are both used.

SLSM 3x Configurations

The tables below show the available 3D configurations with SLSM 3 Phase cameras on a XT3 4U server. They show the channel assignment at the level of the codec module of a V3X board. This is valid whatever the type of cable connected to the rear panel (Dual Link or 3G).

			IN4/OUT1		IN3/OUT2		IN2/OUT3		IN1/OUT4	
#REC SLSM 3x	#REC	#PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
1	0	0			REC 1,3A	REC 1,3B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	1	0	REC 2A	REC 2B	REC 1,3A	REC 1,3B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	0	1	PLAY 1A	PLAY 1B	REC 1,3A	REC 1,3B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B

3.4.6. 3D SLSM Configurations (6U)

SLSM 2x Configurations

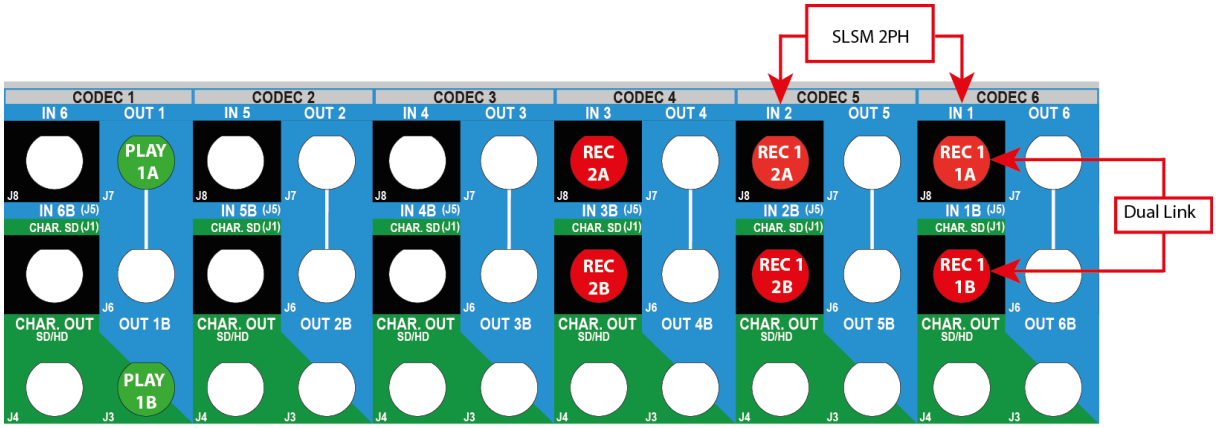
The tables below show the available 3D configurations with SLSM 2 Phase cameras on a XT3 6U server. They show the channel assignment at the level of the codec module of a V3X board. This is valid whatever the type of cable connected to the rear panel (Dual Link or 3G).

			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
#REC SLSM 2x	#REC	#PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
1	0	0									REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	1	0							REC 2A	REC 2B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	2	0					REC 3A	REC 3B	REC 2A	REC 2B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	3	0			REC 4A	REC 4B	REC 3A	REC 3B	REC 2A	REC 2B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	4	0	REC 5A	REC 5B	REC 4A	REC 4B	REC 3A	REC 3B	REC 2A	REC 2B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	0	1	PLAY 1A	PLAY 1B							REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	0	2	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B					REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	0	3	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B	PLAY 3A	PLAY 3B			REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	0	4	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B	PLAY 3A	PLAY 3B	PLAY 4A	PLAY 4B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	1	1	PLAY 1A	PLAY 1B					REC 2A	REC 2B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	1	2	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B			REC 2A	REC 2B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	1	3	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B	PLAY 3A	PLAY 3B	REC 2A	REC 2B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	2	1	PLAY 1A	PLAY 1B			REC 3A	REC 3B	REC 2A	REC 2B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	2	2	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B	REC 3A	REC 3B	REC 2A	REC 2B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	3	1	PLAY 1A	PLAY 1B	REC 4A	REC 4B	REC 3A	REC 3B	REC 2A	REC 2B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
2	0	0					REC 2,2A	REC 2,2B	REC 2,1A	REC 2,1B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B

			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
#REC SLSM 2x	#REC	#PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
2	1	0			REC 3A	REC 3B	REC 2,2A	REC 2,2B	REC 2,1A	REC 2,1B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
2	2	0	REC 4A	REC 4B	REC 3A	REC 3B	REC 2,2A	REC 2,2B	REC 2,1A	REC 2,1B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
2	0	1	PLAY 1A	PLAY 1B			REC 2,2A	REC 2,2B	REC 2,1A	REC 2,1B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
2	0	2	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B	REC 2,2A	REC 2,2B	REC 2,1A	REC 2,1B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
2	1	1	PLAY 1A	PLAY 1B	REC 3A	REC 3B	REC 2,2A	REC 2,2B	REC 2,1A	REC 2,1B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
3	0	0	REC 3,2A	REC 3,2B	REC 3,1A	REC 3,1B	REC 2,2A	REC 2,2B	REC 2,1A	REC 2,1B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B

Example in 3D Dual Link (1SLSM 2x + 1REC+ 1PLAY)

The BNC connectors to be used as record and play channels in a 3D Dual Link configuration 1SLSM 2PH + 1REC + 1 PLAY need to be cabled as shown below:



Note
In an equivalent configuration with a 3G interface, only the J8 connectors are cabled. However the primary and secondary channels on the codec module of the V3X board are both used.

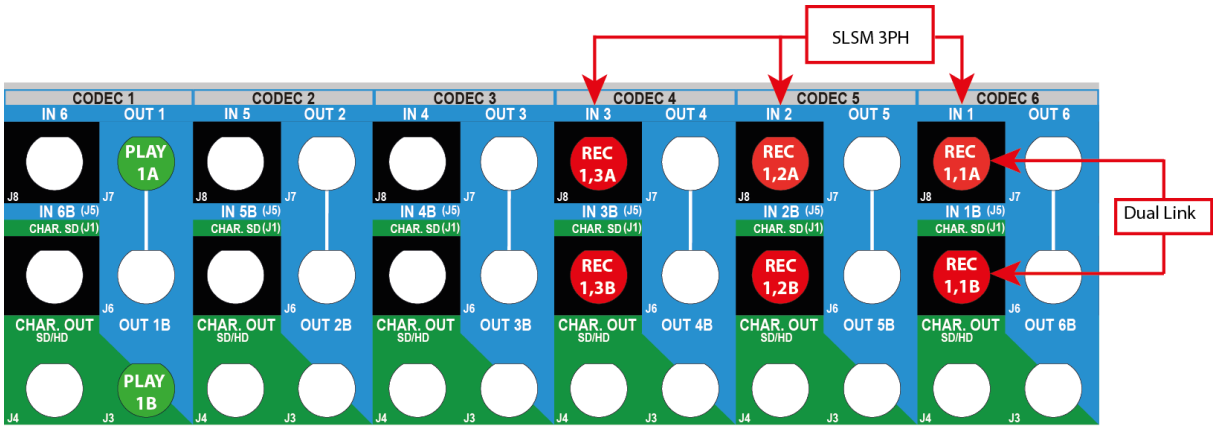
SLSM 3x Configurations

The tables below show the available 3D configurations with SLSM 3 Phase cameras on a XT3 6U server. They show the channel assignment at the level of the codec module of a V3X board. This is valid whatever the type of cable connected to the rear panel (Dual Link or 3G).

			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
#REC SLSM 3x	# REC	# PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
1	0	0							REC 1,3A	REC 1,3B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	1	0					REC 2A	REC 2B	REC 1,3A	REC 1,3B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	2	0			REC 3A	REC 3B	REC 2A	REC 2B	REC 1,3A	REC 1,3B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	3	0	REC 4A	REC 4B	REC 3A	REC 3B	REC 2A	REC 2B	REC 1,3A	REC 1,3B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	0	1	PLAY 1A	PLAY 1B					REC 1,3A	REC 1,3B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	0	2	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B			REC 1,3A	REC 1,3B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	0	3	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B	PLAY 3A	PLAY 3B	REC 1,3A	REC 1,3B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	1	1	PLAY 1A	PLAY 1B			REC 2A	REC 2B	REC 1,3A	REC 1,3B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	1	2	PLAY 1A	PLAY 1B	PLAY 2A	PLAY 2B	REC 2A	REC 2B	REC 1,3A	REC 1,3B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
1	2	1	PLAY 1A	PLAY 1B	REC 3A	REC 3B	REC 2A	REC 2B	REC 1,3A	REC 1,3B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B
2	0	0	REC 2,3A	REC 2,3B	REC 2,2A	REC 2,2B	REC 2,1A	REC 2,1B	REC 1,3A	REC 1,3B	REC 1,2A	REC 1,2B	REC 1,1A	REC 1,1B

Example in 3D Dual Link (1SLSM 3x + 1PLAY)

The BNC connectors to be used as record and play channels in a 3D Dual Link configuration 1SLSM 3PH + 1 PLAY need to be cabled as shown below:



Note
In an equivalent configuration with a 3G interface, only the J8 connectors are cabled. However the primary and secondary channels on the codec module of the V3X board are both used.

3.5. 1080p Configurations

3.5.1. General Information on 1080p Configurations

Introduction

Since an XT3 server running Multicam 14.00 (or higher) is at least fitted with an H3X and V3X boards, the EVS video server working in 1080p encodes or decodes natively the full 1080p video in a single file 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 21 or 22 is activated on the EVS server.
- The **3G/Dual** parameter is set to a proper value.

  See section "Base Settings" on page 182.

Limitations

Codec Limitations

1080p can only be used with Intra and Proxy codecs.

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

1080p cannot be used with LongGOP codecs.

Configuration Limitations

1080p does not support the Mix on one channel feature.

1080p configurations with **more than 6 channels** are only available with the following general limitations:

- in DNxHD codec;
- with a max. bitrate of 242 Mbps in 50Hz (PAL) and 260 Mbps in 60 Hz (NTSC) in **XRec** configurations.
- with a max. bitrate of 200 Mbps in 50Hz (PAL) and 60 Hz (NTSC) in **ChannelMax** configurations.

Stricter bitrate limitations are recommended for specific SLSM configurations:

- max. bitrate of 200 Mbps in **XRec** configurations in SLSM 6x.
- max. bitrate of 180 Mbps in **ChannelMax** configurations in SLSM 8x.

1080p configurations with Dual-REC or Dual-Play (more than 6 phases on a XT3 6U server or more than 4 phases on a XT3 4U server), shall only be supported in 3G mode, not in Dual Link mode. This occurs with some 1080p extended configurations in SLSM.

Connectivity

On the rear panel, a 1080p feed is cabled with one of the following interfaces:

- Dual Link interface:

  Two cables, seen by the EVS server as one logical channel (record or play channel), are connected to both connectors of a codec module, for example IN1 and IN1B in REC. This interface is not supported with extended configurations.

- 3G interface:

  A single cable, corresponding to a logical channel, is connected to the primary connector of a codec module.

On the V3X board, a 1080p connection is connected as follows:

- On **4 or 6-channel** configurations, only the primary channel of the codec module (COD A) on the V3X board is used.

  The connection to the secondary channel is no longer necessary since the full 1080p video is included in a single file on the EVS server.

  In this case, the decoding/encoding capability of both channels of the V3X codec module is used without bandwidth restriction.

- On extended configurations, the secondary channel of the codec module (COD A) on the V3X board can be used as an independent recorder, with the above-mentioned codec and bandwidth limitations.

3.5.2. 1080p Standard Configurations (4U)

Available Configurations

The tables below show the 1080p configurations with standard cameras on an XT3 4U server. It shows how 3G cables need to be plugged in onto the rear panel.

See section "Connectivity" on page 115 for more details about connectivity on the rear panel and to the codec module of the V3X board.

#REC	#PLAY	IN4/OUT1		IN3/OUT2		IN2/OUT3		IN1/OUT4	
		Prim. Chan.	Sec. Chan.	Prim. Chan.	Sec. Chan.	Prim. Chan.	Sec. Chan.	Prim. Chan.	Sec. Chan.
4-Channel Mode									
1	0							REC1	

#REC	#PLAY	IN4/OUT1		IN3/OUT2		IN2/OUT3		IN1/OUT4	
		Prim. Chan.	Sec. Chan.	Prim. Chan.	Sec. Chan.	Prim. Chan.	Sec. Chan.	Prim. Chan.	Sec. Chan.
2	0					REC2		REC1	
3	0			REC3		REC2		REC1	
4	0	REC4		REC3		REC2		REC1	
1	1	PLAY1						REC1	
1	2	PLAY1		PLAY2				REC1	
1	3	PLAY1		PLAY2		PLAY3		REC1	
2	1	PLAY1				REC2		REC1	
2	2	PLAY1		PLAY2		REC2		REC1	
3	1	PLAY1		REC3		REC2		REC1	
0	1	PLAY1							
0	2	PLAY1		PLAY2					
0	3	PLAY1		PLAY2		PLAY3			
0	4	PLAY1		PLAY2		PLAY3		PLAY4	
NEW ! **ChannelMax Mode**									
2	3	PLAY1		PLAY2		PLAY3		REC1	REC2
2	4	PLAY1	PLAY3	PLAY2	PLAY4	REC2		REC1	
3	3	PLAY1	PLAY3	PLAY2		REC2		REC1	REC3
4	2	PLAY1		PLAY2		REC2	REC4	REC1	REC3
4	4	PLAY1	PLAY3	PLAY2	PLAY4	REC2	REC4	REC1	REC3
5	1	PLAY1		REC3		REC2	REC5	REC1	REC4
6	0			REC3	REC6	REC2	REC5	REC1	REC4
0	6	PLAY1	PLAY5	PLAY2	PLAY6	PLAY3		PLAY4	
6	2	PLAY1	PLAY2	REC3	REC5	REC2	REC5	REC1	REC4
8	0	REC4	REC8	REC3	REC7	REC2	REC6	REC1	REC5

NEW !

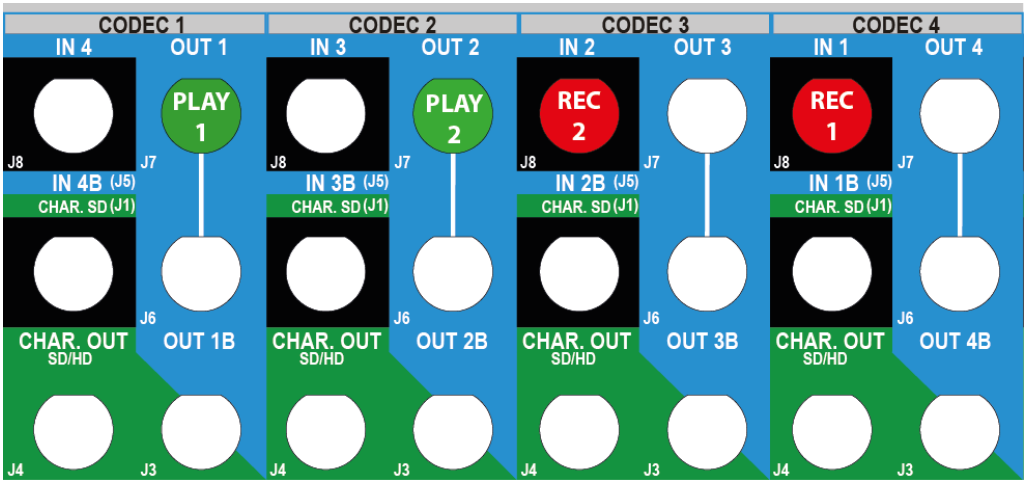
Note

On Dual Play configurations in ChannelMax mode (two independent play channels assigned to both links of a codec module), the standard mix feature, via the PGM/PRV mode, is only available on the 1st link of the codec module 1 in the 6 IN - 2 OUT configuration.

Example in 1080p 3G in 4-Channel Mode (2REC + 2PLAY)

The BNC connectors to be used as recorder and play channels in a 1080p 3G configuration 2REC + 2PLAY need to be cabled as shown below.

In 1080p in 4-channel mode, only the primary channel of a codec module on the V3X board is used, but the full capability of both channels of the V3X codec is used.



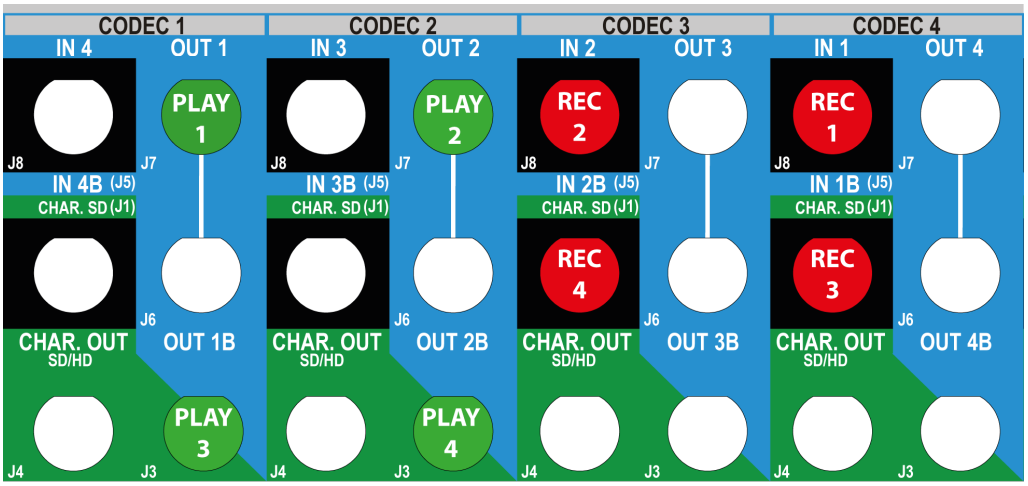
Note
In an equivalent configuration with a Dual Link connection interface, both primary and secondary connectors on the rear panel are cabled. However, only the primary channel on the codec module of the V3X board is used in full 1080p configurations.

NEW !

Example in 1080p 3G in ChannelMax Mode (4REC + 4PLAY)

The BNC connectors to be used as recorder and play channels in a 1080p 3G configuration 4REC + 4PLAY need to be cabled as shown below.

In 1080p in XRec or ChannelMax modes, both primary and secondary channels of a codec module may be used independently with bandwidth restrictions. See the section "Limitations" on page 114.



3.5.3. 1080p Standard Configurations (6U)

Available Configurations

The tables below show the available 1080p configurations with standard cameras on a XT3 6U server. It shows how 3G cables need to be plugged in onto the rear panel.

See section "Connectivity" on page 115 for more details about connectivity on the rear panel and to the codec module of the V3X board.

#REC	#PLAY	IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
		Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
6-channel mode													
1	0											REC 1	
2	0									REC 2		REC 1	
3	0							REC 3		REC 2		REC 1	
4	0					REC 4		REC 3		REC2		REC 1	
5	0			REC 5		REC 4		REC 3		REC 2		REC 1	
6	0	REC 6		REC 5		REC 4		REC 3		REC 2		REC 1	

#REC	#PLAY	IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
		Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
1	1	PLAY 1										REC 1	
1	2	PLAY 1		PLAY 2								REC 1	
1	3	PLAY 1		PLAY 2		PLAY 3						REC 1	
1	4	PLAY 1		PLAY 2		PLAY 3		PLAY 4				REC 1	
1	5	PLAY 1		PLAY 2		PLAY 3		PLAY 4		PLAY 5		REC 1	
2	1	PLAY 1								REC 2		REC 1	
2	2	PLAY 1		PLAY 2						REC 2		REC 1	
2	3	PLAY 1		PLAY 2		PLAY 3				REC 2		REC 1	
2	4	PLAY 1		PLAY 2		PLAY 3		PLAY 4		REC 2		REC 1	
3	1	PLAY 1						REC 3		REC 2		REC 1	
3	2	PLAY 1		PLAY 2				REC 3		REC 2		REC 1	
3	3	PLAY 1		PLAY 2		PLAY 3		REC 3		REC 2		REC 1	
4	1	PLAY 1				REC 4		REC 3		REC 2		REC 1	
4	2	PLAY 1		PLAY 2		REC 4		REC 3		REC 2		REC 1	
5	1	PLAY 1		REC 5		REC 4		REC 3		REC 2		REC 1	
0	1	PLAY 1											
0	2	PLAY 1		PLAY 2									
0	3	PLAY 1		PLAY 2		PLAY 3							
0	4	PLAY 1		PLAY 2		PLAY 3		PLAY 4					
0	5	PLAY 1		PLAY 2		PLAY 3		PLAY 4		PLAY 5			
0	6	PLAY 1		PLAY 2		PLAY 3		PLAY 4		PLAY 5		PLAY 6	

XRec mode

#REC	#PLAY	IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
		Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
4	4	PLAY 1		PLAY 2		PLAY 3		PLAY 4		REC 2	REC 4	REC 1	REC 3
5	3	PLAY 1		PLAY 2		PLAY 3		REC 3		REC 2	REC 5	REC 1	REC 4
6	2	PLAY 1		PLAY 2		REC 4		REC 3		REC 2	REC 6	REC 1	REC 5
8	0	REC 6		REC 5		REC 4		REC 3		REC 2	REC 8	REC 1	REC 7
ChannelMax mode													
6	6	PLAY 1	PLAY 4	PLAY 2	PLAY 5	PLAY 3	PLAY 6	REC 3	REC 6	REC 2	REC 5	REC 1	REC 4
8	4	PLAY 1	PLAY 3	PLAY 2	PLAY 4	REC 4	REC 8	REC 3	REC 7	REC 2	REC 6	REC 1	REC 5
10	2	PLAY 1	PLAY 2	REC 5	REC 10	REC 4	REC 9	REC 3	REC 8	REC 2	REC 7	REC 1	REC 6

NEW !

NEW !

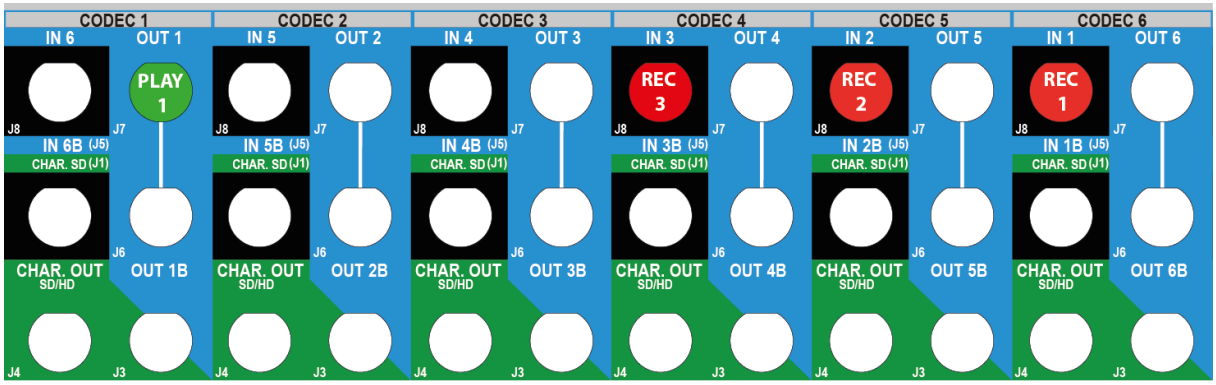
Note

On Dual Play configurations in ChannelMax mode (two independent play channels assigned to both links of a codec module), the standard mix feature, via the PGM/PRV mode, is only available on the 1st link of the codec module 1 in the 10 IN - 2 OUT configuration.

Example in 1080p 3G in 6-Channel Mode (3REC + 1PLAY)

The BNC connectors to be used as recorder and play channels in a 1080p 3G configuration 3REC + 1PLAY need to be cabled as shown below.

In 1080p in 6-channel mode, only the primary channel of a codec module on the V3X board is used, but the full capability of both channels of the V3X codec is used.

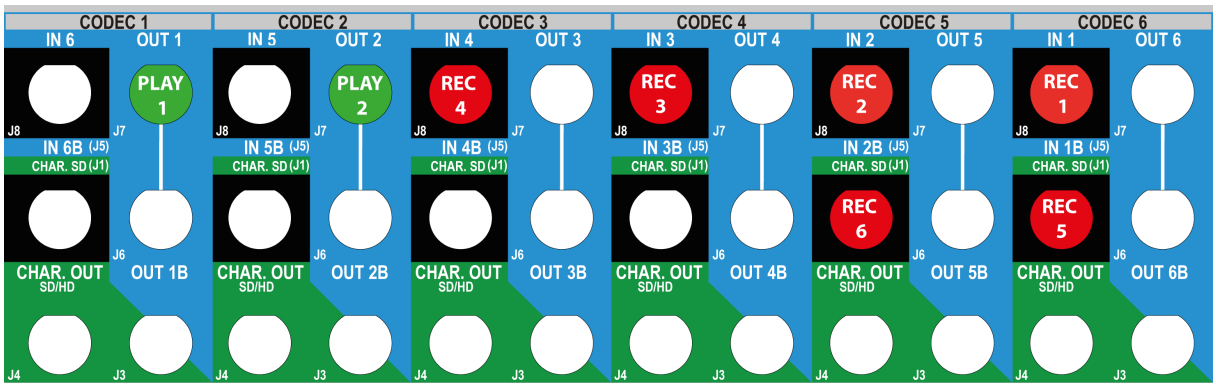


Note
In an equivalent configuration with a Dual Link connection interface, both primary and secondary connectors on the rear panel are cabled. However, only the primary channel on the codec module of the V3X board is used in full 1080p configurations.

Example in 1080p 3G in XRec Mode (6REC + 2PLAY)

The BNC connectors to be used as recorder and play channels in a 1080p 3G configuration 6REC + 2PLAY need to be cabled as shown below.

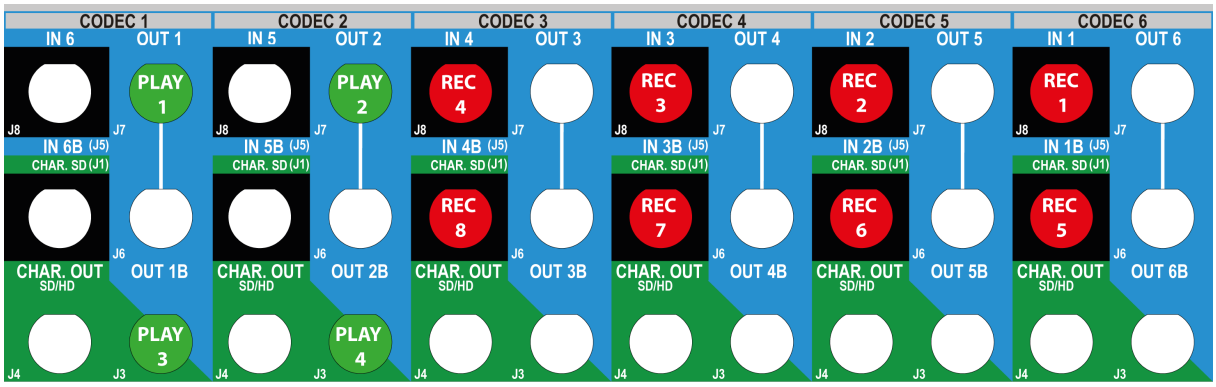
In 1080p in XRec or ChannelMax modes, both primary and secondary channels of a codec module may be used independently with bandwidth restrictions. See the section "Limitations" on page 114.



NEW ! Example in 1080p 3G in ChannelMax Mode (8REC + 4PLAY)

The BNC connectors to be used as recorder and play channels in a 1080p 3G configuration 8REC + 4PLAY need to be cabled as shown below.

In 1080p in XRec or ChannelMax modes, both primary and secondary channels of a codec module may be used independently with bandwidth restrictions. See the section "Limitations" on page 114.



3.5.4. Channel Assignment Principles with 1080p SLSM

The combination of 1080p standards and SLSM configurations associates the following individual rules for connector assignments on the rear panel:

- For **1080p** in **Dual Link**, the first cable arrives into the primary connector of a codec module, and the second cable arrives into the secondary connector of the same codec module.
- For **1080p** in **3G (single link)**, the single cable arrives into the primary connector of the codec module.

  Whatever the type of connection to the rear panel, only the primary channel of the corresponding codec module on the V3X board is used in 1080p in 4-channel configuration for 4U servers, or 6-channel configurations for 6U servers. However the decoding/encoding capability of both channels of the V3X codec module is used.
- For the SLSM 2 Phase configurations, one SLSM recorder accounts for one logical channel, but corresponds to two physical channels.
- For the SLSM 3 Phase configurations, one SLSM recorder accounts for one logical channel, but corresponds to three physical channels.
- For the SLSM 4, 6 or 8 Phase configurations, one SLSM recorder accounts for one logical channel, but corresponds respectively to four, six or eight physical channels.

See all bitrate data with SLSM configurations in the section "Bitrates for SLSM Configurations in HD 1080p" on page 175.

3.5.5. 1080p SLSM Configurations (4U)

SLSM 2x Configurations

The table below shows the available 1080p configurations with SLSM 2 Phase cameras on a XT3 4U server. It shows how 3G cables need to be plugged in onto the rear panel.

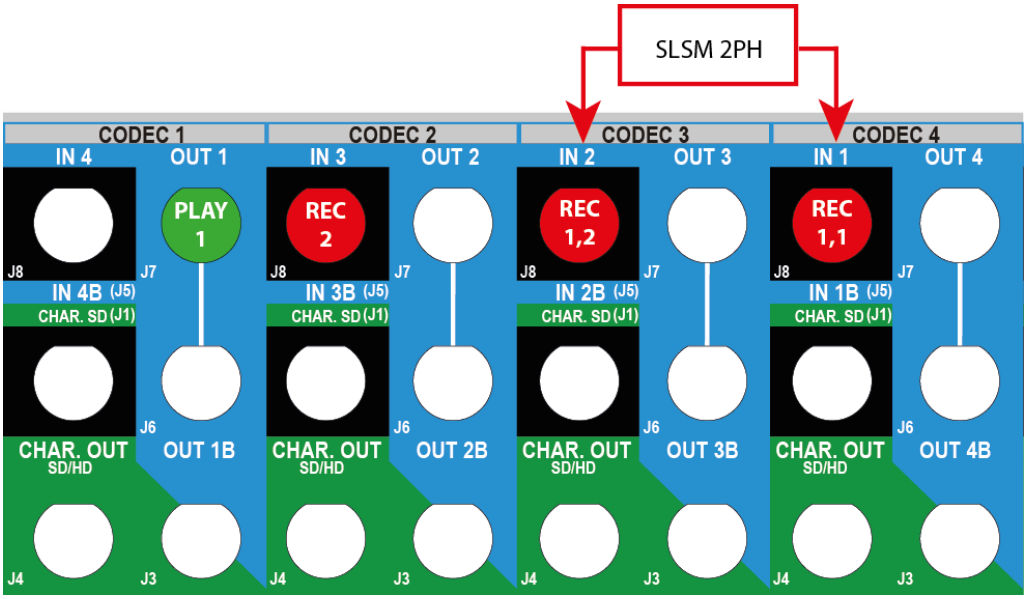
See section "Connectivity" on page 115 for more details about connectivity on the rear panel and to the codec module of the V3X board.

			IN4/OUT1		IN3/OUT2		IN2/OUT3		IN1/OUT4	
#REC SLSM 2x	#REC	#PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
4-Channel Mode										
1	0	0					REC 1,2		REC 1,1	
1	1	0			REC 2		REC 1,2		REC 1,1	
1	2	0	REC 3		REC 2		REC 1,2		REC 1,1	
1	0	1	PLAY 1				REC 1,2		REC 1,1	
1	0	2	PLAY 1		PLAY 2		REC 1,2		REC 1,1	
1	1	1	PLAY 1		REC 2		REC 1,2		REC 1,1	
2	0	0	REC 2,2		REC 2,1		REC 1,2		REC 1,1	
NEW ! **ChannelMax Mode**										
1	2	4	PLAY 1	PLAY 3	PLAY 2	PLAY 4	REC 1,2	REC 3	REC 1,1	REC 2
1	4	2	PLAY 1	PLAY 2	REC 2	REC 5	REC 1,2	REC 4	REC 1,1	REC 3
2	0	4	PLAY 1	PLAY 3	PLAY 2	PLAY 4	REC 1,2	REC 2,2	REC 1,1	REC 2,1
2	2	2	PLAY 1	PLAY 2	REC 2,1	REC 4	REC 1,2	REC 3	REC 1,1	REC 2,2
3	0	2	PLAY 1	PLAY 2	REC 2,1	REC 3,2	REC 1,2	REC 3,1	REC 1,1	REC 2,2

Example in 1080p 3G in 4-Channel Mode (1SLSM 2x + 1REC+ 1PLAY)

The BNC connectors to be used as record and play channels in a 1080p 3G configuration 1SLSM 2PH + 1REC + 1 PLAY need to be cabled as shown below.

In 1080p in 4-channel mode, only the primary channel of a codec module on the V3X board is used, but the full capability of both channels of the V3X codec is used.



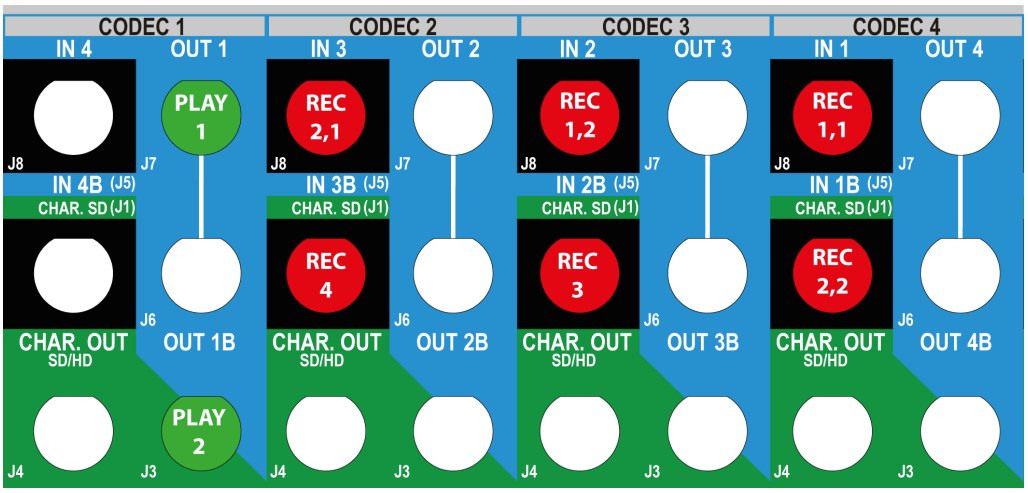
Note
In an equivalent configuration with a Dual Link connection interface, both primary and secondary connectors on the rear panel are cabled. However, only the primary channel on the codec module of the V3X board is used in full 1080p configurations.

NEW !

Example in 1080p 3G in ChannelMax Mode (2SLSM 2x + 2REC+ 2PLAY)

The BNC connectors to be used as record and play channels in a 1080p 3G configuration 2SLSM 2PH + 2 REC + 2 PLAY need to be cabled as shown below.

In 1080p in XRec or ChannelMax modes, both primary and secondary channels of a codec module may be used independently with bandwidth restrictions. See the section "Limitations" on page 114.



SLSM 3x Configurations

The tables below show the available 1080p configurations with SLSM 3 Phase cameras on a XT3 4U server. It shows how 3G cables need to be plugged in onto the rear panel.

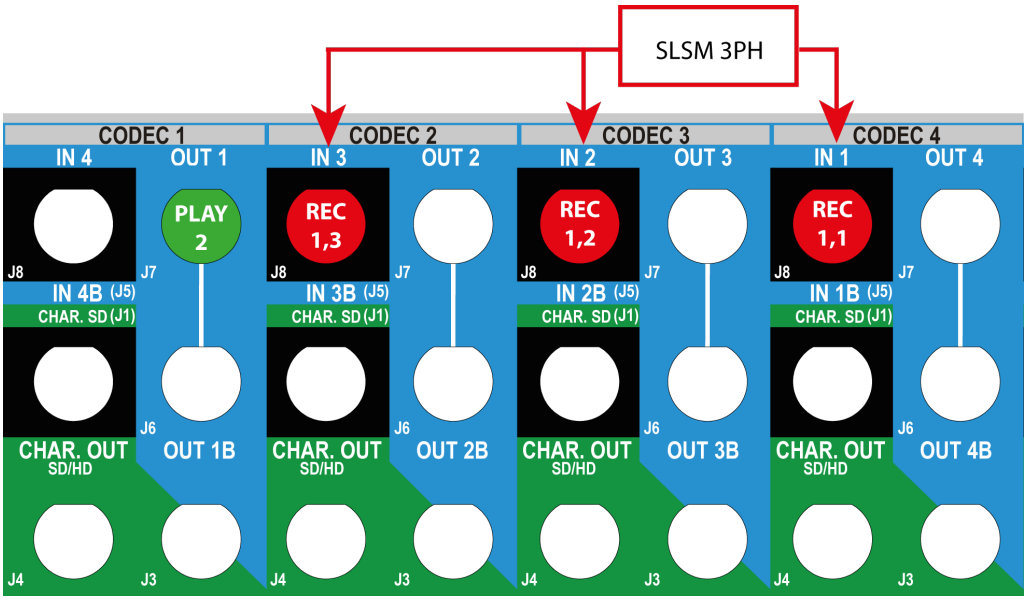
See section "Connectivity" on page 115 for more details about connectivity on the rear panel and to the codec module of the V3X board.

			IN4/OUT1		IN3/OUT2		IN2/OUT3		IN1/OUT4	
#REC SLSM 3x	**#REC**	**#PLAY**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**
4-Channel Mode										
1	0	0			REC 1,3		REC 1,2		REC 1,1	
1	1	0	REC 2		REC 1,3		REC 1,2		REC 1,1	
1	0	1	PLAY 1		REC 1,3		REC 1,2		REC 1,1	
NEW ! **ChannelMax Mode**										
1	1	4	PLAY 1	PLAY 3	PLAY 2	PLAY 4	REC 1,2	REC 2	REC 1,1	REC 1,3
1	3	2	PLAY 1	PLAY 2	REC 1,3	REC 4	REC 1,2	REC 3	REC 1,1	REC 2
2	0	2	PLAY 1	PLAY 2	REC 1,3	REC 2,3	REC 1,2	REC 2,2	REC 1,1	REC 2,1

Example in 1080p 3G in 4-Channel Mode (1SLSM 3x + 1PLAY)

The BNC connectors to be used as record and play channels in a 1080p 3G configuration 1SLSM 3PH + 1PLAY need to be cabled as shown below.

In 1080p in 4-channel mode, only the primary channel of a codec module on the V3X board is used, but the full capability of both channels of the V3X codec is used.



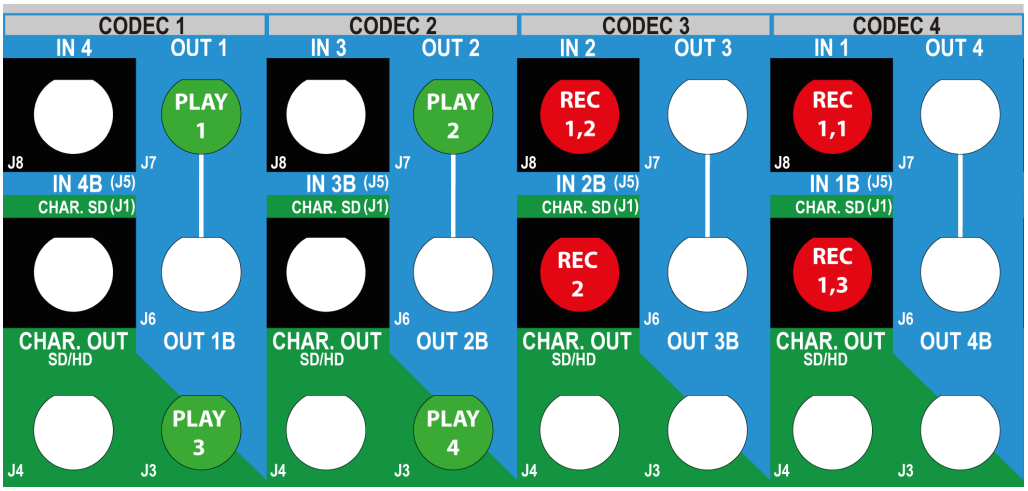
Note
In an equivalent configuration with a Dual Link connection interface, both primary and secondary connectors on the rear panel are cabled. However, only the primary channel on the codec module of the V3X board is used in full 1080p configurations.

