CONFIGURATION MANUAL

XT-VIA UHD-8K

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User Manuals on EVS Website

The latest version of the user manual, if any, and other user manuals on EVS products can be found at the EVS download center, on the following webpage: https://download-area.evs.com.

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ICONOGRAPHY


Note


Tip


Warning

What's New?

In the Configuration Manual the icon NEW ! has been added on the left margin to highlight information on updated features.

The changes linked to new features in version 20.3 are listed below.

RAID (10+2) is supported.

- See section "Configuring Server RAIDs" on page 33.
- See section "RAID and Disk Status Window" on page 185.

Dual PC LAN is supported.

- See section "Setting the Server PC LAN Connection" on page 28.
- See section "PC LAN Settings" on page 80.

LiveIP audio monitoring streams are supported.

- See section "LiveIP Settings for Audio Monitoring Streams" on page 1.

1. Introduction

1.1. Presentation

The XT-VIA UHD-8K EVS server is a production server offering UHD-8K operation. The XT-VIA UHD-8K server is available in 6U chassis. It provides 2 channels of UHD-8K via 12G-SDI interfaces.

Built on EVS' non-stop loop recording technology, the XT-VIA UHD-8K server guarantees reliable content ingest as well as efficient content control and playback operations.

The XT-VIA UHD-8K server can be operated in Intra essence, in XAVC-4K codec, and can be used with the LSM Remote controller.

Media can be shared through the 10Gbps GbE connection, and metadata can be shared through the 1Gbps PC LAN redundant ports.

XT-VIA UHD-8K servers work with SAS disks: they are equipped with internal SAS disk array of 12 disks (10+2) and/or can be connected to a SAS-HDX external SAS disk array.

1.2. Introduction to the Configuration of EVS Servers

Configuration Module

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

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

Consolidation into a Single User Interface

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

The user interface includes:

- a setup section presented on one page with two main areas which give access to the configuration lines and the most used maintenance commands:
- a configuration section for each configuration line. It is presented in seven tabs which easily give access to all configuration parameters:

Simple User Interface

The user interface is simple and clear thanks to:

- the separation of basic and advanced parameters

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

- the filtering of the parameters displayed

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

Parameter Changes While Server is Running

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

Changing some parameters requires an application reboot. See section "Required Application Reboot" on page 70 for a detailed list of these parameters.

Easy Audio Configuration

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

- modify the audio parameters while the server is running
- configure individual outputs for Embedded, Digital, and MADI audio.
- configure audio monitoring settings directly from the Remote Control panel.

Configuration Available from Server, Web and Remote Panel

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

- The server-based application (VGA) features all settings and commands for the setup and configuration.
- The web-based interface is equivalent to the server-based application and enables engineers to configure the EVS server remotely.
- The Remote Panel includes:
  - a technical setup menu that gives access to the most commonly used technical settings.
  - an operational setup menu that only provides operational settings.

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

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

1.3. 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.

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

1.4. 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 15.

- 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 59.

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 15. As soon as the EVS server is launched in a configuration, it starts the loop recording process.

1.5. Accessing the Web-Based Interface

Prerequisite

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

How to Access the Multicam Web Homepage

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

See section "Setting the Server PC LAN Connection" on page 28 for more information on .

The Multicam Web homepage gives access to:

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

How to Access the Multicam Web Setup Window

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

2. Multicam Setup

2.1. Overview of User Interfaces

2.1.1. Overview of the Setup Areas

General Description

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

The Multicam Setup window allows users to:

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

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

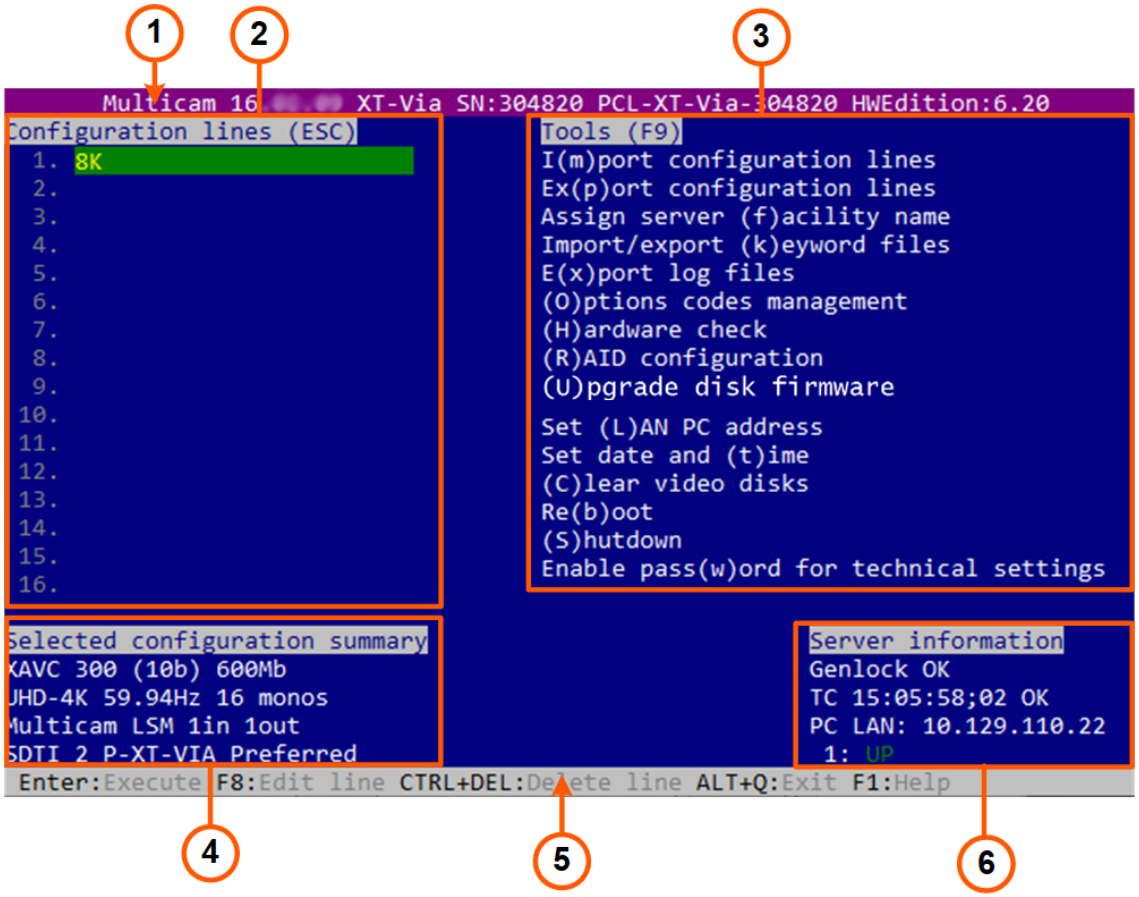
Both user interfaces include the same features, except that the Tools menu offers fewer commands in the web-based user interface.

User Interfaces

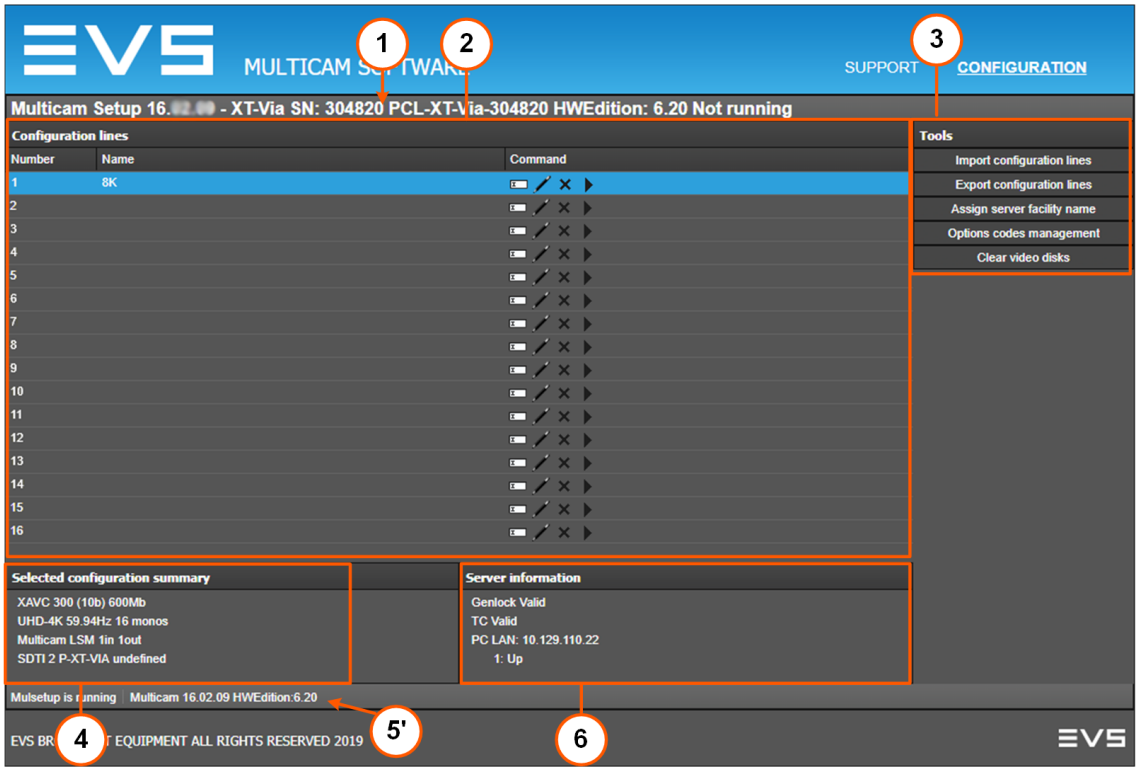
The Multicam Setup window contains six areas highlighted and described below.

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

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



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



Description of the Areas

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

#	Name of area	Description
1.	Title bar	The title bar displays the following information: • Multicam version • chassis type • server serial number • server facility name (if any) • hardware edition
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 15 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 • Upgrade disk firmware • Set LAN PC address • Set date and time • Clear video disks • 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. XNet No. - server name
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 11 for more information.

#	Name of area	Description
5'.	Status bar	The Status bar (web-based interface) displays: • the Multicam process status • the Multicam software version • the Hardware Edition
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 PC LAN (if DHCP off) or **DHCP** (if DHCP on) • Status of the PC LAN connection(s): **Up** or **Down**

2.1.2. Navigability and Commands

In the Server-Based Application

General Navigability

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

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

Configuration Lines

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

The main commands for configuration line management are presented below:

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

See section "Configuration Lines" on page 15 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

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

Configuration Lines

Command description	Command icon
Renaming the configuration line	
Entering the Configuration window to edit the settings related the configuration line	
Deleting the configuration line	
Starting the server with the corresponding configuration line	

Tools Menu

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

2.2. Configuration Lines

2.2.1. Chapter Contents

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

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

2.2.2. Launching a Configuration

Introduction

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

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

How to Manually Launch a Configuration

In the Server-Based Application

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

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

In the Web-Based Interface

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

Automatic Launch

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

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

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

2.2.3. Editing a Configuration

How to Edit a Configuration

Introduction

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

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

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

In the Server-Based Application

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

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

   The Configuration window opens. See section "Multicam Configuration" on page 59 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 59 to edit the configuration parameters.
2. When the configuration is defined for the given line, click **Apply** to validate, and then **Quit** to come back to the Setup window.

Invalid Configuration

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

- When a configuration line becomes invalid, a red exclamation mark <!> is displayed next to the configuration line in both server-based and web-based interfaces:
- When the operator presses **F8** to edit the configuration line in the server-based application, a popup window indicates the line is invalid. When the operator acknowledges the message, the pages including the invalid parameters are displayed with the invalid parameters selected.

2.2.4. Renaming Configuration Lines

Introduction

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

In the Server-Based Application

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

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

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

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

In the Web-Based Interface

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

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

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

2.2.5. Importing and Exporting Configuration Lines

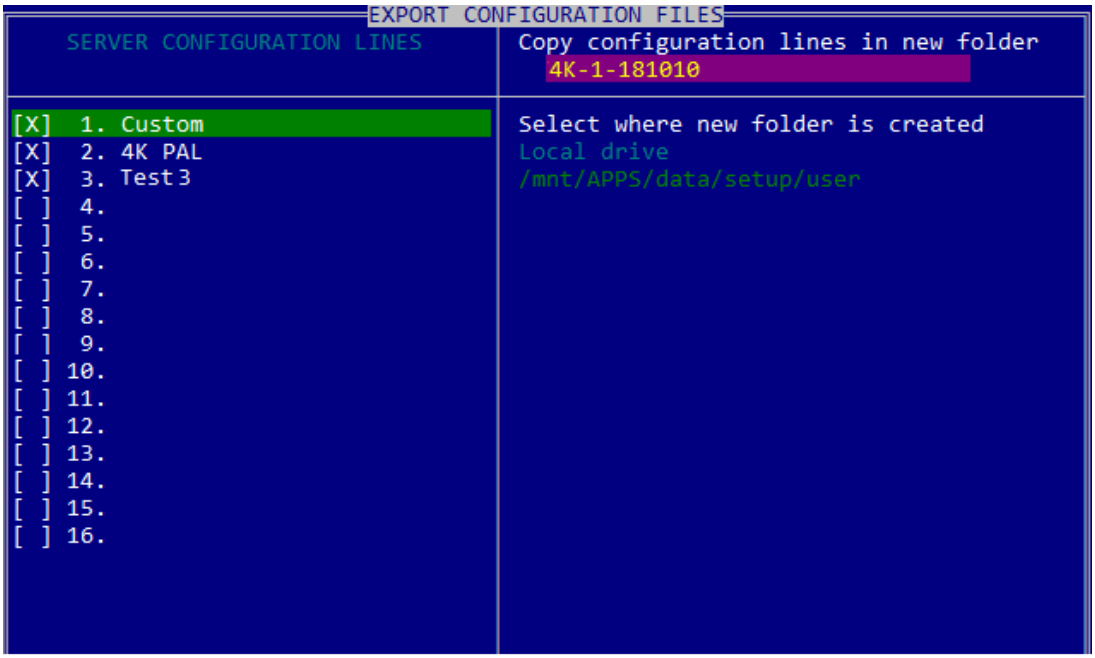
How to Export Configuration Lines

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

In the Server-Based Application

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

1. In the Multicam Setup window, press **P** to call the **Export Configuration Lines** command. The Export Configuration Lines window opens:
   - The left pane allows the selection of the configuration lines to be exported
   - The right pane allows the selection of the location where the export folder will be created on the USB key, or on the local drive folder `/mnt/apps/data/setup/user` (`/setup/user` via FTP) or on a subfolder.



2. If requested, change the name of the folder the configuration lines will be exported to:
   - By default, the folder name, displayed in the upper right corner, follows the pattern: <server facility name_current date> where the date has the YYMMDD format.
   - To change the export folder name, type the requested name. You can do this any time in the procedure.

3. If requested, change the selection of configuration lines selected for export on the left pane:
    - By default, a cross is displayed in front of all configuration lines, which means they are all selected for export.
    - To deselect a line, use the **UP ARROW** or **DOWN ARROW** key to highlight the requested line, and press **SPACEBAR**. The cross is removed, and the deselected lines turn light gray.
4. Press **TAB** to shift the focus to the right pane.
5. If requested, change the location where the export folder will be created:
    - By default, the export folder is created on the USB key root or on the local drive folder the local drive folder `/mnt/apps/data/setup/user`.
    - To change the folder where the export folder will be created, highlight the requested folder. The last highlighted folder will be considered as the requested location.
6. To start the export process, press **ENTER**.
7. When the selected lines are exported (as a .lin file), a message opens to confirm the export. Click **OK** to acknowledge the message.

In the Web-Based Interface

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.

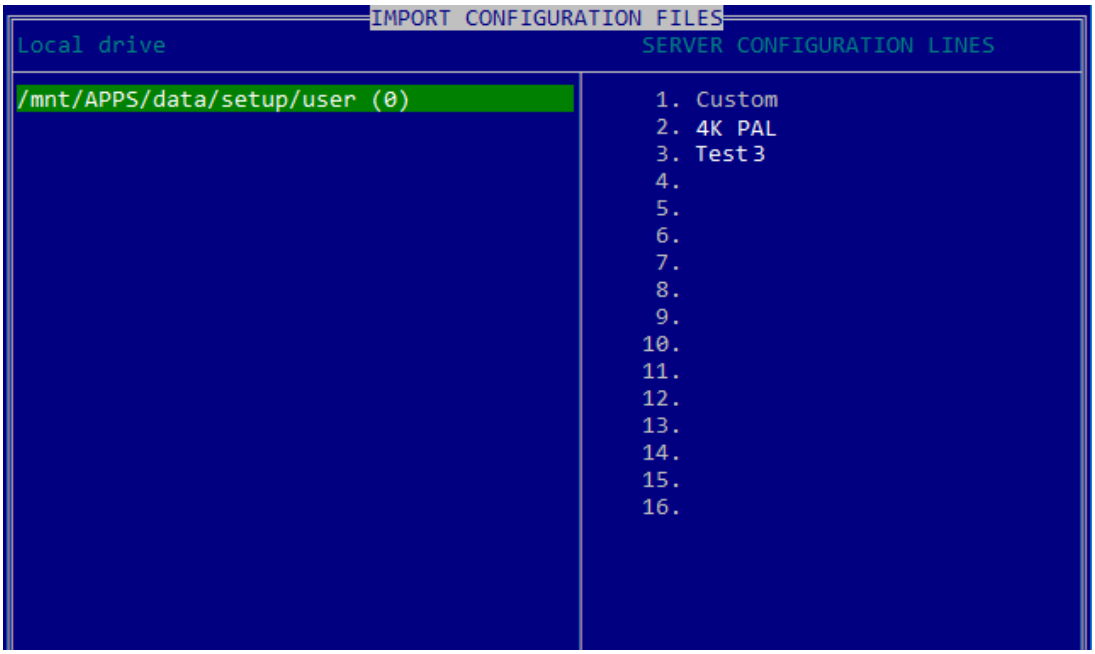
If you want to export several configuration lines, repeat this operation for all requested configuration lines.

How to Import Configuration Lines

In the Server-Based Application

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

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

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

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

1. Press the **UP ARROW** or **DOWN ARROW** key to respectively move up and down in the list of configuration lines until the requested line is highlighted.
2. Press **CTRL+C** to copy the line to the clipboard.
3. With the **UP ARROW** and **DOWN ARROW** keys, move to the position where you want to copy the line.
4. Press **CTRL** + **V** to paste the line to the selected position.
5. Press **ENTER** to confirm that you agree to replace the former configuration line by the one copied on the selected position.

In the Web-Based Interface

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

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

How to Delete Configuration Lines

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

In the Server-Based Application

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

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

The line is directly deleted.

In the Web-Based Interface

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

The configuration line is directly deleted.