NEW !

Example in 1080p 3G in ChannelMax Mode (1SLSM 3x + 1REC+ 4PLAY)

The BNC connectors to be used as record and play channels in a 1080p 3G configuration 1 SLSM 3PH + 1 REC + 4 PLAY need to be cabled as shown below.

In 1080p in XRec or ChannelMax modes, both primary and secondary channels of a codec module may be used independently with bandwidth restrictions. See the section "Limitations" on page 114.



SLSM 4x Configurations in 1080p

The tables below show the available 1080p configurations with SLSM 4 Phase cameras on a XT3 4U server. It shows how 3G cables need to be plugged in onto the rear panel.

See section "Connectivity" on page 115 for more details about connectivity on the rear panel and to the codec module of the V3X board.

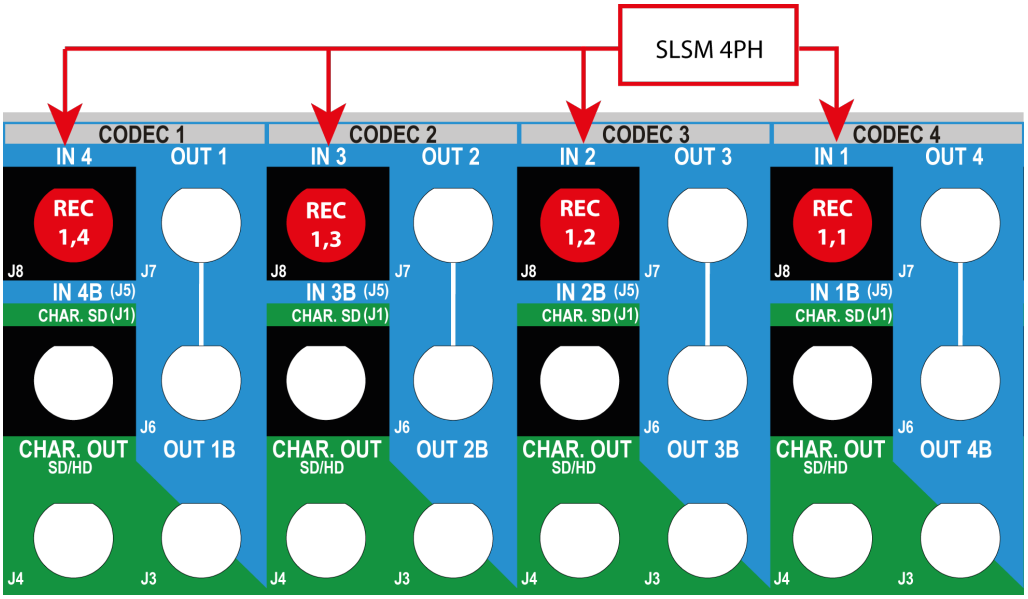
			IN4/OUT1		IN3/OUT2		IN2/OUT3		IN1/OUT4	
#REC SLSM 4x	**#REC**	**#PLAY**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**
4-Channel Mode										
1	0	0	REC 1,4		REC 1,3		REC 1,2		REC 1,1	
ChannelMax Mode										
1	2	2	PLAY 1	PLAY 2	REC 1,3	REC 3	REC 1,2	REC 2	REC 1,1	REC 1,4

NEW !

Example in 1080p 3G in 4-Channel Mode (1SLSM 4x)

The BNC connectors to be used as record and play channels in a 1080p 3G configuration 1SLSM 4PH need to be cabled as shown below.

In 1080p in 4-channel mode, only the primary channel of a codec module on the V3X board is used, but the full capability of both channels of the V3X codec is used.

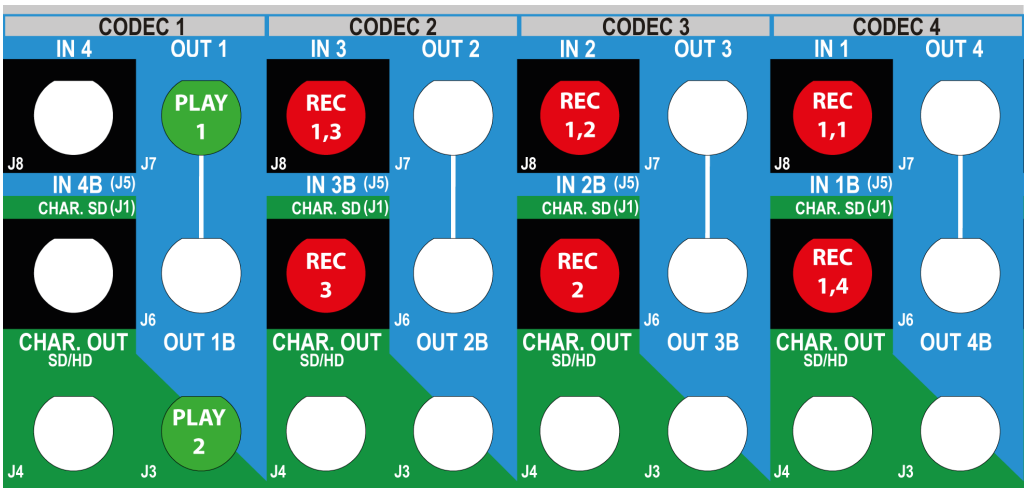


Note
In an equivalent configuration with a Dual Link connection interface, both primary and secondary connectors on the rear panel are cabled. However, only the primary channel on the codec module of the V3X board is used in full 1080p configurations.

Example in 1080p 3G in ChannelMax Mode (1SLSM 4x + 2 REC + 2 PLAY)

The BNC connectors to be used as record and play channels in a 1080p 3G configuration 1 SLSM 4PH + 2 REC + 2 PLAY need to be cabled as shown below.

In 1080p in XRec or ChannelMax modes, both primary and secondary channels of a codec module may be used independently with bandwidth restrictions. See the section "Limitations" on page 114.



SLSM 6x Configurations in 1080p

The tables below show the available 1080p configurations with SLSM 6 Phase cameras on a XT3 4U server. It shows how 3G cables need to be plugged in onto the rear panel.

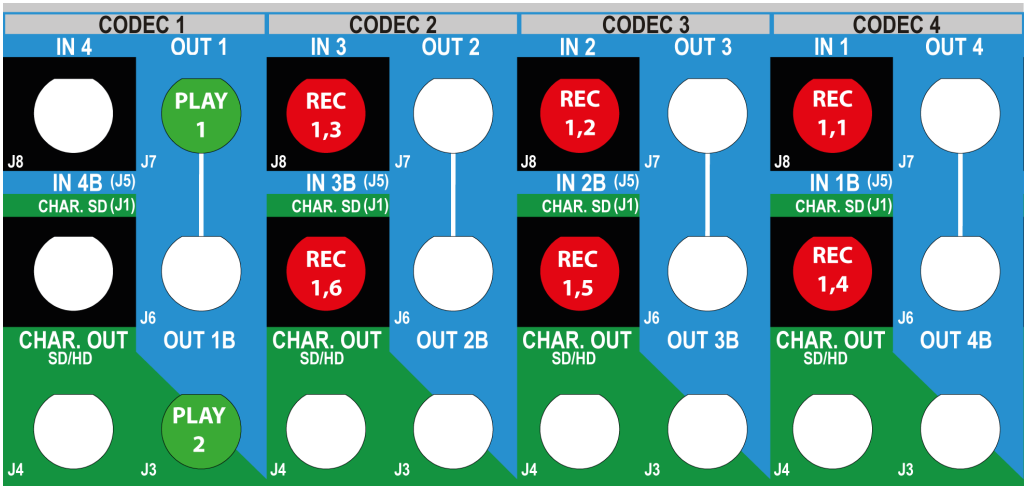
See section "Connectivity" on page 115 for more details about connectivity on the rear panel and to the codec module of the V3X board.

			IN4/OUT1		IN3/OUT2		IN2/OUT3		IN1/OUT4	
#REC SLSM 6x	**#REC**	**#PLAY**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**
NEW ! **ChannelMax Mode**										
1	0	2	PLAY 1	PLAY 2	REC 1,3	REC 1,6	REC 1,2	REC 1,5	REC 1,1	REC 1,4

Example in 1080p 3G in ChannelMax Mode (1SLSM 6x + 2 PLAY)

The BNC connectors to be used as record and play channels in a 1080p 3G configuration 1 SLSM 6PH + 2 PLAY need to be cabled as shown below.

In 1080p in XRec or ChannelMax modes, both primary and secondary channels of a codec module may be used independently with bandwidth restrictions. See the section "Limitations" on page 114.



3.5.6. 1080p SLSM Configurations (6U)

SLSM 2x Configurations

The table below shows the available 1080p configurations in 6-channel mode with SLSM 2 Phase cameras on a XT3 6U server. It shows how 3G cables need to be plugged in onto the rear panel.

See section "Connectivity" on page 115 for more details about connectivity on the rear panel and to the codec module of the V3X board.

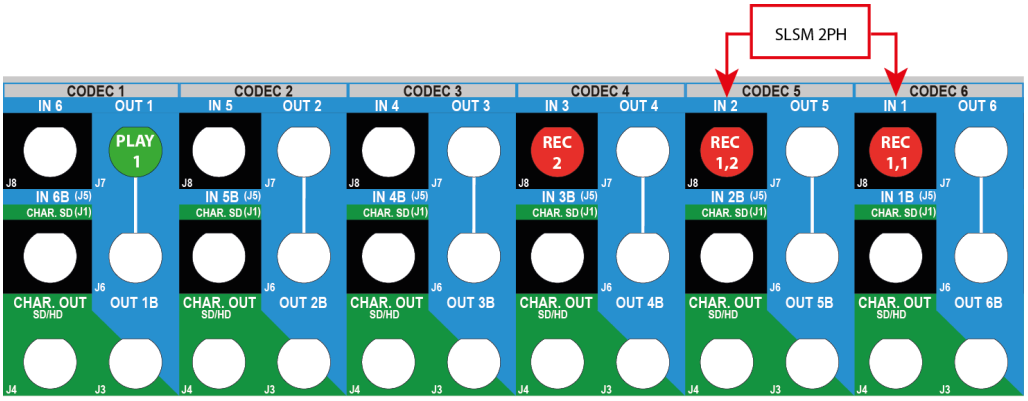
			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
#REC SLSM 2x	**#REC**	**#PLAY**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**
6-channel mode														
1	0	0									REC 1,2		REC 1,1	
1	1	0							REC 2		REC 1,2		REC 1,1	
1	2	0					REC 3		REC 2		REC 1,2		REC 1,1	

			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
#REC SLSM 2x	#REC	#PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
1	3	0			REC 4		REC 3		REC 2		REC 1,2		REC 1,1	
1	4	0	REC 5		REC 4		REC 3		REC 2		REC 1,2		REC 1,1	
1	0	1	PLAY 1								REC 1,2		REC 1,1	
1	0	2	PLAY 1		PLAY 2						REC 1,2		REC 1,1	
1	0	3	PLAY 1		PLAY 2		PLAY 3				REC 1,2		REC 1,1	
1	0	4	PLAY 1		PLAY 2		PLAY 3		PLAY 4		REC 1,2		REC 1,1	
1	1	1	PLAY 1						REC 2		REC 1,2		REC 1,1	
1	1	2	PLAY 1		PLAY 2				REC 2		REC 1,2		REC 1,1	
1	1	3	PLAY 1		PLAY 2		PLAY 3		REC 2		REC 1,2		REC 1,1	
1	2	1	PLAY 1				REC 3		REC 2		REC 1,2		REC 1,1	
1	2	2	PLAY 1		PLAY 2		REC 3		REC 2		REC 1,2		REC 1,1	
1	3	1	PLAY 1		REC 4		REC 3		REC 2		REC 1,2		REC 1,1	
2	0	0					REC 2,2		REC 2,1		REC 1,2		REC 1,1	
2	1	0			REC 3		REC 2,2		REC 2,1		REC 1,2		REC 1,1	
2	2	0	REC 4		REC 3		REC 2,2		REC 2,1		REC 1,2		REC 1,1	
2	0	1	PLAY 1				REC 2,2		REC 2,1		REC 1,2		REC 1,1	
2	0	2	PLAY 1		PLAY 2		REC 2,2		REC 2,1		REC 1,2		REC 1,1	
2	1	1	PLAY 1		REC 3		REC 2,2		REC 2,1		REC 1,2		REC 1,1	
3	0	0	REC 3,2		REC 3,1		REC 2,2		REC 2,1		REC 1,2		REC 1,1	

Example in 1080p 3G (1SLSM 2x + 1REC+ 1PLAY)

The BNC connectors to be used as record and play channels in a 1080p 3G configuration 1SLSM 2PH + 1REC + 1 PLAY need to be cabled as shown below.

In 1080p in 6-channel mode, only the primary channel of a codec module on the V3X board is used, but the full capability of both channels of the V3X codec is used.



Note
In an equivalent configuration with a Dual Link connection interface, both primary and secondary connectors on the rear panel are cabled. However, only the primary channel on the codec module of the V3X board is used in full 1080p configurations.

SLSM 3x Configurations

The table below shows the available 1080p configurations in 6 channel-mode with SLSM 3 Phase cameras on a XT3 6U server. It shows how 3G cables need to be plugged in onto the rear panel.

See section "Connectivity" on page 115 for more details about connectivity on the rear panel and to the codec module of the V3X board.

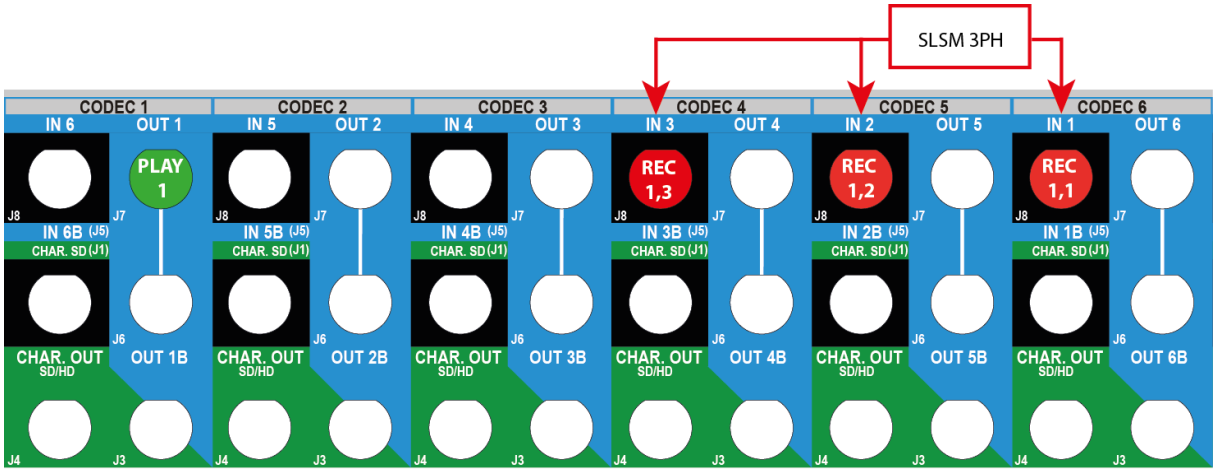
			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
# REC SLSM 3x	# REC	# PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
6-channel mode														
1	0	0							REC 1,3		REC 1,2		REC 1,1	
1	1	0					REC 2		REC 1,3		REC 1,2		REC 1,1	
1	2	0			REC 3		REC 2		REC 1,3		REC 1,2		REC 1,1	
1	3	0	REC 4		REC 3		REC 2		REC 1,3		REC 1,2		REC 1,1	

			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
# REC SLSM 3x	# REC	# PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
1	0	1	PLAY 1						REC 1,3		REC 1,2		REC 1,1	
1	0	2	PLAY 1		PLAY 2				REC 1,3		REC 1,2		REC 1,1	
1	0	3	PLAY 1		PLAY 2		PLAY 3		REC 1,3		REC 1,2		REC 1,1	
1	1	1	PLAY 1				REC 2		REC 1,3		REC 1,2		REC 1,1	
1	1	2	PLAY 1		PLAY 2		REC 2		REC 1,3		REC 1,2		REC 1,1	
1	2	1	PLAY 1		REC 3		REC 2		REC 1,3		REC 1,2		REC 1,1	
2	0	0	REC 2,3		REC 2,2		REC 2,1		REC 1,3		REC 1,2		REC 1,1	
XRec mode														
2	0	2	PLAY 1		PLAY 2		REC 2,1		REC 1,3		REC 1,2	REC 2,3	REC 1,1	REC 2,2

Example in 1080p 3G in 6-Channel Mode (1SLSM 3x + 1PLAY)

The BNC connectors to be used as record and play channels in a 1080p 3G configuration 1SLSM 3PH + 1 PLAY need to be cabled as shown below.

In 1080p in 6-channel mode, only the primary channel of a codec module on the V3X board is used, but the full capability of both channels of the V3X codec is used.

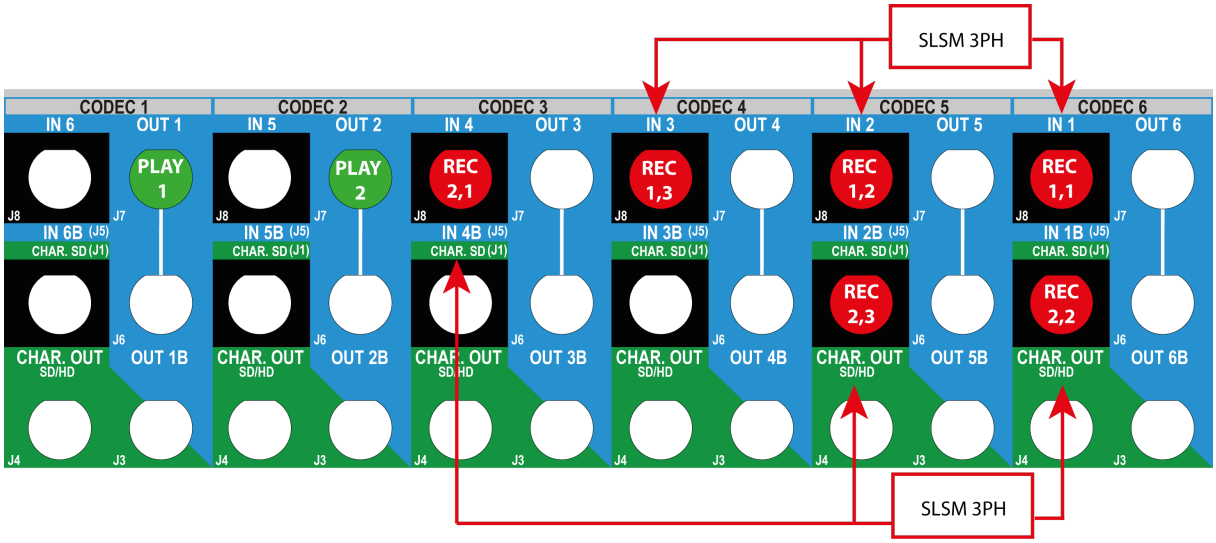


Note
In an equivalent configuration with a Dual Link connection interface, both primary and secondary connectors on the rear panel are cabled. However, only the primary channel on the codec module of the V3X board is used in full 1080p configurations.

Example in 1080p 3G in XRec Mode (2SLSM 3x + 2PLAY)

The BNC connectors to be used as record and play channels in a 1080p 3G configuration 2SLSM 3PH + 2PLAY need to be cabled as shown below.

In 1080p in XRec or ChannelMax modes, both primary and secondary channels of a codec module may be used independently with bandwidth restrictions. See the section "Limitations" on page 114.



SLSM 4x Configurations

The table below shows the available 1080p configurations in 6-channel mode with SLSM 4 Phase cameras on a XT3 6U server. It shows how 3G cables need to be plugged in onto the rear panel.

See section "Connectivity" on page 115 for more details about connectivity on the rear panel and to the codec module of the V3X board.

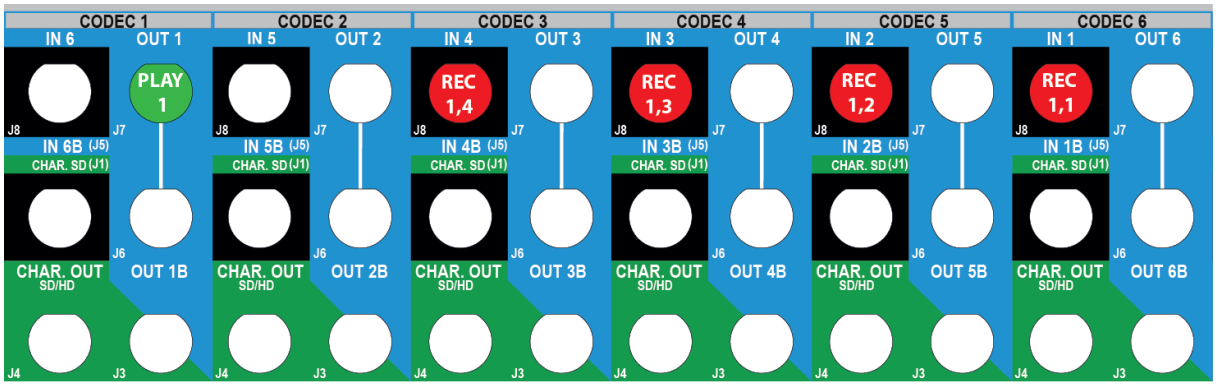
			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
# REC SLSM 4x	# REC	# PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
6-channel mode														
1	0	0					REC 1,4		REC 1,3		REC 1,2		REC 1,1	
1	1	0			REC 2		REC 1,4		REC 1,3		REC 1,2		REC 1,1	
1	2	0	REC 3		REC 2		REC 1,4		REC 1,3		REC 1,2		REC 1,1	
1	0	1	PLAY 1				REC 1,4		REC 1,3		REC 1,2		REC 1,1	

			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
# REC SLSM 4x	# REC	# PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
1	0	2	PLAY 1		PLAY 2		REC 1,4		REC 1,3		REC 1,2		REC 1,1	
1	1	1	PLAY 1		REC 2		REC 1,4		REC 1,3		REC 1,2		REC 1,1	
XRec mode														
1	2	2	PLAY 1		PLAY 2		REC 1,4		REC 1,3		REC 1,2	REC 3	REC 1,1	REC 2
ChannelMax mode														
2	0	2	PLAY 1		PLAY 2		REC 1,4	REC 2,4	REC 1,3	REC 2,3	REC 1,2	REC 2,2	REC 1,1	REC 2,1

Example in 1080p 3G in 6-Channel Mode (1SLSM 4x + 1PLAY)

The BNC connectors to be used as record and play channels in a 1080p 3G configuration 1SLSM 4PH + 1 PLAY need to be cabled as shown below.

In 1080p in 6-channel mode, only the primary channel of a codec module on the V3X board is used, but the full capability of both channels of the V3X codec is used.

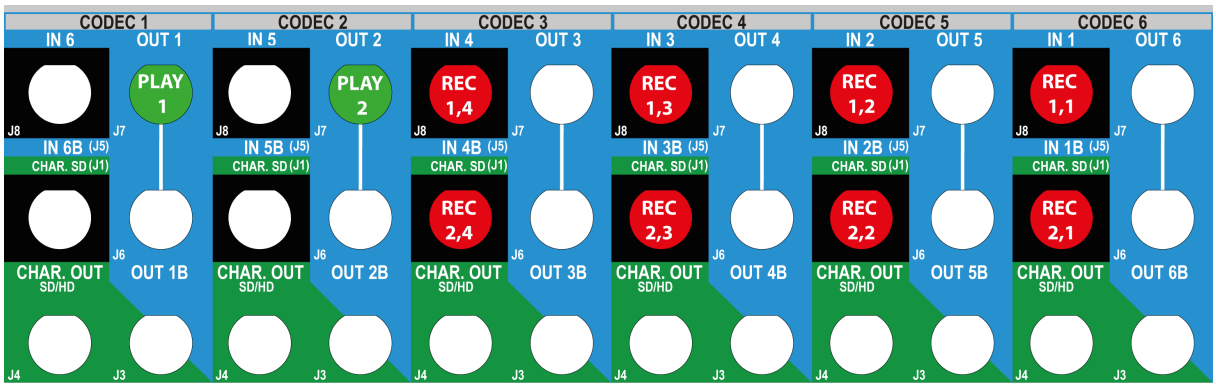


Note
In an equivalent configuration with a Dual Link connection interface, both primary and secondary connectors on the rear panel are cabled. However, only the primary channel on the codec module of the V3X board is used in full 1080p configurations.

Example in 1080p 3G in ChannelMax Mode (2SLSM 4x + 2PLAY)

The BNC connectors to be used as record and play channels in a 1080p 3G configuration 2SLSM 4PH + 2PLAY need to be cabled as shown below.

In 1080p in XRec or ChannelMax modes, both primary and secondary channels of a codec module may be used independently with bandwidth restrictions. See the section "Limitations" on page 114.



SLSM 6x Configurations

The table below shows the available 1080p configurations with SLSM 6 Phase cameras on a XT3 6U server. It shows how 3G cables need to be plugged in onto the rear panel.

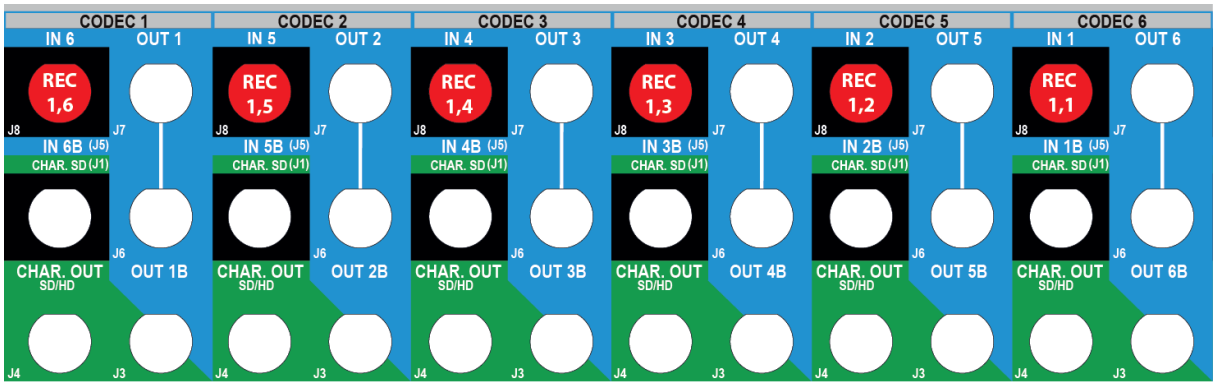
See section "Connectivity" on page 115 for more details about connectivity on the rear panel and to the codec module of the V3X board.

			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
#REC SLSM 6x	**# REC**	**# PLAY**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**	**Prim. Ch.**	**Sec. Ch.**
6-channel mode														
1	0	0	REC 1,6		REC 1,5		REC 1,4		REC 1,3		REC 1,2		REC 1,1	
XRec mode														
1	0	1	PLAY 1		REC 1,5		REC 1,4		REC 1,3		REC 1,2		REC 1,1	REC 1,6
ChannelMax mode														
1	1	2	PLAY 1		PLAY 2		REC 1,4		REC 1,3	REC 2	REC 1,2	REC 1,6	REC 1,1	REC 1,5
1	2	2	PLAY 1		PLAY 2		REC 1,4	REC 3	REC 1,3	REC 2	REC 1,2	REC 1,6	REC 1,1	REC 1,5

Example in 6-Channel Mode in 1080p 3G (1SLSM 6x)

The BNC connectors to be used as record and play channels in a 1080p 3G configuration 1SLSM 6PH need to be cabled as shown below.

In 1080p in 6-channel mode, only the primary channel of a codec module on the V3X board is used, but the full capability of both channels of the V3X codec is used.

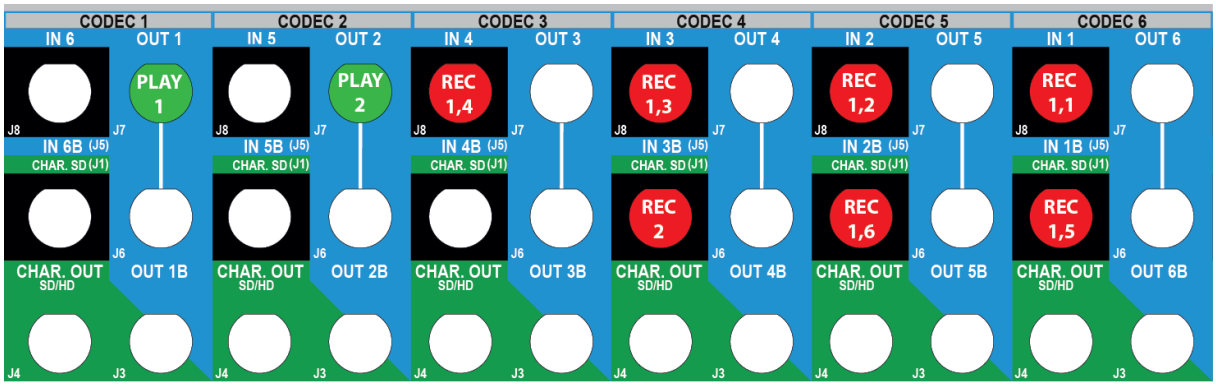


Note
In an equivalent configuration with a Dual Link connection interface, both primary and secondary connectors on the rear panel are cabled. However, only the primary channel on the codec module of the V3X board is used in full 1080p configurations.

Example in ChannelMax Mode in 1080p 3G (1SLSM 6x + 1REC + 2PLAY)

The BNC connectors to be used as record and play channels in a 1080p 3G configuration 1SLSM 6PH need to be cabled as shown below.

In 1080p in XRec or ChannelMax modes, both primary and secondary channels of a codec module may be used independently with bandwidth restrictions. See the section "Limitations" on page 114.



SLSM 8x Configurations

The table below shows the available 1080p configurations with SLSM 8 Phase cameras on a XT3 6U server. It shows how 3G cables need to be plugged in onto the rear panel.

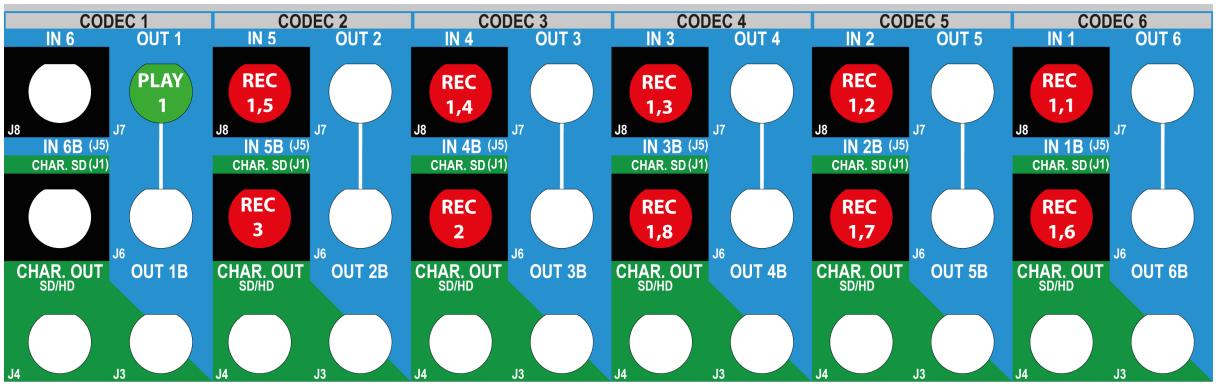
See section "Connectivity" on page 115 for more details about connectivity on the rear panel and to the codec module of the V3X board.

			IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
# REC SLSM 6x	# REC	# PLAY	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
ChannelMax mode														
1	0	1	PLAY 1		REC 1,5		REC 1,4		REC 1,3	REC 1,8	REC 1,2	REC 1,7	REC 1,1	REC 1,6
1	2	1	PLAY 1		REC 1,5	REC 3	REC 1,4	REC 2	REC 1,3	REC 1,8	REC 1,2	REC 1,7	REC 1,1	REC 1,6

Example in ChannelMax Mode in 1080p 3G (1SLSM 8x + 2REC + 1PLAY)

The BNC connectors to be used as record and play channels in a 1080p 3G configuration 1SLSM 8PH need to be cabled as shown below.

In 1080p in XRec or ChannelMax modes, both primary and secondary channels of a codec module may be used independently with bandwidth restrictions. See the section "Limitations" on page 114.



3.6. UHD-4K Configurations

3.6.1. 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 when the following hardware requirements are met:

- The XT3 server is fitted at least with H3X and V3X boards.
- The V3X boards have V3X modules with a serial number ≥ 1300.
- The V3X base is a A4 revision, with a serial number ≥ 4130.
- The EVS server is equipped with SAS HDD disks, with revision 10K.5.

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

- The license code 27 is granted on the EVS server, .
- The **Resolution** parameter is set to **UHDTV-4K**.

  See section "Video and Reference Settings" on page 159.
- The **Intra Codec** parameter is set to **DNxHD** (forced value).

  See section "Codec Settings" on page 163.
- The **3G/Dual** parameter is set to a 3G value.

  The **No** value is automatically excluded.

  See section "Base Settings" on page 182.

Limitations

Codec Limitations

- UHD-4K can only be used with the DNxHD Intra codecs.
- UHD-4K cannot be used with LongGOP or Proxy codecs.

Configuration Limitations

- UHD-4K does not support 3D configurations.
- UHD-4K supports the Mix on one channel feature with limitations.
- UHD-4K Configurations with **2 channels** are available with a max. bitrate of 242 Mbps in 50Hz (PAL) and 260 Mbps in 60 Hz (NTSC).
- UHD-4K Configurations with **3 channels** are available with a max. bitrate of 200 Mbps in 50Hz (PAL) and 60 Hz (NTSC).

Audio Limitations

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

Operational Limitations

The following features are NOT available with UHD-4K:

- EditRec
- Offside Line (internal or external)
- CAM Mapping
- Internal Loop mode
- Replace External Loop
- Split Screen feature
- Paint Target feature

Assignment Principles

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

Each 1080p frame of an UHD-4K image is called an image quadrant. Each image quadrant is assigned to its corresponding 3G-SDI link in the following sequence:

1 = TL Top Left	2 = TR Top Right
3 = BL Bottom Left	4 = BR Bottom Right

3.6.2. UHD-4K Configurations (4U)

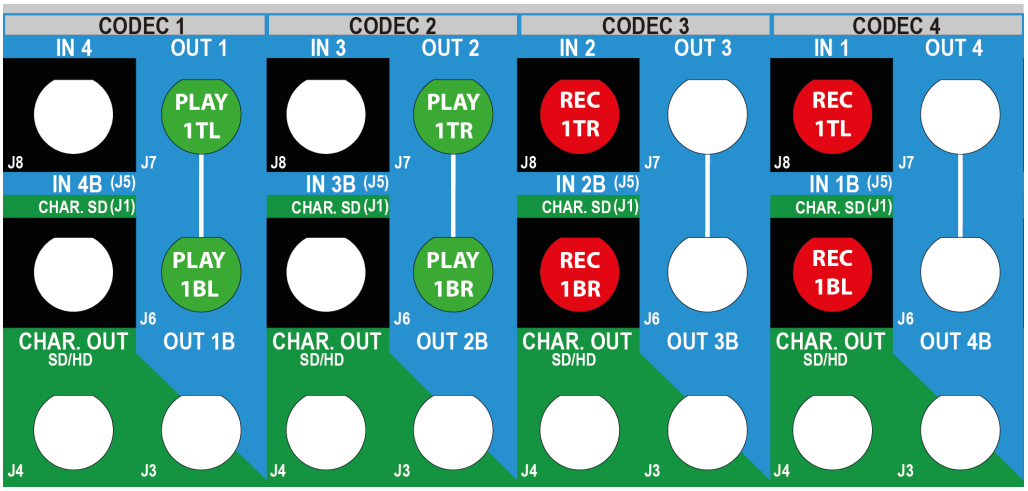
Available Configurations

The tables below show the available 4K configurations on a XT3 4U server. They show the channel assignment at the level of the codec module of a V3X board:

#REC	#PLAY	IN4/OUT1		IN3/OUT2		IN2/OUT3		IN1/OUT4	
		Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
2	0	REC 1BR	REC 2BR	REC 1BL	REC 2BL	REC 1TR	REC 2TR	REC 1TL	REC 2TL
1	1	PLAY 1TL	PLAY 1BL	PLAY 1TR	PLAY 1BR	REC 1TR	REC 1BR	REC 1TL	REC 1BL
0	2	PLAY 1TL	PLAY 2TL	PLAY1TR	PLAY 2TR	PLAY 1BL	PLAY 2BL	PLAY 1BR	PLAY 2BR

Example in UHD-4K (1REC + 1PLAY)

The BNC connectors to be used as recorder and play channels in an UHD-4K configuration 1REC + 1PLAY need to be cabled as shown below:



3.6.3. UHD-4K Configurations (6U)

Available Configurations

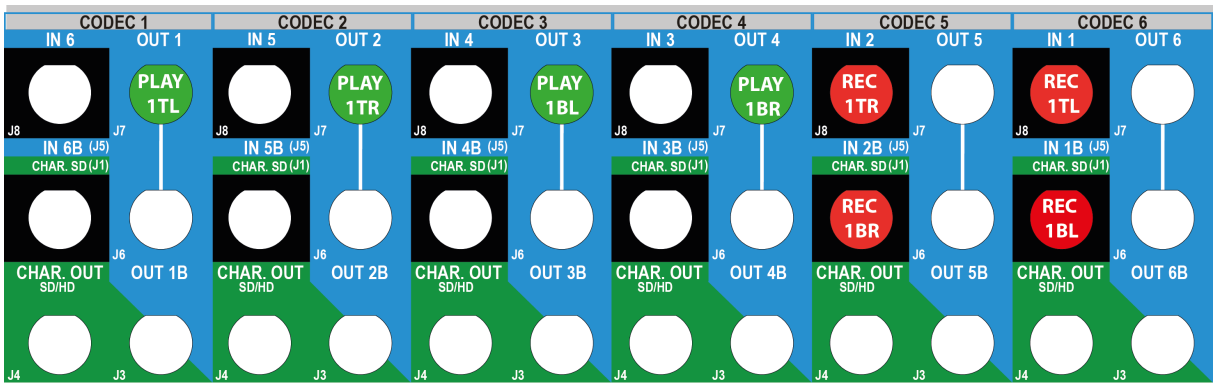
Warning
Mix on one channel is only supported in the 1REC + 1PLAY configuration since the secondary link of the PGM is only available in this configuration.
The standard mix feature in PGM+PRV mode is supported in the 1REC + 2PLAY configuration.