2.3. Server Parameters

2.3.1. Chapter Contents

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

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

2.3.2. Assigning a Server Facility Name

Introduction

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

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

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

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

Naming Rules

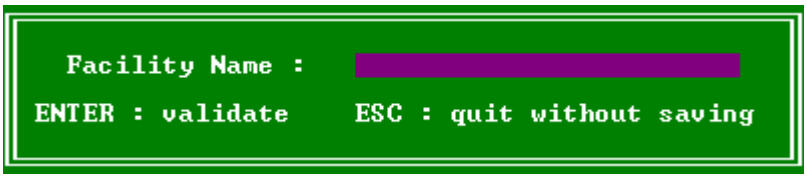
The server facility name is also used as the hostname in the PC LAN settings. For this reason, it has to comply with the following rules for hostname format:

- Characters should belong to the following character ranges: A-Z, a-z, 0-9, -
- Hostnames cannot start by a number or an hyphen <->
- Hostnames cannot finish by an hyphen <->
- Hostnames can be segmented with a full stop <.>

In the Server-Based Application

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

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



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

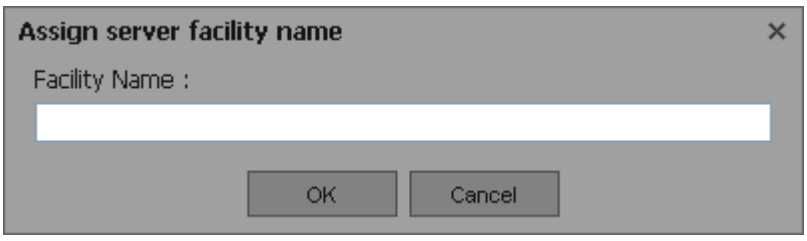
If the server facility name, also used as hostname for the PC LAN connections, does not comply with naming rules for hostnames, a warning will be displayed.

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

In the Web-Based Interface

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

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



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

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

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

2.3.3. Activating and Deactivating the Password Protection

Activating the Password on the EVS Server

Introduction

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

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

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

- The password is required to apply changes to configuration parameters in the server-based application and in the web-based interface.
- On the Remote Panel, the Technical Setup menu is not available.

How to Activate the Password on the EVS Server

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

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

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

Enabling Changes to Configuration Parameters

In the Server-Based Application

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

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

In the Web-Based Interface

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

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

1. Click the Lock icon  .
2. Enter the password on the dialog box that is displayed.
3. Press **OK**.

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

Deactivating the Password on the EVS Server

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

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

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

2. Press the **RIGHT ARROW** key to select 'Yes' and press **ENTER**
3. Type the password in the dialog box that opens, and press **ENTER** to validate:

The password protection is directly removed from all user interfaces.

2.3.4. Setting the Server PC LAN Connection

NEW !

Single, Redundancy and Dual Mode

Single and Redundancy Mode

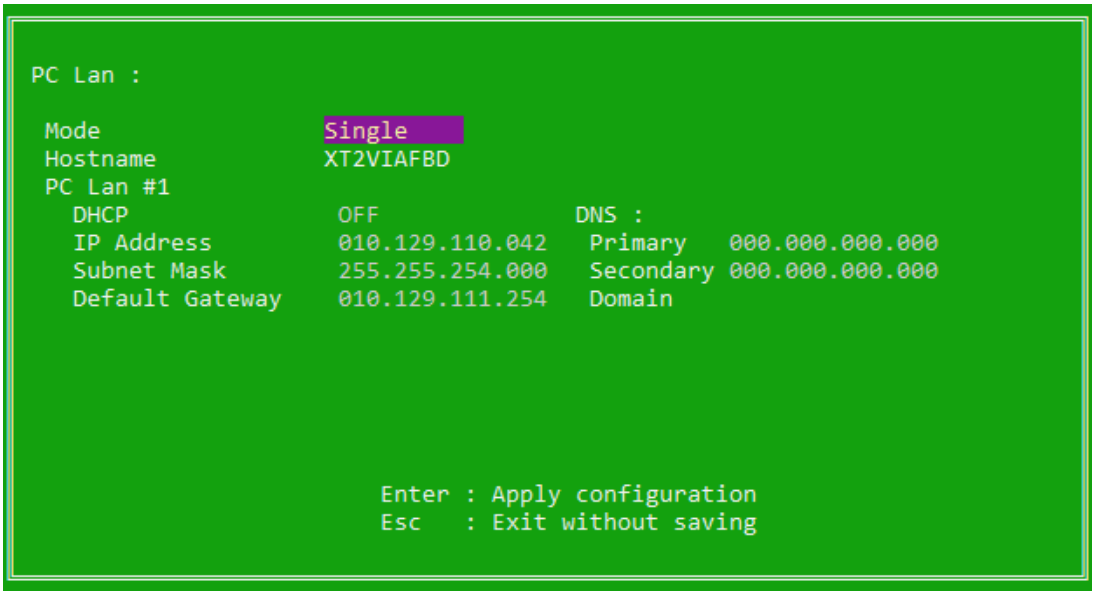
The internal switch module of the H4X board of an EVS server provides more features on the PC LAN network. Thanks to the switch, the PC LAN interfaces can be configured to run in Single, Redundancy and Dual Mode:

- In **Single Mode**, only PC LAN #1 is active. All ports are open by default on PC LAN #1.
- In **Redundancy Mode**, both PC LAN #1 and PC LAN #2 are active. PC LAN #1 and PC LAN #2 have 1 common IP address. All ports are open on both interfaces by default.
- In **Dual Mode**, both PC LAN #1 and PC LAN #2 are active. Each interface has its own IP address. Each interface has specific ports open and closed. See the Technical Reference manual for more information.

In Dual Mode, DHCP can be enabled or disabled for each interface individually.

How to Set the PC LAN Connection

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

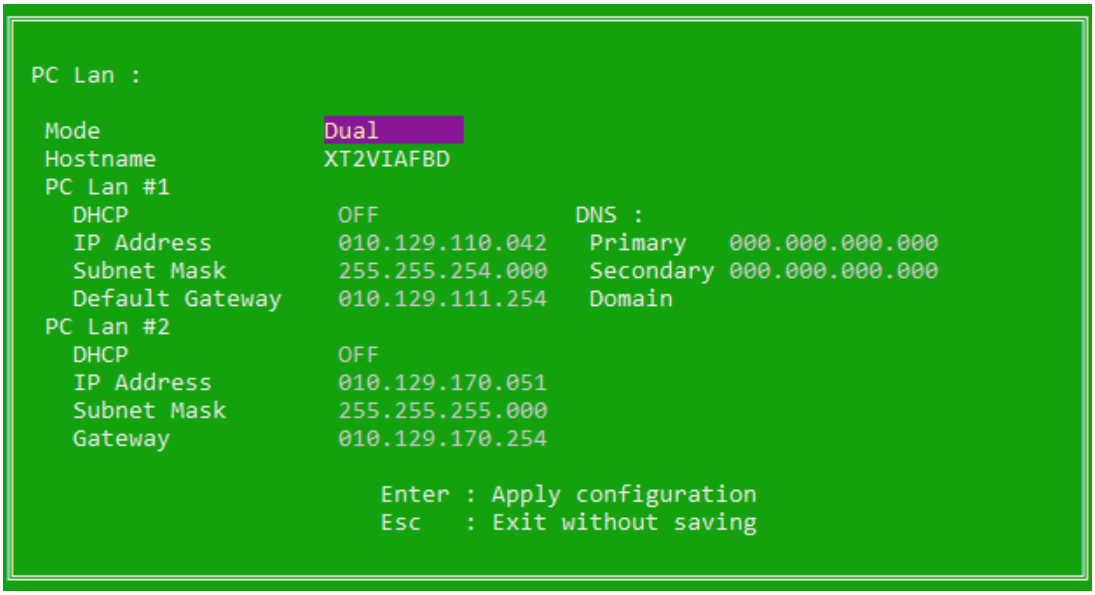


2. In this window, click **TAB** to select the **Mode** field, and press the **Space** bar to switch between Single, Redundancy and Dual Mode.

   By default, Single Mode is enabled. Only PC LAN #1 is active.

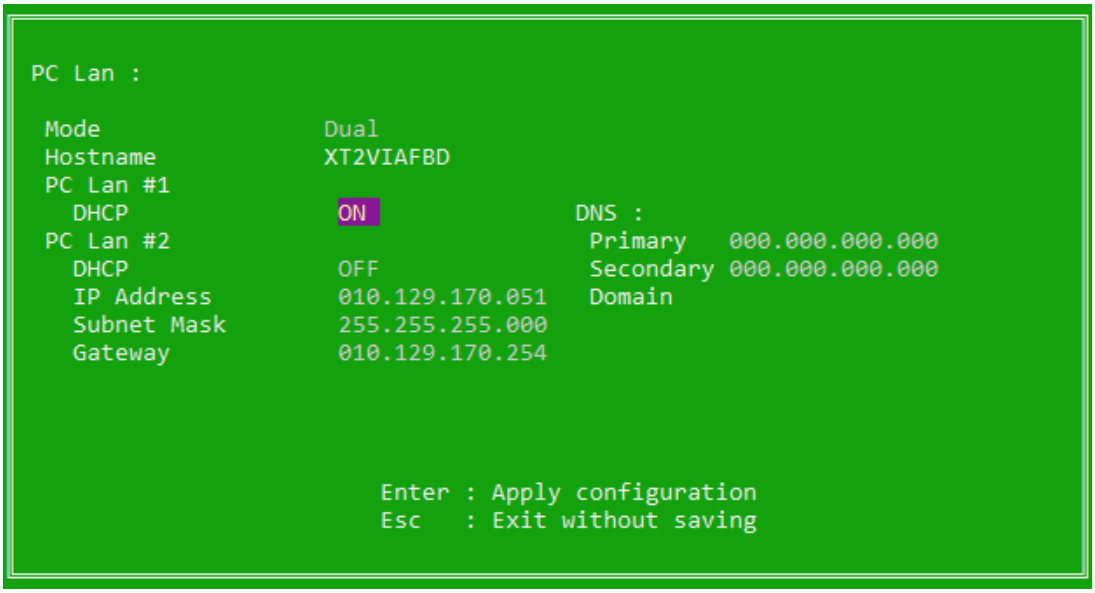
   When Redundancy Mode is enabled, PC LAN #2 will also be active and share a common IP address with PC LAN #1. PC LAN #2 will automatically take over in case PC LAN #1 fails.

   When Dual Mode is enabled, you will be able to manually configure an IP address, subnet mask and default gateway for each individual interface.



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

   In Dual Mode, it is possible to enable or disable DHCP for each PC LAN individually.



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

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

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

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

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

   In Dual Mode, the IP address of PC LAN #1 and PC LAN #2 cannot be identical. In case they are, the following error message will be displayed:

'The same IP address cannot be set on multiple IP interfaces'

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

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

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

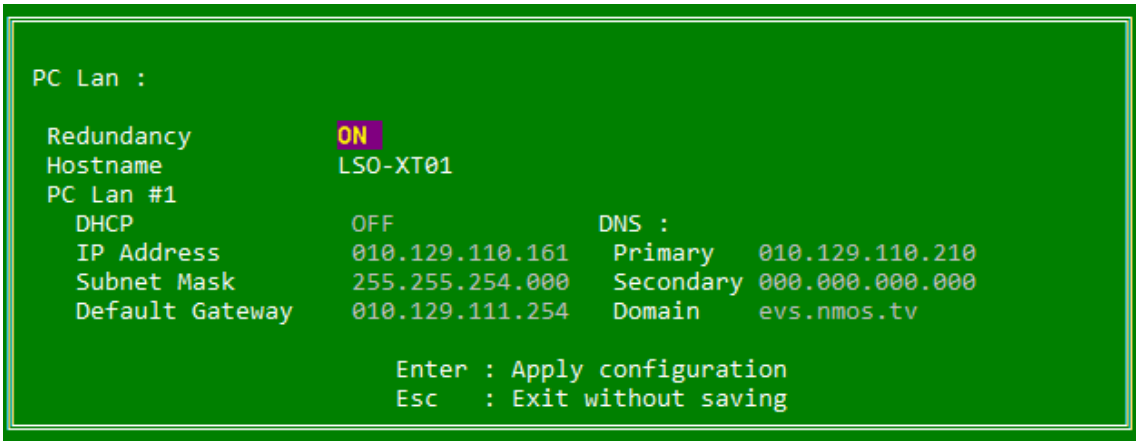
2.3.5. Configuring a DNS Server Connection

Introduction

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

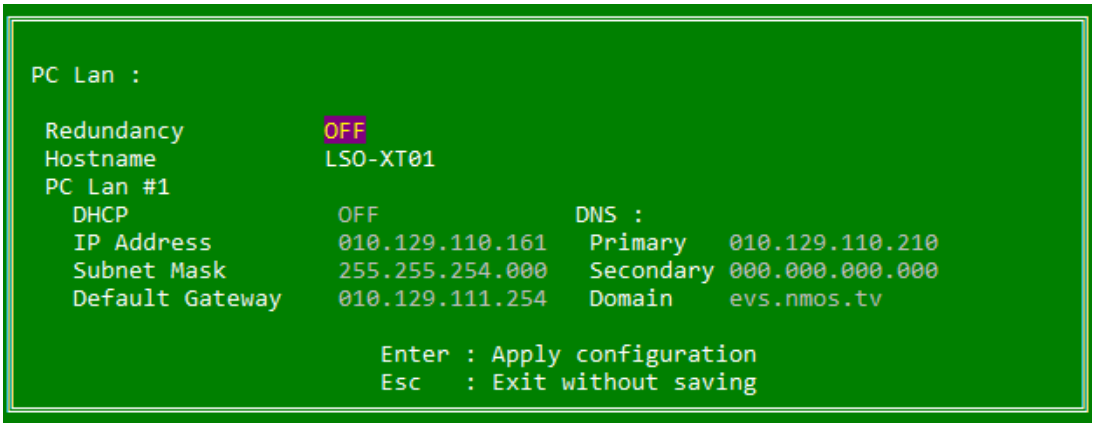
You can define the DNS server connection from the server-based application, in the Tools area, via the **Set LAN PC address and DNS** option.

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



How to Set the DNS Server Connection

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



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

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

3. Press ENTER to apply the DNS server configuration.

   You can now switch to NMOS Unicast Mode. See section "Domain Name System Settings" on page 81 for more information.

2.3.6. Setting the Server Date and Time

Introduction

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

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

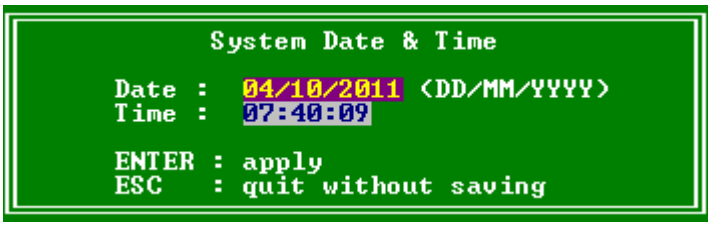
- 22:58:00 for 22 h 58 min 00 sec (24-hour display)

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.

2.3.7. Configuring Server RAIDs

Introduction

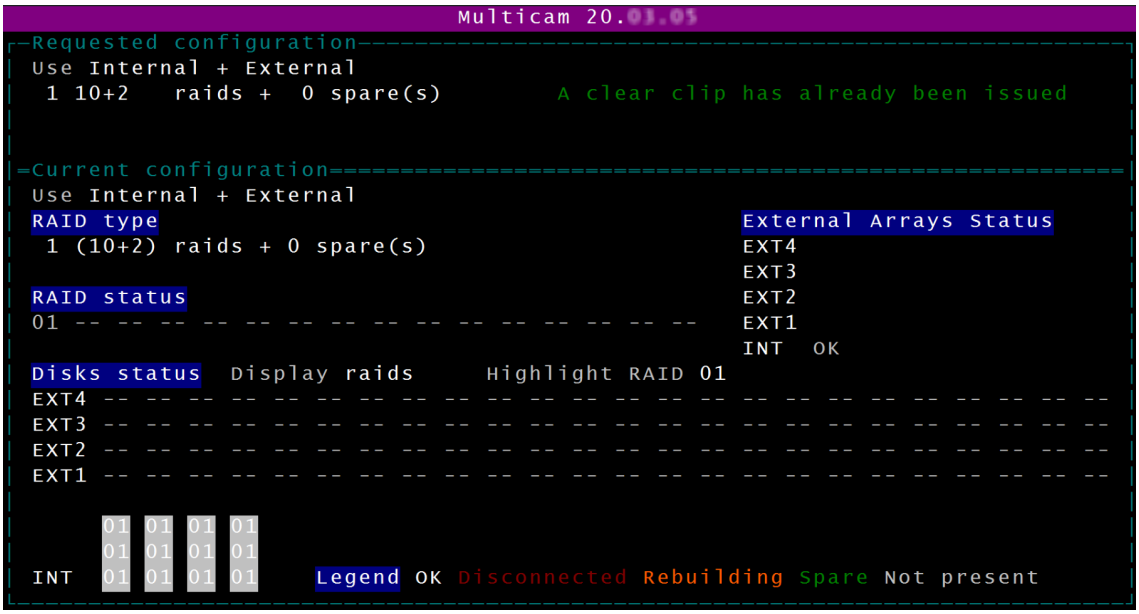
When the EVS server is started, the server raids are automatically detected, and built based on the default settings described in the 'Default RAID Configuration' section below.

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.

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 185.

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.
- (10+1) RAID configuration with 1 spare is used.
- First, all RAIDs are built. The remaining disks are used as spare disks. The construction of RAIDs starts with internal arrays and carries on with external arrays. A RAID can be created across several hardware arrays.

Requested RAID Configuration

Overview

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

- Use of internal and/or external storage.
- Use of spare disks.
- Number of RAIDs to be used.

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

Field Description

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

Field Name	Description
Storage type	Specifies which storage type you will use. When both storage types are available, the following values are possible: • 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 NEW !	Specifies the RAID configuration type. The software is able to handle two RAID organization: • (10+1): RAID of 11 disks with 1 spare • (10+2): RAID of 12 disks with 0 spare

Current RAID Configuration

This area is used to display the raid status for the selected configuration when the EVS server is running a configuration. See section "RAID and Disk Status Window" on page 185 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.

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

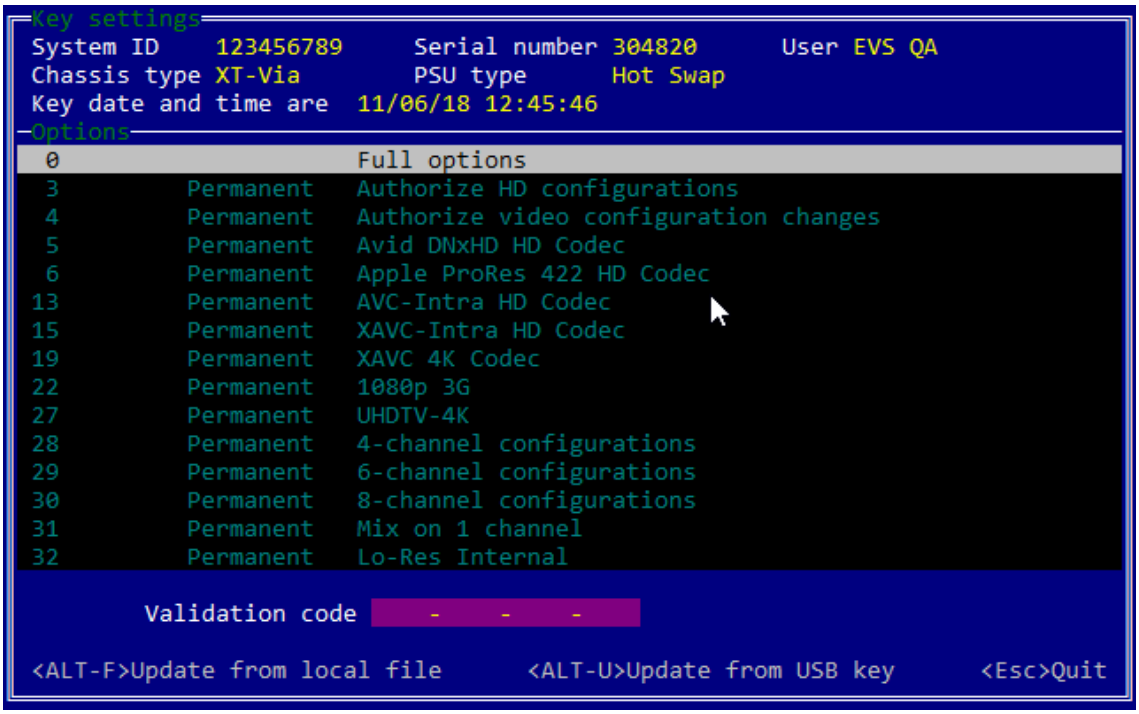
To open the Options codes management window in the server-based application, press O from the Multicam Setup window.