The tables below show the available 4K configurations on a XT3 6U server. They show the channel assignment at the level of the codec module of a V3X board:

#REC	#PLAY	IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
		Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
1	1	PLAY 1TL	MIX 1TL	PLAY 1TR	MIX 1TR	PLAY 1BL	MIX 1BL	PLAY 1BR	MIX 1BR	REC 1TR	REC 1BR	REC 1TL	REC 1BL
1	2	PLAY 1TL	PLAY 2TL	PLAY 1TR	PLAY 2TR	PLAY 1BL	PLAY 2BL	PLAY 1BR	PLAY 2BR	REC 1TR	REC 1BR	REC 1TL	REC 1BL
2	0	PLAY 2TR		PLAY 2TL		REC 1BR		REC 1BL		REC 1TR	REC 2BR	REC 1TL	REC 2BL
2	1	PLAY 1TL	PLAY 1BL	PLAY 1TR	PLAY 1BR	REC 1BR	REC 2BR	REC 1BL	REC 2BL	REC 1TR	REC 2TR	REC 1TL	REC 2TL
3	0	REC 2TR	REC 3BR	REC 2TL	REC 3BL	REC 1BR	REC 3TR	REC 1BL	REC 3TL	REC 1TR	REC 2BR	REC 1TL	REC 2BL
0	2	PLAY 1TL	PLAY 2BL	PLAY 1TR	PLAY 2BR	PLAY 1BL		PLAY 1BR		PLAY 2TL		PLAY 2TR	
0	3	PLAY 1TL	PLAY 2BL	PLAY 1TR	PLAY 2BR	PLAY 1BL	PLAY 3TL	PLAY 1BR	PLAY 3TR	PLAY 2TL	PLAY 3BL	PLAY 2TR	PLAY 3BR

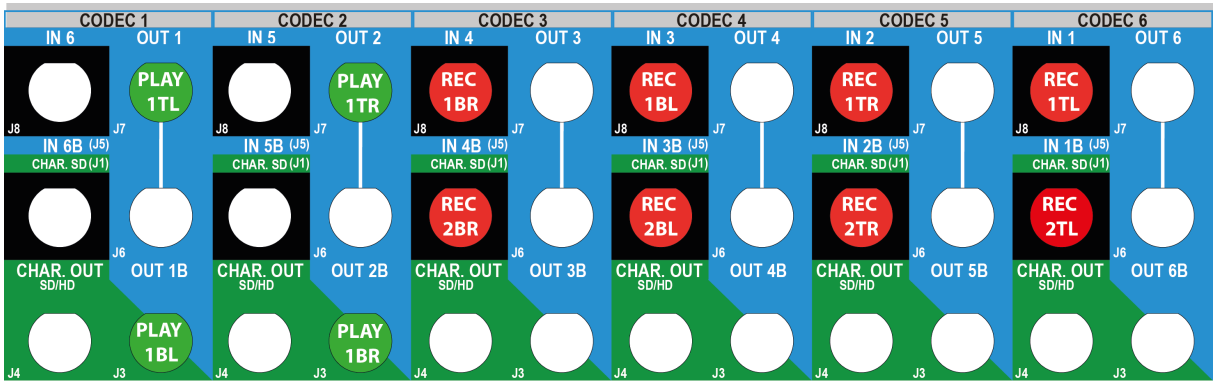
Example in UHD-4K (1REC + 1PLAY)

The BNC connectors to be used as recorder and play channels in an UHD-4K configuration 1REC + 1PLAY need to be cabled as shown below:



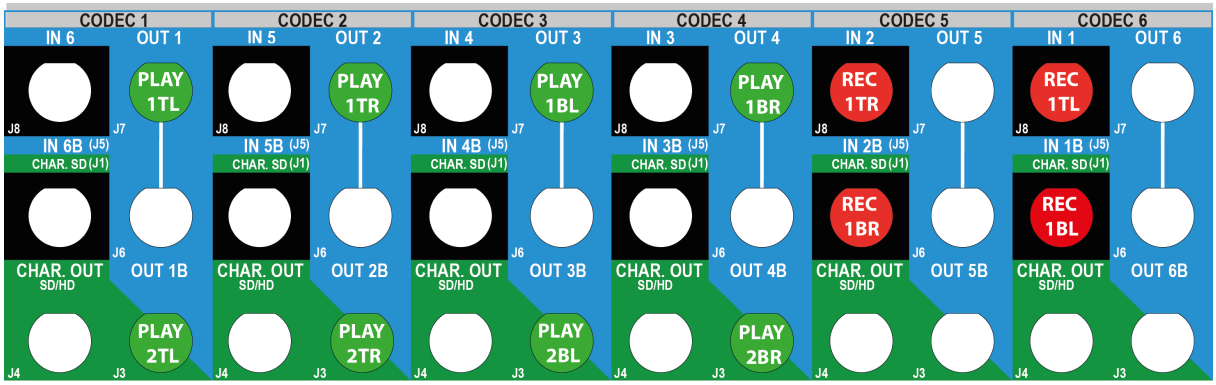
Example in UHD-4K (2REC + 1PLAY)

The BNC connectors to be used as recorder and play channels in a UHD-4K configuration 2REC + 1PLAY need to be cabled as shown below:



Example in UHD-4K (1REC + 2PLAY)

The BNC connectors to be used as recorder and play channels in an UHD-4K configuration 1REC + 2PLAY need to be cabled as shown below:



3.6.4. UHD-4K SLSM Configurations (6U)

SLSM Principles

This section details the available multi-phase SLSM configurations on XT3 servers.

In SLSM configurations, a supermotion recorder of a two-phase camera accounts for one logical channel, but corresponds to two physical channels.

In UHD-4K SLSM configurations, a supermotion recorder of a two-phase camera corresponds to one logical channel, and is cabled on the primary link of a codec module. It however uses both primary and secondary links of that codec module on the V3X board.

About Tables and Examples

The tables in this section show the available SLSM configurations with an XT3 6U server:

- The table shows the connector assignment at the level of the V3X when there is a difference between the connection to the rear panel and to the V3X board. In all cases, this is specified in the introduction.
- The examples show how the BNC connectors should be cabled for a selected configuration.

XT3 6U Servers

Available Configurations

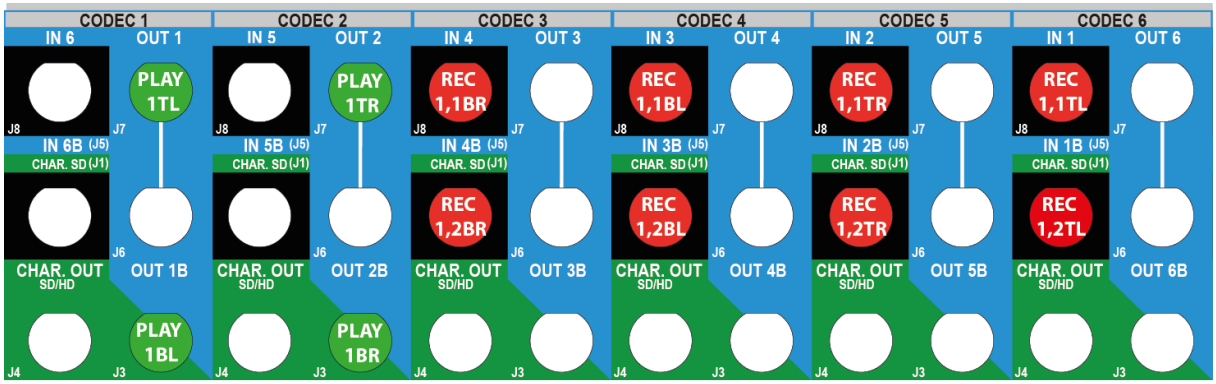
The table below shows the available 4K SLSM 2 Phase configurations with an XT3 4U server.

A separate physical connector is used for each phase. The table shows how the BNC connectors should be assigned on the rear panel. This corresponds to the channel assignment at the level of the codec module of the V3X board:

#REC SLSM 2x	#REC	#PLAY	IN6/OUT1		IN5/OUT2		IN4/OUT3		IN3/OUT4		IN2/OUT5		IN1/OUT6	
			Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.	Prim. Ch.	Sec. Ch.
1	0	1	PLAY 1TL	PLAY 1BL	PLAY 1TR	PLAY 1BR	REC 1,1BR	REC 1,2BR	REC 1,1BL	REC 1,2BL	REC 1,1TR	REC 1,2TR	REC 1,1TL	REC 1,2TL

Example in UHD-4K SLSM (2PH + 1PLAY)

The BNC connectors to be used as recorder and play channels in a UHD-4K SLSM 2PH configuration + 1PLAY need to be cabled as shown below:



4. Multicam Configuration

4.1. Overview on User Interfaces

4.1.1. Introduction

Preliminary Remarks

Configuration as Initial Step

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

Configuration with Caution

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

Parameter Availability

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

General Comparison Between User Interfaces

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

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

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

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

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

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

Overview on Configuration Parameters

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

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

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

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

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

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

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

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

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

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

4.1.2. Overview of the Multicam Configuration Window

Introduction

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

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

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

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

- It consists of seven tabs.
- Each tab contains one or more pages in the server-based application.
- Each tab displays all settings on a single page in the web-based interface.
- The settings on page/tab are organized in field groups having a dedicated name.

Accessing the Multicam Configuration Window

In the Server-Based Application

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

1. Press the **UP ARROW** or **DOWN ARROW** key to respectively move up and down in the list of configuration lines until the requested line is highlighted.
2. Press **F8**.

   The Multicam Configuration window opens.

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

In the Web-Based Interface

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

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

Display Mode

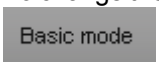
The settings in the Multicam Configuration window have been categorized as basic or advanced settings depending on whether they are commonly used or not.

Two display modes are consequently available:

- Basic mode
- Advanced mode

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

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

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

or 

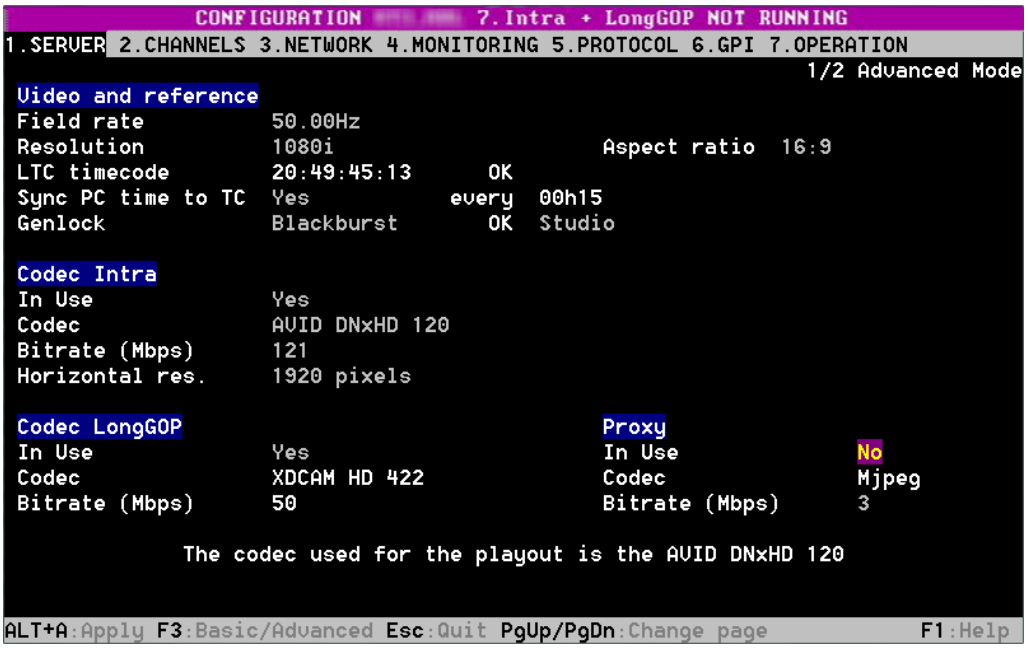
.

User Interfaces

Server-Based User Interface

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

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



Web-Based User Interface

The following screenshot presents the 1st tab of the Multicam Configuration window of an XT3 server in the web-based interface, shown in basic 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.


MULTICAM SOFTWARE
SUPPORT
CONFIGURATION
Configuration . 7. Intra + LongGOP Not running
Advanced mode
1. Server
2. Channels
3. Network
4. Monitoring
5. Protocols
6. GPI
7. Operation
Video and reference
Field rate: 50.00Hz
Resolution: 1080i
Aspect ratio: 16:9
LTC timecode: Valid
Sync PC time to TC: every 00h15
Genlock: Blackburst Valid Studio
Codec Intra
In Use:
Codec: AVID DNxHD 120
Bitrate (Mbps): 121
Horizontal res.: 1920 pixels
Codec Long GOP
In Use:
Codec: XDCAM HD 422
Bitrate (Mbps): 50
Proxy
In Use:
Codec: Mjpeg
Bitrate (Mbps): 3
The codec used for the playout is the AVID DNxHD 120
Phase definition
SD: 0 Half pixels (37ns ; -12000 -> 15000)
HD to SD SDI: 0 Half pixels (13.5ns ; -1000 -> 1000)
Interpolation
Vertical interp.:
Four lines:
PC LAN
IP address: 10 . 129 . 59 . 20
Subnet mask: 255 . 255 . 255 . 0
Default gateway: 10 . 129 . 59 . 1
Apply
Cancel
Quit
Mulsetup is running
Multicam 14.
EVS BROADCAST EQUIPMENT ALL RIGHTS RESERVED 2016

4.1.3. Navigating and Editing in the Multicam Configuration Window

In the Server-Based Application

Navigation Commands

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

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

Editing Commands

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

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

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

Enabling Values in a List

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

The enabled pages are highlighted in blue, and the disabled pages are not highlighted.

To enable a list of values for a given setting, proceed as follows:

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

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

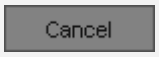
2. On the keyboard, type the digit (numbers/letter) you want to enable. They become highlighted in blue.

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

In the Web-Based Interface

Navigation and Editing Commands

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

Command description	Command key
Activating the Advanced display mode	
Coming back to the Basic display mode	
Applying changes	
Canceling changes	

In Server- and Web-Based Interfaces

Display and Checks of Modified Values

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

When you apply the changes, the following occurs:

- The values you have modified are checked. If setting values are inconsistent, you will get an error message at that stage.
- The validated values return to the standard color.
- The inconsistencies are displayed as follows:
  - Inconsistent values are displayed in red.
  - A warning message tells you which field value is problematic.
  - The page containing the inconsistent field value is then displayed when you use the server-based application.

4.1.4. Overview of the Setup Menus in the Remote Panel

Introduction

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

- the commonly used technical settings in the Technical Setup menu
- all operational settings in the Operational Setup menu.

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

Accessing the Technical Setup Menu

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

The Technical Setup menu opens on the 1st page.

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

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

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

Accessing the Operational Setup Menu

To access the Operational Setup menu, proceed as follows:

1. If you are in Playlist mode, press **RECORD** first to exit this mode.
2. Press **SHIFT** + **MENU** to go to the Main menu:

Split	Paint	Target	Setup
1PGM+PRV	2/3 PGM		

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

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

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

Introduction

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

Navigation Commands

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

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

Editing Commands

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

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

4.1.6. Required Application Reboot

Introduction

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

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

Tab Name	Setting Name
Server tab	Some video and reference settings: • Field rate • Resolution • LTC timecode
Server tab	All codec settings **Warning** When you change the codec essences active on the EVS server, you may be required to clear the video disks. See section "Clearing Video Disks" on page 43

Tab Name	Setting Name
Server tab	All PC LAN settings (only editable from the Multicam Setup window)
Channels tab	Some base settings: • Inputs • Outputs • Base config
Channels tab	One audio setting: • Number of tracks
Channels tab	One recorder setting: • SD Autosense • REC capacity
Network tab	All SDTI settings: • Speed • Net name • Net number • Type
Network tab	All Gigabit settings: • Gigabit connection • Gigabit IP configuration • Gigabit prioritization

4.2. Server Tab

4.2.1. Overview

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

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

- in the basic or advanced display mode in the server-based and web-based interfaces
- in the **Technical Setup** menu (T1.X) of the Remote Panel

Setting Name	Basic	Advanced	Technical Setup
Video and reference settings			
Field rate	X	X	–
Resolution	X	X	–
Aspect ratio	X	X	–
LTC Timecode	X	X	–
Sync PC Time to TC	–	X	–
Genlock	X	X	–
Codec Settings (Intra / LongGOP / Proxy)			
Codec	X	X	–
Bitrate	X	X	–
Horizontal Res./Recorded Lines	–	X	–
Phase definition settings			
SD	–	X	X
HD to SD SDI	–	X	X
Interpolation settings			
Vertical interp.	–	X	X
Four Lines	–	X	X
PC LAN settings			
IP Address	X	X	–
Subnet Mask	X	X	–
Default Gateway	X	X	–

4.2.2. Video Codecs and Reference

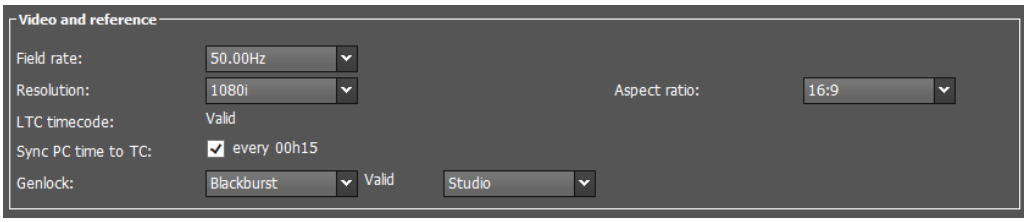
Video and Reference Settings

User Interface

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

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

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



Field Rate

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

Resolution

Description	Vertical resolution used (number of white-to-black and black-to-white transitions that can be seen from the top to the bottom of the picture) (pixel + type). Both field rate and resolution correspond to the video standard. With an XT3 server, SD and HD video standards can be available if the relevant license codes are activated.
Values	In SD: • 525i • 625i In HD: • 720p • 1080i • 1080p (only available with code 21 or 22) In UHD: • UHDTV-4K

Aspect ratio

Description	Specifies the aspect ratio of the content provided on the input video signal.
Values	The following values are available: In SD: • **16:9** • **4:3** • **4:3 Letterbox:** Black stripes are placed above and below the active video to compensate for the full width. • **16.9 Pillarbox:** Black stripes are placed left and right of the active video to fill in the missing pixels. In HD: • **16:9** • **16.9 Pillarbox**
Default value	16:9

LTC Timecode

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

Sync PC Time to TC

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

Genlock

Description	Specifies the type of genlock signal, the status and the frame synchronizer mode.
Values	**Type:** 'Blackburst' or 'Tri-Sync' (always 'Blackburst' in SD) **Status:** 'OK or Valid' or 'BAD' (defined by the EVS server) **Mode:** 'Studio' (no correction of a shifted video signal) or 'Resync' (resynchronization of a shifted video signal)

About Multi-Essence

Introduction

The XT3 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/or **LongGOP (XDCAM)** and/or **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 XT3 server in multi-essence.

Essence Combinations

The essences can be combined as follows:

- Intra + LongGOP
- Intra + Proxy
- LongGOP + Proxy
- Intra only
- LongGOP 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.
- When the Intra essence is in use on the server, this essence is played out. Otherwise, the LongGOP essence is played out.
- If the on-air essence is not available, a black clip is displayed.
- The Proxy essence is never played out.

Limitations

With LongGOP Codec

With SLSM configurations in multi-essence Intra + LongGOP, the following limitations prevail:

- the Intra codec records all phases
- the LongGOP codec records only the regular speed content (not SLSM) from phase 1.

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.

When the **Number of Tracks** parameter in the audio settings is set to 16 audio tracks with an SLSM configuration in XRec mode, only 8 audio channels are available in the Proxy essence. The 16 audio channels are however all available with SLSM configurations in a 6-channel mode.

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

Codec Settings

Introduction

The XT3 server can encode, at a time, a record train in one or two different codec types, which are called essences.

Possible Codec Sections

The codec settings are organized in three codec sections, which correspond to the essences you can activate on the XT3 server.

Only the codec sections corresponding to the essences available on the EVS server will be displayed. See section "Codec Availability" on page 166 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.
- **Codec LongGOP:** It is displayed when the LongGOP essence is available.
- **Proxy:** It is displayed when the Proxy essence is available. This essence is always used together with a Hi-Res Intra codec.

User Interface

The Codec settings are available on the Server tab in the server-based application (1st 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:

In Use

Description	Specifies, in each essence section, whether the given essence is encoded or not on the EVS server.
Values	• Yes • No
Default value	Yes in **Intra Codec** section No in **LongGOP** and **Proxy** sections

Codec (Codec Intra)

Description	Algorithm used to compress and decompress the video signal. With Intra codecs, the compression techniques are performed exclusiverly relative to information contained within the current frame.
Values	In SD: • Mjpeg (SD) • IMX • DVCPro 50 In HD: • Mjpeg EVS (HD) • Mjpeg Standard (HD) • Mpeg 2 Intra (HD) • Avid DNxHD 120, 185 or 185x (only in 50 Hz) • Avid DNxHD 145, 220 or 220x (only in 59.94 Hz) • Apple ProRes 422, 422 LT, 422 HQ • DVCPro HD • AVC-Intra 100 • XAVC-Intra 100 See section "Codec Availability" on page 166 for detailed information on codec availability.
Default values	• IMX in SD • Avid DNxHD 120 in HD 50Hz • Avid DNxHD 145 in HD 59.94 Hz

Note
When the EVs server is configured to work in AVC-Intra codec, the XAVC-Intra codec is also available in playout. The opposite is also applicable.

Codec (Codec LongGOP)

Description	Algorithm used to compress and decompress the video signal. With LongGOP codecs, the compression techniques are performed relative to information contained within the current frame, but also to information relative to other frames in the group of pictures (GOP).
Values	XDCAM HD 50

Proxy

Description	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.
Values	Mjpeg

Bitrate

Description	Number of megabits processed per second (Mbps). The bitrate depends on the codec.
Values	See section "Codec-Related Information" on page 168 for detailed information on bitrates per codec.

Horizontal Res. (HD)

Description	Number of white-to-black and black-to-white transitions that can be seen from the left to the right of the picture (pixels). The setting value depends on the selected video standard and on the codec.
Values	See section "Codec-Related Information" on page 168 for detailed information on horizontal resolution for each video standard and codec.

Recorded Lines (SD)

Description	Number of lines recorded from the top to the bottom of the picture. The setting value depends on the selected video standard and on the codec.
Values	See section "Codec-Related Information" on page 168 for detailed information on recorded lines 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 LongGOP or Proxy essence depends on additional hardware and software requirements detailed below.

Requirement Overview

Codec Intra

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

On an XT3 server, several license codes are available as standard codecs on the base server hardware.

Codec LongGOP

The **codec LongGOP** settings, and the XDCAM codec, are available in the following conditions:

- The server is fitted at least with an H3X board.
- The server is fitted with V3X base boards equipped with XDCAM modules.
- The license code for LongGOP (14) is granted on the server.
- The video standard is 720p or 1080i.
- The SLSM recorders are disabled in a LongGOP-only configuration.
- The base configuration is Server or Spotbox in a LongGOP-only configuration.

Codec Proxy

The **Proxy** settings, and the Mjpeg Proxy codec, are available in the following conditions:

- The server is fitted at least with an H3X board.
- The server is fitted with V3X modules.
- The license code for Proxy (32) is granted on the server.

License Codes

The following table presents the codec availability for an XT3 server depending on the license code.

The codecs corresponding to license codes 10 to 12 are installed by default on the XT3 server.

SD codecs	V3X Codec Board
IMX	code 11
Mjpeg (SD)	code 10
DVCPro 50	code 9
Mjpeg (Proxy codec)	code 32

HD codecs	V3X Codec Board
Mjpeg Standard (HD) Mjpeg EVS (HD)	code 10
Mpeg-2 Intra (HD)	code 12
Avid DNxHD®	code 5
Apple ProRes 422, 422 LT, 422 HQ	code 6
DVCPro HD	code 8
AVC-Intra XAVC-Intra HD	code 13
XDCAM (LongGOP codec)	code 14

Codec-Related Information

Bitrates and Recorded Lines in SD 525i

Codec Type	SD Mjpeg Standard	SD IMX (D10)	DVCPro 50
Bitrate	20-100 Mbps	30; 40; 50 Mbps	50 Mbps
Default bitrate	30 Mbps	30 Mbps	50 Mbps
Recorded video lines	496 lines (L16-23; L278-525) default	512 lines (L7-262; L270-525)	480 lines (L23-262; L285-524)
	480 lines (L23-262; L286-525)		
	512 lines (L7-262; L270-525)		

Bitrates and Recorded Lines in SD 625i

Codec Type	SD Mjpeg Standard	SD IMX (D10)	DVCPro 50
Bitrate	20-100 Mbps	30;40;50 Mbps	50 Mbps
Default bitrate	30 Mbps	30 Mbps	50 Mbps
Recorded video lines	576 lines (L23-310; L336-623) default	608 lines (L7-310; L320-623)	576 lines (L23-310; L335-622)
	592 lines (L15-310; L328-623)		
	608 lines (L7-310; L320-623)		

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

Codec	HD Mjpeg EVS	HD Mjpeg Standard	HD Mpeg-2 Intra	AVC-Intra 100 XAVC-Intra 100	DVCPro HD	XDCAM HD
Bitrate (Mbps)	20-320	20-320	20-260	111	100	50
Default bitrate	100	100	100	111	100	50
Horizontal Resolution	640	640	640	1280	960	1280
	768	768	768			
	960	960	960			
	1024	1024	1024			
	1280 (default)	1280 (default)	1280 (default)			

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

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

Codec	HD Mjpeg EVS	HD Mjpeg Standard	HD Mpeg-2 Intra	AVC-Intra 100 XAVC-Intra 100	DVCPro HD	XDCAM HD
Bitrate (Mbps)	20-260	20-260	20-260	111	100	50
Default bitrate	100	100	100	111	100	50
Horizontal Resolution	640	640	640	1280	960	1280
	768	768	768			
	960	960	960			
	1024	1024	1024			
	1280 (default)	1280 (default)	1280 (default)			

Codec	AVID DNxHD 145	AVID DNxHD 220	AVID DNxHD 220x (10b)	Apple ProRes 422 LT	Apple ProRes 422 SQ	Apple ProRes 422 HQ
Bitrate (Mbps)	1-145	146-220	146-220	102	145	220
Default bitrate	145	220	220	102	145	220
Horizontal Resolution	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.

Warning
Some video formats allowed on an XT3 server create clips that are not compatible with previous hardware revisions. When an incompatible format is selected, a warning will be issued at application startup. In addition, the video format information displayed on the Server tab of the Multicam Configuration window indicates any incompatible information.

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

Codec	HD Mjpeg EVS	HD Mjpeg Standard	HD Mpeg-2 Intra	AVC-Intra 100 XAVC-Intra 100	DVCPro HD	XDCAM HD
Bitrate (Mbps)	20-260	20-260	20-260	111	100	50
Default bitrate	100	100	100	111	100	50
Horizontal Resolution	960	960	960	1920	1440	1920
	1152	1152	1152			
	1280	1280	1280			
	1372	1372	1372			
	1440	1440	1440			
	1536	1536	1536			
	1600	1600	1600			
	1920 (default)	1920 (default)	1920 (default)			

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

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

Codec	HD Mjpeg EVS	HD Mjpeg Standard	HD Mpeg-2 Intra	AVC-Intra 100 XAVC-Intra 100	DVCPro HD	XDCAM HD
Bitrate (Mbps)	20-260	20-260	20-260	111	100	50
Default bitrate	100	100	100	111	100	50
Horizontal Resolution	960	960	960	1920	1280	1920
	1152	1152	1152			
	1280	1280	1280			
	1372	1372	1372			
	1440	1440	1440			
	1536	1536	1536			
	1600	1600	1600			
	1920 (default)	1920 (default)	1920 (default)			

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

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

The values in the tables below are valid with maximum six 1080p channels.

Specific limitations are applicable with configurations having more than six channels in 1080p. See section "Limitations" on page 114.

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 per quadrant. The total bitrate for one channel therefore corresponds to four times the values specified in this table.

Field rate	50 Hz	59.94 Hz
Codec	**AVID DNxHD**	**AVID DNxHD**
Bitrate (Mbps)	100-242 (x4)	100-260 (x4)
Default bitrate	242 (x4)	260 (x4)
Horizontal Resolution	3840	3840

Bitrates for SLSM Configurations in HD 720p/1080i

The following table presents the available codecs in HD 720p/1080i and the corresponding maximum bitrates (Mbps) per SLSM phase for SLSM 4x, 6x, 8x and 10x configurations.

The total record bitrate is the configured bitrate multiplied by the number of phases.

The values in the tables below are valid with maximum 12 physical channels in SLSM configurations. Specific limitations are applicable with SLSM configurations having more than 12 physical channels. See section "Limitations" on page 64.

Codec	HD Mjpeg EVS	HD Mjpeg Standard	HD Mpeg-2 Intra	AVC-Intra XAVC-Intra	DVCPro HD
SLSM 4x - 50 or 59.94 Hz	185	185	185	111	100
SLSM 6x - 50 or 59.94 Hz	120	120	120		
SLSM 8x - 50 or 59.94 Hz	120	120	—		
SLSM 10x - 50 or 59.94 Hz	100	100	—		

Codec	AVID DNxHD 120	AVID DNxHD 185	AVID DNxHD 185x	Apple ProRes 422 LT	Apple ProRes 422 SQ	Apple ProRes 422 HQ
SLSM 4x - 50 Hz	120	185	185	85	120	185
SLSM 6x - 50 Hz	120	—	—	85	120	—
SLSM 8x - 50 Hz	120	—	—	85	120	—
SLSM 10x - 50 Hz	100	—	—	85	—	—

Codec	AVID DNxHD 145	AVID DNxHD 220	AVID DNxHD 220x	Apple ProRes 422 LT	Apple ProRes 422 SQ	Apple ProRes 422 HQ
SLSM 4x - 59.94 Hz	145	220	220	102	145	220
SLSM 6x - 59.94 Hz	145	—	—	102	145	—
SLSM 8x - 59.94 Hz	145	—	—	102	145	—
SLSM 10x - 59.94 Hz	100	—	—	102	—	—

Bitrates for SLSM Configurations in HD 1080p

The following table presents the available codecs in HD 1080p, and the corresponding maximum bitrates (Mbps) per SLSM phase for SLSM 4x, 6x and 8x configurations.

The total record bitrate is the configured bitrate multiplied by the number of phases.

The values in the tables below are valid with maximum 6 physical channels in SLSM configurations. Specific limitations are applicable with SLSM configurations having more than 6 physical channels. See section "General Information on 1080p Configurations" on page 114.

Codec	AVC-Intra XAVC-Intra
SLSM 4x - 50 or 59.94 Hz	222
SLSM 6x - 50 or 59.94 Hz	
SLSM 8x - 50 or 59.94 Hz	

Codec	AVID DNxHD 240	AVID DNxHD 365	AVID DNxHD 365x	Apple ProRes 422 LT	Apple ProRes 422 SQ	Apple ProRes 422 HQ
SLSM 4x - 50Hz	242	367	367	170	245	367
SLSM 6x - 50 Hz	200	—	—	170	—	—
SLSM 8x - 50 Hz	180	—	—	170	—	—

Codec	AVID DNxHD 290	AVID DNxHD 440	AVID DNxHD 440x	Apple ProRes 422 LT	Apple ProRes 422 SQ	Apple ProRes 422 HQ
SLSM 4x - 59.94 Hz	291	440	440	204	293	440
SLSM 6x - 59.94 Hz	200	—	—	204	—	—
SLSM 8x - 59.94 Hz	180	—	—	204	—	—

Properties of the Proxy Codec

The Mjpeg Proxy codec has the following properties:

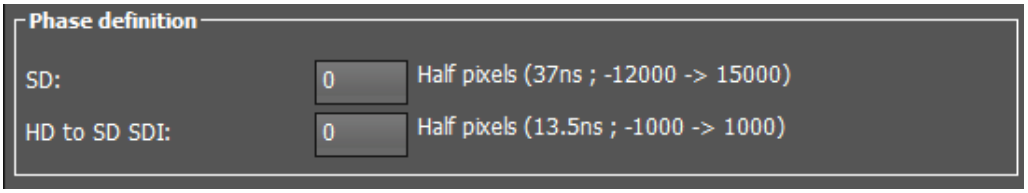
Property	Value
Bitrate (Mbps)	3 or 5
Default bitrate	3
Resolution	SD NTSC 352 x 240 pixels CIF 352 x 288 pixels CIF is used in all modes other than SD NTSC.

4.2.3. Phase Definition Settings

User Interface

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

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



SD (Standard Definition)

Description	Allows adjusting the digital main phase of the mainframe for the standard definition. The value is adjusted by steps of half pixels. The values depends on the genlock type (See section "Video and Reference Settings" on page 159).
Values	• If the Genlock type is set to 'Blackburst', the main phase for SD can be adjusted by steps of half pixels (37 ns) between - 12000 ns and +15000 ns. • If the Genlock type is set to 'Tri-Sync' (only possible in HD resolutions), the main phase for SD can be adjusted by steps of half pixels (37 ns) between - 30000 ns and +32000 ns.

HD to SD SDI / SD SDI to HD

Description	Allows adjusting the secondary phase of the mainframe, that is to say the relative phase of the: • HD SDI outputs compared to the phase of the SD SDI outputs with a 'Blackburst' genlock. • SD SDI outputs compared to the phase of the HD SDI outputs with a 'Tri-Sync' genlock. This setting only applies to HD resolutions. See section "Video and Reference Settings" on page 159 for more information on genlock type.
Values	• If the Genlock type is set to 'BlackBurst', the secondary phase for HD to SD SDI can be adjusted by steps of half pixels (13.5 ns) between - 1000 ns and +1000 ns. • If the Genlock type is set to 'Tri-Sync', the secondary phase for SD SDI to HD can be adjusted by steps of half pixels (37 ns) between - 400 ns and +400 ns.

Warning
- The SD phase is always adjusted according to the SDI outputs. Internal CVBS outputs have a delay of 48 x 37 ns compared to the corresponding SDI outputs.
- The internal CVBS outputs cannot be used to feed directly a vision mixer or any equipment performing video effects, since the phase of the chroma subcarrier is not adjustable internally.

4.2.4. Interpolation Settings

User Interface

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

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

General Description

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

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

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

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

Note
All VTRs use interpolation in PLAY VAR mode.

Vertical Interp. (Vertical Interpolation)

Description	Enables or disables the two-line interpolation process.
Values	• No (default) • Yes

Four Lines

Description	Enables or disables the four-line interpolation process.
Values	• No (default) • Yes

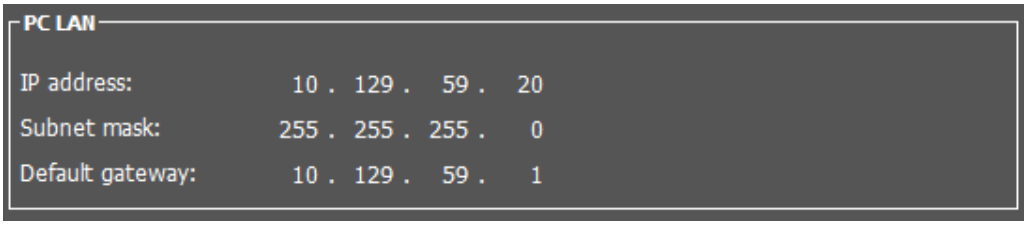
4.2.5. PC LAN Settings

User Interface

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

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

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



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 LAN PC Address" on page 27 for more information.

IP Address

Description	IP address to connect to the port #1 of the MTPC board on the server.
Values	The IP addresses 0.0.0.0 and 255.255.255.255 are not allowed.

Subnet Mask

Description	Range of logical addresses within the address space assigned to the MTPC board connection.

Default Gateway

Description	IP address of the router on the network that the MTPC board 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
Base settings			
Inputs	X	X	X
Outputs	X	X	X
Base config	X	X	X
3D	X	X	X
TwinRec	X	X	X
3G/Dual	X	X	X
Dual LSM Mode	X	X	X
SLSM settings			
Number of cameras	X	X	X
SLSM speed	X	X	X
on 3G-SDI	X	X	X
Parity	X	X	X
Port settings			
RS422 #1-#6		X	X
Channels and control settings			
OUT1-6 / IN1-6	X	X	X
Name	X	X	X
Main ctrl	X	X	X
Sec. ctrl	–	X	X
Mode	–	X	X

Setting Name	Basic	Advanced	Technical Setup
OSD	–	X	
Audio settings			
Audio connectors	X	X	X
Number of tracks	X	X	X
Audio full scale	–	X	X
Ancillary mode	–	X	X
Sample rate conv.	–	X	X
Audio monitoring group	X	X	X
Mon #1-#4	X	X	X
Advanced audio settings (Inputs)	–	X	–
Advanced audio settings (Embedded outputs)	–	X	–
Advanced audio settings (Digital AES/EBU outputs)	–	X	–
Advanced audio settings (Analog outputs)	–	X	–
Recorder settings			
Loop recording	–	X	X
Rec auto start	–	X	X
Clip Capacity	–	X	X
Autosense	–	X	
4:3 conversion	–	X	
Rec capacity	–	X	X
SD –> HD conversion	–	X	
Mix on one channel setting			
OUT1-6	–	X	X
Timecode settings			
LTC	–	X	–
User	–	X	X
Primary TC	–	X	X
SMPTE 334M packets management settings			
Decoding	–	X	X

Setting Name	Basic	Advanced	Technical Setup
Encoding	–	X	X
Custom 1 / 2	–	X	–
SD OUT Encoding	–	X	–
Timecode insertion settings			
IN Loop settings	–	X	–
SD OUT settings	–	X	–
HD OUT settings	–	X	–

4.3.2. Channels

Base Settings

User Interface

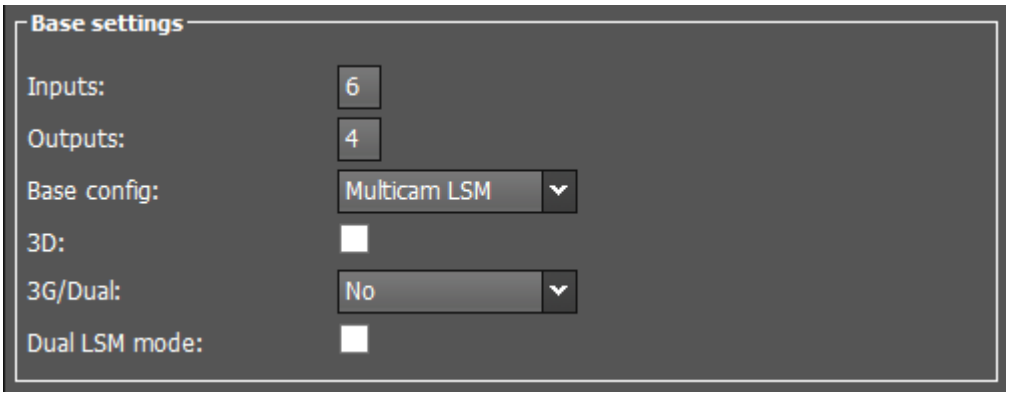
The base settings allow defining the main characteristics of a configuration as regards play and record channels.

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:



Inputs

Description	Number of logical record channels in the given configuration, including the SLSM recorders. The partition of the disk storage between these channels, and the advanced audio settings are automatically adapted to the number of record channels.
Values	The number of supported channels depends on the chassis, and the mode: • On XT3 6U: 0-12 (Spotbox), 1-12 (LSM) • On XT3 4U: 0-8 (Spotbox), 1-8 (LSM) See section "About Supported Configurations" on page 49 for more information on number of record channels and on supported configurations.

Outputs

Description	Number of logical play channels in the given configuration.
Values	• On XT3 6U and XT3 4U: 0-6 (Spotbox), 1-6 (LSM) See section "About Supported Configurations" on page 49 for more information on number of record channels and on supported configurations.

Base Config.

Description	Mode the EVS server is working in. The base configurations available depend on the server type, and on the valid license codes.
Values	• **Multicam LSM**: mode where the EVS server is controlled by the Remote Control Panel or from the Multicam production screens. License codes: 103 ...109 + 111 and/or 112
	• **Replay-Only LSM**: restricted Multicam LSM mode without playlist management, split audio, nor support of hypermotion cameras. License codes: 103 ...109
	• **Video Delay**: mode where the server is used to play out the input with a video delay. License codes: 101 + 127

		• **Spotbox**: mode where the EVS server can be controlled by industry-standard protocols: Sony BVW75, VDCP, Odetics, DD35, EVS' AVSP, IPDP, EditRec or LinX API, or from the Multicam production screens. License codes: 101 + 127
		• **XSense**: mode where the EVS server can be controlled by the XSense Remote Panel or from the Multicam production screens. License codes: 101 and/or 103 ... 109 + 111 and/or 112 + 96
		• **Server**: mode where the EVS server can only be controlled by the supported industry-standard protocols, but not from the Multicam production screens. License codes: 101 (without 127)
NEW !		• **F&K Dual Spotbox**: Specific mode in which the EVS server can be used as a Fill & Key server. It requires the license code 97 (F&K Dual) and the **Dual (3D)** value to be selected in the **3G/Dual** field in the Base settings. In this base configuration, the EVS server can be controlled by industry-standard protocols: Sony BVW75, VDCP, Odetics, DD35, EVS' AVSP, IPDP, EditRec or LinX API, or from the Multicam production screens. License codes: 97
NEW !		• **F&K Dual XSense**: Specific mode in which the EVS server can be used as a Fill & Key server. It requires the license code 97 (F&K Dual) and the **Dual (3D)** value to be selected in the **3G/Dual** field in the Base settings. In this base configuration, the EVS server can be controlled by the XSense Remote Panel or from the Multicam production screens. License codes: 97
	Default value	Multicam LSM

TwinRec

Note
See section "TwinRec Feature" on page 186 for full information on this feature, and the availability of the associated parameter.