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

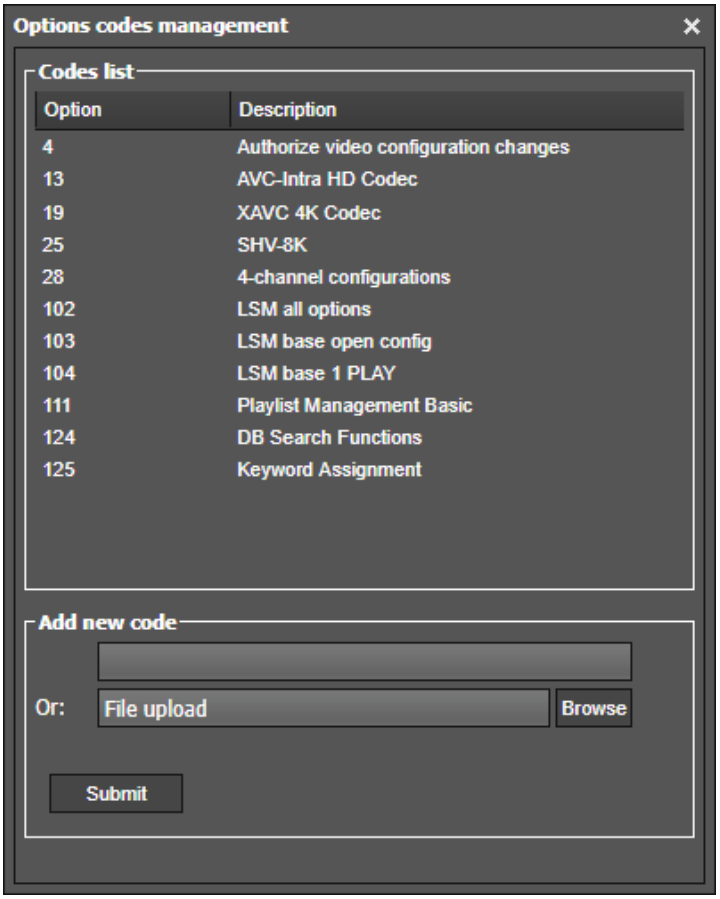
The window features three areas which contain the information mentioned below:



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 `/mnt/apps/data/setup` folder of the EVS server (`/setup` folder when you connect to the EVS server using an FTP client).
2. In the Multicam Setup menu, press **O** to open the Options codes management window.
3. Press simultaneously **ALT**+ **F** keys.

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

In the Web-Based Interface

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

1. Copy the .COD file onto a drive available from your PC.
2. From the Multicam Setup window, click **Options code management** in the Tools menu to open the Options code management window.
3. Click the **Browse** button, select the .COD file and click **Open**.
4. Click **Submit**.

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

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

How to Enter License Codes with a Key Number

In the Server-Based Application

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

1. From the Multicam Setup window, press **O** to open the Options codes management window.
2. Type the code you have received. It will automatically be typed in the Validation Code field:

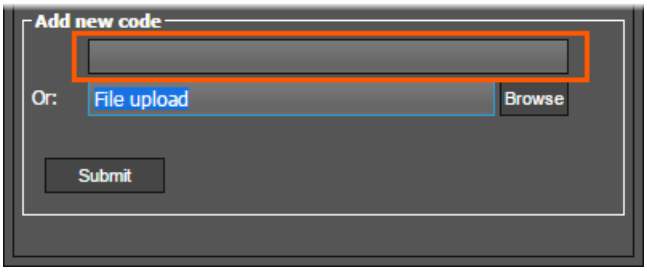
3. Press **ENTER**.

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

In the Web-Based Interface

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

1. From the Multicam Setup window, click **Options code management** in the Tools menu to open the Options code management window.
2. Type the code number in the first field of the Add new code group box:



3. Click **Submit**.

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

How to Remove a License Code

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

1. Press the UP ARROW and DOWN ARROW keys to move inside the options list and select the option to be removed.
2. When the option is selected (highlighted in white), press simultaneously CTRL+ DELETE on the keyboard.
3. Confirm the deletion of the option with ENTER.

2.5. Server Maintenance

2.5.1. Chapter Contents

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

Commands	Page	Server-Based	Web-Based
"Rebooting the EVS Server"	43	Yes	No
"Hardware Check"	43	Yes	No
"Upgrading the Disk Firmware"	1	Yes	No
"Clearing Video Disks"	47	Yes	Yes
"Record Train Maintenance"	49	Yes	No
"Importing and Exporting Keyword Files"	52	Yes	No
"Exporting Log Files"	54	Yes	No

2.5.2. Rebooting the EVS Server

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

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

2.5.3. Hardware Check

Disk Errors and Disconnection

Disconnection

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

A message is displayed each time a disk is disconnected:

- if the faulty disk is a spare disk:

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

- if the faulty disk is contained in a RAID:

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

Exit

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

- if the faulty disk is a spare disk:

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

- if the faulty disk is contained in a RAID:

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

Restarting

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

- if a spare disk is OK:

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

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

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

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

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

- if the faulty disk is a spare disk:

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

- if the faulty disk is contained in a RAID:

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

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

H4X_4S Version Check

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

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

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

Rebuild Process

Introduction

The XT-VIA UHD-8K 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 43, 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.

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.

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

2.5.4. Upgrading the Disk Firmware

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

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

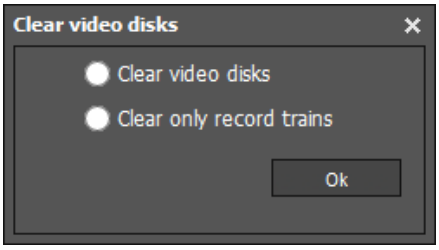
Once the upgrade procedure has finished, press **ALT + Q** to return to the Multicam Setup window.

2.5.5. Clearing Video Disks

Introduction

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

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



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

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

When and What for is a Clear Action Required?

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 49)	Clear Record Trains

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

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

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

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

   OR

   Press **ENTER** to cancel the deletion.

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

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

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

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

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

2.5.6. Overview on the Hardware Check

Purpose

During the hardware check, the following actions are performed:

- Retrieving and checking relevant information related to the various boards installed on the EVS server
- Verifying the validity of the data recorded on the video disk array

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

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

Process

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

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

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

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

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

2.5.7. Record Train Maintenance

Introduction

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

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

Preventing the Overflow of the Record Trains Field Counter

Introduction

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

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

How to Reset the Field Counter

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

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

1. Go to the **Clear video disk** dialog box.
2. Select **Clear only record trains**.

   See section "Clearing Video Disks" on page 47

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 183

Impacts of the Field Counter Maintenance

During the field counter maintenance:

- The players that are using content from local clips are not be disturbed.
- The players that are using content from a remote (XNet) server are not disturbed.
- Playing out a record train of the server in field counter maintenance on a remote server will impact the playout.

After performing the field counter maintenance:

- All the trains are erased, but neither the clips nor the playlists are erased.
- Multicam restarts the recorders that were running before the maintenance operation.
- Multicam restarts the players that were running before the maintenance operation. The record train used by each player remains unchanged.

Automatic Advance Warning

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

- A message is displayed on the VGA 12 weeks before the counter overflow, then weekly from 8 to 4 weeks before the counter overflow.
- From 4 weeks to the day before the counter overflow, the message on the VGA is displayed daily, and the `!Rec` warning is displayed on all PGM OSD screens.
- On the last day, the OSD warning flashes.

Field Counter Overflow

When the field counter reaches the overflow:

- Multicam stops the recorders and the players.
- Multicam issues error messages on the VGA, the OSD, and the LSM.
- The operator is still allowed to browse and make clips with all the content available on the disks.

Align the Current Block Size with the Optimal Block Size

Introduction

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

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

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

Optimal Block Size Calculation

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

- Bitrate of the intra codec
- Number of phases
- Framerate
- Maximum block size

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

Performing a Clear Record Trains

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

If the current and optimal block size are:

- identical for all record trains, then the configuration is started without any additional messages.
- not identical for all record trains, the following two cases can be distinguished:
  - The current block size used for one or more record trains is 8MB. A bigger block size, i.e. 16MB, is recommended.

    The following message will appear:

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

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

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

  The following message will appear:

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

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

Example

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

Start the following configurations:

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

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

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

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

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

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

2.5.8. Importing and Exporting Keyword Files

Introduction

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

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

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

How to Import a Keyword File

To import a keyword file, proceed as follows:

1. Save the keyword file you want to import on a USB key, and plug it into the USB port of the EVS server as the Multicam Setup window is open.
2. In the Multicam Setup window, press K to call the Import/export keyword file command.

   The following dialog box opens:

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

How to Export a Keyword File

To export a keyword file, proceed as follows:

1. Plug a USB key into the USB port of the EVS server as the Multicam Setup window is open.
2. In the Multicam Setup window, press K to call the Import/export keyword file command.

   The following dialog box opens:

3. Press ENTER to export the keyword file from the EVS server to the USB key.
4. Press OK to close the message box that appears when the keyword file has been exported.
5. Remove the USB key.

2.5.9. Exporting Log Files

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

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

- all files and folders located on `/mnt/apps/data` folder of the EVS server (root folder when you connect to the EVS server using an FTP client).
- an Excel spreadsheet that contains the definition of your configuration lines

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

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

3. UHD-8K Configurations

3.1. General Information on UHD-8K Configurations

Description

The UHD-8K format available on the EVS server is activated by selecting the **UHD-8K** value for the **Resolution** parameter.

The image resolution is 7680 x 4320. An UHD-8K image is transported via four 12G-SDI links.

Each UHD-8K image therefore requires 4 SDI (BNC) connectors on the XT-VIA UHD-8K.

Requirements

The UHD-8K is available on the XT-VIA UHD-8K server that is equipped with the following hardware equipment, by default:

- 2 x V4X base boards with each 4 codec modules
- H4X board
- R4X board

The UHD-8K is available when the following software requirements are met:

- The license code 25 (UHD-8K) is granted on the EVS server, in combination with the code for the configuration mode.
- The **Resolution** parameter is set to **UHD-8K** (forced value).

  See section "Video and Reference Settings" on page 72.
- The **Intra Codec** parameter is set to **XAVC-Intra 300** (forced value).

  See section "Codec Settings" on page 76.
- The **Interface** parameter is set to **12G** (forced value).

  See section "Base Settings" on page 85.

Limitations

Codec Limitations

- UHD-8K can only be used with the XAVC-Intra codecs.
- UHD-8K cannot be used with Proxy codecs.

Configuration Limitations

- UHD-8K does not support the Mix on one channel feature.
- UHD-8K does not provide discrete OSD.
- UHD-8K does not support Dual LSM.

Operational Limitations

The following features are not available with UHD-8K:

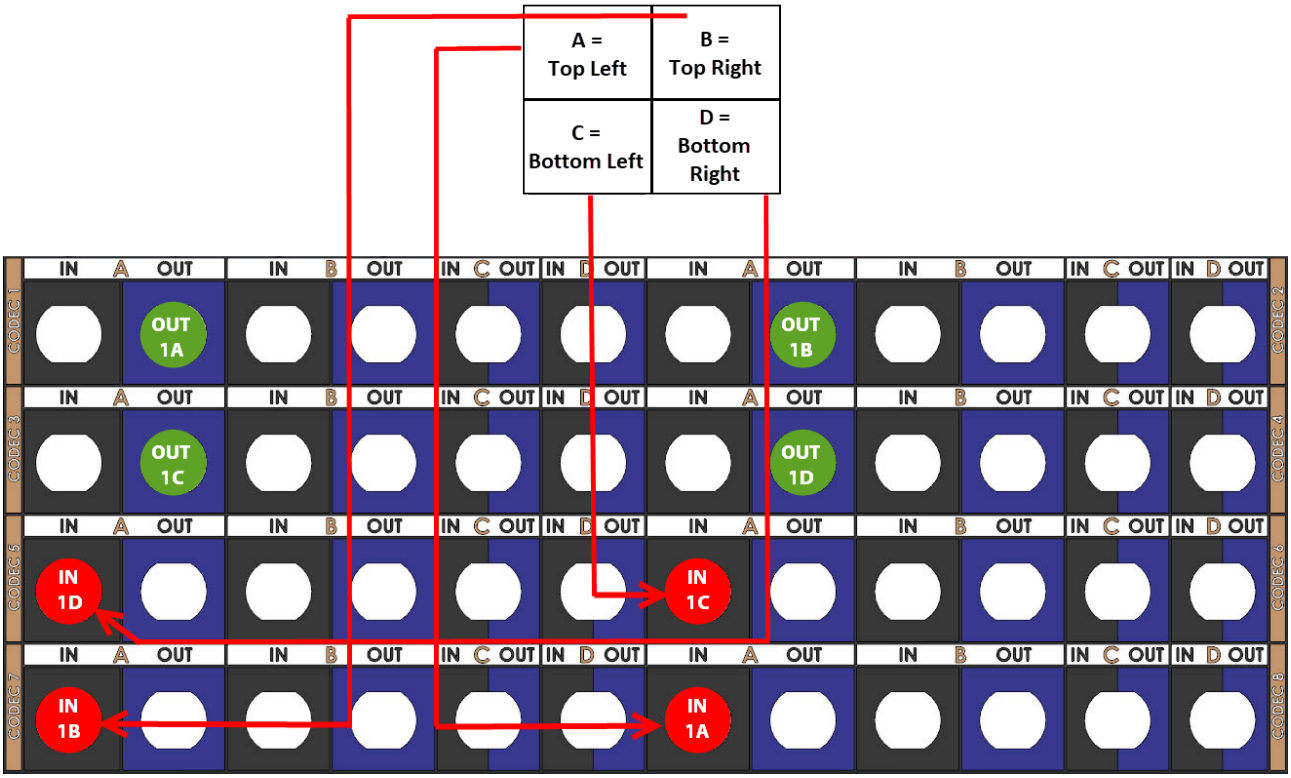
- Internal loop
- Replace external loop
- Graphics: Paint, Target track, Split screen
- Timeline
- Playlist advanced features

Assignment Principles

An UHD-8K image consists of four UHD-4K frames transported via four 12G-SDI links.

The UHD-8K image is transported using the square division SHV format (see "Base Settings" on page 85). Each UHD-4K frame of an UHD-8K image is called an image quadrant.

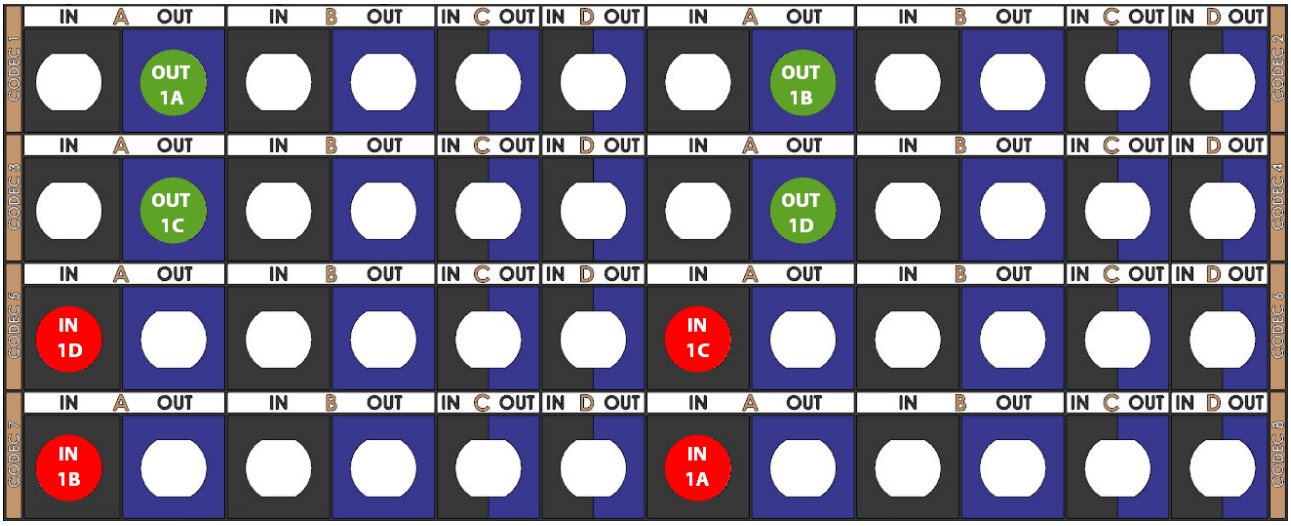
Each image quadrant is assigned to its corresponding 12G-SDI link in the following sequence:



3.2. UHD-8K Configurations

An UHD-8K image is transported via four **12G-SDI** links. Each link is connected to the connector A of a codec module following the general assignment principles defined earlier.

The supported configuration in UHD-8K is **1IN - 1 OUT** and is presented in the drawing 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 7-8)
Web-Based Interface	Yes (tabs 1-6)	Yes (tab 7-8)
Remote Panel	Yes (partly) (Technical Setup: F0)	Yes (Setup Menu: SHIFT+D)

Overview on Configuration Parameters

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

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

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

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

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**.