Availability	The parameter is only available in specific conditions, and with the license code 33 (TwinRec option).
Description	Activates the TwinRec feature. This feature makes it possible to ingest two record channels per codec module, and therefore allows 12 record channels on a 6U EVS server.
Values	Yes / No (default).

3D

Availability	The parameter is only with the license code 23 for 3D Dual Link, and license code 24 for 3D 3G.
Description	Activates the 3D option, using the Dual Link or the 3G-SDI standard. This option makes it possible to use the server to record and play back 3D video.
Values	Yes / No (default).

3G/Dual

Description	Defines the interface the EVS server will use with the 3D or 1080p standards: • The Dual Link interface consists of a pair of HD-SDI serial links and provides a bitrate of 2.970 Gbit/s. • The 3G-SDI interface consists of a single serial link that provides 2.970 Gbit/s.
Values	The following values are possible, but their availability depends on several conditions: • **No**: available in all cases • **Dual (3D)**: Dual-Link for 3D ◦ Available with code 23 + **3D** setting to **Yes** • **3G Level A**: 3G-SDI for 1080p in one 3G stream (native file interoperability) ◦ Available with code 22 or 27 + 1080p resolution • **3G Level B**: 3G-SDI for 1080p in two HD streams (native file interoperability) ◦ Available with code 22 or 27 + 1080p resolution • **3G (3D)**: 3G-SDI for 3D ◦ Available with code 24 + **3D** setting to **Yes**
Default value	No

Warning
Only the configurations explicitly allowed by the license codes can be started. For instance, if a user has code 22 (1080p 3G) and 23 (3D Dual-Link), he cannot start the server in 3D 3G although he can select 3G and 3D Dual-Link in the Multicam Configuration window. To enable 3D 3G configurations to be started, code 24 must be active.

Note
Clips recorded with the 3G/Dual parameter in one mode (Level-A, Level-B, or Dual) are playable in another mode (Level-A, Level-B, or Dual).

Dual LSM

Note
See section "Dual LSM Feature" on page 188 for full information on this feature, and the availability of this parameter.

Availability	The parameter is only available in specific conditions, and with the license code 116 (Dual LSM option).
Description	Activates the Dual LSM feature. This feature makes it possible for two LSM operators to work independently on the same server on their LSM Remote Panel.
Values	Yes / No (default).

TwinRec Feature

Introduction

The TwinRec feature allows the use of both record channels of each codec module. Therefore, you can ingest two record channels per codec module, which means 12 record channels on a 6U EVS server fitted with 3 codec boards. This feature is mainly applicable to entertainment shows.

When you use the TwinRec feature, you will wire all main (J8) and secondary (J5) record channels, but set the number of inputs to 6 (not to 12) as only the main channels are displayed in the Multicam Configuration window. Consequently, the configuration of the main channels are automatically applied to the corresponding secondary channels.

The 12 recorded channels could then be streamed through a 10 GbE connection directly to an external storage or nearline, using Xsquare.

The TwinRec feature can be activated via the TwinRec parameter available in the Channels tab, Base Settings section. See section "Base Settings" on page 182.

Availability

The TwinRec feature, and its associated parameter, are available and displayed in the following conditions:

- on the XT3 6U and XT3 4U servers.
- with valid license codes 33 (TwinRec) and 23 (3D Dual)
- with a **Spotbox** base configuration (Base Settings section)

The TwinRec parameter can only be activated when all the following conditions are met:

- The **Resolution** parameter is set to **720p** or **1080i** (Server tab, Video and Reference section).
- The **Intra only** or **Intra + Proxy** mode is active (Server tab, Codec section).
- The EVS server runs a **6 IN-0 OUT** or **4 IN-0 OUT** channel configuration (Base Settings section).
- The **3D** parameter is set to **No** (Base Settings section).
- The **3G/Dual** parameter is set to **Dual** (Base Settings section).
- In the **SLSM** settings, the **Number of cameras** parameter is set to **0** (Base Settings section).

A message will warn the user if one of the above-mentioned conditions is not fulfilled.

Limitations

The following limitations are applicable to the TwinRec feature as the configuration of the main channels is applied to the corresponding secondary channels:

- The TwinRec function is only available in HD only, in intra-frame codecs.
- The audio is only recorded on the main channels, not on the secondary channels.

  When the feeds are exported to an external storage, Xsquare will however duplicate the audio of the main channel to the secondary channel.
- The embedded audio is mapped to the main channel.
- The audio monitoring is performed on the main channels only.
- Only the main channels can be seen in the internal multiviewer.
- In the Clip screen, the clips of the secondary channels are hidden behind the clips of the main channels.
- When GPIs are used, the behavior of the secondary channel will be exactly the same as that of the associated main channel.

Dual LSM Feature

Introduction

The Dual LSM feature allows two LSM operators to work independently with their own LSM Remote Panel on the same EVS server, defining some operational settings independently from each other.

The Dual LSM mode can be used in specific conditions and with specific Multicam LSM configurations, as detailed below.

You can activate the Dual LSM mode via the **Dual LSM mode** parameter available in the **Base Settings** section in the conditions specified below.

Availability

The Dual LSM feature, and the corresponding parameter, are available in the following conditions:

- on the XT3 6U servers
- with a valid license code 116 (Dual LSM)
- with 2 LSM Remote Panels connected
- with a standard **Multicam LSM** base configuration (Base Settings section)
  - 8IN 4OUT (2 x 4IN 2OUT)
  - 6IN 6OUT (2 x 3IN 3OUT)

Main Characteristics

The Dual LSM mode has following main characteristics:

- Both operators share the clips and playlist pages.
- A set of operational parameters is duplicated. Each operator can therefore define the duplicated parameters for their own needs without interfering with the second operator.

  The duplicated parameters are added in a separate page (page 8) in the Multicam Configuration window. See section "Op-Shared Tab versus Op-1/2 Tab" on page 282.
- The operators can select the cameras they want to work with on the LSM Remote Panel, via a mini-menu available from the **Trains** command in the secondary menu. Refer to the Multicam Operation manual.

Limitations

The following limitations are applicable to the Dual LSM feature:

- The **Mix on one channel** feature is not supported with the configurations available for Dual LSM.
- The **standard mix** function using the PGM/PRV channel is available on:
  - PGM1/PGM2 and PGM3/PGM4 with the 8IN - 4OUT configuration;
  - PGM1/PGM2 and PGM4/PGM5 with the 6IN - 6OUT configuration.
- The **Playlist** function is available simultaneously for both operators, with the following limitations for the LSM Remote Panel #2:
  - No **Clear Unavailable** feature which affects all playlists
  - No **Replace** feature which uses PGM1 and Loop IN.
- The **Timeline** function is available for LSM Remote Panel #1 only, without functional restrictions.
- The **Paint** and **Target** features are only available on LSM Remote Panel #1.
- The control of **Hypermotion Cameras** is only available on the LSM Remote Panel #2, and without dedicated control of the hypermotion cameras.

SLSM Settings

User Interface

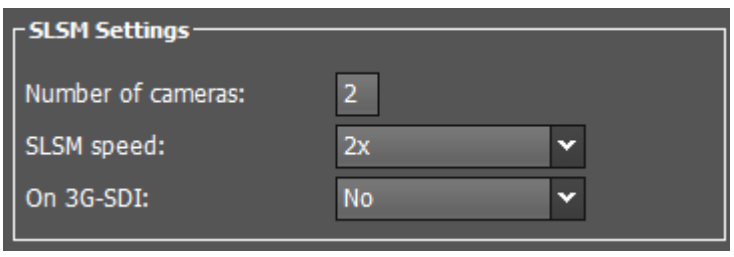
The SLSM settings allow you to define the parameters specific to SLSM recorders.

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)

Warning
The SLSM settings are only available if the license code 110 (Supermotion) or 26 (U-Motion) is valid.

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



Number of Cameras

Description	Number of SLSM cameras in the given configuration. An SLSM camera corresponds to one logical record channel.
Values	The maximum number of cameras depends on the SLSM speed, and on the total number of record channels. Range of values: 0-4
Default value	0

SLSM Speed

Description	Frame rate at which the SLSM camera records the incoming feeds, expressed in multiples of the standard frame rate of 24 FPS (at 50Hz) or 30 FPS (at 59.95 Hz).
Values	2x, 3x, 4x, 6x, 8x, 10x
Default value	2x

On 3G-SDI

Availability	This setting is only available with a 720p or 1080i resolution.
Description	Specifies whether two SLSM phases are connected to the EVS server using a 3G-SDI interface consisting of a single serial link.
Values	Yes / No (default)

Parity

Availability	This setting is displayed in SD configurations.
Description	Specifies whether the identical or alternate parity is applied.
Values	• Identical • Alternate
Default value	Alternate

Port Settings

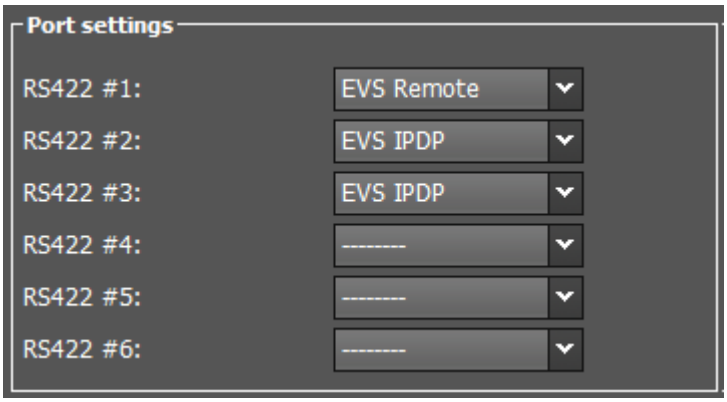
User Interface

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

These fields are available in the following interfaces:

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

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



RS422 #1 - #6

Description	Specifies what type of device/controller is connected to each RS422 port of the EVS server.
Values	The following values can be available if the required license codes are active: • 'EVS Remote' for LSM Remote Panel (code between 103 and 109). • 'EVS Remote' for XSense Remote Panel (code between 103 and 109 or code 96) • 'EVS IPDP' (code 120 or 121) • 'Sony BVW75' (code 118) • 'XtenDD35' (code 118) • 'Odetics' (and 'Odetics FK)' (code 119) • 'VDCP' (and 'VDCP FK)' (code 119) • 'EVS AVSP' (code 120 or 121) • 'Edit Rec' (code 122) • 'LinX' (code 123)
Default	On port #1 (only): IPDP

Note
Odetics FK and VDCP FK are not available directly from the Port setting, but when the Odetics or VDCP protocols are assigned to an RS422 port, the Fill and Key modes are available on the **Main Ctrl** field in the Channels and Control settings.

Channels and Control Settings

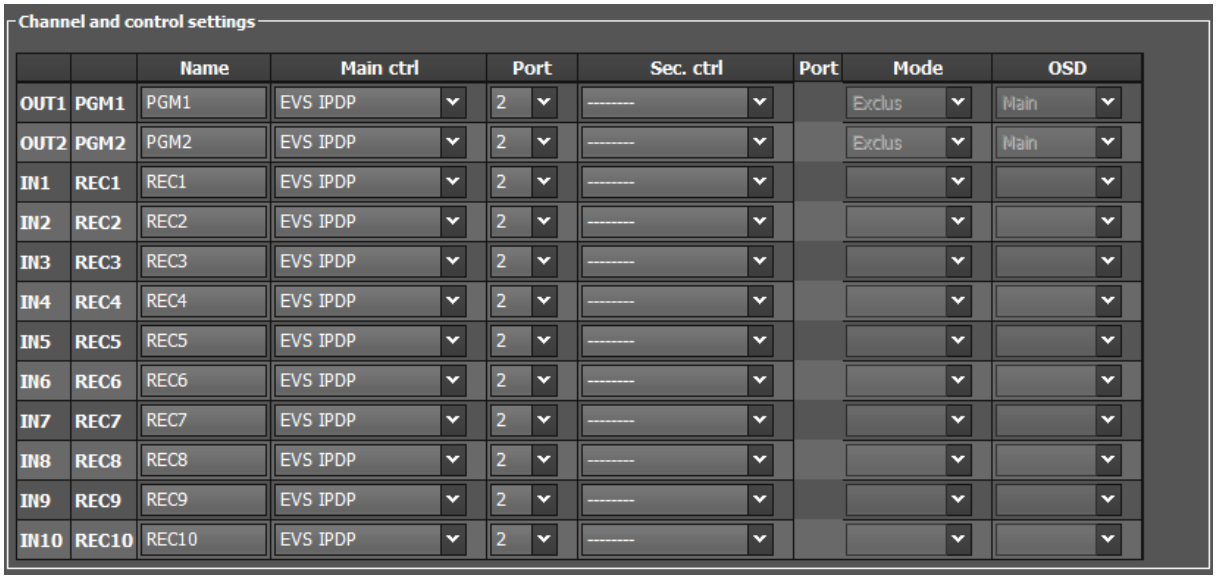
User Interface

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:



Name

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

Main ctrl (Main Controller)

Description	Name of the main device/controller allowed to control the given play or record channel.
Values	For a controller to be available in the list of values, it must first be assigned to an RS422 port in the port settings. In addition, rules specific to each controller apply to the assignment of the controller (used alone or in combinations with other controllers) to play or/and record channels. See section "Rules for Controller Assignment" on page 194 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)

Description	Name of the main device/controller allowed to control the given play or record channel.
Values	For a controller to be available in the list of values, it must first be assigned to an RS422 port in the port settings. In addition, rules specific to each controller apply to the assignment of the controller (used alone or in combinations with other controllers) to play or/and record channels. See section "Rules for Controller Assignment" on page 194 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

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

OSD

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

Rules for Controller Assignment

Main Rules for XT3 server

On an XT3 server, the following main rules are applicable:

- In a Multicam LSM 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	EditRec	Odetics	DD35	VDCP Mix	VDCP F&K	Odetics F&K	LinX
1 PGM									3			
2 PGM											2	
> 2 PGM												
1 REC	1											
> 1 REC												
1 PGM + 1 REC												
Several PGM + 1 REC												
Several PGM + Several REC												

1. Every recorder
2. Only consecutive PGMs
3. Only if Mix on one channel is enabled.

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	EditRec	Odetics	DD35	VDCP Mix	VDCP F&K	Odetics F&K	LinX
Main Controller												
1 PGM												
2 PGM												
> 2 PGM												

	Remote	IPDP	AVSP	VDCP	Sony	EditRec	Odetics	DD35	VDCP Mix	VDCP F&K	Odetics F&K	LinX
1 PGM + 1 REC[1]												
1 REC												
> 1 REC												
Several PGM + 1 REC[1]												
Several PGM + Several REC[1]												
Secondary Controller												
1 PGM									3			
2 PGM												
> 2 PGM												
1 PGM + 1 REC[1]												
1 REC												
Several PGM + 1 REC[1]												
Several PGM + Several REC[1]												

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	EditRec	Odetics	DD35	VDCP Mix	VDCP F&K	Odetics F&K	LinX
1 PGM									3			
2 PGM												
> 2 PGM												

	Remote	IPDP	AVSP	VDCP	Sony	EditRec	Odetics	DD35	VDCP Mix	VDCP F&K	Odetics F&K	LinX
1 REC	1											
> 1 REC												
1 PGM + 1 REC												
Several PGM + 1 REC												
Several PGM + Several REC												

1. Only with EditRec.
2. 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	EditRec	LinX	Odetics F&K	VDCP F&K	VDCP Mix
Remote	-											
IPDP	-	-										
AVSP	-		-									
VDCP	-			-								
Sony	-				-							
Odetics	-					-						
DD35	-						-					
EditRec	-							-				
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	EditRec	LinX	Odetics F&K	VDCP F&K	VDCP Mix
Remote												
IPDP		-										
AVSP			-									
VDCP				-								
Sony					-							
Odetics						-						
DD35							-					
EditRec								-				
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	EditRec	LinX	Odetics F&K	VDCP F&K	VDCP Mix
Remote	-			*		*	*					
IPDP	-	-		*		*	*					
AVSP	-		-									
VDCP	-	*		-								-
Sony	-				-							
Odetics	-	*				-						
DD35	-	*					-					
EditRec	-							-				
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	EditRec	LinX	Odetics F&K	VDCP F&K	VDCP Mix
Remote	-	-	-	-	-	-	-		-	-	-	-
IPDP	-	-										
AVSP	-		-									
VDCP	-			-								-
Sony	-				-							
Odetics	-					-						
DD35	-						-					
EditRec	-							-				
LinX	-								-			
Odetics F&K	-									-		
VDCP F&K	-										-	
VDCP Mix	-			-								-

Recorder Settings

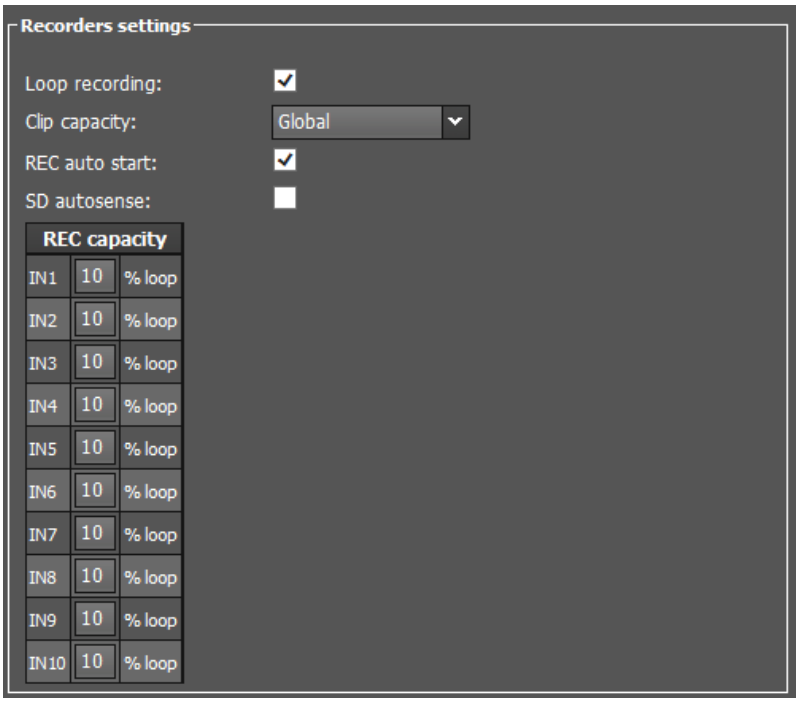
User Interface

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

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

Clip Capacity

Description	The **Clip capacity** setting specifies the recording mode on the record channels.
Values	The following values are available: Global / Per channel • **Global**: In this mode, the clip capacity is shared between the different record trains. **Example:** When 3 record trains are used, creating a clip of 30 min on REC1 will take 10 min of recording capacity equally from each record train. • **Per channel**: In this mode, the clip capacity is only relevant to the individual record train. **Example:** When 3 record trains are used, creating a clip of 30 min on REC1 will take 30 min of recording capacity from the 1st record train, but will not affect the recording capacity of the other two record trains.
Default value	The default value depends on the base configuration: • **Global (locked)**: ◦ in LSM configurations ◦ in Video delay configurations ◦ in Spotbox configurations • **Per channel**: ◦ with 2-ch VTR ◦ in Server configurations

Rec Auto Start

Availability	This setting is displayed when a Spotbox or Server configuration is running.
Description	Automatic start of the record channels after the EVS server has initialized.
Values	Yes (default) / No

SD Autosense

Warning
A change to this parameter requires an application reboot (**ALT+Q** from the operational windows) to be taken into account.

Availability	This setting is available in the following conditions: • with all HD codecs, in all multi-essence configurations, with the 720p or 1080i resolution. • when the 720p or 1080i resolution is selected in the open configuration.
Description	The SD Autosense setting allows Multicam to automatically detect and upscale an SD feed and record it in the HD codec selected in the open configuration.
Values	Yes / No (default)
Limitations	When the SD Autosense setting is enabled, the following features are not supported on the EVS server: • **Replace** function (with internal loop in playlist) • **SHIFT** + **LOOP** on the LSM Remote Panel • **Paint** function • **Target Track** function • **Internal offside line**

4:3 Conversion

Availability	This setting is only available when the SD Autosense setting is enabled.
Description	The **4:3 conversion** setting allows users to specify how Multicam will convert the source aspect ratio when: • Multicam detects the source aspect ratio is 4:3 full frame. **and** • Multicam is configured to manage the conversion automatically (**SD->HD conversion** setting is set to **Auto**).
Values	The following values are possible: • **Pillarbox:** Left and right stripes are added to the source video to display it in a 16:9 pillar box aspect ratio. • **Crop:** Top and bottom ends of the source video are cropped to display it in a 16:9 full frame aspect ratio.
Default value	Pillarbox

REC Capacity

Warning
A change to this parameter requires an application reboot (**ALT+Q** from the operational windows) to be taken into account.

Description	This parameter contains two types of information on the specified recorder: **Recording Capacity: XX%** percentage of the disk space allocated to each channel. **Loop / No Loop:** indicates whether the Loop Recording parameter is enabled or not.
Values	The following values are possible: • **Recording Capacity:** 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. **Example:** In a 2 REC 4 PLAY configuration, the recording capacity will be 50% for each recorder by default. • **Loop / No Loop:** • The value directly depends on the Loop Recording setting: ◦ If the Loop Recoding is enabled, the value will be 'Loop'. ◦ If the Loop Recording is disabled, the value will be 'No Loop'.

SD => HD Conversion

Availability	This setting is only available when the SD Autosense setting is enabled.
Description	The **SD–>HD conversion** setting makes it possible to specify how Multicam converts the aspect ratio of a SD source video to an HD video format.
Values	With this parameter, you specify the conversion mode and type: • **Conversion mode:** ◦ **Auto**: Multicam automatically converts the aspect ratio based on the source aspect ratio detected in AFD or WSS. ◦ **Forced**: Multicam applies the aspect ratio conversion specified in the Conversion type. • **Conversion type:** The conversion type specified is always used in **Forced** mode, and can be used in **Auto** mode when the source aspect ratio cannot be detected in AFD or WSS. ◦ **Anamorphic:** The source video is converted to a 16:9 aspect ratio. ◦ **Pillarbox:** Left and right stripes are added to the source video to display it in a 16:9 pillar box aspect ratio. ◦ **Crop:** Top and bottom ends of the source video are cropped to display it in a 16:9 full frame aspect ratio.
Default values	Conversion mode: **Auto** Conversion type: **Anamorphic**

Mix on One Channel Feature

Introduction

The **Mix on one channel** feature allows the use of the second channel of a codec module (J3) to provide 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 and Multicam LSM configurations and with all controllers.

The feature is available, in addition, in the following conditions:

- with a valid license code 31
- with a sufficient bandwidth (275 MBytes/sec with XT3 6U, and 110 MBytes/sec with XT3 4U)

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?	V3X Mod 1		V3X Mod 2	
			OUT1 Prim. link	OUT1 Sec. link	OUT2 Prim. link	OUT2 Sec. link
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

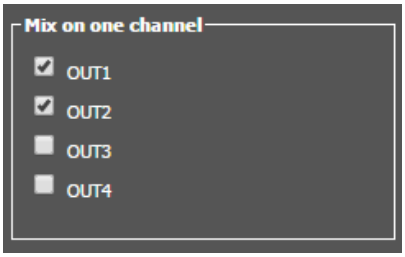
User Interface

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

Description	Enables/disables mixing on a single codec module, by means of the secondary link of the codec module (J3) of a play channel. 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 codecs and resolutions, except in 1080p.
Values	Yes / No (default)

4.3.3. Audio

Audio and Audio Monitoring Settings

User Interface

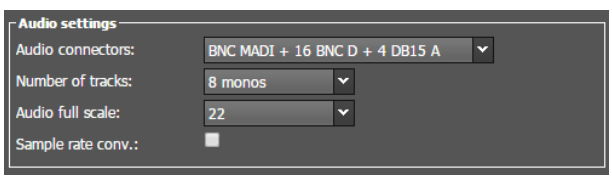
The Audio settings allow users to specify, among others, the physical configuration for audio connectors, and the number of audio tracks.

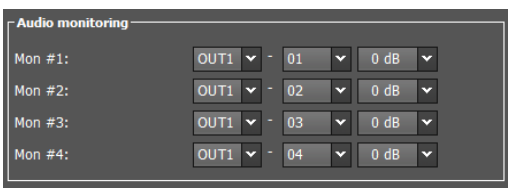
The Audio Monitoring settings allow users to specify which audio signals are monitored.

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:





NEW ! Audio Connectors

Description	Type of connectors available in the hardware configuration. The audio formats available on the EVS server, and in the Advanced audio settings pages, depend on the audio hardware configuration. Note that the values defined on this field are not validated against the real hardware configuration.
Values	The following table shows the available audio hardware configurations for XT3 6U servers, and the available audio formats based on this hardware configuration. The values with an asterisk are available with the rear panels of the latest generation of XT3 6U servers.

Hardware configuration	Available formats
• None*	E (Embedded) EY (Dolby E Embedded)
• 16 XLR A (Analog)	E EY A (Analog)
• 16 XLR D (Digital)	E EY D (Digital AES/EBU) DY (Dolby E AES)
• 16 XLR A + 8 XRL D	E - EY - A - D - DY
• 16 XLR A + 16 BNC D	E - EY - A - D - DY
• 16 XLR A + 4 DB15 D	E - EY - A - D - DY
• 4 DB15 A + 16 BNC D	E - EY - A - D - DY
• 4 DB15 A + 4 DB15 D	E - EY - A - D - DY
• 4 DB15 A + 16 XLR D	E - EY - A - D - DY
• 4 BNC MADI + 16 BNC D + 2 DB15 A	E - EY - A - D - DY - M - MY
• 4 BNC MADI + 4 DB15 D + 2 DB15 A	E - EY - A - D - DY - M - MY
• 4 BNC MADI + 16 BNC D + 4 DB15 A*	E - EY - A - D - DY - M - MY
• 4 BNC MADI + 4 DB15 D + 4 DB15 A*	E - EY - A - D - DY - M - MY

Values	The following table shows the available audio hardware configurations for XT3 4U servers, and the available audio formats based on this hardware configuration. The values with an asterisk are available with the rear panels of the latest generation of XT3 4U servers.

Hardware configuration	Available formats
• None*	E (Embedded) EY (Dolby E Embedded)
• 4 DB15 A + 16 BNC D	E - EY - A - D - DY
• 4 DB15 A + 4 DB15 D	E - EY - A - D - DY
• 4 DB15 D*	E - EY - D - DY
• 4 BNC MADI + 2 DB15 A*	E - EY - A - M - MY

Default value	None (XT3 6U) 4 DB 15 D (XT3 4U)

Number of Tracks

Warning
A change to this parameter requires an application reboot (**ALT+Q** from the operational windows) to be taken into account.

Description	Number of mono audio tracks associated to each video channel. See section "Number of Audio Tracks" on page 209
Values	4 Monos (default), 8 Monos, 16 Monos or 32 Monos

Audio Full Scale

Description	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.
Values	Range of values: [10…30] dB
Default value	22 dB

Ancillary Mode

Availability	This setting is displayed in SD configurations.
Description	Encoding method used for digital audio.
Values	20 Bits / 24 Bits (default)

Sample Rate Conv. (Conversion)

Description	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.
Values	Yes (default) / No

Audio Monitoring: Mon #1 - Mon #4

Description	Specifies the source of the audio signal that will be sent to each of the four audio monitoring connectors (numbered from left to right on the backplane).
Value	For each audio monitoring connector, the audio signal to be monitored is specified by the video channel number and the audio mono channel number. **Example:** The value 'OUT1-01' for Mon #1 means that the audio signal of the 1st audio mono channel of the PGM1 is sent to the monitoring connector 1.
Default Values	By default, the audio signal of the first play channel, and the audio mono channels from 1 to 4 (OUT1-01 to OUT1-04) are respectively assigned to the Mon #1 to Mon #4 connectors.

Number of Audio Tracks

Introduction

In the audio settings, the **Number of Tracks** parameter makes it possible to define how many audio mono channels, called **Tracks** in Multicam, will be associated to each video channel (play or record channel).

The number of tracks that can be assigned to each video channel varies based on the following elements:

- Maximum number of audio mono channels supported on the EVS server;
- Number of play and record channels defined in the running Multicam configuration.

This topic provides an overview on the maximum number of tracks, and on limitations to the configurations with 32 audio tracks.

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

NEW !

XT3 4U server

The following table provides the maximum number of mono audio channels per video channel:

Configuration Mode	Embedded (CODA 75)	Embedded (A3X)	MADI (A3X)
4-channel configurations	4*16 audio mono (= 64 tracks)	4*16 audio mono (= 64 tracks)	4*32 audio mono (= 128 tracks)
XRec configurations	6*8 audio mono (= 48 tracks)	6*16 audio mono (= 96 tracks)	6*16 audio mono (= 96 tracks)
ChannelMax configurations	8*8 audio mono (= 64 tracks)	8*16 audio mono (= 128 tracks)	8*16 audio mono (= 128 tracks)

XT3 6U server

The following table provides the default and maximum number of mono audio channels per video channel:

Configuration Mode	Embedded (CODA 75)	Embedded (A3X)	MADI (A3X)
6-channel configurations	6*16 audio mono (= 96 tracks)	6*16 audio mono (= 96 tracks)	6*32 audio mono (= 192 tracks)
XRec configurations	8*8 audio mono (= 64 tracks)	8*16 audio mono (= 128 tracks)	8*16 audio mono (= 128 tracks)
ChannelMax configurations	N/A	12*16 audio mono (=192 tracks)	12*16 audio mono (=192 tracks)
UHD-4K	3*8 audio mono	3*16 audio mono	3*16 audio mono

Limitations to 32 Audio Tracks

It is possible to work with 32 audio tracks per channel with XT3 servers fitted with H3X/H3XP and A3X boards. The use of 32 audio tracks per channel is currently only relevant for the MADI connectors.

When 32 audio tracks is enabled on your XT3 server, the following limitations are applicable:

- For **embedded audio**, the EVS server does not support more than:
  - 16 embedded audio tracks per channel (IN or OUT) in HD-SDI;
  - 8 embedded audio tracks per channel (IN or OUT) in 3G-SDI.
- The **Lo-Res** recording shall support up to 16 audio tracks per channel.

  If the EVS server is configured with 32 audio, the tracks 17-32 will be ignored in the Lo-Res.
- In a **multi-essence** configuration Intra + LongGOP, the number of audio tracks of one recorder count double.
- The **number of play channels** is limited based on the audio tracks per channel:

  A warning will inform you in case your configuration exceeds the limits.

Number of tracks	Max. number of play channels
16 tracks per channel	10 play channels
32 tracks per channel	5 play channels

- The **Mix on one channel** feature is not available with more play channels than mentioned below. A warning will inform you in case your configuration exceeds the limits.

Number of tracks	Max. play channels with Mix on one channel
8 tracks per channel	11 play channels
16 tracks per channel	5 play channels
32 tracks per channel	2 play channels

- The **Audio slow motion** is not supported when more than 96 audio tracks are used for playout.
- The **Timeline** feature is not supported.
- The **Swap Audio** feature is not supported.
- The **Replace** function is not supported.

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 or analog connectors).

In the server-based application, the advanced audio settings are available on different pages:

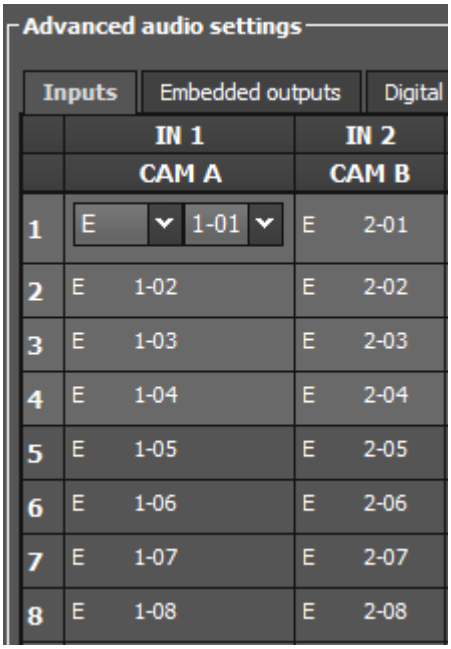
- audio inputs
- audio embedded outputs
- audio digital outputs (AES/EBU)
- audio analog outputs
- audio MADI outputs

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, analog or MADI outputs are only available when the corresponding connectors are defined in the **Audio Connectors** field (Audio settings section) that reflects the audio hardware configuration.

General Table Structure

The screenshot below presents part of the input settings:

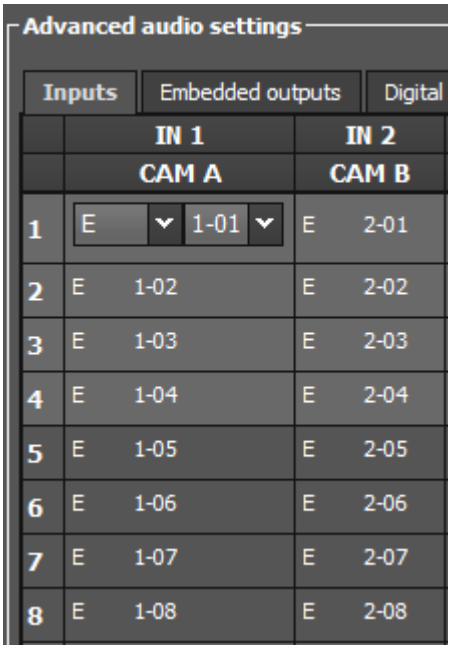


In the table, the information is organized as follows, for input or output settings:

- The rows correspond to the audio mono channels of the A/V material stored on the EVS server. The number of rows depends on the value assigned to the **Number of tracks** setting defined in the Audio settings field group.
- The columns correspond to the record channels or play channels.
- The values in the cells show the rooting of the audio mono channels:
  - from the source to the material stored on the EVS server (audio inputs)
  - from the material stored on the EVS server to the play channels (audio outputs)

Audio Types and Channel Numbers

The screenshot below presents part of the input settings, where the audio input from the record channels is routed by default to the embedded audio channels:



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, A for analog, DY for Dolby Digital, EY for Dolby Embedded, M for MADI, MY for Dolby MADI).

For **embedded audio or MADI audio**, 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), **analog audio** (for example A 01),

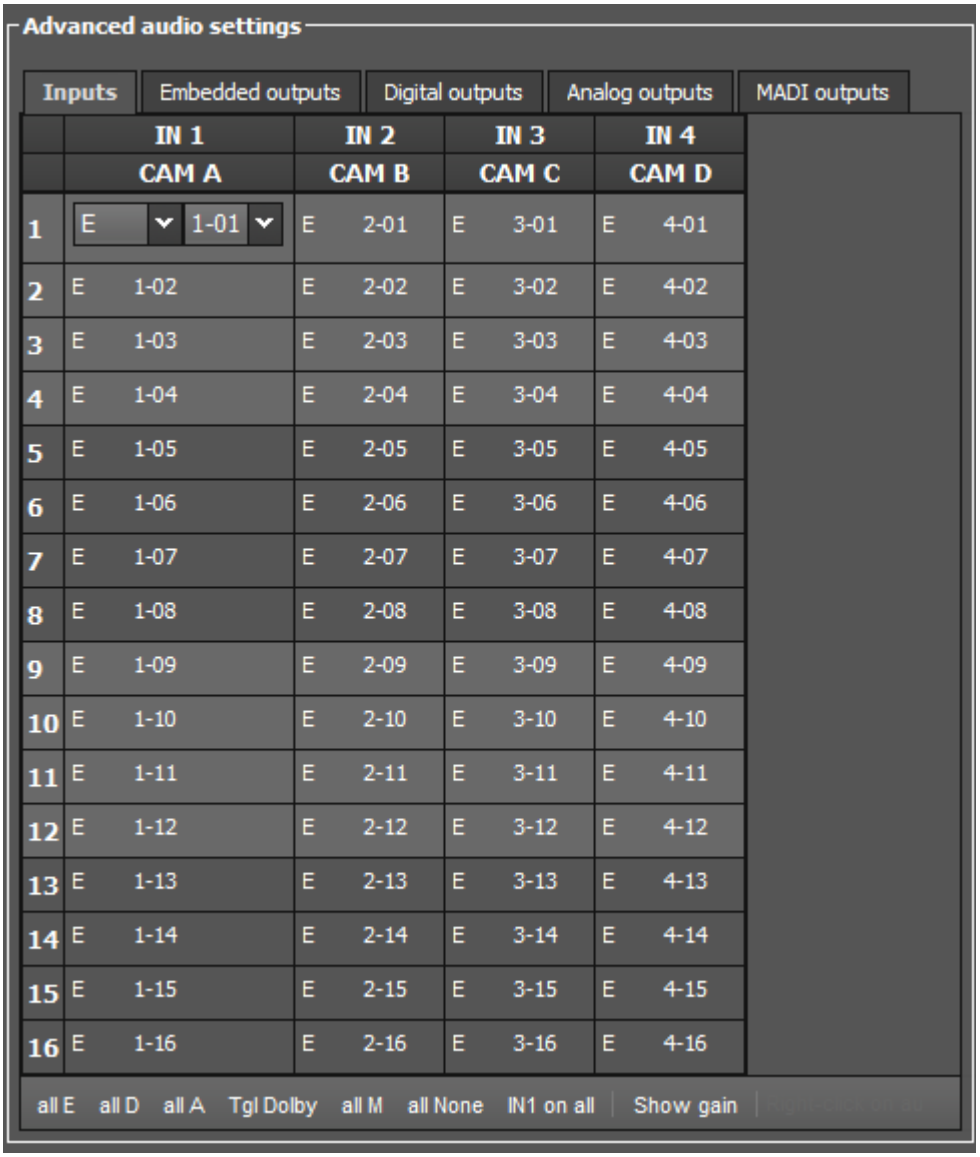
- The number refers to the number of the digital/analog input or output.

Audio Input Settings

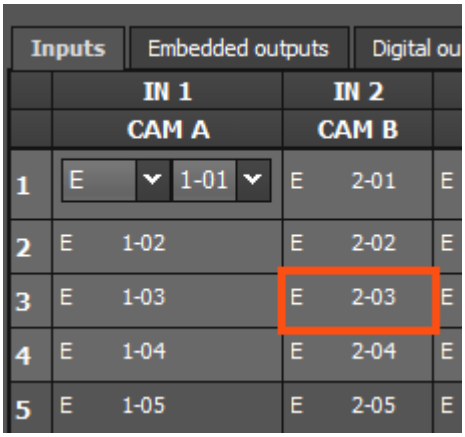
Introduction

The advanced audio input settings allow users to specify the following elements:

- Which type of audio source should be taken into account in the recording process.
- How the audio mono channels of the source material will be distributed to the material recorded on the EVS server.
- Whether an audio gain or audio muting should be applied in the recording process.

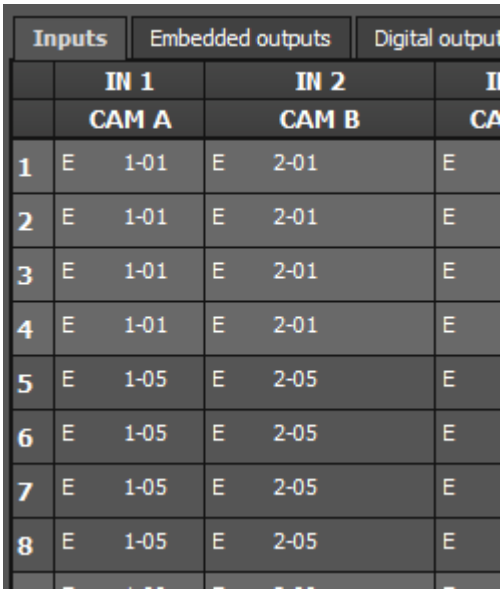


Example 1



The E2-03 value located in the intersection between row 3 and column IN2 means that the 3rd audio mono channel of the embedded audio source plugged into the IN2 (CAMB) connector will be recorded on the same position on the EVS server.

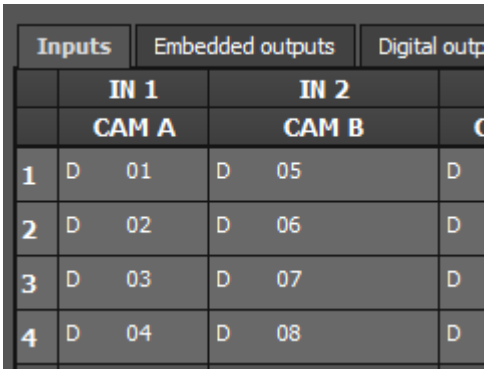
Example 2



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

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

Example 3

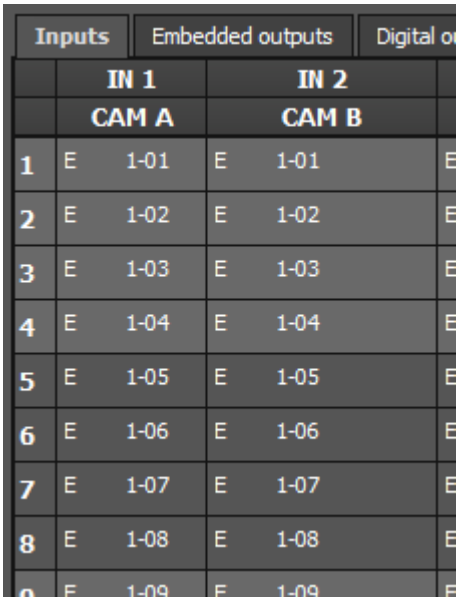


Inputs	Embedded outputs	Digital outp
	IN 1	IN 2
	CAM A	CAM B
1	D 01	D 05
2	D 02	D 06
3	D 03	D 07
4	D 04	D 08

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 1st mono channel of the material recorded on the EVS server, and so on.

Example 4



Inputs	Embedded outputs	Digital o
	IN 1	IN 2
	CAM A	CAM B
1	E 1-01	E 1-01
2	E 1-02	E 1-02
3	E 1-03	E 1-03
4	E 1-04	E 1-04
5	E 1-05	E 1-05
6	E 1-06	E 1-06
7	E 1-07	E 1-07
8	E 1-08	E 1-08
9	E 1-09	E 1-09

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.

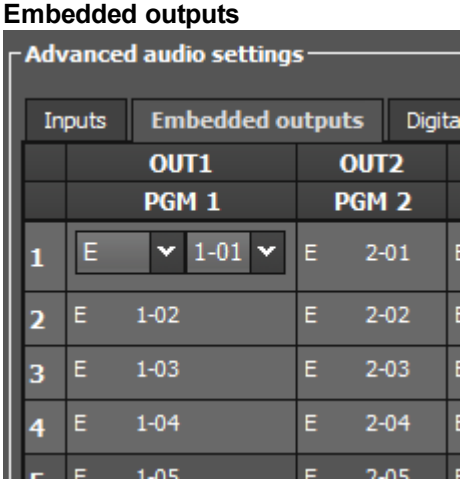
This can be defined for the three audio types: embedded audio, as well as digital and analog audio, if the corresponding connectors are available on the hardware configuration.

User Interface

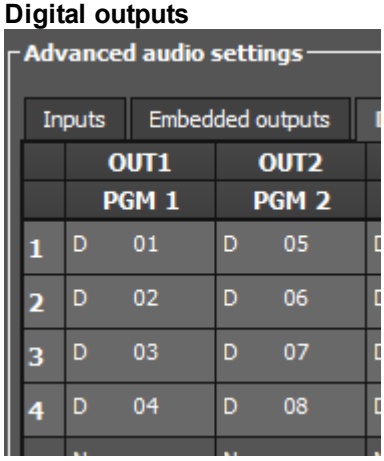
The screenshots below show an abstract of the default audio channel assignment for the various audio types in a configuration.

See section "Default Mapping for Audio Inputs and Outputs" on page 219 for a full overview on the default mono channel assignment in the various supported configurations.

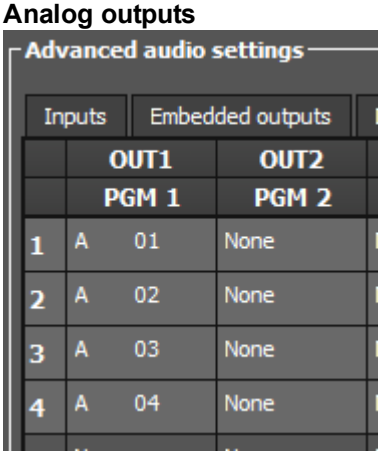
Embedded outputs



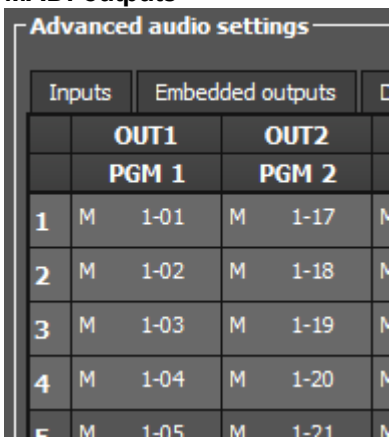
Digital outputs



Analog outputs



MADI outputs



Example

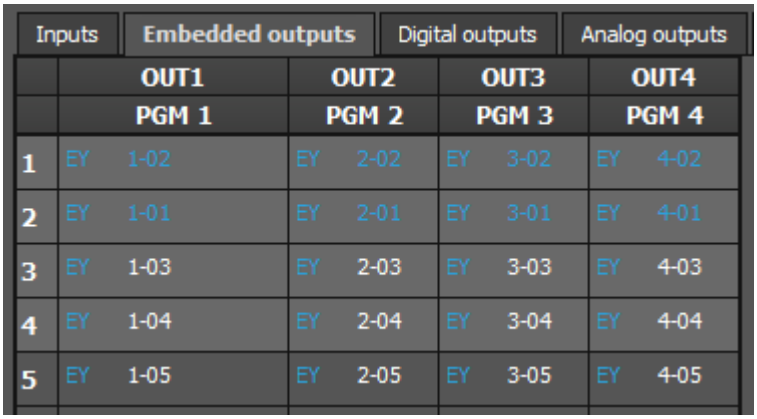
In the screenshot below, the audio mono channels defined on the A/V material on the EVS server are allocated to the play channels in the following way:

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.



Default Mapping for Audio Inputs and Outputs

Introduction

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

- XT3 6U chassis
- Maximum number of recorders or players (see section "About Supported Configurations" on page 49).
- Audio hardware configuration: BNC MADI + 16 BNC Digital + 4 DB15 Analog

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
Mono1	E1-01	E2-01	E3-01	E4-01	E5-01	E6-01
Mono2	E1-02	E2-02	E3-02	E4-02	E5-02	E6-02
Mono3	E1-03	E2-03	E3-03	E4-03	E5-03	E6-03
Mono4	E1-04	E2-04	E3-04	E4-04	E5-04	E6-04
Mono5	E1-05	E2-05	E3-05	E4-05	E5-05	E6-05
Mono6	E1-06	E2-06	E3-06	E4-06	E5-06	E6-06
Mono7	E1-07	E2-07	E3-07	E4-07	E5-07	E6-07
Mono8	E1-08	E2-08	E3-08	E4-08	E5-08	E6-08
Mono9	E1-09	E2-09	E3-09	E4-09	E5-09	E6-09
Mono10	E1-10	E2-10	E3-10	E4-10	E5-10	E6-10
Mono11	E1-11	E2-11	E3-11	E4-11	E5-11	E6-11
Mono12	E1-12	E2-12	E3-12	E4-12	E5-12	E6-12
Mono13	E1-13	E2-13	E3-13	E4-13	E5-13	E6-13
Mono14	E1-14	E2-14	E3-14	E4-14	E5-14	E6-14
Mono15	E1-15	E2-15	E3-15	E4-15	E5-15	E6-15
Mono16	E1-16	E2-16	E3-16	E4-16	E5-16	E6-16

Audio Embedded Outputs

By default, the audio mono channels from the A/V material stored on the EVS server are mapped to the embedded mono channels on the play channels as presented in the table below.

The table shows 6 players, and an audio configuration with 16 tracks (mono channels):

	OUT 1	OUT 2	OUT 3	OUT 4	OUT 5	OUT 6
Mono1	E1-01	E2-01	E3-01	E4-01	E5-01	E6-01
Mono2	E1-02	E2-02	E3-02	E4-02	E5-02	E6-02
Mono3	E1-03	E2-03	E3-03	E4-03	E5-03	E6-03
Mono4	E1-04	E2-04	E3-04	E4-04	E5-04	E6-04
Mono5	E1-05	E2-05	E3-05	E4-05	E5-05	E6-05
Mono6	E1-06	E2-06	E3-06	E4-06	E5-06	E6-06
Mono7	E1-07	E2-07	E3-07	E4-07	E5-07	E6-07
Mono8	E1-08	E2-08	E3-08	E4-08	E5-08	E6-08
Mono9	E1-09	E2-09	E3-09	E4-09	E5-09	E6-09
Mono10	E1-10	E2-10	E3-10	E4-10	E5-10	E6-10
Mono11	E1-11	E2-11	E3-11	E4-11	E5-11	E6-11
Mono12	E1-12	E2-12	E3-12	E4-12	E5-12	E6-12
Mono13	E1-13	E2-13	E3-13	E4-13	E5-13	E6-13
Mono14	E1-14	E2-14	E3-14	E4-14	E5-14	E6-14
Mono15	E1-15	E2-15	E3-15	E4-15	E5-15	E6-15
Mono16	E1-16	E2-16	E3-16	E4-16	E5-16	E6-16

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
Mono1	D 01	D 09	None	None	None	None
Mono2	D 02	D 10	None	None	None	None
Mono3	D 03	D 11	None	None	None	None
Mono4	D 04	D 12	None	None	None	None
Mono5	D 05	D 13	None	None	None	None
Mono6	D 06	D 14	None	None	None	None
Mono7	D 07	D 15	None	None	None	None
Mono8	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
Mono1	D 01	D 05	D 09	D 13	None	None
Mono2	D 02	D 06	D 10	D 14	None	None
Mono3	D 03	D 07	D 11	D 15	None	None
Mono4	D 04	D 08	D 12	D 16	None	None
Mono5	None	None	None	None	None	None
Mono6	None	None	None	None	None	None
Mono7	None	None	None	None	None	None
Mono8	None	None	None	None	None	None
Mono9	None	None	None	None	None	None
Mono10	None	None	None	None	None	None
Mono11	None	None	None	None	None	None
Mono12	None	None	None	None	None	None
Mono13	None	None	None	None	None	None
Mono14	None	None	None	None	None	None
Mono15	None	None	None	None	None	None
Mono16	None	None	None	None	None	None

Audio Analog

By default, the audio mono channels of the A/V material stored on the EVS server are sent to the analog audio output connectors of the play channels as presented in the table below.

The table shows 6 players, and an audio configuration with 8 tracks (mono channels):

	OUT 1	OUT 2	OUT 3	OUT 4	OUT 5	OUT 6
Mono1	A 01	A 05	None	None	None	None
Mono2	A 02	A 06	None	None	None	None
Mono3	A 03	A 07	None	None	None	None
Mono4	A 04	A 08	None	None	None	None
Mono5	None	None	None	None	None	None
Mono6	None	None	None	None	None	None
Mono7	None	None	None	None	None	None
Mono8	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
Mono1	M1-01	M1-17	M1-33	M1-49	M2-01	M2-17
Mono2	M1-02	M1-18	M1-34	M1-50	M2-02	M2-18
Mono3	M1-03	M1-19	M1-35	M1-51	M2-03	M2-19
Mono4	M1-04	M1-20	M1-36	M1-52	M2-04	M2-20
Mono5	M1-05	M1-21	M1-37	M1-53	M2-05	M2-21
Mono6	M1-06	M1-22	M1-38	M1-54	M2-06	M2-22
Mono7	M1-07	M1-23	M1-39	M1-55	M2-07	M2-23
Mono8	M1-08	M1-24	M1-40	M1-56	M2-08	M2-24
Mono9	M1-09	M1-25	M1-41	M1-57	M2-09	M2-25
Mono10	M1-10	M1-26	M1-42	M1-58	M2-10	M2-26
Mono11	M1-11	M1-27	M1-43	M1-59	M2-11	M2-27
Mono12	M1-12	M1-28	M1-44	M1-60	M2-12	M2-28
Mono13	M1-13	M1-29	M1-45	M1-61	M2-13	M2-29
Mono14	M1-14	M1-30	M1-46	M1-62	M2-14	M2-30
Mono15	M1-15	M1-31	M1-47	M1-63	M2-15	M2-31
Mono16	M1-16	M1-32	M1-48	M1-64	M2-16	M2-32

Modifying the Audio Routing or Type

Introduction

Audio routing settings can be modified in the Channels tab, in the Advanced Audio Settings. It is possible to change:

- the audio type of all displayed audio channels at the same time by means of:
  - the shortcut keys described below in the server-based application
  - the buttons at the bottom of the table in the web-based interface
- the audio type of individual channels by manually editing the audio type value.
- the routing of an individual audio channel by editing the cell value in the advanced audio settings tables.

Collective Editing Actions in Server- and Web-Based Interfaces

You can apply the following editing actions to all audio channels of a page using the following shortcuts, when available on your EVS server, and on the current page:

Command description	Command key (Server-based app.)	Command button (Web-based interface)
Set all audio channels to Embedded	**CTRL+E**	**all E**
Set all audio channels to Digital	**CTRL+D**	**all D**
Set all audio channels to Analog	**CTRL+A**	**all A**
Set all audio channels to MADI	**CTRL+M**	**all M**
Toggle all audio channels to Dolby Audio	**CTRL+Y**	**Tgl Dolby**
Set all audio channels to None	**CTRL+N**	**all None** applicable to all E,D **or** A outputs at a time
Reset all the audio configuration (also on other pages) to default values	**F5**	-
Route all audio input channels of REC1 to the other record channels (only audio inputs)	**CTRL+0**	**Rec 1 on all**
Validating the changes	**ALT+A**	**Apply**

Individual Editing Actions in the Server-Based Application

In the server-based application, you can use the following editing commands for modifying individual field/cell values (audio type or audio routing), when available on your EVS server, and on the current page:

Command description	Command key
Selecting a field value	**TAB**
Scrolling down in the list of the possible values for the selected field	**SPACEBAR**
Scrolling up in the list of the possible values for the selected field	**SHIFT + SPACEBAR**
Increasing the audio channel number by 8 audio mono channels (valid when the audio channel is selected)	**CTRL + RIGHT ARROW**
Decreasing the audio channel number by 8 audio mono channels. This is valid when the audio channel is selected.	**CTRL + LEFT ARROW**

Command description	Command key
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.	**CTRL + ARROW UP**
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.	**CTRL + ARROW DOWN**

Individual Editing Actions in the Web-Based Interface

In the web-based application, click on the values you want to edit in the requested cell(s). The available values are displayed in drop-down fields, which allow you to select the requested value individually:

Modifying the Audio Gain and Mute Settings

Introduction

From the Advanced Audio Settings pages of the Channels tab, you can not only modify the default routing of audio channels, but also do the following:

- Adjust the audio gain for each audio mono channel individually;
- Mute individual audio channels.

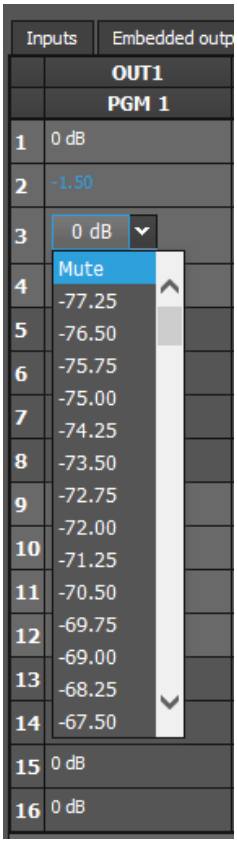
In the server-based application, the audio gain and audio mute information can be displayed via the **CTRL+G** command, which allows you to toggle the display in the tables to show the audio gain and mute information.

In the web-based interface, the audio gains can be displayed by selecting the **Show gain** command below the advanced audio settings.

The audio gain can be adjusted by steps of 0.75dB, 3dB or 6dB, in the range from -77.25dB to +23.25dB of the current audio level.

Warning
When an audio input is used for multiple tracks, the value of the gain shall be the same for all tracks.
When editing the gain of 1 of the replicated tracks, the gain of all the tracks shall also be modified. Otherwise, the following error message will be displayed `"Incoherent input audio gains"`.

The following screenshot shows the display of mute and audio gain settings:



In the Server-Based Application

The following table shows the various commands available to adjust the audio gain, and mute an audio channel in the server-based application.

One of the following command can be applied on an individual channel when it is selected and when the audio gain display is on.

Command description	Command key
Hiding and Showing the audio gain display	**CTRL+G**
Muting the selected audio channel	**CTRL+M**
Un-muting the selected audio channel	**CTRL+U**
Increasing by 0.75dB the audio level of the selected audio channel	**SPACEBAR**
Lowering by 0.75dB the audio level of the selected audio channel	**SHIFT** + **SPACEBAR**
Increasing by 3dB the audio level of the selected audio channel	**CTRL+ARROW RIGHT**
Lowering by 3dB the audio level of the selected audio channel	**CTRL+ARROW LEFT**
Increasing by 6dB the audio level of the selected audio channel	**CTRL+ARROW UP**
Lowering by 6dB the audio level of the selected audio channel	**CTRL+ARROW DOWN**

In the Web-Based Interface

To modify the audio gain of an audio channel or mute it, proceed as follows:

1. In the **Channels** tab, select the Inputs tab or Outputs tab of the Advanced Audio Settings depending on whether you want to work on audio input or output channels.
2. Click the **Show gain** button.

   The audio gain applied to each mono channel is displayed, instead of the audio type and routing data.
3. In the requested cell, click the value you want to modify, and select the requested audio gain or mute value from the list.

Dolby Audio Management

Concepts

- **Dolby Digital or Dolby 5.1 or AC-3**, is an audio coding system containing up to 6 discrete channels of sound, with 5 channels for normal-range speakers (20 Hz - 20,000 Hz) (Right front, Center, Left Front, Right Rear and Left Rear) and one channel (20 Hz - 120 Hz) for the LFE, or subwoofer.
- **Dolby E** is a professional coding system optimized for the distribution of surround and multichannel audio through two-channel postproduction and broadcasting infrastructures, or for recording surround audio on two audio tracks of conventional digital video tapes, video servers, communication links, switchers, and routers.

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

Available Dolby Configurations

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

- It is available on an XT3 server in all configurations.
- The audio can be analog, 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 SDI/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

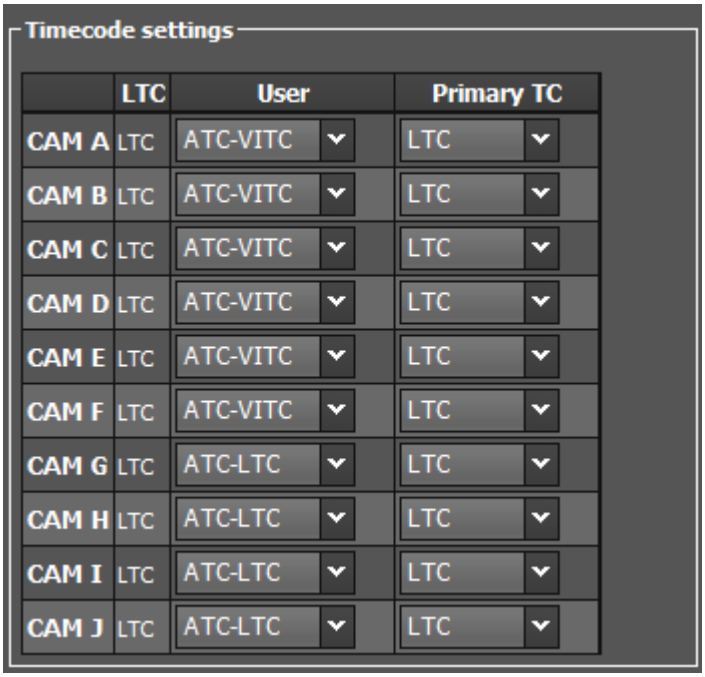
The Timecode settings allow specifying which type of timecode the users want to use as the reference to work on a given recorder of an EVS server.

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

Description	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.
Values	LTC (non-editable)

User

Description	Timecode type stored in the second timecode jump table (User TC table).
Values	In SD: • LTC • VITC In HD: • LTC • ATC-LTC (Ancillary LTC Timecode) • ATC-VITC (Ancillary VITC Timecode)

Primary TC

Description	Timecode type that is displayed at the bottom the VGA and is used to work with the video material stored on the given recorder. Usually, an LTC timecode is used to perform operations on live events. A VITC timecode is used for video material ingested from tapes as it is the timecode embedded in the video signal.
Values	• **LTC:** LTC timecode, which is automatically stored in the LTC table. It is specified in the **LTC** field. • **User:** User-defined timecode, which is stored in the USER TC table and specified in the **User** field.
OSD Display	Depending on the value selected for this setting, the timecode displayed at the bottom of the user's OSD will have a different color: • If the LTC timecode is selected, the timecode color will be white. • If the USER timecode is selected, the timecode color will be yellow.

Timecode Insertion Settings

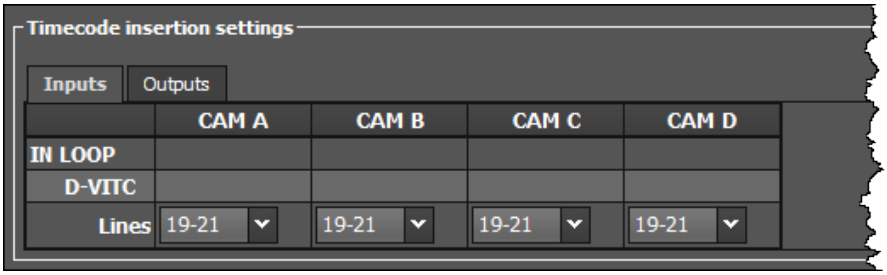
User Interface

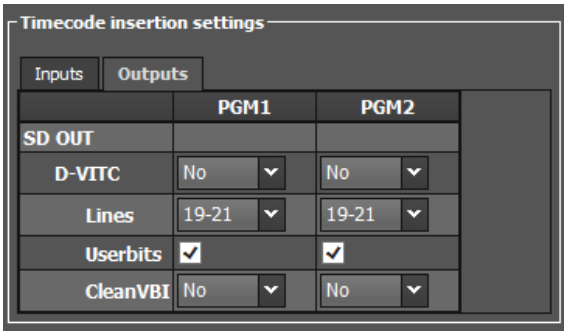
The Timecode Insertion settings allow the management of VITC or ancillary timecodes channel by channel.

These fields are available in the following interfaces:

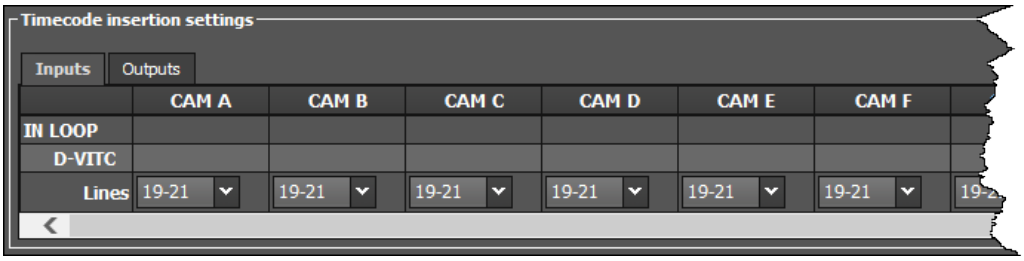
- in the Multicam Configuration window, Channels tab, in the advanced display mode on the server- and web-based interfaces.

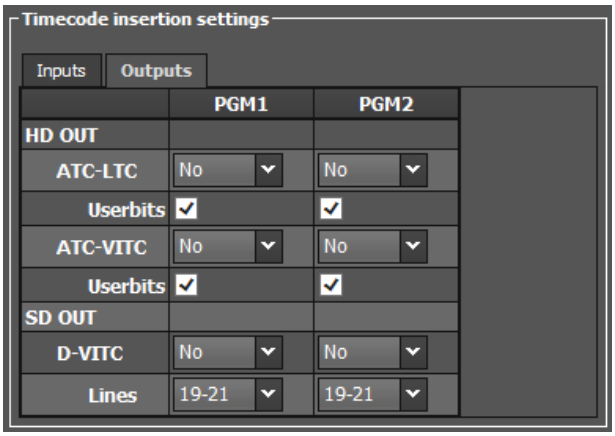
The following screenshot shows the Timecode Insertion settings in SD on the Channels tab in the web-based application:





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





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

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

Output Tab

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

Description	Enables/disables the insertion of the embedded timecode (ATC-LTC or ATC-VITC) in the HD output.
Values	The values specified for the ATC-LTC and ATC-VITC fields have to be the same. The values can be as follows: • **No** No new timecode inserted in the output. • **In** Same timecode as in the input inserted in the output. • **LTC** Timecode from the LTC table inserted in the output. • **USER** User-defined timecode inserted in the output. • **TC 0** All ATC-LTC/ATC-VITC timecodes generated in the video signal coming out of the given PGM will remain static and fixed to 00:00:00:00.
Default value	No

HD OUT (in HD): UserBits

Description	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.
Values	Yes (default) / No

SD OUT (in HD/SD): D-VITC

Description	Enables/disables the insertion of the embedded timecode (D-VITC) in the SD output.
Values	The values specified for the D-VITC field can be as follows: • **No** No new timecode inserted in the output. • **In** Same timecode as in the input inserted in the output. • **LTC** Timecode from the LTC table inserted in the output. • **USER** User-defined timecode inserted in the output. • **TC 0** All D-VITC timecodes generated in the video signal coming out of the given PGM will remain static and fixed to 00:00:00:00.
Default value	No

SD OUT (in HD/SD): Lines

Description	Lines on which the specified timecode must be written on the loop of the input.
Values	From 06-08 to 20-22
Default values	• 14-16 in NTSC • 19-21 in PAL

SD OUT (in SD only): UserBits

Description	Enables/disables the insertion of the user bits in the SD output. When TC0 is selected for the D-VITC field, the user bits values will also remain static and fixed to 00:00:00:00 whatever the selected value.
Values	Yes (default) / No

SD OUT (in SD only): CleanVBI

Description	Specifies whether the VBI (Vertical Blanking Interface) information needs to be cleaned on the output. The VITC being recorded in the active video lines, it can be disrupted in play var because of interpolation or parity violation on some fields. Moreover, if the server inserts VITC on the output while there is already VITC on another line, it can create problems.
Values	• **No (default)** The VBI is not cleaned in the output. • **Always** The VBI is always cleaned in the output. • **If not OK** The VBI is cleaned in the output if it is not correct (play var mode, vertical split screen, etc).

SMPTE Package Settings

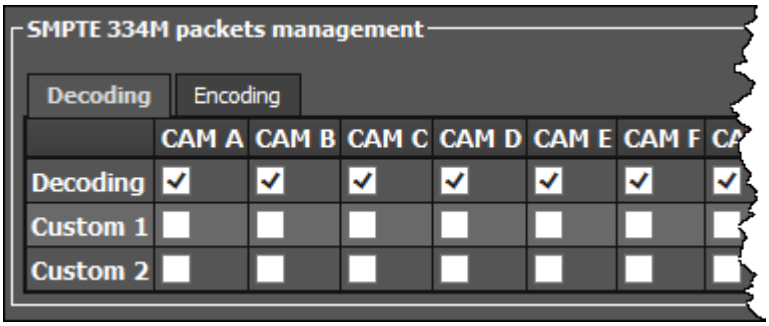
User Interface

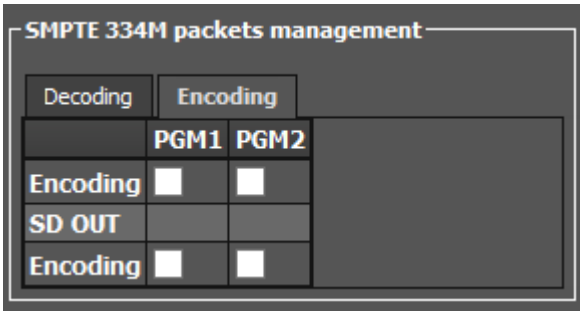
The SMPTE Package Management settings specify how ancillary data packets stored in the vertical ancillary data space in HD and SD signals are handled.

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:





Supported Packets

The supported ancillary data packets must comply with the SMPTE standards 334M, 291M (type 2 ANC packet).

Up to now, SMPTE 334M data packets carried on the chrominance (C) data stream within the SMPTE 292M signal are not decoded (HD).

All DIDs mentioned in the SMPTE 334M standards are supported:

- 61 => 62
- 40 => 5F
- C0 => DF

Those DIDs are saved and restored on the output channels on their original lines. The other DIDs are not saved.

The maximum number of bytes saved per field (frame for 720p) is 2014. One saved SMPTE 334M packet is composed of user data word (UDW) plus 7 configuration bytes. It has to be taken into account to compute the number of bytes saved.

Please refer to the SMPTE RP 291-2006 standard for the assignment of DIDs to specific applications.

Decoding Tab

Decoding

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

Custom 1/2

Description	Enables/disables a customized decoding of the SMPTE 334M data packets. See section "Customizing the Decoding of SMPTE Data" on page 238 for more information.
Values	Yes / No (default)

Encoding Tab

Encoding

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

SD OUT Encoding

Description	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 334 Data Encoding on Downconverted Output" on page 238 for more information.
Values	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.

SMPTE 334 Data Encoding on Downconverted Output

For the downconverted output, one SMPTE 334M packet is encoded per line starting from the second line after the line specified for the switching line. In other words, the maximum number of packets per field is as follows:

- 8 packets per field in 525i (lines 12-19 and 275-282)
- 15 packets per field in 625i (lines 8-22 and 321-335)

The limitations are:

- The data are re-encoded in the same order as they were in HD, but not necessarily on the same lines.
- If VITC is inserted in the downconverted output, no SMPTE 334M data will be inserted on the lines carrying the VITC.

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
SDTI settings			
Speed	X	X	X
Net name	X	X	–
Net number	X	X	X
Type	X	X	X
SDTI Priorities settings			
High priority	–	X	X
Gigabit Connection settings			
Physical interface	X	X	X
Link aggregation	X	X	X
Gigabit IP Configuration settings			
IP address	X	X	X
Subnet mask	X	X	X
Default gateway	X	X	X
Gigabit Prioritization settings			
Configuration mode	X	X	X
Connections (Lo-Res/Unreserved)	X	X	X

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.

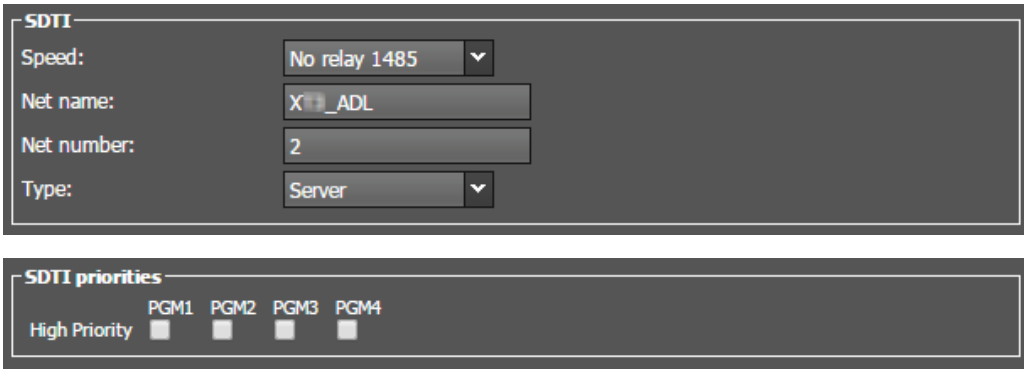
User Interface

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:



Speed

Description	Enables the selection of the SDTI option and the bandwidth for the XNet network. On the XT3 server, there is one pair of SDTI connectors: XNet2 Non-Relay connectors are used at 1485 or 2970 Mbps. The SDTI circuit is closed only when the Multicam software is started.
Values	The following values are available: • No Relay 1485 (Mbps) • No Relay 2970 (Mbps) • Off
Default value	Off

Warning
All EVS servers in an SDTI network must be set up with the same SDTI speed. If the SDTI speed is changed on an EVS server, it will automatically be disconnected from the XNet network, without prior warning.

Net Name

Description	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.
Values	The Net Name is user-defined and cannot exceed 8 characters.
Default value	By default, no Net Name is assigned.

Net Number

Description	The Net Number parameter defines the machine number on the network. This number is user-defined and must be unique for each system on the network. An error message appears if the number is already assigned to another machine.
Values	Range between 1 and 29
Default value	1

Type

Description	Defines the privileges of the EVS server on the SDTI network.
Values	The following values are possible: • **Client:** It cannot access the content on other EVS servers. • **Master:** It can access all content on other EVS servers. • **Server:** It manages the SDTI network, and it can access all content on other EVS servers. 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. 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.
Default value	Server

High Priority

Description	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.
Values	Yes / No (default)

Note
Using this command 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

NEW !

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 one of the following interfaces, 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.

- The Gigabit-H3X board is equipped with two 1GbE ports.

  These ports can still be used on older chassis to provide the Gigabit connection. They however provide less bandwidth than the 1GbE connections on the GbE board.

  These ports are no longer available on new hardware (V4.20).

- An external gateway PC equipped with two 10GbE ports can be used on older chassis when the EVS server is fitted with a PCIe external connector.

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).

Working Principles

You can only use the 10GbE connections via an external gateway PC when the EVS server is equipped with a PCIe external connector.

When you use an external gateway PC equipped with 10GbE ports, you can use the Gigabit-H3X connections on the EVS server, but not at the same time.

When you use the GbE board, you can use the 1GbE or the 10 GbE connections, but not at same time.

Teaming

Teaming is only available with the GbE board, on both its 1GbE or 10GbE interfaces. Teaming can be enabled using the **Link Aggregation** setting.

When teaming is active, and one of the GbE link fails, the other will seamlessly take over all ongoing and pending tasks.

Physical Interface

Availability	This section is only available if the server is equipped with a Gigabit-H3X board or a GbE board.
Description	Specifies the physical interface that provides the Gigabit Ethernet connection.
Values	The following values are available: • **None** No gigabit interface is present. • **Gigabit-H3X** (no longer available on new chassis) One or two of the 1GbE connection of the Gigabit-H3X board is/are used. • **Gateway PC** The Gigabit Ethernet connection is provided through the Gigabit Gateway installed on a gateway PC, and the 10GbE connector of the gateway PC is used. In this case, it is not possible to use the GbE connections available on the EVS server. • **1 GbE (on 10GbE board)** One or two of the 1GbE connections on the GbE board is/are used. • **10 GbE** One or two of the 10GbE connections of the GbE board is/are used.
Default Value	The default value corresponds to the most efficient physical interface installed on the EVS server.

Link aggregation

Description	Specifies the teaming method when using the 1GbE or the 10GbE ports of the GbE board.
Values	The following values are available: • **None** No link aggregation method is applied, and no teaming is provided. • **LACP** The Link Aggregation Control Protocol is used to provide teaming. • **Adapter Fault Tolerance** The Adapter Fault Tolerance (AFT) method is used to provide teaming. • **Switch Fault Tolerance** The Switch Fault Tolerance (SFT) method is used to provide teaming.
Default Value	None

4.4.4. Gigabit IP Configuration

Introduction

The Gigabit IP Configuration settings specify the IP addresses for the Gigabit connections on the GbE board, depending on which GbE connections are specified in the **Physical Interface** parameter in the Gigabit Connection settings.

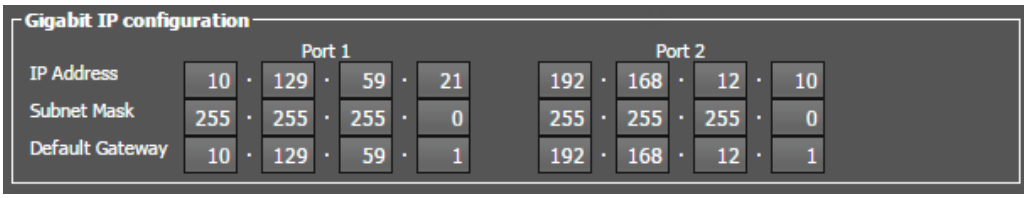
Warning
Changes to the Gigabit settings require an application reboot (**ALT+Q** from the operational windows) to be applied.

User Interface

The **Gigabit IP Configuration** settings are available:

- in the Multicam Configuration window, Network tab, in the basic and advanced display modes in the server-based application (page 1), and web-based interface.
- in the Technical menu of the Remote Control Panel (T3.X).

The following screenshot displays the Gigabit IP Configuration settings on the Network tab in the web-based interface:



Gigabit Connection Problems

When no Gigabit module is present or when the Gigabit connection has been lost, the first line of the Gigabit IP Configuration settings displays the message `!Not detected!`.

When the Gigabit connection of the GbE board has been lost, the last line of the Gigabit IP Configuration settings will display the message `Connection problem`.

When the teaming is active, and only one of the connection is lost, the Gigabit transfers will continue as the second connection will take over . No warning message is displayed in the Multicam configuration module, but this information is however available in XNet Monitor or XNet Web Monitor.

IP Address (Port 1/Port 2)

Description	IP address to connect to the port1/port2 of the Gigabit Ethernet connection on the EVS server (or on the Gateway PC).
Values	The IP addresses 0.0.0.0 and 255.255.255.255 are not allowed.

Subnet Mask (Port 1/Port 2)

Description	Range of logical addresses within the address space assigned to the Gigabit Ethernet connection. The IP addresses of both GbE ports must belong to different subnet masks. Otherwise, Multicam will return an error message.

Default Gateway (Port 1/Port 2)

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

4.4.5. Gigabit Prioritization Settings

Introduction

The Gigabit connection is used for several tasks (browsing, streaming, transfer, etc.). For this reason, prioritization parameters can be defined to make sure the EVS server will have a sufficient bandwidth to smoothly perform tasks seen as critical within a given workflow.

The Gigabit prioritization settings allow users to prioritize the transfer from/to the Gigabit FTP server.

Warning

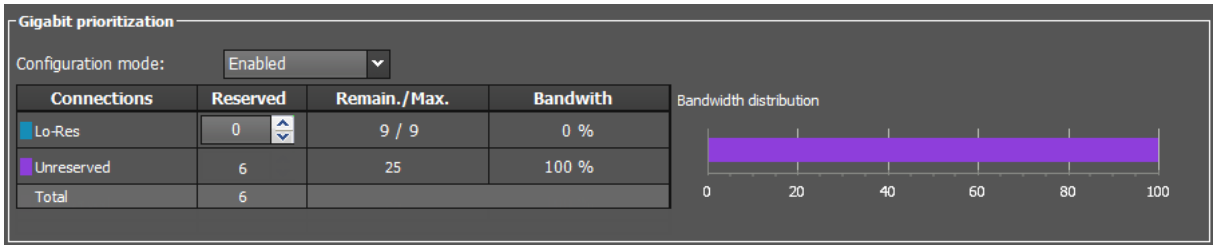
- Changes to the Gigabit Prioritization settings require an application reboot (**ALT+Q** from the operational windows) to be applied.
- When the Truck Manager is used in a given workflow, it automatically configures the Gigabit Prioritization settings to take into account the connection needs of all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

User Interface

The **Gigabit Prioritization** settings are available:

- in the Multicam Configuration window, Network tab, in the advanced display modes on page 2 in the server-based interface, and in the web-based interface.

The following screenshot highlights the Gigabit prioritization settings on the Network tab in the web-based interface:



General Description

The prioritization settings consists in giving priority to a number of Lo-Res (Proxy) connections on the Gigabit network.

Based on the effective bandwidth on the Gigabit interfaces of the EVS server, Multicam calculates the maximum number of Lo-Res connections that can be granted with priority.

Knowing the maximum number of connections which can have priority, the administrator can set the requested number of reserved connections for critical jobs (Lo-Res browsing, for example). The unreserved connections will be available for less prioritary jobs (backup of clips to be archived, for example).