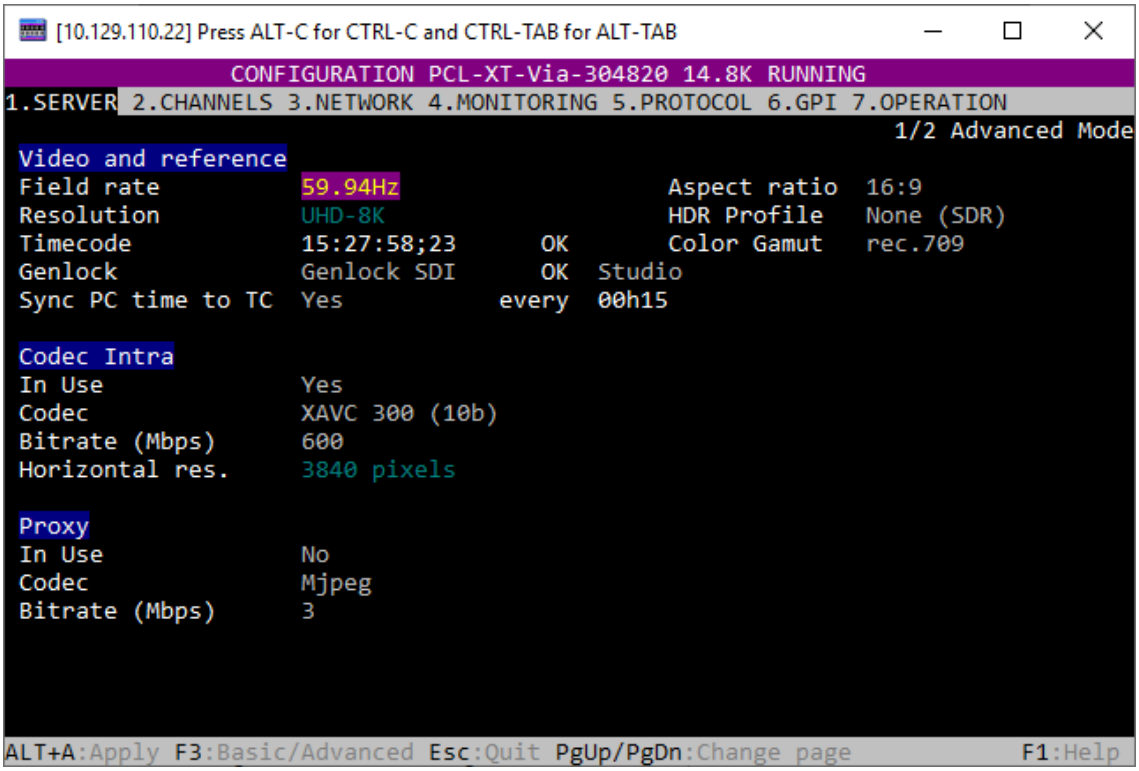
To change the display mode in the web-based interface, click on the display mode label Basic mode or Advanced mode.

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:

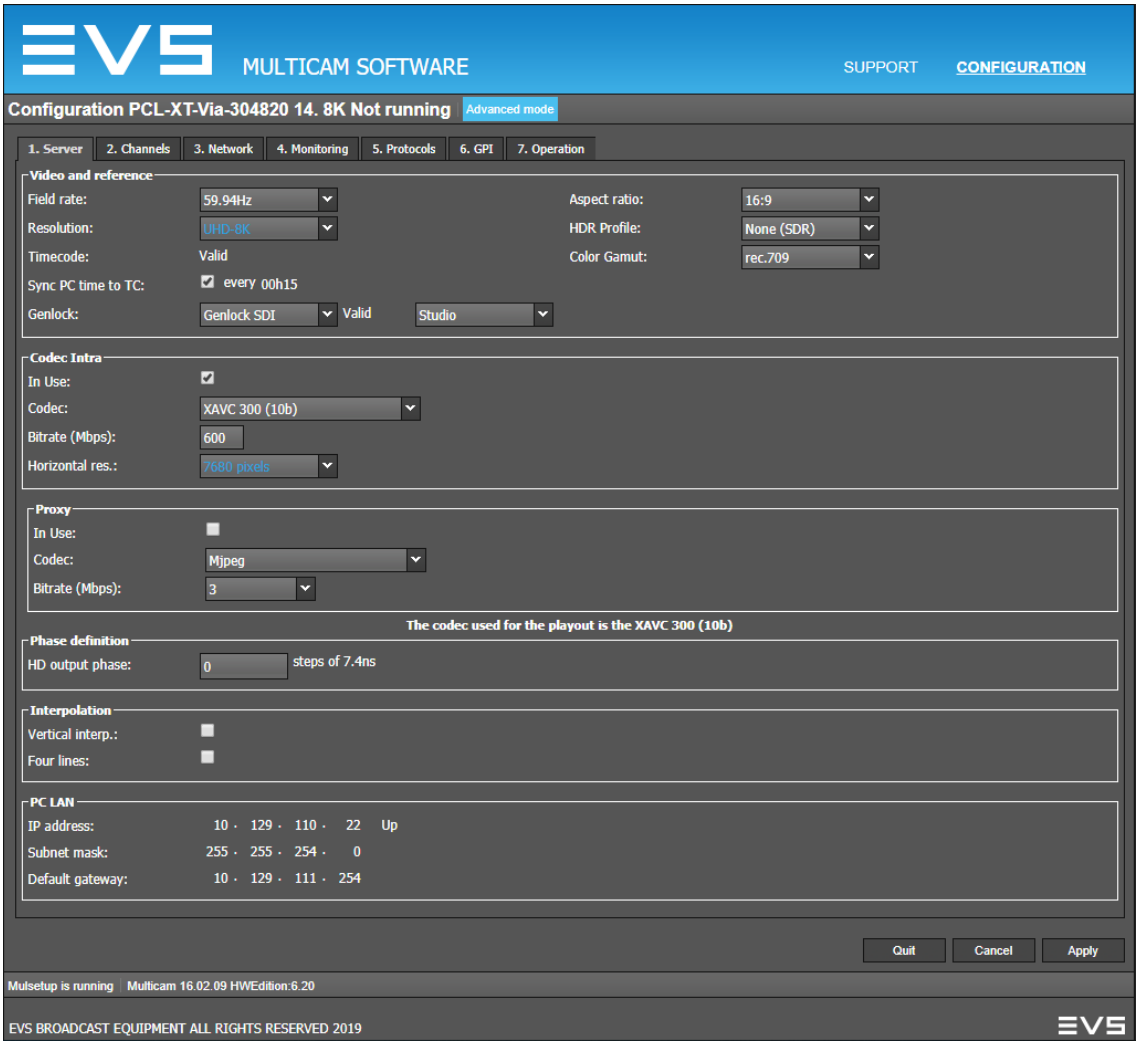
- The title bar displays the selected configuration, and specifies whether the configuration has been launched (running) or not (not running).
- The selected tab is highlighted in pink.
- The current page and number of pages in the tab are specified in the top right corner.
- The display mode (basic 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 XT-VIA UHD-8K server in the web-based interface, shown in advanced mode:

- The top line displays the name of the selected configuration, and specifies whether the configuration has been launched (running) or not (not running).
- The selected tab is displayed in a lighter gray color.
- The Display mode (basic or advanced) is specified on the top line.


MULTICAM SOFTWARE
SUPPORT
CONFIGURATION
Configuration PCL-XT-Via-304820 14. 8K Not running
Advanced mode
1. Server
2. Channels
3. Network
4. Monitoring
5. Protocols
6. GPI
7. Operation
Video and reference
Field rate:
59.94Hz
Aspect ratio:
16:9
Resolution:
UHD-8K
HDR Profile:
None (SDR)
Timecode:
Valid
Color Gamut:
rec.709
Sync PC time to TC:
every 00h15
Genlock:
Genlock SDI
Valid
Studio
Codec Intra
In Use:
Codec:
XAVC 300 (10b)
Bitrate (Mbps):
600
Horizontal res.:
7680 pixels
Proxy
In Use:
Codec:
Mjpeg
Bitrate (Mbps):
3
The codec used for the playout is the XAVC 300 (10b)
Phase definition
HD output phase:
0
steps of 7.4ns
Interpolation
Vertical interp.:
Four lines:
PC LAN
IP address:
10 . 129 . 110 . 22
Up
Subnet mask:
255 . 255 . 254 . 0
Default gateway:
10 . 129 . 111 . 254
Quit
Cancel
Apply
Mulsetup is running
Multicam 16.02.09 HWEdition:6.20
EVS BROADCAST EQUIPMENT ALL RIGHTS RESERVED 2019

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

Command description	Command key
Resetting all values of **all** settings in **all** tabs for the selected configuration	CTRL+SHIFT+F5
Applying changes	ALT+A
Leaving without applying changes	ESC, ENTER

Enabling Values in a List

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

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

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

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

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

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

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

In the Web-Based Interface

Navigation and Editing Commands

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

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

In Server- and Web-Based Interfaces

Display and Checks of Modified Values

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

When you apply the changes, the following occurs:

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

4.1.4. Overview of the Setup Menus in the Remote Panel

Introduction

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

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

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

Accessing the Technical Setup Menu

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

The Technical Setup menu opens on the 1st page.

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

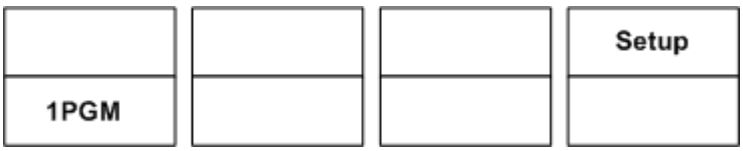
In all sections dedicated to a tab of the Multicam Configuration window in this manual, you will find an overview table that lists the settings available in the Technical Setup menu, as well as the sections where you will find them.

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:



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 • Timecode
Server tab	All codec settings
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: • REC capacity
Network tab	All Gigabit settings: • Gigabit connection • Gigabit IP configuration

4.2. Server Tab

4.2.1. Overview

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

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

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

Setting Name	Basic	Advanced	Technical Setup
Video and reference settings			
Field rate	X	X	–
Aspect ratio	X	X	–
Resolution	X	X	–
HDR Profile	–	X	–
Color Gamut	–	X	–
Timecode	X	X	–
Sync PC Time to TC	–	X	–
Genlock	X	X	–
Codec Settings (Intra)			
Codec	X	X	–
Bitrate	X	X	–
Horizontal Res.	–	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

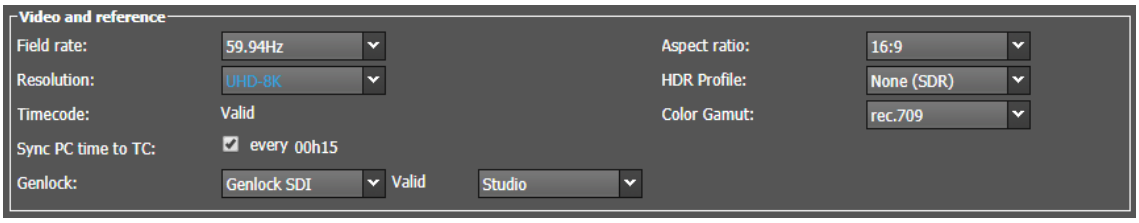
Video and Reference Settings

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.