When processing jobs, Multicam always makes use of the full available Gigabit bandwidth: If the bandwidth is not fully allocated, the remaining bandwidth is automatically distributed among the connections.

Configuration mode

Description	Specifies whether and how you want to configure the priorities for the Gigabit connections.
Values	Two configuration modes are available: • **Disabled:** ◦ The parameters for setting prioritization are hidden: you cannot reserve connections. ◦ The number of unreserved connections is automatically set to the maximum (25 connections). • **Enabled:** ◦ You can set the number of Lo-Res connections. ◦ The number of unreserved connections is computed and set automatically (never lower than 6).
Default value	Disabled

Connections (Lo-Res)

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

Connections (Unreserved)

Availability	The setting is only displayed in Enabled configuration mode.
Description	Specifies the number of unreserved connections allowed to the Gigabit interface of the EVS server.
Values	The field value is not editable. It is automatically adapted depending on the other prioritization parameters. A minimum of six unreserved connections are configured to provide the same number of connections as in earlier versions of Multicam.
Default value	N.A.

4.5. Monitoring Tab

4.5.1. Overview

The Monitoring tab includes the settings of the Multiviewer output, the OSD information to be displayed, and the downconverted outputs configuration.

The table below presents the settings of the Monitoring tab. It specifies where the setting groups are available (page) and whether each setting is available:

- in the basic and advanced display mode in the server-based and web-based interfaces
- in the **Technical Setup** menu (T4.X) of the Remote Panel

Setting Name	Basic & Advanced	Technical Setup
Multiviewer Settings		
Layout	X	–
Audio Monitoring from video	X	–
Audio Monitoring left-right tracks	X	–
DB15 output	X	–
HD output format	X	–
SD aspect ratio	X	–
OSD Settings		
Genlock Error	X	X
Disk Error	X	X
Network error	X	X
Clip name	X	X
Monitoring Settings		
J3 Player (Char OUT)	X	X
J3 Recorder (Char OUT)	X	X
Char OUT J4	X	X
Char OUT J1	X	X
SD aspect ratio	X	X
SD edge enhancement	X	X

4.5.2. Multiviewer Settings

Introduction

On EVS servers equipped with V3X boards, the two ports available on the rear panels allow the connection of two independent HD-SDI multiviewers.

This allows the following uses:

- two operators working independently on the same EVS server
- a single operator working with one multiviewer displaying recorders, and a second multiviewer displaying players.
- one operator to have a recorder display of an UHD-4K channel on one multiviewer, and a player display of the UHD-4K channel on the second multiviewer, for example.
- one operator to have an OSD output of PGM 3 and PGM 4 in Dual LSM mode.

The **Multiviewer settings** make it possible to specify the settings for the two multiviewers, such as the number of channels to combine and display, the audio and output video configuration.

NEW !

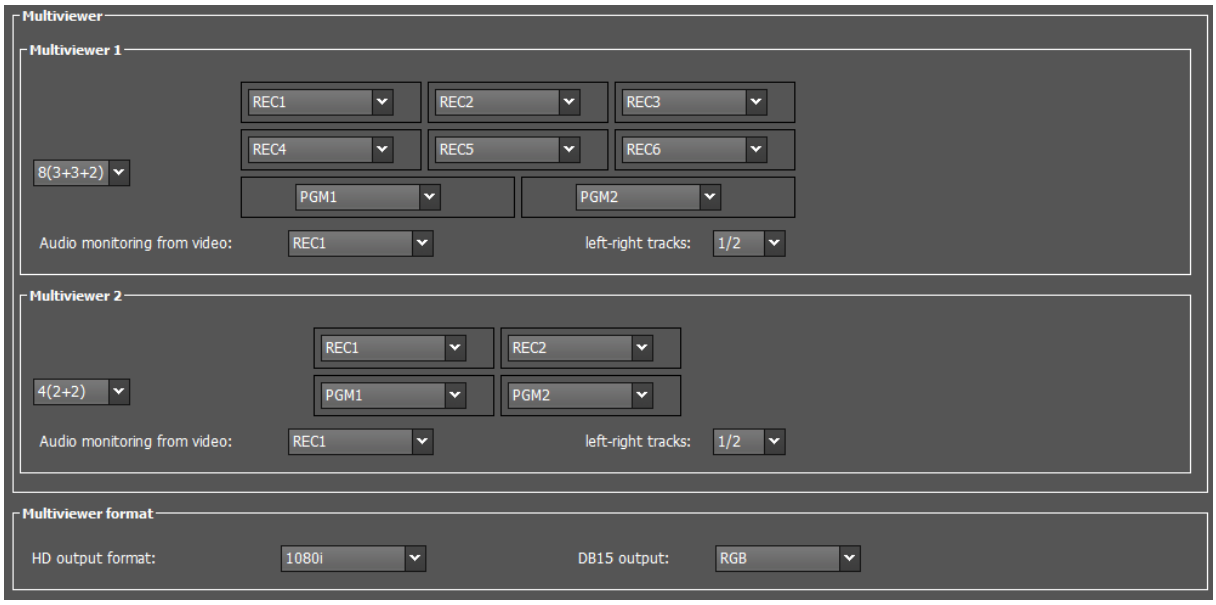
Note
On EVS servers with the latest rear panels, the Multiviewer OUT connectors are labeled O1 to O2 (4U) or O4 (6U).
On EVS servers with former rear panels, the O1 connector is labeled HD-SDI, and the O2 is labeled SD-SDI.

User Interface

These fields are available in the Multicam Configuration window, Monitoring tab .

Note
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 in the web-based interface:



Multiviewer 1/2

Maximum Number of Sources

The cumulated number of sources displayed in the two multiviewers may not exceed 12 channels. If the requested layouts are not supported, Multicam will display an error message.

For this reason, the following layout combinations are not supported:

- 8 (Multviewer 1) + 8 (Multiviewer 2)
- 8 (Multviewer 1) + 6 (Multiviewer 2)
- 6 (Multviewer 1) + 8 (Multiviewer 2)

Layout

Description	Specifies how the sources are displayed on the Multiviewer 1 or Multiviewer 2.
Values	The following layouts are available: • **4 (2+2)** • **6 (4+2)** • **6 (3+3)** • **8 (3+3+2)** (not useful on all servers) • **1** The layout **8 (3+3+2)** is not available on the multiviewer 2.
Default value	• **4 (2+2)** for 4U servers • **6 (4+2)** for 6U servers configured as 4IN-2OUT or 4OUT-2IN • **6 (3+3)** for 6U servers in other configurations • **1** in UHD-4K

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 a UHD-4K configuration, and it allows users to monitor the four quadrants of one PGM as shown below:

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

  This can be useful in Dual LSM configurations, for example, to provide an OSD output of a player channel when the OSD output of the given channel on the codec module is not available:

Display 1 to 12

NEW !

Description	Specifies the source linked to the corresponding display in the selected layout. You can select: • no image (none). • play channels (PGM) • record channels (REC) • direct input into the Multiviewer I1 and I2 connectors on the back panel (IN). The direct input values are only available with: • the MV4 multiviewer • a resolution other than UHD-4K
Values	The values available for recorder or player channels correspond to the names the channels have been assigned in the **Channels** tab, **Channel and control** settings, which are the following by default: • **none** • **PGM1** to **PGM12** • **REC1** to **REC12** • **IN1** and **IN2** (**IN 2** only on 6U servers)

Audio monitoring from video

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

Audio monitoring left-right tracks

Description	Specifies the pair of stereo audio tracks of the selected channel to monitor. This is selectable individually for each multiviewer.
Values	**1/2**, **3/4**, **5/6**, **7/8**, **9/10**, **11/12**, **13/14**, **15/16**
Default value	**1/2**: By default, the first stereo pair of the source is selected.

Multiviewer Format

DB15 output

Description	Specifies the color model to be applied to the multi-pin multiviewer output on the rear panel of the EVS server. The multi-pin multiviewer output corresponds to the HD-SDI output 1.
Values	• **RGB HD** • **YUV HD**
Default value	**RGB HD**

HD output format

Description	Specifies the format for the HD output of the multiviewer. Both multiviewers use the same HD output format.
Values	• **720p** • **1080i**
Default value	• **720p** (if the EVS Server is configured in 720p) • **1080i** (in other cases)

4.5.3. OSD Settings

User Interface

The **OSD settings** allow specifying the settings related to the OSD and information to be displayed on the monitoring screen.

These fields are available in the following interfaces:

- in the Multicam Configuration window, Monitoring tab
- in the Technical menu of the Remote Control Panel (T4.X)

The following screenshot displays the OSD settings on the Monitoring tab in the web-based interface:

Genlock Error

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

Disk Error

Description	Enables or disables the disk error information display on the output monitor. As the server is equipped with a RAID disk array, the operation can continue seamlessly even with 1 faulty disk. If 1 disk is disconnected during operation, the **!Raid** message appears on all output monitors, and another message appears when the operator shuts down the application, to invite him to replace the disk and rebuild the RAID array. Please, refer to the Technical Reference manual for details on the RAID system and its maintenance.
Values	**Yes** (default) / **No**

Network error

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

Clip name

Description	Specifies how the clip name is displayed.
Values	**VarID** / **Name**
Default	**Name**

4.5.4. Monitoring Settings

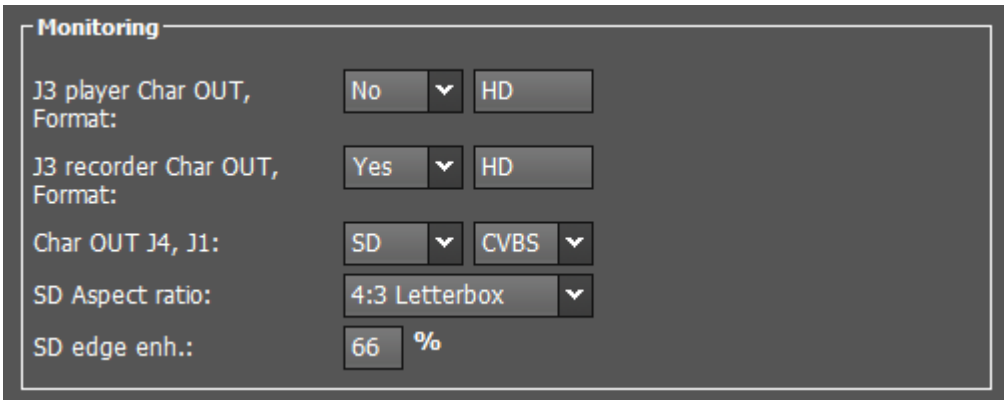
User Interface

The **Monitoring settings** allow specifying the settings related to the monitoring output lines and the parameters linked to HD/SD down-conversion.

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:



J3 player (Char OUT + Format)

Description	Allows modifying the behavior of the J3 connector on V3X codec modules used as player channels. One of the following behaviors is possible: • Clean (downconverted) output (initial behavior) • Monitoring output (same behavior as J4)
Values	The following values are available for the **Char OUT** setting: • **No:** J3 is used with its initial behavior • **Yes:** J3 is used as a monitoring output (same as J4) With V3X boards, the value is forced if a single behavior is possible. The values for the **Format** setting is read-only and corresponds to the actual output format.
Default value	No

J3 recorder (Char OUT + Format)

Description	Allows modifying the behavior of the J3 connector on V3X codec modules used as recorder channels. One of the following behaviors is possible: • Loop of input (initial behavior) • Monitoring output (same behavior as J4) This is especially useful in XRec mode.
Values	The following values are available for the **Char OUT** setting: • **No:** J3 is used with its initial behavior • **Yes:** J3 is used as a monitoring output (same as J4) With V3X boards, the value is forced if a single behavior is possible. The values for the **Format** setting is read-only and corresponds to the actual output format.
Default value	No

Char OUT J4

Description	Specifies the monitoring output format generated on the J4 connector.
Values	• **SD** • **HD** (not supported in 1080p 3G Level A) • **3G**
Default value	System dependent

Char OUT J1

Description	Specifies the monitoring output type generated on the J1 connector.
Value	• **CVBS**

SD aspect ratio

Availability	This parameter is available when the EVS server is configured in HD.
Description	Specifies how the aspect ratio of HD video is converted in SD.
Values	• **4:3 Letterbox**: Black stripes are placed above and below the active video to compensate for the full width. • **4:3 Crop**: Left and right ends of the active video are cropped to compensate for the full height. • **16:9**: Corresponds to the HD aspect ratio. It is also called anamorphic.
Default value	**4:3 Letterbox**

SD edge enhanc.

Description	Defines the edge enhancer strength used when generating the SD downconverted output video.
Values	**0** to **100**
Default value	**66**

4.6. Protocol Tab

4.6.1. Overview

The Protocol tab includes the settings that will be used with the Sony BVW75 protocol and the EditRec feature.

The table below presents the settings of the Protocol tab. It specifies whether the setting is available:

- in the basic or advanced display mode in the server-based and web-based interfaces
- in the **Technical Setup** menu (T5.X) of the Remote Panel.

Setting Name	Basic	Advanced	Technical Setup
RS422 Protocols Settings			
Id Type	X	X	X
Sony BVW Settings			
FFW/REW speed	X	X	X
Use guardband	X	X	X
List Remote CAM	X	X	X
SONY Parallel Status	X	X	X
Edit Rec 1 / 2			
Port #	read only	read only	
Playlist Settings			
Default PL	X	X	X
Time Code Settings			
Serial Sony LTC	X	X	–
Serial Sony VITC	X	X	X
Insert TC in SDI	–	X	X
User TC of created clips	–	X	X
OSD Settings			
OSD on Output	X	X	X
Display sel	–	X	X
TC H-Pos	–	X	X
TC V-Pos	–	X	X
Name H-Pos	–	X	X

Setting Name	Basic	Advanced	Technical Setup
Name V-Pos	–	X	X
Audio Settings			
Edit audio Fade	X	X	X
Channel Settings			
EE	X	X	X
Stop Behavior	X	X	X
Full EE command 'value'	X	X	X
RS422 VarID Settings			
Uniqueness	–	read only	–
Length	–	read only	–
Format	–	read only	–
VDCP visibility Settings			
Port #1...6	–	read only	–

4.6.2. RS422 Protocols Settings

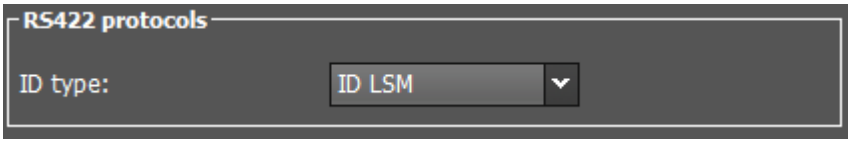
User Interface

The **RS422 Protocols settings** allow specifying the settings related to the clip identification used to access the video clips.

These fields are available in the following interfaces:

- in the Multicam Configuration window, Protocol tab, on page 1 in the basic and advanced display mode in the server- and web-based interfaces

The following screenshot displays the RS422 Protocol settings on the Protocols tab in the web-based interface:



Id Type

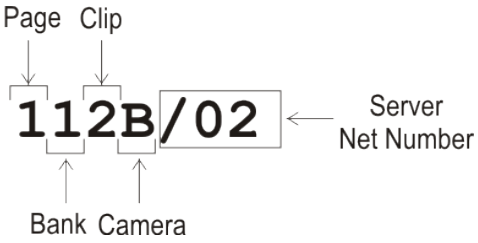
Description	Specifies the clip ID used by the protocols to access and identify the clips. Please note that at any time, the VDCP protocol can decide to use either the default value or the VarID (see RS422 VarID Settings). See section "Clip Identifiers" on page 262 for more information on clip identifiers.
Values	• **ID LSM** • **UmID**
Default value	**ID LSM**

4.6.3. Clip Identifiers

LSM ID

The LSM ID is a clip identifier based on the EVS video server structure.

The LSM ID is made up of 3 digits and 1 letter, for example 112B, where the digits and letter represent the following elements in the server structure:



The digits after the LSM ID correspond to the Net Number of the server on which the clip is stored, i.e. the EVS video server ID on the XNet network. They are not part of the LSM ID.

UmID

The UmID is an 8-bytes ID with fixed length.

It is used for the unique clip identification on the 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

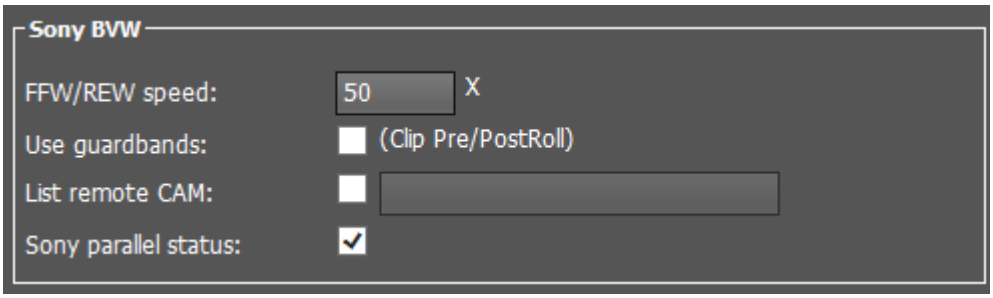
The **Sony BVW settings** allow specifying the settings that will be used with the Sony BVW75 protocol.

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

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

Use guardband

Description	Makes the OUT guardband available to the protocol.
Values	• **Yes**, meaning that the protocol has access to the IN and OUT guardbands. • **No**, meaning that the protocol has only access to the IN guardband.
Default value	**No**

List Remote CAM

Description	Allows access to the CAM recorders of the remote server specified in the XNet field.
Values	• **Yes**, meaning that the recorders of the local server and the remote server are available. • **No**, meaning that only the recorders of the local server are available.
Default value	**No**

SONY Parallel Status

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

4.6.5. EditRec

Introduction to Edit Rec

Edit Rec Protocol

The Edit Rec is a linear editing engine associated to a play channel and a record channel on a server. Its role is to emulate a VTR. The Edit Rec engine relies on the Edit Rec protocol. In addition, both the play and the record channels of the Edit Rec engine are associated to the same RS422 port.

For more information on the Edit Rec feature, refer to the Edit Rec manual.

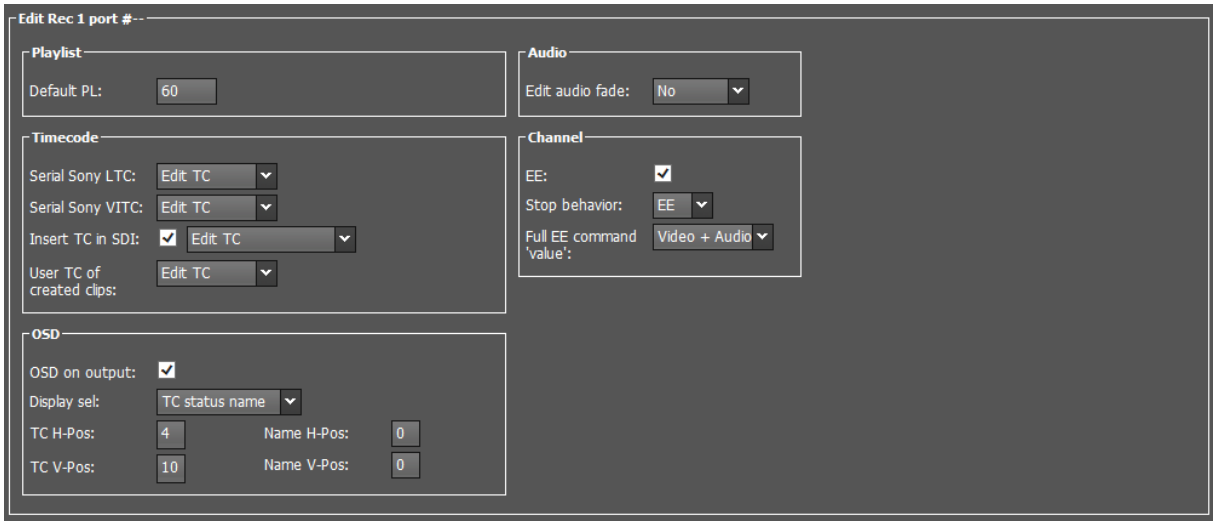
Overview on Edit Rec Settings

The **Edit Rec settings** allow specifying the settings that will be used by the Edit Rec feature.

The Edit Rec settings are available in the following interfaces:

- in the Multicam Configuration window, Protocol tab, on page 2 for Edit Rec 1 and on page 3 for Edit Rec 2, in the basic and advanced display mode in the server- and web-based interfaces
- in the Technical menu of the Remote Control Panel, pages T5.X for Edit Rec 1 and Edit Rec 2

The following screenshot displays the Edit Rec 1 settings on the Protocols tab in the web-based interface:



Edit Rec 1/2 Setting

As two Edit Rec engines can be defined on a server, two pairs of play and record channels can be assigned to this Edit Rec.

When an Edit Rec engine is set up on a server, the **Port #** parameter on the corresponding Edit Rec settings page specifies the port number of the associated play and record channels. If no Edit Rec engine has been configured, **Port #--** is displayed.

Note
You can only edit the settings when the corresponding Edit Rec play channel is stopped.

Playlist Settings for Edit Rec

User Interface

The **Playlist settings** allow specifying the "OSD Settings for Edit Rec" on page 269playlist that will be loaded by default when the Edit Rec starts.

The following screenshot displays the playlist settings for Edit Rec on the Protocols tab in the web-based interface:

Default PL

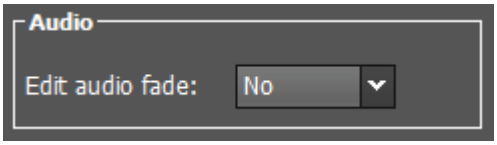
Description	Specifies the playlist loaded by default when the Edit Rec is started.
Values	**10** to **99**
Default value	**60**

Audio Settings for Edit Rec

User Interface

The **Audio settings** allow specifying the settings related to the fading applied at the clip boundaries.

The following screenshot displays the Audio settings for Edit Rec on the Protocols tab in the web-based interface:



Edit audio Fade

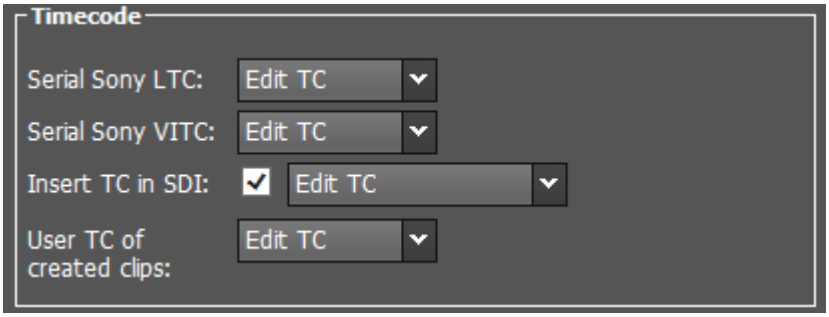
Description	Defines the audio effect to be applied to the clip boundaries and included in the clip material.
Values	• **No** • **V-Fade** • **µMix**
Default value	**No**

Time Code Settings for Edit Rec

User Interface

The **Time Code settings** allow specifying the timecode (TC) types used in various communication protocols.

The following screenshot displays the Timecode settings for Edit Rec on the Protocols tab in the web-based interface:



Serial Sony LTC

Description	Specifies the type of timecode used in communications between the Sony controller and the Edit Rec engine when the controller works with the LTC.
Values	This field is not editable. The value is always **Edit TC**, meaning the timecode of the playlist based on the Start TC.

Serial Sony VITC

Description	Specifies the type of timecode used in communications between the Sony controller and the Edit Rec engine when the controller works with the VITC.
Values	• **Edit TC**, the playlist timecode based on the defined Start TC. • **User TC**, the clip timecode from the USER TC table.
Default value	**Edit TC**

Insert TC in SDI (1 or 2 fields)

Description	Activates or deactivates the timecode insertion in the VITC in SD or in the HANC in HD when the playlist is played out on the Edit Rec play channel.
Values	• **No**, no timecode is inserted. • **Yes**, the following timecode is inserted: ◦ **Edit TC**, the playlist timecode based on the defined Start TC. ◦ **Default**, the timecode selected in the D-VITC field in SD, or in the HANC VITC / LTC fields in HD defined in Timecode Insertion Settings.
Default value	**Yes - Edit TC**

User TC of created clips

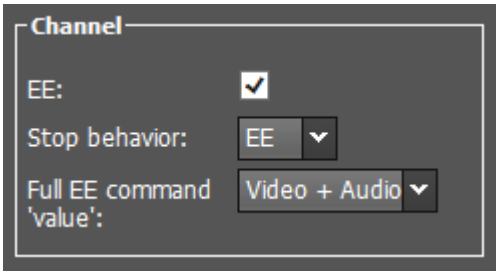
Description	Specifies the TC type inserted into the User TC for the created clips.
Values	• **Edit TC** • **User**
Default value	**Edit TC**

Channel Settings for Edit Rec

User Interface

The **Channel settings** allow specifying the settings related to the channel behavior.

The following screenshot displays the Channel settings for Edit Rec on the Protocols tab in the web-based interface:



EE

Description	Activates the EE (Electronic to Electronic) mode, the signal being recorded is played on the output channel without any delay.
Values	**Yes** / **No**
Default Value	**Yes**

Stop Behavior

Description	Defines the channel behavior when it is in stop mode.
Values	• **PB** (playback): The EditRec playlist is displayed on the EditRec output. • **EE**: The EditRec input passes through the server and is displayed on the EditRec output.
Default Value	**PB**

Full EE command 'value'

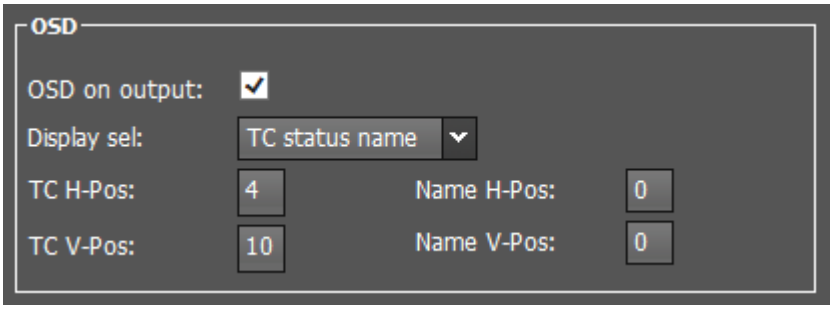
Description	Allows to specify whether the **Full EE** command is applied on the audio and/or to the video. The **Full EE** command makes it possible to view the source connected to the EditRec through the EditRec outputs without any audio or video delay. From a practical point of view, this command allows the operator to select the IN and OUT points of the sources and of the recorder from a single monitoring window (EditRec output).
Values	The following values are available: • **Video+Audio:** When the EVS server receives the **Full EE** command, it is applied to the video and audio feeds. • **Audio:** When the EVS server receives the **Full EE** command, it is applied to the audio feeds only. This is relevant with the Sony plugin Editor.
Default Value	Video + Audio

OSD Settings for Edit Rec

User Interface

The **OSD settings** allow specifying the settings related to the OSD and information to be displayed on the monitoring screen.

The following screenshot displays the OSD settings for Edit Rec on the Protocols tab in the web-based interface:



OSD on Output

Description	Activates or deactivates the OSD feature.
Values	**Yes** / **No**
Default value	**Yes**

Display sel

Description	Specifies the field or combination of fields to be displayed on the screen. • The TC is the Edit TC or the User TC in case the controller uses the VITC and User TC has been selected for the Serial Sony VITC field. • The Name is the number of the edited playlist.
Values	• **Name** • **TC** • **TC Status** • **TC Status Name** • **TC Name** • **Status** • **Status Name**
Default value	**TC Status Name**

TC H-Pos

Description	Defines the horizontal position of the TC on the screen.
Values	**0** to **9**
Default value	**4**

Name H-Pos

Description	Defines the horizontal position of the edit name on the screen.
Values	**0** to **15**
Default value	**0**

TC V-Pos

Description	Defines the vertical position of the TC on the screen.
Values	**0** to **11**
Default value	**10**

Name V-Pos

Description	Defines the vertical position of the edit name on the screen.
Values	**0** to **11**
Default value	**0**

4.6.6. RS422 VarID Settings

User Interface

The **RS422 VarID settings** and the **VDCP visibility settings** display the read-only VarID settings.

These fields are available in the following interfaces:

- in the Multicam Configuration window, Protocol tab in the advanced display mode in the server- and web-based interfaces.

Warning
The VDCP visibility settings are only available if the license code 119, required to work with the VDCP protocol, is valid.

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

VarID Definition and Parameters

Warning
Please contact the EVS support should you need to change the VarID definition or parameters.

The VarID is a 32-bytes ID with variable length and format. The VarID settings enable VDCP protocol to use the VarID to access the clip IDs on a server or on the XNet network.

This page in the Multicam Configuration menu only displays the parameter values. These values are extracted from the 'varid.ini' file and can only be changed by editing this external file. In case of error or undefined values, the corresponding parameter default value is used.

If any of the VarID settings does not correspond to the network defined values set on the XNet, the server will be disconnected from the network and operate in local mode. In this case:

- The Multicam Configuration window clearly displays the message **!Not XNet common value!** next to the incorrect parameter.
- A message is displayed on the 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 XT Net number
;             * for all XNet
;
;------------------------------
Uniqueness=Local
Length=32
Format=ASCII
1=
2=
3=
4=
5=
6=
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
```

Uniqueness

Description	Specifies whether the VarID will be unique at the XNet network level or at the EVS server level. This parameter is valid with VDCP, AVSP and LinX protocols.
Values	• **Global**, the VarID is unique at the XNet network level. • **Local**, the VarID is unique at the EVS server level.
Default value	**Local**

Length

Description	Specifies whether the VarID has a fixed length of 8 bytes or a variable length of 32 bytes.
Values	• **8**, fixed length. • **32**, variable length.
Default value	**32**

Format

Description	Specifies whether the VarID has an ASCII or binary format.
Values	• **ASCII** • **Binary**
Default value	**ASCII**

VDCP Visibility

Description	Specifies the list of servers which will be visible on the various communication ports that the VDCP protocol will use to communicate with. This parameter is only relevant for the VDCP protocol. For a list of servers, use the corresponding servers XNet numbers separated with a semi-colon (;). Please note that the list order is taken into account in the visibility. This means that the system first searches for the requested clips on the first server of the list, then on the second, and so on.
Values	• (empty), the local server is used (converted to the local XNet number). • **1** to **29**, the servers available on XNet. • *, for all XNet servers.
Default value	**1**

4.7. GPI Tab

4.7.1. Overview

The GPI tab includes the settings of the GPI inputs and outputs signals.

The table below presents the settings of the GPI tab. They specify where the setting groups are available (page) and whether each setting is available:

- in the server-based and web-based interfaces
- in the **Technical Setup** menu (T6.X) of the Remote Panel.

Setting Name	Basic & Advanced	Technical Setup
GPI Settings		
TTL GPIs set as GPIs	X	T6.1
GPIs IN		
Channel/Device	X	T6.2 to T6.3
Port	X	T6.2 to T6.3
Function	X	T6.2 to T6.3
Delay	X	T6.4
GPIs OUT		
Function	X	T6.5
Type	X	T6.5
Advance	X	T6.6
Pulse duration	X	T6.6
Tally Settings		
Tally	X	X
Add Clip to PL	X	X
Clips guardbands	X	X

4.7.2. GPI Settings

User Interface

The **GPI Settings** allow specifying the settings related to the GPI inputs and outputs features.

These fields are available in the following interfaces:

- in the Multicam Configuration window, GPI tab
- in the Technical menu of the Remote Control Panel (T6.X)

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

Note
If the **TTL GPIs set as GPIs** parameter is set to **In**, then the display looks like the illustration above with 8 **GPIs IN** and 4 **GPIs OUT** lines.
If it is set to **Out**, then the display is reorganized to expose 4 **GPIs IN** and 8 **GPIs OUT** lines.

GPI Types and Functions

There are 3 types of GPIs available to be used on the servers:

- The input lines 1 to 4 are opto-isolated inputs.
- The output lines 1 to 4 are relay outputs.
- The GPIs TTL lines can be configured as 4 TTL inputs or 4 TTL outputs, in both cases numbered from 5 to 8.

According to the protocol you are using, the following functions are available and can be assigned to the GPIs lines as described hereunder in the **Function** parameter.

- **AVSP**: Play, Stop, Still, Recue, GotoClipIN, GotoClipOUT, Next, Skip.
- **Sony**: Play, Pause, Recue, Previous, Next, Skip.
- **DD35**: Play, Pause, Recue, Previous, Next, Skip.
- **Odetics**: Play, Pause, Recue, Next.
- **VDCP**: Play, Pause, Recue, Previous, Next, Skip.

Note
For all protocols, except AVSP, use the channel assignment (PGM1 to PGMx) instead of the device protocol type (Sony BVW75, Odetics).
The AVSP protocol does not require any GPI IN setting in this page as they are defined through specific serial AVSP commands. For this reason, specific AVSP commands will not be available via the **Function** parameter for the GPIs IN.

TTL GPIs set as GPIs

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

GPIs IN - Channel/Device

Description	Specifies the server channel or the external device connected to the corresponding GPI input line, and therefore to which channel or device the GPI will be sent to.
Values	The following values are possible and correspond to one of the channels or controllers assigned in the Channel and Control settings (Channels tab, page 1): • **PGMx**: The GPI is sent to the specified play channel. • **RECx**: The GPI is sent to the specified record channel. • **RMTx**: The GPI is sent to the remote controller. • **<Protocol Name>**: The GPI is sent to the third-party controlling device.

GPIs IN - Port

Description	Specifies the RS422 port on which the server will receive the input signal. This setting is relevant when the device is an EVS remote controller or third-party controller.
Values	The possible values are from 1 to 6: it corresponds to the RS422 port to which the controller specified in the **Channel/Device** field is assigned in the Port settings (Channels tab, page 1).

GPIs IN - Function

Description	Specifies the function associated to the GPI input line. According the configured protocol some or all of the functions described below are available.
Values	• **Play**: sends a play command at 100% speed on the selected channel. • **Pause**: sends a pause command on the selected channel. • **Recue**: sends a jump to the IN point of the on air element on the selected channel. (If this is a playlist, the jump is performed to the IN point of the first clip of the playlist.) • **Previous**: sends a command to go to the previous clip of a playlist on the selected channel. • **Next**: sends a command to go to the next clip of a playlist on the selected channel. • **Skip**: sends a command to skip the clip being played on the selected channel. • **Tally**: activates or deactivates the on-air flag on the selected channel. (This GPI is only used by IPDirector.) • **Mark IN**: sets an IN point on the corresponding record channel. • **Mark OUT**: sets an OUT point on the corresponding record channel. • **Mark Tly**: sets an IN and an OUT points on record trains based on changes in camera angles of the director's cut. An IN point is set on the train to which the director switches and an OUT point is set on the train that the director leaves. • **Exit ASP**: sends a command to exit the loop as soon as possible without playing the current element until its end then jump to the selected element. (This GPI is used with playlists in IPDirector.) • **Exit OUT**: sends a command to exit the loop as soon as the OUT point of the current element is reached then jump to the selected element. (This GPI is used with playlists in IPDirector.) • **None**: no value is defined.
Default value	**None**

GPIs IN - Delay

Description	Specifies the time (number of seconds and/or frames) that the server will wait after receiving the input signal before executing the input-related function.
Values	• **00s00fr** to **02s00fr** • **Disable**
Default value	**Disable**

GPIs OUT - Function

Description	Specifies the function that activates the output line.
Values	The following function can trigger a GPI OUT: • **Replace**

GPIs OUT - Type

Description	Specifies the type of GPI output signal that will trigger the specified function.
Values	The following values are possible: • **close**  The level changes to high level at activation. • **close pulse**  A rising edge pulse is generated at activation. • **open**  The level changes to low level at activation. • **open pulse**  A falling edge pulse is generated at activation.

GPIs OUT - Advance

Description	Defines the time (number of seconds and/or frames), at which the output will be generated ahead of the timecode linked to the output line.
Values	• **00s00fr** to **02s00fr** • **Disable**
Default value	**Disable**

GPIs OUT - Pulse duration

Description	Defines the pulse duration (number of seconds and/or frames) for pulse type output lines.
Values	• **00s00fr** to **02s00fr** (2fr steps) • **Disable**
Default value	**Disable**

4.7.3. Tally Settings

Introduction

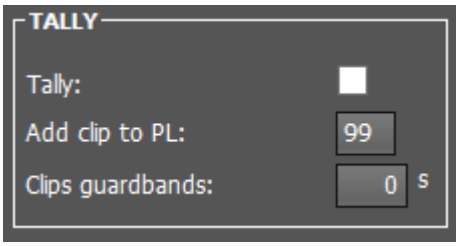
The **Tally settings** allow specifying the settings related to the tally feature. This feature allows the user to automatically create a clip for each change of camera performed with the Director's Cut and to add these clips to a playlist. The clips are created automatically by the server as it receives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

To use the tally function, proceed as follows:

1. Activate it using the **Tally** parameter.
2. Go to the GPIs IN settings area and select the GPI IN used for the tally control.
3. Set the Channel/Device on the REC on which the Director's Cut is performed.
4. Set the function as **Mark Tly**.

The tally function is now active, and works as follows:

When the server receives a 'Mark tally' GPI IN, an IN point is marked on the corresponding record train (for ex. cam a). When a second 'Mark Tally' GPI IN is received on a different record train (for ex. cam b), the server marks an OUT point on the first record train (cam a) and an IN point on the second record train (cam b). All the clips created this way are added to the defined playlist.

Tally

Description	Activate or deactivate the tally function.
Values	**Yes**/**No**
Default Value	**Yes**

Add Clip to PL

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

Clips guardbands

Description	Specifies the guardbands length of the tally clips, in seconds.
Values	**0** to **250**
Default Value	**0**

4.8. Operation Tab

4.8.1. Overview

Operation Tab

The **Operation** tab is available as the default tab with operational settings. It consists of several pages in the basic mode in the server-based application. No advanced mode is available in this tab.

The table below presents the settings of the Operation tab. They specify whether the various settings are available:

- in the basic or advanced display mode in the server-based and web-based interfaces.
- in the **Operational Setup** menu of the Remote Panel.

Op-Shared Tab versus Op-1/2 Tab

In the Dual LSM mode, the standard Operation tab is not available as such as the operational settings are split into two groups:

- Most operational settings remain common to both LSM operators working on the EVS server. They are available:
  - in the **Op-Shared** tab in the server-based and web-based interface.
  - in the **Operational Setup** menu of the **first** LSM Remote Panel.
- Some operational settings are duplicated so that each LSM operator can define its own setting values. They are available:
  - in the **Op-1/2** tab (page 8) in the server-based and web-based interface.
  - in the **Operational Setup** menu, in pages located after the standard sections, in **Operator 1** or **Operator 2** sections of each LSM Remote Panel.

  In the following tables, where this is relevant, the settings duplicated in Dual LSM have a cross in the **Duplicated in Dual LSM** column.

OSD Settings

Setting Name	Basic	Operational Setup	Duplicated in Dual LSM
OSD settings		**1.x**	
Cue Number on OSD	X	X	-
Keyword info	X	X	-
OSD on outputs	X	X	-
OSD on inputs	X	X	-

Setting Name	Basic	Operational Setup	Duplicated in Dual LSM
Background	X	X	-
Audio meters OSD settings		1.x	
Audio Meters	X	X	-
DB Adjust	X	X	-
Style	X	X	-
Thickness	X	X	-

Clips Settings

Setting Name	Basic	Operational Setup	Duplicated in Dual LSM
Clips settings		2.x	
Automake clip for cam A to L	X	X	X
Make clips rem. trains	X	X	-
Guardbands	X	X	
Default clip duration	X	X	-
Autoname clips	X	X	-
Clip post-roll	X	X	-
Mark cue points	X	X	X
Preroll	X	X	-
Record trains OUTs	X	X	-
Default copy/move	X	X	-
Freeze on cue points	X	X	X
Codec target	X	X	-
Protocol receive page	X	X	-
Playlist receive page	X	X	-
Timeline receive page	X	X	-

Playlist Settings

Setting Name	Basic	Operational Setup	Duplicated in Dual LSM
Playlist settings		3.x	
Video effect duration	X	X	X

Setting Name	Basic	Operational Setup	Duplicated in Dual LSM
Audio locked to video	X	X	X
Audio effect duration	X	X	X
Wipe type	X	X	-
Default playlist speed	X	X	X
Insert in playlist	X	X	X
Confirm Ins/Del clips	X	X	-
Advanced audio editing	X	X	X
Extend split transition	X	X	X
Swap audio tracks	X	X	-
Playlist loop	X	X	-
Playlist auto fill	X	X	-
Fade to/from color	X	X	-
Load playlist	X	X	X

Miscellaneous Settings

Setting Name	Basic	Operational Setup	Duplicated in Dual LSM
Timeline settings		4.x	
Mono per group	X	X	-
Protection settings		5.x	-
Protect pages	X	X	-
Clip edit by network	X	X	-
Confirm delete clips/playlists	X	X	-
Keywords settings		6.x	
Keyword files	X	X	-
Keyword mode	X	X	-
Push settings		7.x	
Push target	X	X	-
Codec target	X	X	-
Push target 1/2	X	X	X
Push mode	X	X	-
Push receive page	X	X	-

Setting Name	Basic	Operational Setup	Duplicated in Dual LSM
Audio settings		8.x	
Audio slow motion	X	X	-
Lipsync value	X	X	-
Aux track output	X	X	-

Controller Settings

Setting Name	Basic	Operational Setup	Duplicated in Dual LSM
Controller settings		9.x	
Effect duration for take	X	X	X
Fast jog	X	X	-
PGM Speed/Var max	X	X	-
Lever engage mode	X	X	X
Second lever range	X	X	X
Recall clip toggle	X	X	X
Record key	X	X	-
Pointing device	X	X	-
VGA & Remote sync	X	X	
Call channel VGA	X	X	-
PGM/PRV mode	X	X	-
Internal loop mode	X	X	-
Grab image	X	X	-
Browse button	X	X	-

Hypermotion Settings

Setting Name	Basic	Operational Setup
Hypermotion settings		11.x
Hypermotion	X	X
Recorder	X	X
Remote mode	X	X
Port	X	X
Protocol	X	X
Dial Speed	X	X

Special Effects Settings

Setting Name	Basic	Operational Setup
Special Effects settings		12.x
Pain/target transition	X	X
Set colour for	X	X
Colour	X	X
Custom Y	X	X
Custom U	X	X
Custom V	X	X
Split screen tracking	X	X
Paint/target OSD mon.	X	X
Internal offside line	X	X
Epsio	X	X
IP address	X	X
Default tool	X	X
Auto mark	X	X

4.8.2. OSD Settings

User Interface

The OSD settings allow users to specify which and how the information will be displayed on the OSD.

These fields are available in the following interfaces:

- in the Multicam Configuration window, Operation tab
- in the Operational menu of the Remote Control Panel (1.1)

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

Cue number on OSD

Description	Enables / disables the display of the cue point number on the OSD of the output monitors when a cue point is recalled inside a record train.
Values	Yes (default) / No

Keyword info

Description	Shows / hides the defined keywords and ranking on the OSD of the output monitors 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.
Values	Yes / No (default)

OSD on outputs

Description	Enables / disables the OSD on the play channels.
Values	Yes (default) / No

OSD on inputs

Description	Enables / disables the OSD on the record channels.
Values	Yes (default) / No

Background

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

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

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

DB Adjust

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

Style

Description	Specifies the style of the audio meters
Values	Light Bars , Glowing Boxes , Dark Boxes , Light Boxes , Dark Bars
Default value	Light Bars

Thickness

Description	Specifies the thickness of the audio meters
Values	Thin, Medium, Thick
Default value	Thin

4.8.4. Clips Settings

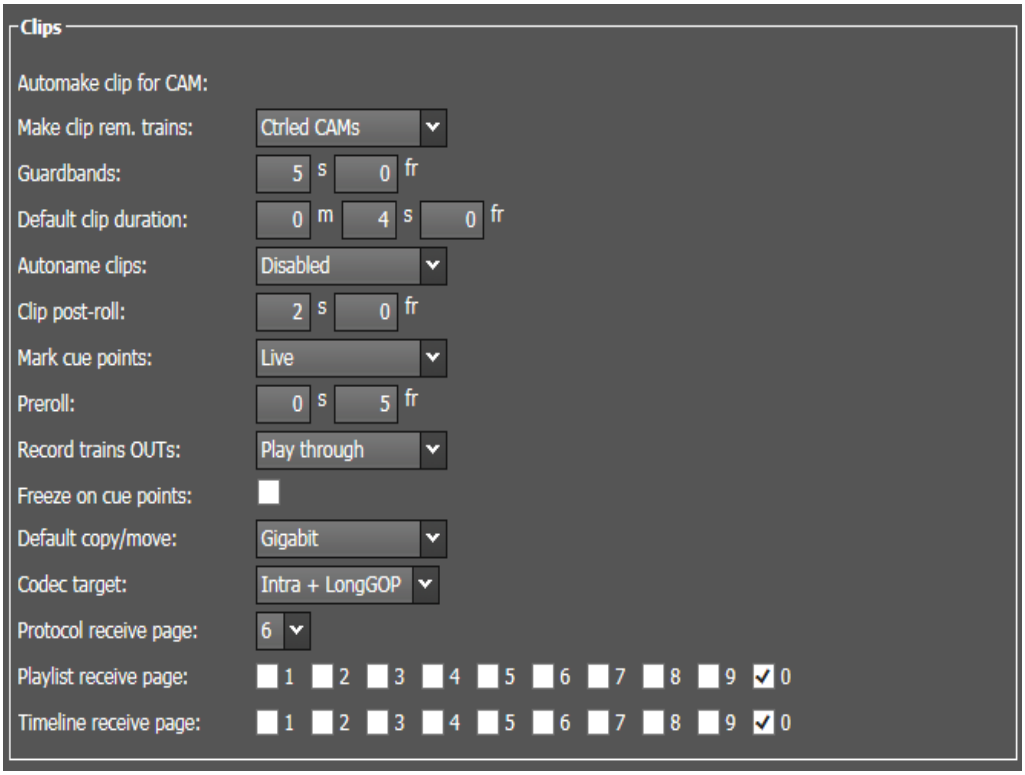
User Interface

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

The Clips settings are available in the following interfaces:

- in the Multicam Configuration window, Operation tab
- in the Operational menu of the Remote Control Panel (2.X).

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



Automake clip for CAM A to L

Availability	This parameter is only displayed in Multicam LSM, Replay-Only LSM and XSense configurations.
Introduction	When creating clips, the clip corresponding to the camera on which IN/OUT points have been marked are always saved. It is possible to save automatically the same action on the other cameras. Only cameras letters applicable to the logical channels are displayed.
Description	Specifies that clips have to be created on the given cameras (A to L) even if no IN or OUT point has been marked on that camera.
Values	Yes / No
Default value	Yes

Make clip rem. trains

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

Guardbands

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

Default clip duration

Description	Specifies the duration of clips created with only one reference point (IN or OUT point).
Values	Disable, or from 00s01fr to 4h. When set to 'Disable', both IN and OUT points are required to be able to create a clip. The duration can be set: • With second granularity up to 1 minute • With minute granularity from 1 minute up to 4 hours.
Default value	04s00fr

Autoname clips

Description	If this function is enabled, the value of the selected field will automatically be used to name the clip upon creation.
Values	The values from the following fields can be used to automatically name clips: • **Disable:** No name is assigned to a clip when it is created. • **TC IN:** The timecode of the IN point of the clip is automatically assigned to a clip when it is created. • **CAM Name:** The name of the record channel is automatically assigned to a clip when it is created. • **ID Louth:** 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. • **VarID 32:** 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.
Default value	Disable

Clip post-roll

Description	When the post-roll function is enabled from the secondary clip menu, the clip will play through its OUT point for the duration defined by the Clip post-roll parameter. This is also valid inside record trains if the Record Train OUTs parameter is set to 'Freeze'.
Values	From 00s00fr to 30s00fr
Default value	02s00fr

Mark cue point

Description	Specifies how the cue point timecode will be memorized.
Values	Two values are possible for this parameter: • **Live:** Memorizes cue points based on the timecode of the LIVE input. • **Playback:** Memorizes cue points based on the timecode of the field loaded on the main play channel.
Default value	Live

Preroll

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

Record trains OUTs

Description	Specifies whether Multicam will freeze or play through when it reaches an OUT point marked on the record train that is being played back.
Values	Two values are possible for this parameter: • **Play through:** Multicam will still countdown to the OUT point, but will keep playing through this point. • **Freeze:** Multicam will countdown to the OUT point and will automatically freeze: ◦ on that picture if the post-roll mode is disabled ◦ on that picture + the post-roll duration if the post-roll mode is enabled. When playing a clip, Multicam always freezes on the OUT point (or OUT point + post-roll duration when post-roll mode is enabled).
Default value	Play through

Default copy/move

Description	Specifies whether the copy operations should be executed preferably using the SDTI or the Gigabit network.
Values	Two values are possible for this parameter: • **SDTI:** The copy operations are first executed through the SDTI network. If the SDTI network is temporarily unavailable, the transfer is then tried through the Gigabit interface. Transfers to GbE targets will always be performed via the GbE interface. • **Gigabit:** The copy operations are first executed via the GbE interface. If the transfer is not possible (ports not connected, IP address unknown, no more connection ports are available), the transfer is then tried through SDTI. 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.
Default value	SDTI

Freeze on cue points

Description	Specifies whether Multicam will freeze or not when it reaches a cue point marked on the clip or the record train that is being played back. The post-roll parameter is not taken into account for this functionality.
Values	• **Yes:** The playout freezes on the cue points when playing clips or record trains where cue points have been defined. • **No:** The playout plays through the cue points when playing clips or record trains.
Default value	No

Codec target

Description	Specifies which essence(s) of the clip will be used in case of clip copies to a distant server.
Values	Two values are possible for this parameter: • **Intra**: Only the Intra essence of the clip is copied. • **Intra + LongGOP**: Both Intra and LongGOP essences of the clip are copied. When the Proxy essence is active, it will always be copied. This value is therefore not selectable.
Default value	Intra + LongGOP

Protocol Receive page

Description	Specifies on which page the clips created by protocols are stored. When a page is full, clips are stored on the next page. Only clips created on this page (and the other protocol pages if the first page is full) are visible for protocols.
Values	1 to 10 (=0)
Default value	6

Playlist Receive page

Introduction	This setting is linked to the copy function that allows users to automatically create a local copy of all network clips when copying a local or network playlist. For details, refer to the description of the Playlist copy function in the Operations manual.
Availability	The setting is only available if the license code 111 or 112 is valid.
Description	Specifies on which page(s) of your EVS server the clips received when using the PLST+CLIPS copy function must be stored. Clip pages can be assigned simultaneously as PUSH and PLST Receive Pages.
Values	1 to 10 (=0)
Default value	0 (page 10)

Timeline Receive page

Description	Specifies on which page(s) the clips automatically created in timeline mode as part of the timeline editing process are stored.
Values	1 to 10 (=0)
Default value	0 (page 10)

4.8.5. Playlist Settings

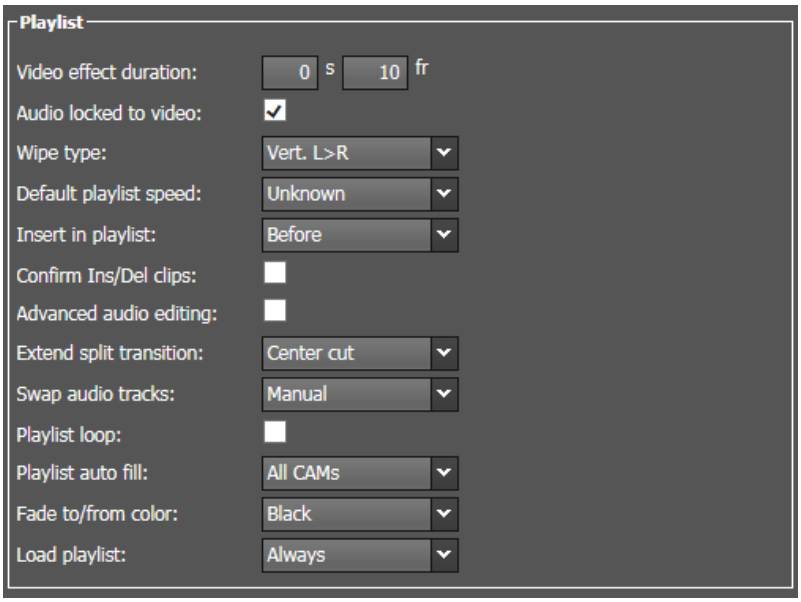
User Interface

The Playlist settings relate to various aspects of playlist management and effects.

These fields are available in the following interfaces:

- in the Multicam Configuration window, Operation tab
- in the Operational setup menu of the Remote Control Panel (3.X)

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



Availability

The Playlist settings are only available if the license code 111 or 112 is valid. Some playlist settings are tied to the code 112, and will therefore not be available if the license code is not valid.

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

Description	Sets the duration of video transition effect. The specified value is used as default value in the Playlist Edit mode. Note that the duration of the video transition when using the **TAKE** button in 1PGM+PRV mode has its own parameter, **Effect for take**, defined in the EVS Controller section of the Operation tab.
Values	0s00fr to 20s00fr
Default value	00s10fr

Audio locked to video

Availability	This setting is only available if the license code 112 is valid.
Description	Specifies whether you will be able to define different durations for the audio and video transitions inside a playlist when the Advanced Audio Editing parameter is enabled. This setting is irrelevant if the Advanced Audio Editing parameter is disabled.
Values	The possible values are: • **Yes:** The duration of video and audio transitions in a playlist cannot be different. • **No:** The duration of the video and audio transitions in a playlist can be different. If the license code 112 for advanced audio editing is not valid, the parameter value is forced to 'Yes'.
Default value	Yes

Audio effect duration

Availability	This setting is only available if the license code 112 is valid. This setting is only available when the **Audio locked to video** setting is set to **No**.
Description	Sets the duration of the audio transition effect when: • the Advanced Audio Editing setting is enabled. • the Audio locked to video setting is set to 'No'. The specified value is used as default value in Playlist Edit mode. If the Advanced Audio Editing is disabled, this setting is not relevant since the video and audio transitions will always have the same duration, based on the Video Effect Duration.
Values	0s00fr to 20s00fr
Default value	0s00fr

Wipe type

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

Default playlist speed

Description	Defines the default speed used to play clips in a playlist.
Values	The following values are possible Unknown, and from 0% to 100%: • **Unknown** means that the speed of the previous clip in the playlist will be used as a reference for the current clip. • **0%** will force the playlist to pause at the end of each clip. • **1% to 100%** will apply the specified speed as default speed for playlist elements.
Default value	Unknown

Insert in playlist

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

Confirm Ins/Del clips

Description	Specifies whether a confirmation will be required each time the operator wants to add a clip to the playlist or remove a clip from the playlist.
Values	Yes / No
Default value	No

Advanced audio editing

Availability	This setting is only available if the license code 112 is valid.
Description	Activates /deactivates the desynchrone (audio/video) editing in a playlist edit mode. Changing this parameter modifies the display on the output monitors and adds special function keys on the LCD screen to define different transition points and durations on the video and audio tracks.
Values	Yes / No
Default value	No

Extend split transition

Availability	This setting is only available if the license code 112 is valid.
Description	Determines how the transition should be extended when the transition duration on the audio or video track only is modified. This parameter is only useful when performing split audio editing.
Values	The following values are possible: • **Center (on) Cut:** Extends equally on both sides of the transition. • **End (on) Cut:** Extends the beginning of the transition to the left so that the end of the transition is unchanged. • **Start (on) Cut:** Extends the end of the transition to the right so that the beginning of the transition is unchanged. • **Ask:** Allows the operator to select any of the above options when editing the duration of the transition.
Default value	Center Cut

Swap audio tracks

Availability	This setting is only available if the license code 112 is valid.
Description	Defines whether the audio tracks to swap are automatically or manually selected, when performing split audio editing with at least 4 mono audio tracks per video.
Values	The following values are possible: • **Auto:** The audio tracks to swap are automatically selected by the application when inserting a swap point. This is the default value in 4-audio configurations. • **Manual:** The operator can define which audio tracks he wants to swap when inserting a swap point. This is the only value available in 8- and 16-audio configurations.
Default value	**Auto**

Playlist loop

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

Playlist auto fill

Description	Specifies which camera angles will be added to the playlists when using the **Fill Playlist (F9)** function from the main menu of the Remote Panel.
Values	The following values are possible: • **All Cam:** The clips for all camera angles will be added to the playlist. • **Prim+Sec:** The clips corresponding to the primary and secondary camera angles will be added to the playlist. • **Primary:** The clips corresponding to the primary camera angles will be added to the playlist. • **Secondary:** The clips corresponding to the secondary camera angles will be added to the playlist. • **Cam A, Cam B, Cam C, Cam D, Cam E or Cam F:** The clips corresponding to the defined camera angle will be added to the playlist.
Default value	All Cam

Fade to/from color

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

Load Playlist

Description	This parameter is only used in 2PGM or 3PGM mode.
Values	The following values are available: • **Always:** This always loads the selected playlist in PGM/PRV mode. • **Conditional:** This loads the selected playlist on the selected PGM only if only 1 channel is active when entering the Playlist Edit mode. It allows loading and playing multiple playlists using a single Remote Panel.
Default Value	Always

4.8.6. Timeline 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 (4.1)

The Timeline settings relate to the audio groups in timelines.

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

Mono per group

Description	Defines how many audio mono channels are associated to each of both audio tracks of a timeline.
Values	The following values are possible, depending on the value defined for the **Number of tracks** setting in the Channels tab:

# tracks	Possible values
4	2
8	4 (default) , 2+6, 6+2
16	8

Note
The 2+6 feature is particularly useful when working in Dolby audio to assign a timeline track to the stereo pair and the other track to the Dolby 5.1 audio

4.8.7. Protection Settings

User Interface

The Protection settings aim at protecting clips stored on the EVS server from deletion.

These fields are available in the following interfaces:

- in the Multicam Configuration window, Operation tab
- in the Operational setup menu of the Remote Control Panel (5.1)

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

Protect pages

Description	Specifies the pages on which the clips stored are protected from accidental deletion. The clips stored on these pages are also protected when using the **Clear All Clips (F7)** function from the main menu of the Remote Panel. See section "Navigating and Editing in the Multicam Configuration Window" on page 152 for more information on how to enable pages.
Values	Page 1 to 10 (=0). Several pages can be selected.

Warning
When the option **Clear Video Disks** is selected in the Multicam Setup window of the server-based application, all clips are deleted, including the protected ones.

Clip edit by network

Availability	This setting is only available if the license code 117 is valid.
Description	Allows users to edit clips on the whole SDTI network.
Values	The following values are possible: • **Yes:** Other users on the network can trim, rename, delete, etc. your clips, or modify the keywords and ranking assigned to your clips. • **No:** Only the local operators can modify or delete clips on the server and edit their metadata.
Default value	No

Confirm delete clips/playlists

Description	Enables a confirmation request when users delete clips, playlists or in both situations.
Values	The following values are possible: • **Off:** Clips and playlists are immediately deleted. • **Clips:** A confirmation is required for a clip deletion, but not for a playlist deletion. • **Playlists:** A confirmation is required for a playlist deletion, but not for a clip deletion. • **Clips & Playlists:** A confirmation is required both for a playlist deletion, and for a clip deletion.
Default Values	Off

Note
This parameter does not apply to the **Clear Video Disks** command, available in the Multicam Setup window of the server-based application, which already has its own confirmation message.

4.8.8. Keywords Settings

User Interface

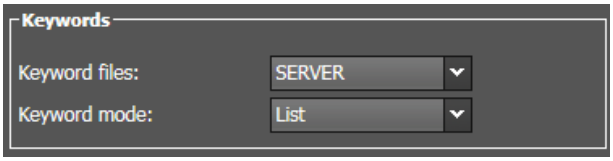
The Keywords settings allow the management of keywords on the EVS server.

These fields are available in the following interfaces:

- in the Multicam Configuration window, Operation tab
  - on page 1 on the web-based interface
- in the Operational setup menu of the Remote Control Panel (6.1)

Warning
The Keywords settings are only available if the license codes 124 and 125 are valid.

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



Keyword files

Description	Specifies the keywords file that can be used to assign keywords to clips or to search the clips database.
Values	The following values are possible: • **-------- :** No keywords file is selected, and the keyword assignment and related search functions are not available. • **SERVER:** 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. • **<Keywords file name>:** ◦ 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. ◦ 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 47 for details about keyword import/export function, ◦ See the "Keyword Management" section in the Multicam operational manual for details about the keywords file format and keywords-related functions,
Default Values	-------- (keywords file not selected)

Keyword mode

Description	Specifies the keyword assignment/search mode on the EVS Remote Panel.
Values	The following values are possible: • **List:** 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. • **Numeric:** 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.
Default Values	List

4.8.9. 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, and on the value of the **Speed** setting in the Network tab.

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

Push Target

Description	Specifies which EVS servers will be listed as possible targets for push actions when the user selects: • the default Target 1 and Target 2 in the settings, or • a target for a specific push action if no default target has been configured.
Values	The following values are possible: • **SDTI:** Only SDTI targets will be listed. The servers are listed by their network system name and number. • **Gigabit:** 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. • **SDTI+Gigabit:** 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 **Gigabit** and **SDTI+Gigabit** values are not available if the EVS server does not have a GbE board.
Default Value	SDTI

Codec target

Description	Specifies which essence(s) of the clip will be used in case of a push action.
Values	Two values are possible for this parameter: • **Intra**: Only the Intra essence of the clip is pushed. • **Intra + LongGOP**: Both Intra and LongGOP essences of the clip are pushed. When the Proxy essence is active, it will always be pushed. This value is therefore not selectable.
Default value	Intra + LongGOP

Push Target 1 / 2

Availability	These parameters are only available in the server-based application, not in the web-based interface.
Description	Specifies to which machine(s) on the network the clips must automatically be sent when the operator uses the **PUSH** function on the Remote Panel. The machines defined in this setting are also used as default target for clip copies. The users can define two default targets: Target 1/ Target 2. The clips will be pushed in sequential order.
Values	A list of values will be displayed depending on the value assigned to the **Target** setting: • **--------:** When no target is defined in these parameters, the user will be able to define the requested target when (s)he calls the **PUSH** function. • **<network system name and number>**are listed and can be assigned for targets belonging to the SDTI network. • **<GbE server name and IP Address>** are listed and can be assigned for targets belonging on the GbE network.
Default Values	-------- (No target machine specified)

Push Mode

Description	Specifies how the clips should be sent using the **PUSH** function, that is to say with or without the original guardbands.
Values	The following values are possible: • **Short:** The clips are sent from the Short IN to the Short OUT points, to which the guardbands of the destination machine are added. • **Long:** The clips are sent from the Protect IN to the Protect OUT.
Default Values	Short

Push Receive Page

Description	Specifies the page of your machine where clips sent to you by other network operators using the **PUSH** function must be stored first. When the preferred slots on the first page are fulled, the clips are stored on the preferred slots of the next page. See section "Navigating and Editing in the Multicam Configuration Window" on page 152 for more information on how to enable pages.
Values	Page 1 to 10 (=0). A single page can be selected.
Default Values	(Page) 5

Push Receive Slot

Description	Specifies the clip position(s) (A to L) where the pushed clips will be stored in priority, starting on the page specified in the **Push Receive Page** setting. See section "Navigating and Editing in the Multicam Configuration Window" on page 152 for more information on how to enable slots.
Values	Slot A to L. Several slots can be selected.
Default Values	(CAM) A,B,C,D

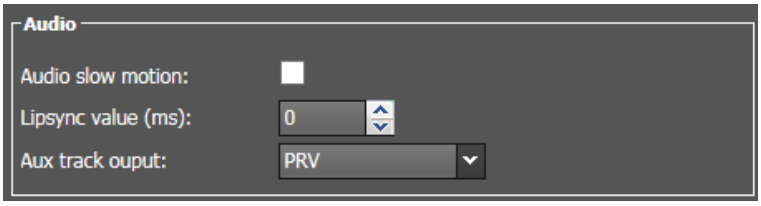
4.8.10. Audio Settings

User Interface

These fields are available in the following interfaces:

- in the Multicam Configuration window, Operation tab
- in the Operational setup menu of the Remote Control Panel (8.1)

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



Audio slow motion

Description	Allows users to play back or mute the audio track when the playing speed is different than 100%.
Values	The following values are possible: • **Yes:** The audio track is not muted during the playback. • **No:** The audio track is muted during the playback.
Default value	No

Lipsync value (ms)

Description	Specifies the delay (in ms) between video and audio signals: • A positive value means video is ahead of audio. • A negative value means audio ahead of video.
Values	The following values are possible: • Range for PAL: from -41,458 ms to 14,708 ms → 848 to 3544 samples, 0 ms → 2838 samples • Range for NTSC: from -34,625 to 12,125 ms → 688 to 2932 (samples), 0 ms → 2350 samples
Default value	0 ms

Note
This adjustment is done during the record process. A new Lipsync value will apply for the next recorded pictures only.

Aux track output

Description	Specifies to which audio outputs the auxiliary track of the playlist will be played out.
Values	The following values are possible: • **PRV:** 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. • **PRV&7-8/15-16:** 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. • **PGM:** The auxiliary track will use the audio outputs normally assigned to the PGM channel.
Default value	PRV

4.8.11. 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.

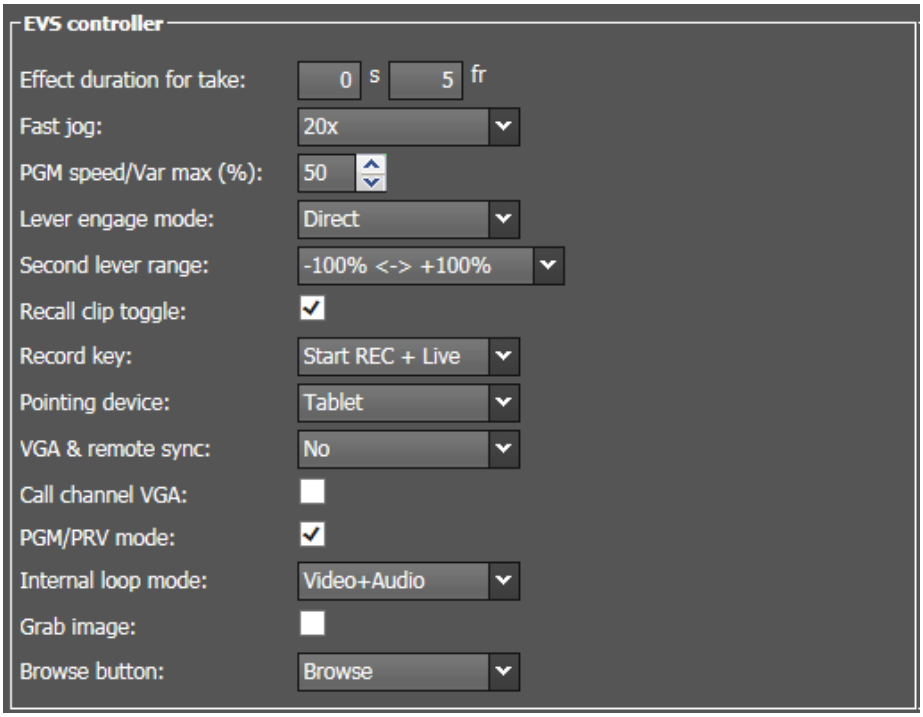
Warning
Most of the settings are only available or applicable with base configurations associated to the use of an EVS Remote Panel (LSM Remote, XSense Remote).

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

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

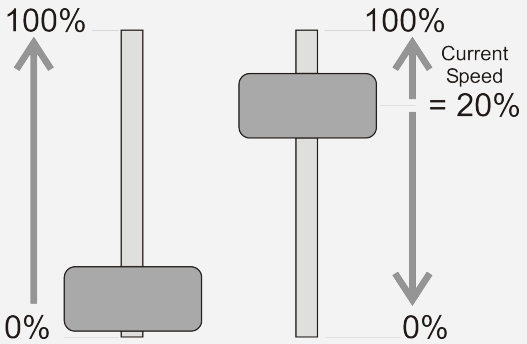
Fast jog

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

PGM Speed / Var Max

Availability	The **Var Max** option is not available with XSense configurations.
Context	During playback, if PGM Speed or Var Max has been enabled in the secondary menu of the Remote Panel, the lever range will be adapted so that: • 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) OR • the speed range defined by the lever is limited to the value specified by this parameter (VarMax mode ON).
Description	Specifies the playback speed assigned to the lever when the **PGM Speed** or **Var Max** commands are used.
Values	Range of values from 1 to 400 %
Default value	50%

Lever engage mode

Description	Specifies how the playback speed varies depending on the position of the lever. This parameter is not relevant in XSense configurations.
Values	The following values are possible: • **Direct mode:** The lever will engage directly when moved, resulting in a speed jump to the desired speed determined by the lever arm position. • **Current speed mode:** The lever will only engage when it reaches the current playback speed, whereas a move of the lever arm in the opposite direction of the current speed will result in a direct speed change. 
Default value	Direct

Second lever range

Context	The lever can be used in normal mode to play back clips at slow motion speed from 0 to 100%. A secondary range is available to playback material at other speed ranges. To gain access to the secondary speed from the remote controller, press **SHIFT** + **LEVER/TAKE**. The second lever range is also available when editing the speed of playlist clips.
Description	Specifies the secondary speed range on the Remote Panel.
Values	The following values are possible: • -100% → +100% • 0 → +200% • -200% → +200% • 0 → +400% • -400% → +400%
Default value	-100% → +100%

Recall clip toggle

Description	Enables/disables the selection of the camera of a clip through the Function keys: Pressing several times the F_ key browses to CAM A, CAM B, CAM C, CAM D, CAM E and CAM F.
Values	Yes / No
Default value	Yes

Record key

Description	Changes the function of the **RECORD** key on the Remote Panel, as described below.
Values	The following values are possible: • **Start REC+Live:** Pressing the **RECORD** key starts the record process and switches to LIVE mode. • **Live:** Pressing the **RECORD** key only switches to last recorded picture, but the record is not restarted if it has been previously stopped by the operator.
Default value	Start REC+Live

Pointing device

Description	Specifies the pointing device connected to the EVS server, and initializes it. Currently, only tablets are supported as pointing devices. If the tablet is not properly calibrated, this function will re-initialize it.
Value	Tablet

VGA & Remote sync

Description	Specifies whether and how the current clips machine, page and bank of VGA screens and Remote Panel must be synchronized.
Values	The following values are possible: • **No:** Clip machine, page and bank can be selected independently on the VGA screen and on the Remote Panel. • **Yes:** 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. • **Server:** Clip pages and banks can be selected independently on VGA and Remote Panel, but connecting to the clips of a network machine or coming back to the clips of the local machine on the VGA or Remote Panel will be automatically reflected on the other.
Default value	No

Call channel VGA

Description	Enables or disables the **Call Channel** function on the VGA Clip screen. This function allows the operator to select on which PGM channel the clips called from the keyboard and VGA should be loaded.
Values	Yes / No
Default value	Yes

PGM/PRV mode

Description	Allows the user to select the PGM/PRV mode on the LCD display as a function accessible from the **A** button on the Remote Panel's main menu. Otherwise, the PGM/PRV mode selection is not accessible from the A button.
Values	The following values are possible: • **Yes:** The PGM/PRV mode is available from the **A** key on the Remote Panel. • **No:** The PGM/PRV mode is not available from the **A** key on the Remote Panel.
Default value	Yes

Internal loop mode

Description	Defines which components of PGM1 output must be recorded back into the server when the Loop mode is engaged.
Values	The following values are possible: • **Video + Audio:** Both video and audio signals of PGM1 are recorded back into CAM A input.. • **Video only:** Only the video signal of PGM1 is recorded back into CAM A input. This allows the operator to continue the record of live audio tracks during the Loop process. This can be useful to add music, voice or live sound to an edit for example.
Default value	Video + Audio

Note
In audio embedded, the audio is always looped, whether the loop mode is set to Video + Audio or Video only.

Grab image

Availability	This setting is only available if the license code 117 is valid.
Description	Enables / disables an image grab when the **MARK** key on the Remote Panel is hit, and when a default XFile has been assigned. Each time the **MARK** key is used, a cue point is marked and a command is sent to the XFile to save that image. The grab can also be activated on the keyboard with the combination **CTRL + G**.
Values	Yes / No
Default value	No

Browse button

Description	Allows users to convert the function of the **BROWSE** key.
Values	The following values are possible: • **Browse:** ◦ Without cue points: This will directly activate the playlist browse function, which is the default function assigned to this key. ◦ When cue points are defined: This activates the browsing through the cue points defined on the clip or on the record train. • **Sort TC:** The system will perform a Sort TC directly. The system will not prompt the user with a select menu, and it will use the current TC on the channel to search with the last selected criteria. If the user wants to perform a search with different criteria (Search Net or Local, StartDate, EndDate, CAM/CLIP, etc…), the user should use the normal Sort-TC selection in the upper menu.
Default value	Browse

4.8.12. Hypermotion Management

Principles

The hypermotion cameras can be controlled by the LSM Remote Panel. The camera is linked via a RS422 or LAN PC connector to the same XT3 server as the controlling Remote Panel.

In setups including a hypermotion camera, the following principles apply:

- An XT3 server cannot control more than one hypermotion camera.

- The hypermotion camera is used with the classical channel configurations.
- Not all Multicam LSM configurations with several PGMs and several Remotes are supported within the current RS422 and channel configuration constraints.
- If the **Remote Mode** setting in the Hypermotion Controller settings is set to 'Hypermotion only', an additional menu is made available in the main menu of the LSM Remote Panel.

Remote Panel Assignment

In setups where several LSM Remote Panels and a hypermotion camera are defined, the assignment of the various PGMs and hypermotion camera to the LSM Remote Panels is automatically performed as shown in the table below depending on:

- the number of PGMs in the selected channel configuration
- the selected Remote Mode (Hypermotion only or Hypermotion + LSM)
- the number of Remote Panels available

The following table presents the possible configurations:

# of Remotes	1		2		3		4	
Hypermotion Mode	**Hyperm. Only**	**Hyperm. + LSM**	**Hyperm. Only**	**Hyperm. + LSM**	**Hyperm. Only**	**Hyperm. + LSM**	**Hyperm. Only**	**Hyperm. + LSM**
1 OUT	NA	R1: PGM1 +hyperm.	R1: PGM1 R2: hyperm.	NA	NA	NA	NA	NA
2 OUT	NA	R1: PGM1 +PGM2 +hyperm.	R1: PGM1 +PGM2 R2: hyperm.	R1: PGM1 R2: PGM2 +hyperm.	R1: PGM1 R2: PGM2 R3: hyperm.	NA	NA	NA
3 OUT	NA	R1: PGM1 +PGM2 +PGM3 +hyperm.	R1: PGM1 +PGM2 +PGM3 R2: hyperm.	R1: PGM1 +PGM2 R2: PGM3 +hyperm.	R1: PGM1 +PGM2 R2: PGM3 R3: hyperm.	R1: PGM1 R2: PGM2 R3: PGM3 +hyperm.	R1: PGM1 R2: PGM2 R3: PGM3 R4: hyperm.	NA
4 OUT	NA	R1: PGM1 +PGM2 +PGM3 +hyperm.	R1: PGM1 +PGM2 +PGM3 R2: hyperm.	R1: PGM1 +PGM2 +PGM3 R2: PGM4 +hyperm. OR R1: PGM1 +PGM2 R2: PGM3 +PGM4 +hyperm.	R1: PGM1 +PGM2 R2: PGM3 +PGM4 R3: hyperm.	R1: PGM1 +PGM2 R2: PGM3 R3: PGM4 +hyperm.	R1: PGM1 +PGM2 R2: PGM3 R3: PGM4 R4: hyperm.	R1: PGM1 R2: PGM2 R3: PGM3 R4: PGM4 +hyperm.

'PGM1+PGM2' can represent the 2PGMs mode as well as the PGM/PRV mode.

Warning
The cells with 'NA' correspond to impossible configurations taking into account the existing constraints. In this case, the Hypermotion option is not available in the operational menu even if the Hypermotion setting is set to 'Yes'.

Dual LSM Mode and Hypermotion Cameras

An hypermotion camera can be used in Dual LSM mode taking the following information into account:

- The hypermotion camera is associated to the LSM Remote Panel #2.
- The LSM Remote Panel #2 is used to control both the hypermotion camera and the EVS server using **SHIFT+ D** (without the possibility to use a dedicated LSM Remote Panel).

4.8.13. Hypermotion Controller Settings

User Interface

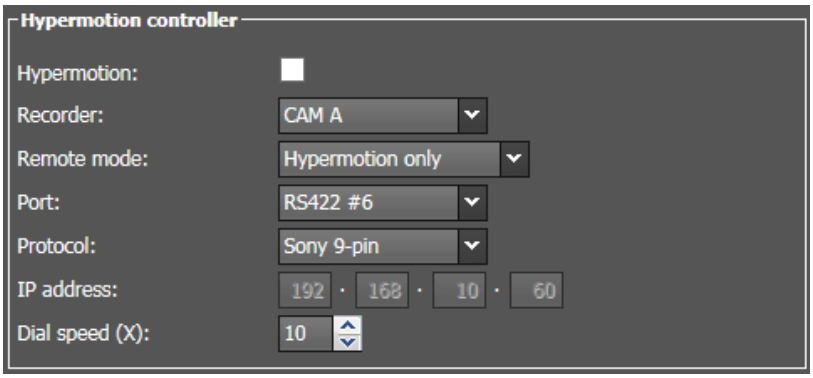
The Hypermotion controller settings allow specifying the settings related to the control of a hypermotion camera from an LSM Remote Panel.

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 (pages 11.X)

Warning
The hypermotion feature and settings are only available with a valid license code 20. This license code allows controlling a hypermotion camera from the remote panel.

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



Hypermotion

Description	Enables or disables the hypermotion camera control feature. When this setting is enabled, you can access and use the hypermotion menu on the LSM Remote Panel via the **SHIFT+D** key combination in the operational menu.
Values	Yes / No
Default Values	No

Recorder

Description	Selects the record channel to which the A/V material from the hypermotion camera will be sent.
Values	CAM A to CAM D
Default Values	The default value is the last CAM defined in the channel configuration (for ex. CAM C in a 3 IN 3 OUT configuration).

Remote mode

Description	Specifies the camera elements controlled by the server.
Values	• **Hypermotion only**: The server controls only the hypermotion camera. An additional remote is made available in the main menu of the remote panel, since the hypermotion camera is considered as an additional external camera. • **Hypermotion + LSM**: The server controls the hypermotion camera and one PGM in exclusive mode.
Default value	Hypermotion only

Port

Description	Specifies on which port (RS422 or Lan PC) the commands must be sent to the hypermotion camera, and possibly to the PGM if you have selected 'Hypermotion + LSM" in the **Remote Mode** parameter.
Values	The following values are possible: • RS422 #2 to RS422 #6 • Lan PC The port value is specific to the camera. See the camera-specific section in the operational manual.
Default value	RS422 #6

Protocol

Description	Specifies the protocol type used for data transfer on the selected port.
Values	The following values are possible: • TCP / UDP (when **Port** is set to **Lan PC**). • ASCII / Sony 9-pin (when **Port** is set to one of the **RS422**). The protocol value is specific to the camera. See the camera-specific section in the operational manual.
Default values	• TCP (when **Port** is set to **Lan PC**). • Sony 9-pin (when **Port** is set to one of the **RS422**).

IP Address

Availability	This setting is only available if the **Port** setting is set to **Lan PC**.
Description	Specifies the IP address of the PC LA N.
Values	xxx.xxx.xxx.xxx
Default value	192.168.10.60

Dial Speed

Description	Defines the multiplication factor applied to the jog value.
Values	Range of values: 10x to 1000x (multiple of 10x)
Default value	10x

4.8.14. Special Effects Settings

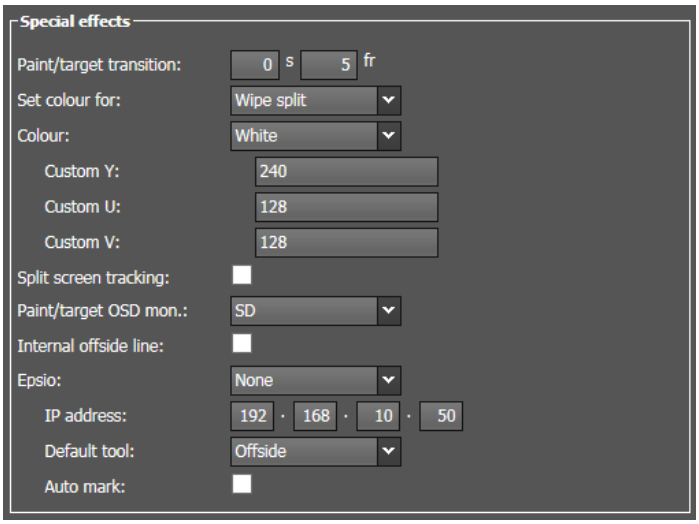
User Interface

The Special effects settings allow specifying special effects to be applied to such as effect duration, color or tool used for the wipe and split effects, for the offside line feature, etc.

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 (pages 12.X)

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



Paint/target transition

Availability	This setting is available with a valid license code 114 or 115, a 8-bit codec, and a compatible base configuration.
Description	Defines the duration (and so the speed) of the apparition of an incrustation in Painting and Target Tracking modes.
Values	00s01fr to 05s00fr
Default value	00s05fr

Set colour for

Availability	This setting is available with a valid license code 113, and a compatible base configuration.
Description	Applies the default color to a specific tool, either to the cursor, or to the border of the wipe effect or to the delimiter of the split screen.
Values	• Wipe Split • Cursor
Default value	Wipe Split

Colour

Availability	This setting, and the three related custom settings below, are available with a valid license code 113.
Description	Defines the default color applied to the cursor or to the wipe or split effect according to the **Set colour for** parameter value.
Values	• White • Black • Custom (defines with the **Custom Y**, **U** , and **V** parameters)
Default Values	White

Custom Y

Description	Defines the Y value of the custom color that can be used with the **Colour** parameter.
Values	0 to 255
Default value	240

Custom U

Description	Defines the U value of the custom color that can be used with the **Colour** parameter.
Values	0 to 255
Default value	128

Custom V

Description	Defines the V value of the custom color that can be used with the **Colour** parameter.
Values	0 to 255
Default value	128

Split screen tracking

Availability	This setting is available with a valid license code 113 and a compatible base configuration.
Description	Enables or disables the auto-tracking in the split screen mode.
Values	Yes / No
Default value	No

Paint/target OSD mon.

Availability	This setting is available with a valid license code 114 or 115, a 8-bit codec, and a compatible base configuration.
Description	Specifies if the paint and target function use the SD or HD output.
Values	SD / HD
Default value	SD

Note
This setting is also available without a valid license code 114 or 115 when Epsio Live is used. The setting has to be set to **HD** to allow OSD management with Epsio Live.

Internal offside line

Availability	The internal offside line and related settings below are available with a valid license code 114, a 8-bit codec, and a compatible base configuration.
Description	Activates or deactivates the internal offside line feature and the access to the internal offside line menu with the **SHIFT+D** key in the operational menu.
Values	• **Yes:** The **SHIFT+D** gives access to the internal offside menu. • **No:** The **SHIFT+D** key gives access to the secondary controller, as usual.
Default value	No

Epsio

Description	Activates or deactivates the control of Epsio application from the remote when the **Offside line** parameter is set to **Yes**.
Values	• **None**: No Epsio interactivity. • **Live (offside line):** This enables the Epsio Live application (including the offside line). The **SHIFT+D** key gives access to the Epsio Live menu. • **Zoom:** This enables the connection to Epsio Zoom to create zoom sequences using Epsio Zoom external tool. The **SHIFT+D** key gives access to the Epsio Zoom menu. • **Protocol** This enables the connection of a generic Epsio Service to the LSM Remote Panel. This allows Epsio to define the interactivity on the LSM Remote Panel, and access the jog and lever controls.
Default value	None

IP address

Availability	This setting is not available with **Protocol** set for the Epsio field.
Description	Defines the IP address of the Epsio workstation on the network when the Epsio connection is enabled via the **Epsio** parameter.
Values	xxx.xxx.xxx.xxx
Default value	192.168.10.50

Default tool

Availability	This setting is not available with **Zoom** or **Protocol** set for the Epsio field.
Description	Selects the tool used by default in the Epsio Live menu on the remote when the Epsio Live connection is enabled via the **Epsio** parameter.
Values	• Offside • Arrow • Circle • Graphics
Default value	Offside

Auto mark

Availability	This setting is not available with **Protocol** set for the Epsio field.
Description	Activates / deactivates the automatic insertion of a cue point on the record train every time the Epsio operator enters the Epsio menu on the remote.
Values	Yes / No
Default value	No

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.

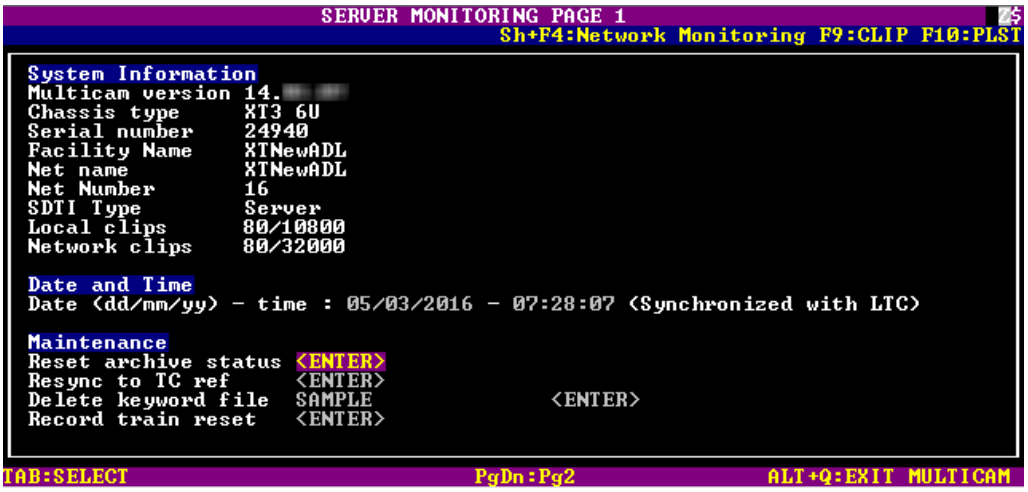
It contains the pages shortly presented in the following table. The page name in this table allows you to directly jump to the corresponding page:

Page	Page Name	Description
#1	General Information window	Provides general system information and maintenance commands on the EVS server.
#2	Raid and Disk Status window	Gives information on the disks or raids from internal and/or external storage.
#3	Timecode Status window	Gives information on the genlock, analog LTC and timecode statuses from the EVS server. This page is also used to set up how the timecodes are managed in the timecode jump tables.
#4	Timecode Monitoring window	Displays timecode information from recorders (SD or HD).
#5	Log Management window	Allows a user-friendly and easy management of the logs.

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:



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
Facility name	Name assigned to the EVS server for internal maintenance via the **Tools** menu, **Assign server facility name** option, in the Multicam setup window.
Net name	Machine name on the 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, **Network** tab, **SDTI** section, **Net name** 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.

Field Name	Description
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

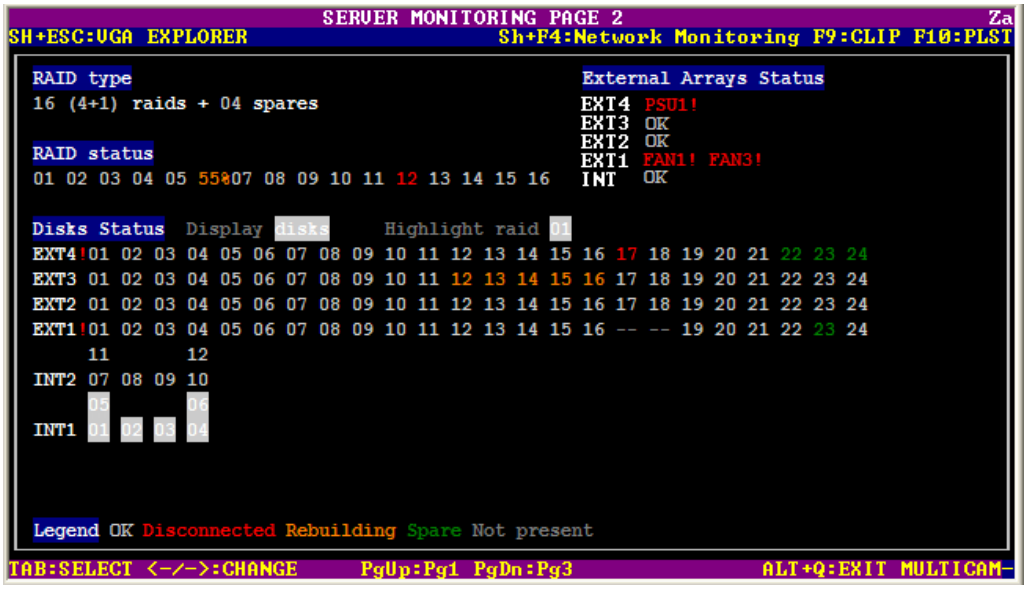
This section provides some commands to perform the following maintenance actions:

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 **SPACEBAR** until you select the keyword file to remove, and press **ENTER**.
Record train reset	Resets the record trains before their field counter overflows. Users are requested to confirm the action before performing the reset. See section "Record Train Maintenance" on page 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.



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 332 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 42 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:

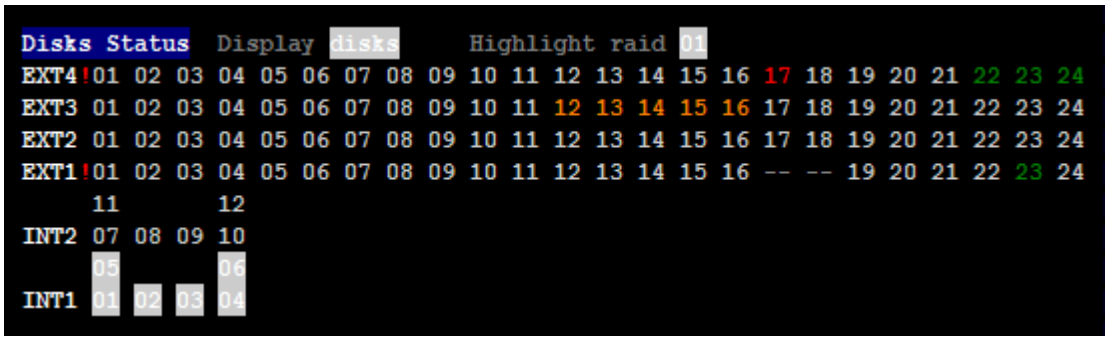
Color Code	Raid Status
Light gray	OK: The disk is connected in a raid.
Red	Disconnected: The disk is physically present but disconnected by the software.
Orange	Rebuilding: The disk is being rebuilt.
Green	Spare: The disk is connected but is not included in a raid.
gray dashes	Not present: The disk is 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.

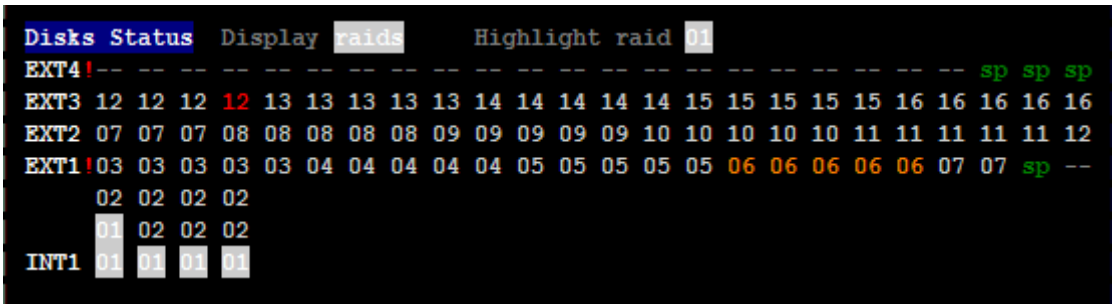


The external arrays can contain up to 24 disks, with a minimum of 5 disks.

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 331 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**.



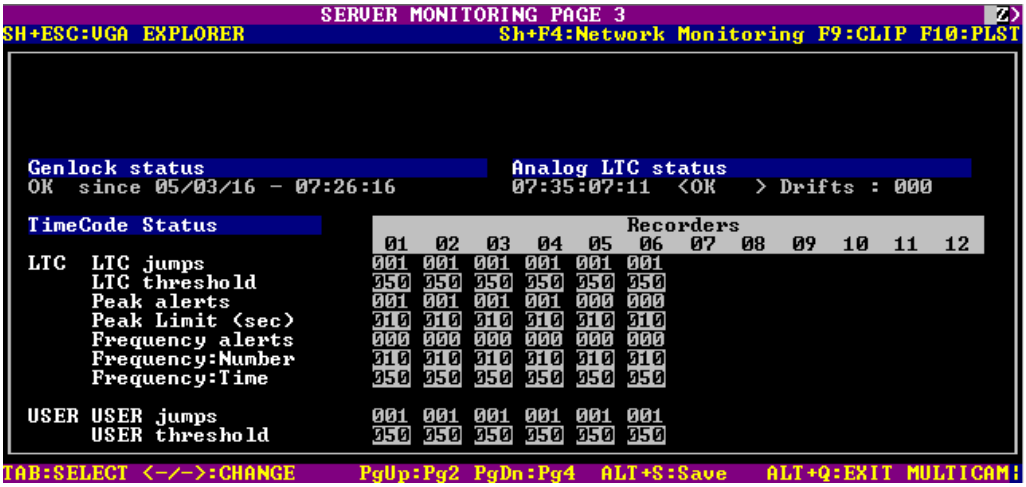
How to Highlight the Disks of a Raid

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.



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 XT3 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 230 for more information on this setting.

LTC Timecode

LTC	Description	Default Values
LTC jumps	Number of timecode jumps calculated in the LTC timecode jump table for the given recorder since the last start of the server.	1
LTC threshold	Number of continuous timecodes to be received, after a break in LTC timecodes in the recorded material, in order to create a new record in the LTC timecode jump table.	50
Peak alerts	Number of peak alerts generated for the recorder since the last start of the server. 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
Peak limits (sec)	Period of time (in seconds) of continuous timecodes after which a break in timecodes in the recorded material will generate a peak alert. When a peak alert is generated, the value in Peak Alerts field is incremented by one.	10
Frequency alert	Number of frequency alerts generated for the recorder since the last start of the server. 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
Frequency number	Number of timecode jumps detected for the recorder after which a frequency alert can be generated.	10
Frequency time	Period of time (in seconds) after which a frequency alert can be generated.	50

User Timecode

VITC	Description	Default Values
VITC jumps	Number of timecode jumps calculated in the VITC timecode jump table for the given recorder since the last start of the server.	1
VITC threshold	Number of continuous timecodes to be received, after a break in VITC timecodes in the recorded material, in order to create a new record in the VITC timecode jump table.	50

NEW ! 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

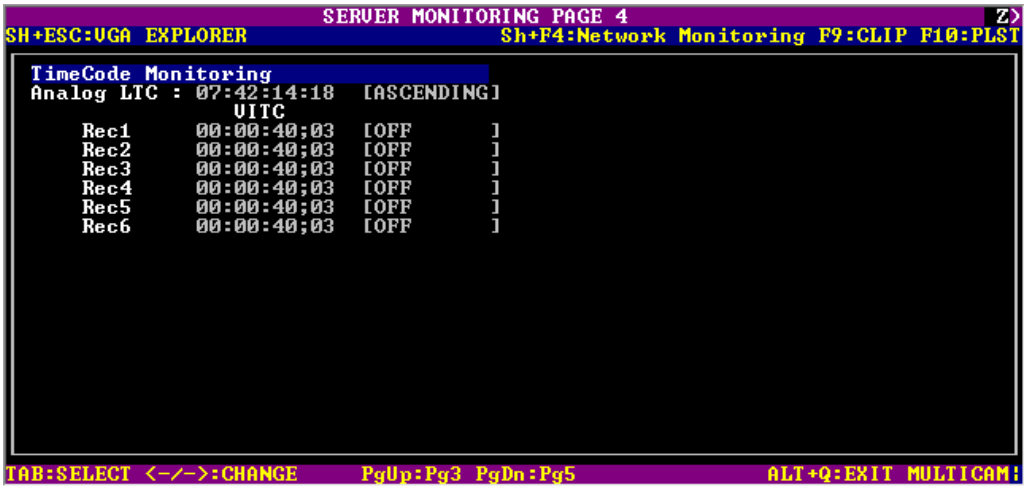
Introduction

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

Timecodes on SD Recorders

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

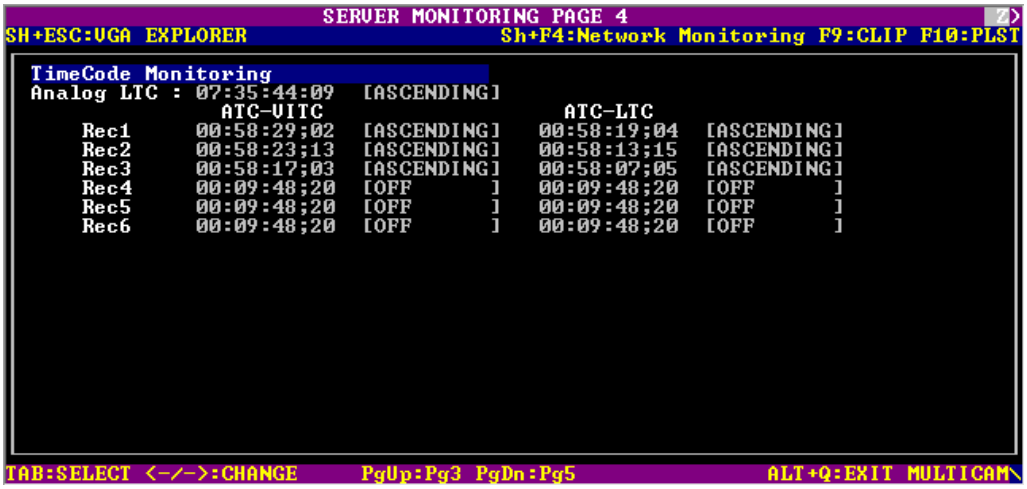
- LTC timecode
- VITC timecode on the various recorders



Timecodes on HD Recorders

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

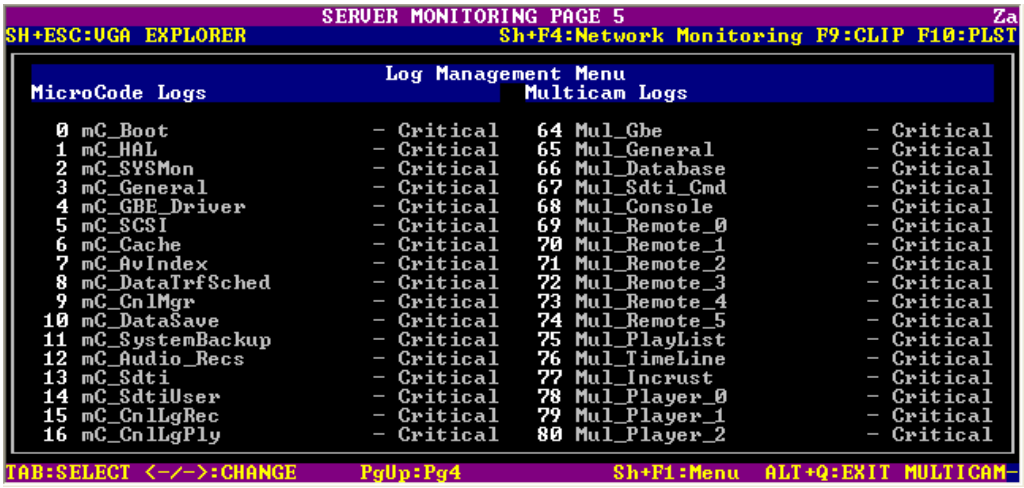
- LTC timecode
- ATC timecodes on the various recorders



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.



Log File Types

The left column displays items related to microcode. The right column displays those of the Multicam.

Each item has two associated log files:

- a regular log file
- a log file logging only errors

Criticality Levels

Each item has a criticality level that can be modified:

- The lowest and default level of criticality is **Critical**, where the log is limited to recording critical and important commands. This is the default value for all items.
- An intermediate level is **Normal**.
- The highest level is **Debug** which basically records every command.

  This highest level should never be chosen without advice of qualified EVS staff.

You can press **SHIFT+F1** to access a help screen that provides information on all commands available in this window.

Warning
When you have to switch to **Debug** mode, first reproduce the problem, then extract the logs, and finally switch back to the default **Critical** mode.

Extracting Log Files

This window also offers the ability to extract log files when the Multicam is running.

When the Log Management window is open, press **E** to extracts the log files instantly so that a user can access them through a common FTP client application from a remote computer.

The extracted files are located in `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 342 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.

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 your 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:

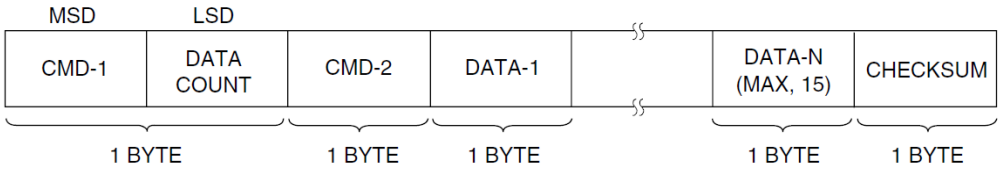
- use the transport command
- get the channel status
- get the channel TC

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. XTENDD35

Protocol Capabilities

The XTendDD35 protocol is a Sony Protocol extension

This protocol is able to:

- preload clips without chaining
- create clips
- get the server database

Characteristics

Same characteristics as the Sony Protocol.

Supported Commands

This protocol supports the same commands as the Sony protocol, as well as the following ones:

Command	Return
60.81: Request current ID	7X.81
60.82: Get First ID	7X.82
60.83: Get Next ID	7X.82
60.84: Get First Delete ID	7X.84
60.85: Get Next Delete ID	7X.84
60.86: Get First ID Added ID	7X.86
60.87: Get Next ID Added ID	7X.86
67.91: Request ID duration	7X.91
27.82: Open File	10.01

EVS adds some custom commands to the protocol in order to take advantage of the server potential. Please contact EVS to know more about these commands.

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 Longuest Contiguous Available Storage.	84.1C Longest Contiguous Available Storage
A0.21 Device ID Request	88.21 Device ID
A8.20 Set Device ID	10.01:Ack

EVS adds some custom commands to the protocol in order to take advantage of the server potential. Please contact EVS to know more about these commands.

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:

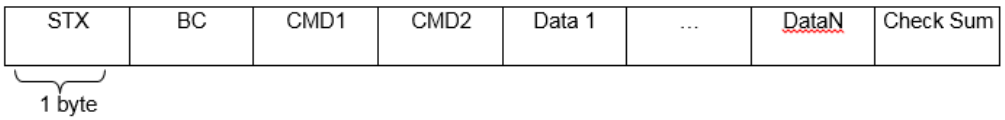
- control several channels with one serial connection
- preload and chain clips
- create clips
- get the server database

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.

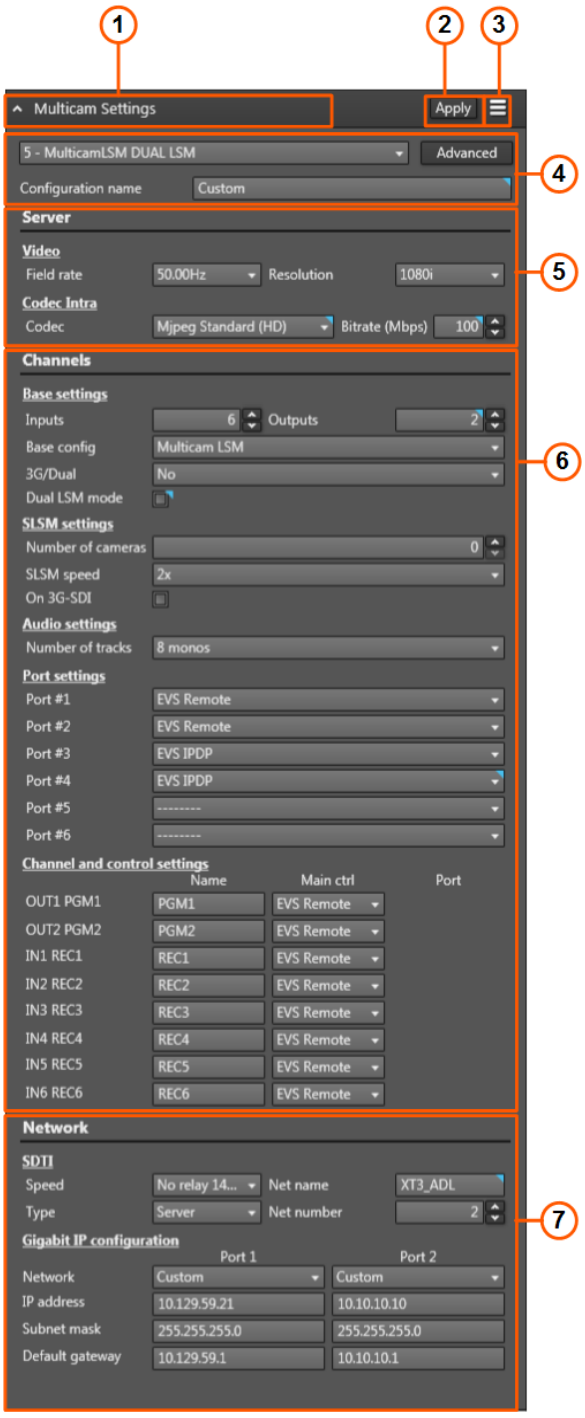
The Truck Manager application automatically downloads the right plugin version when it connects to an EVS server for the first time on a given setup.

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:



Description

The table below describes the various elements of the Multicam plugin:

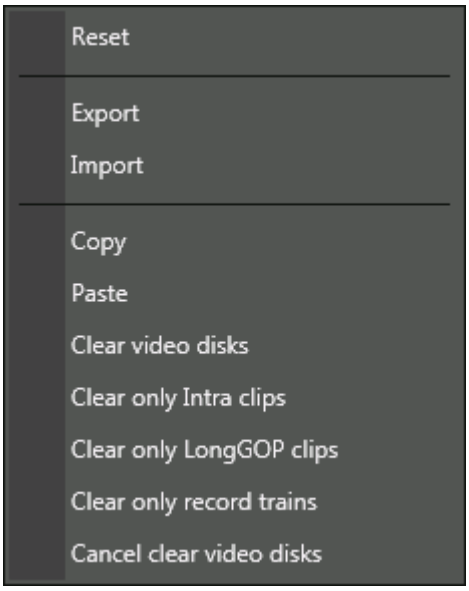
Part	Name	Description
1.	Plugin name	Field to expand or collapse the plugin area.
2.	**Apply** button	Button to apply the parameter values to Multicam.
3.	**Menu** icon	Icon to open the contextual menu, which provides general commands, or commands specific to Multicam. See section "Contextual Menu" on page 354.
4.	Configuration Area	Area that allows users to select the configuration line, and access the advanced Multitcam parameters. See section "Configuration Area" on page 355.
5.	Server Area	Area that allows users to set the main server parameters of Multicam. See section "Server Area" on page 356.
6.	Channels Area	Area that allows users to set the main channels parameters of Multicam. See section "Channels Area" on page 358.
7.	Network Area	Area that allows users to set the main network parameters of Multicam. See section "Network Area" on page 364

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:

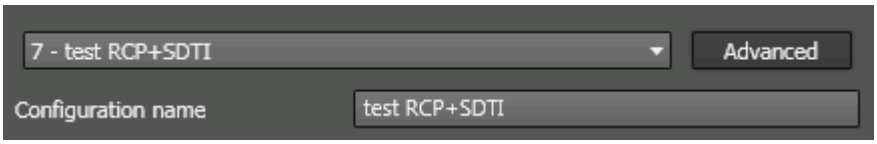
Command Name	Select that command to ...
Reset	Reset the values defined in the plugin to the values currently defined in the Multicamapplication.
Export	Export all setting values associated to the Multicam application to a .cnf file named according to the following pattern `<Name>-<ProductName>.cnf`.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

Command Name	Select that command to ...
Clear only Intra clips	Delete all clips and playlists in an Intra essence on the EVS server.
Clear only LongGOP clips	Delete all clips and playlists in a LongGOP essence on the EVS server.
Clear only record trains	Delete the record trains on the EVS server.
Cancel clear video disks	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 form top to bottom:

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

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

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

Resolution

Description	Vertical resolution used (number of white-to-black and black-to-white transitions that can be seen from the top to the bottom of the picture) (pixel + type). Both field rate and resolution correspond to the video standard. With an XT3 server, SD and HD video standards can be available if the relevant license codes are activated.
Values	In SD: • 525i • 625i In HD: • 720p • 1080i • 1080p (only available with code 21 or 22) In UHD: • UHDTV-4K

Codec Intra

Codec

Description	Algorithm used to compress and decompress the video signal. With Intra codecs, the compression techniques are performed exclusiverly relative to information contained within the current frame.
Values	In SD: • Mjpeg (SD) • IMX • DVCPro 50 In HD: • Mjpeg EVS (HD) • Mjpeg Standard (HD) • Mpeg 2 Intra (HD) • Avid DNxHD 120, 185 or 185x (only in 50 Hz) • Avid DNxHD 145, 220 or 220x (only in 59.94 Hz) • Apple ProRes 422, 422 LT, 422 HQ • DVCPro HD • AVC-Intra 100 • XAVC-Intra 100 See section "Codec Availability" on page 166 for detailed information on codec availability.

Bitrate

Description	Number of megabits processed per second (Mbps). The bitrate depends on the codec.
Values	See section "Codec-Related Information" on page 168 for detailed information on bitrates per codec.

Codec LongGOP

Codec

Description	Algorithm used to compress and decompress the video signal. With LongGOP codecs, the compression techniques are performed relative to information contained within the current frame, but also to information relative to other frames in the group of pictures (GOP).
Values	XDCAM HD 50

Bitrate

See section "Bitrate" on page 357.

Codec Proxy

Codec

Description	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.
Values	Mjpeg

Bitrate

See section "Bitrate" on page 357.

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

Description	Number of logical record channels in the given configuration, including the SLSM recorders. The partition of the disk storage between these channels, and the advanced audio settings are automatically adapted to the number of record channels.
Values	The number of supported channels depends on the chassis, and the mode: • On XT3 6U: 0-12 (Spotbox), 1-12 (LSM) • On XT3 4U: 0-8 (Spotbox), 1-8 (LSM) See section "About Supported Configurations" on page 49 for more information on number of record channels and on supported configurations.

Outputs

Description	Number of logical play channels in the given configuration.
Values	• On XT3 6U and XT3 4U: 0-6 (Spotbox), 1-6 (LSM) See section "About Supported Configurations" on page 49 for more information on number of record channels and on supported configurations.

Base Config.

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

Description	Mode the EVS server is working in. The base configurations available depend on the server type, and on the valid license codes.
Values	• **Multicam LSM**: mode where the EVS server is controlled by the Remote Control Panel or from the Multicam production screens. License codes: 103 ...109 + 111 and/or 112
	• **Replay-Only LSM**: restricted Multicam LSM mode without playlist management, split audio, nor support of hypermotion cameras. License codes: 103 ...109
	• **Video Delay**: mode where the server is used to play out the input with a video delay. License codes: 101 + 127
	• **Spotbox**: mode where the EVS server can be controlled by industry-standard protocols: Sony BVW75, VDCP, Odetics, DD35, EVS' AVSP, IPDP, EditRec or LinX API, or from the Multicam production screens. License codes: 101 + 127
	• **XSense**: mode where the EVS server can be controlled by the XSense Remote Panel or from the Multicam production screens. License codes: 101 and/or 103 ... 109 + 111 and/or 112 + 96
	• **Server**: mode where the EVS server can only be controlled by the supported industry-standard protocols, but not from the Multicam production screens. License codes: 101 (without 127)
NEW !	• **F&K Dual Spotbox**: Specific mode in which the EVS server can be used as a Fill & Key server. It requires the license code 97 (F&K Dual) and the **Dual (3D)** value to be selected in the **3G/Dual** field in the Base settings. In this base configuration, the EVS server can be controlled by industry-standard protocols: Sony BVW75, VDCP, Odetics, DD35, EVS' AVSP, IPDP, EditRec or LinX API, or from the Multicam production screens. License codes: 97

NEW !

	• **F&K Dual XSense**: Specific mode in which the EVS server can be used as a Fill & Key server. It requires the license code 97 (F&K Dual) and the **Dual (3D)** value to be selected in the **3G/Dual** field in the Base settings. In this base configuration, the EVS server can be controlled by the XSense Remote Panel or from the Multicam production screens. License codes: 97
Default value	Multicam LSM

3G/Dual

Description	Defines the interface the EVS server will use with the 3D or 1080p standards: • The Dual Link interface consists of a pair of HD-SDI serial links and provides a bitrate of 2.970 Gbit/s. • The 3G-SDI interface consists of a single serial link that provides 2.970 Gbit/s.
Values	The following values are possible, but their availability depends on several conditions: • **No**: available in all cases • **Dual (3D)**: Dual-Link for 3D ◦ Available with code 23 + **3D** setting to **Yes** • **3G Level A**: 3G-SDI for 1080p in one 3G stream (native file interoperability) ◦ Available with code 22 or 27 + 1080p resolution • **3G Level B**: 3G-SDI for 1080p in two HD streams (native file interoperability) ◦ Available with code 22 or 27 + 1080p resolution • **3G (3D)**: 3G-SDI for 3D ◦ Available with code 24 + **3D** setting to **Yes**
Default value	No

Dual LSM

Availability	The parameter is only available in specific conditions, and with the license code 116 (Dual LSM option).
Description	Activates the Dual LSM feature. This feature makes it possible for two LSM operators to work independently on the same server on their LSM Remote Panel.
Values	Yes / No (default).

SLSM Settings

Number of cameras

Description	Number of SLSM cameras in the given configuration. An SLSM camera corresponds to one logical record channel.
Values	The maximum number of cameras depends on the SLSM speed, and on the total number of record channels. Range of values: 0-4
Default value	0

SLSM Speed

Description	Frame rate at which the SLSM camera records the incoming feeds, expressed in multiples of the standard frame rate of 24 FPS (at 50Hz) or 30 FPS (at 59.95 Hz).
Values	2x, 3x, 4x, 6x, 8x, 10x
Default value	2x

On 3G-SDI

Availability	This setting is only available with a 720p or 1080i resolution.
Description	Specifies whether two SLSM phases are connected to the EVS server using a 3G-SDI interface consisting of a single serial link.
Values	Yes / No (default)

Parity

Availability	This setting is displayed in SD configurations.
Description	Specifies whether the identical or alternate parity is applied.
Values	• Identical • Alternate
Default value	Alternate

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.

Description	Specifies what type of device/controller is connected to each RS422 port of the EVS server.
Values	The following values can be available if the required license codes are active: • 'EVS Remote' for LSM Remote Panel (code between 103 and 109). • 'EVS Remote' for XSense Remote Panel (code between 103 and 109 or code 96) • 'EVS IPDP' (code 120 or 121) • 'Sony BVW75' (code 118) • 'XtenDD35' (code 118) • 'Odetics' (and 'Odetics FK)' (code 119) • 'VDCP' (and 'VDCP FK)' (code 119) • 'EVS AVSP' (code 120 or 121) • 'Edit Rec' (code 122) • 'LinX' (code 123)
Default	On port #1 (only): IPDP

Channel and Control Settings

PGM or REC Name

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

Audio Settings

Number of Tracks

Description	Number of mono audio tracks associated to each video channel. See section "Number of Audio Tracks" on page 209
Values	4 Monos (default), 8 Monos, 16 Monos or 32 Monos

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

Description	Enables the selection of the SDTI option and the bandwidth for the XNet network. On the XT3 server, there is one pair of SDTI connectors: XNet2 Non-Relay connectors are used at 1485 or 2970 Mbps. The SDTI circuit is closed only when the Multicam software is started.
Values	The following values are available: • No Relay 1485 (Mbps) • No Relay 2970 (Mbps) • Off

Net Name

Description	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.
Values	The Net Name is user-defined and cannot exceed 8 characters.

Type

Description	Defines the privileges of the EVS server on the SDTI network.
Values	The following values are possible: • **Client:** It cannot access the content on other EVS servers. • **Master:** It can access all content on other EVS servers. • **Server:** It manages the SDTI network, and it can access all content on other EVS servers. 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. 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.

Net Number

Description	The Net Number parameter defines the machine number on the network. This number is user-defined and must be unique for each system on the network. An error message appears if the number is already assigned to another machine.
Values	Range between 1 and 29

Gigabit IP Configuration

IP Address (Port 1/Port 2)

Description	IP address to connect to the port1/port2 of the Gigabit Ethernet connection on the EVS server (or on the Gateway PC).
Values	The IP addresses 0.0.0.0 and 255.255.255.255 are not allowed.

Subnet Mask (Port 1/Port 2)

Description	Range of logical addresses within the address space assigned to the Gigabit Ethernet connection. The IP addresses of both GbE ports must belong to different subnet masks. Otherwise, Multicam will return an error message.

Default Gateway (Port 1/Port 2)

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

Glossary

3

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.

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.

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.

ChannelMax configuration

Configuration with more than 8 channels, in which the secondary link of a codec module can be used as an independent channel. This can also be called a 12-channel configuration.

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 LSM

Feature allowing two LSM operators to work independently with their own LSM Remote Panel on the same EVS server, defining some operational settings independently from each other. Available from Multicam 14.01 onwards.

Dual Play

Feature in which both OUT connectors on one codec module are used as two independent player channels.

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 XT3 server, the possible extended modes are the 7-channel mode with the 4U chassis, and the 8- and 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.

H

Hypermotion camera

These are cameras that record at a frame rate much higher than real time. The content recorded at high frame rate on a memory block of the camera buffer is ingested into the EVS server through a single record channel when the operator initiates a play command on the camera. Hypermotion cameras can be controlled by an LSM Remote Panel.

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.

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.

Multi-Essence configuration

EVS server configuration that allows multiple and simultaneous encoding of the video materal into the server. Intra+ XDCAM is an example of a multi-essence configuration.

O

Operational Setup menu

Menu accessible on the Remote Panel using the SHIFT+D keys form the main menu. It allows users to define operational parameters.

OSD

Abbreviation for on-screen display.

P

Physical channel

See also Channel.

Play channel (or Player)

Codec module used as a player.

R

Record channel (or Recorder)

Codec module used as a recorder.

S

SDTI network

EVS proprietary network that allows users to view and share the content of interconnected EVS video servers. 'XNet network' is used as synonym for 'SDTI network'.

Server-Based Multicam Setup application

Server-Based application used to set up and configure the EVS servers. The short form is 'Server-Based application' in this user manual. This is accessible from the EVS Server itself when it has been started.

SLSM camera

Also called Supermotion cameras. These are cameras that record at a frame rate 2, 3, 4 or 6 times higher than the normal frame rate of 25 fps (PAL) or 30 fps (NTSC). The 2, 3, 4 or 6 phases of the camera are ingested in parallel as separate record channels into the EVS server.

T

Technical Setup menu

Menu accessible on the Remote Panel using the F0 key. It allows users to define currently used configuration parameters.

U

U-Motion cameras

Also called Ultramotion cameras. These are cameras that record at a frame rate ten times higher than the normal frame rate of 25 fps (PAL) or 30 fps (NTSC). The ten phases of the camera are ingested in parallel as separate record channels into the EVS server.

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.

X

XREC configuration

Configuration with more than 6 channels and less than 9 channels, in which the secondary link of a codec module can be used for an independent recorder. This can also be called a 7-channel configuration (with 4U chassis) or a 8-channel configuration (with 6U chassis).

Corporate
+32 4 361 7000

North & Latin America
+1 973 575 7811

EVS Headquarters
Liège Science Park
13, rue Bois St Jean
B-4102 Seraing
Belgium

Asia & Pacific
+852 2914 2501

Other regional offices
www.evs.com/contact

To learn more about EVS go to **www.evs.com**