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)

Aspect Ratio

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

Resolution

Description	Vertical resolution used (number of white-to-black and black-to-white transitions that can be seen from the top to the bottom of the picture) (pixel + type). Both field rate and resolution correspond to the video standard.
Values	In UHD-8K: • **UHD-8K** (available with code 25)

HDR Profile

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

Color Gamut

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

Timecode

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

Sync PC Time to TC

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

Genlock

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

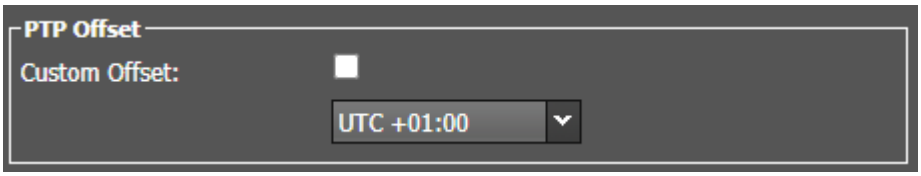
If you want the genlock and timecode signals to be delivered through PTP, contact the EVS support as this may require an upgrade of the V4X base module.

PTP Offset Settings

User Interface

The PTP Offset settings allow you to specify an offset that needs to be taken into account when calculating the local time based on the PTP source.

The following screenshot displays the PTP Offset settings on the Server tab in the web-based interface.



Custom Offset

Description	This parameter allows to enable and select a custom UTC time offset
Availability	The **Custom Offset** parameter is only available if the following 2 requirements are met: • The **Interface** parameter in the Channels tab is set to **XiP**. See section "Base Settings" on page 85 • The **Genlock** parameter in the Server tab is set to **Genlock PTP**. See section "Video and Reference Settings" on page 72.
Values	• **False:** The UTC time offset provided along with the PTP management messages will be used to calculate the timecode. This is the default value. • **True:** The UTC time offset provided along with the PTP messages will be ignored. The UTC time offset value that is selected from the drop-down list will be used along with the leap seconds to calculate the timecode. The drop-down list contains the following UTC time offsets: UTC +01:00 UTC +02:00 UTC +03:00 UTC +04:00 UTC +05:00 UTC +05:30 UTC +06:00 UTC +07:00 UTC +08:00 UTC +09:00 UTC +09:30 UTC +10:00 UTC 00:00 UTC -04:00 UTC -05:00 UTC -06:00 UTC -07:00 UTC -08:00 UTC -09:00 UTC -10:00

- Despite the use of the Custom Offset value, the OE messages still have to be activated on the PTP source.
- Activating the Custom PTP Offset mode or changing the custom offset value requires a Multicam reboot.
- The custom offset does not dynamically take into account the Daylight Saving Time (DST). This means when using the Custom PTP Offset mode, if you want to see the local time in summer time, the offset has to be adapted manually (e.g. UTC +2h instead of UTC +1h) on the XT.

Codec Settings

Introduction

The XT-VIA UHD-8K server can encode the record trains in one essence at a time. Multi-essence features are not supported on this EVS server.

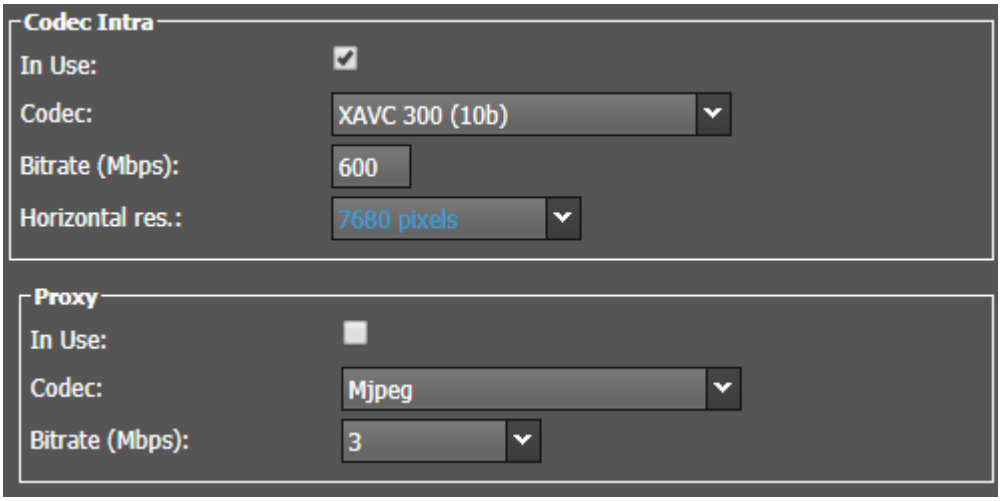
For this reason, only the **Codec Intra** section will be available in the Server tab.

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.

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:



Codec (Codec Intra)

Description	Algorithm used to compress the video signal. With Intra codecs, the compression techniques are performed exclusively relative to information contained within the current frame.
Values	In UHD-8K: • XAVC-Intra 300 • XAVC-Intra 480 See section "Codec Availability" on page 77 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 78 for detailed information on bitrates per codec.

Horizontal Res.

Description	Number of white-to-black and black-to-white transitions that can be seen from the left to the right of the picture (pixels). The setting value depends on the selected video standard and on the codec.
Values	See section "Codec-Related Information" on page 78 for detailed information on horizontal resolution for each video standard and codec.

Codec Availability

Introduction

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

Codec Intra

On an XT-VIA UHD-8K server, only the XAVC-Intra license code is currently relevant.

License Codes

The following table presents the codec availability for an XT-VIA UHD-8K server depending on the license code.

UHD-4K codecs	V4X Codec Board
XAVC-Intra 4K (XAVC class 300, XAVC class 480)	code 19

Codec-Related Information

Bitrates and Horizontal Resolutions in UHD-8K (50 and 59.94 Hz)

The following table presents the bitrate for the whole UHD-8K image:

Field rate	50 Hz	59.94 Hz	50 Hz	59.94 Hz
Codec	XAVC-Intra 300	XAVC-Intra 300	XAVC-Intra 480	XAVC-Intra 480
Default bitrate	500	600	800	960
Horizontal Resolution	7680	7680	7680	7680

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.

HD Output Phase

Description	Allows you to define a phase correction for the HD output. The value is adjusted by steps of 7.4 ns, which corresponds to 1/2 pixel of HD.
Values	Steps of half pixels (7.4 ns):
Default value	0

4.2.4. Interpolation Settings

User Interface

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

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

General Description

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

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

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

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

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

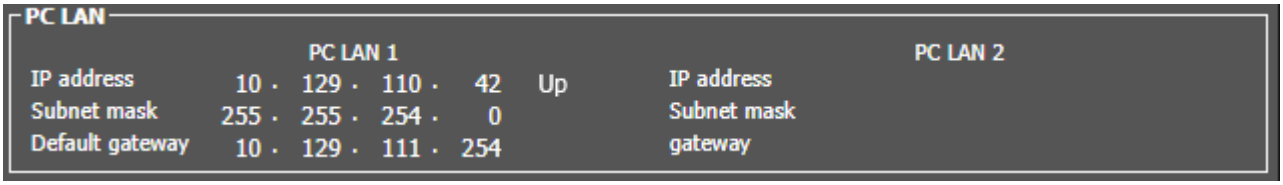
4.2.5. PC LAN Settings

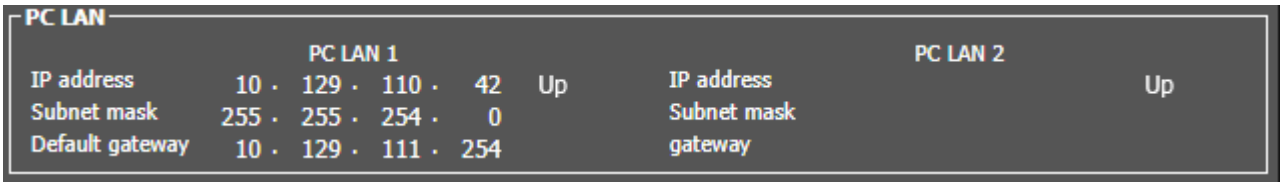
User Interface

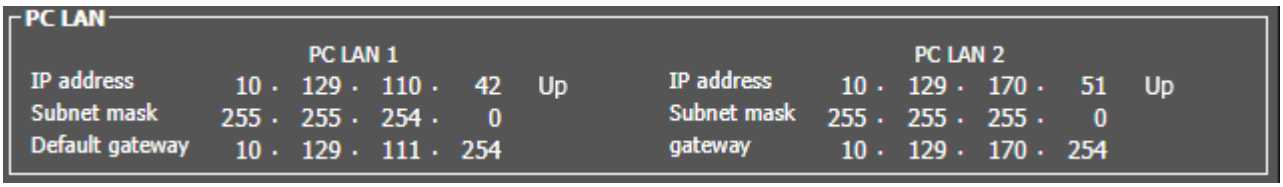
The PC LAN settings allow the H4X board of an EVS server to communicate and exchange information with other EVS hardware on a setup.

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

The following screenshots display the PC LAN settings defined on the Server tab in the web-based interface in Single, Redundancy and Dual Mode.







The PC LAN settings are read-only in the Multicam Configuration window. You can modify them in the Multicam Setup window, using the **Set LAN PC address** command. See section "Setting the Server PC LAN Connection" on page 28 for more information.

IP Address

Description	IP address to connect to the port of the internal switch module on the H4X board on the server. The status of the PC LAN connection(s) is specified next to the IP address on the web-based interface, and in a separate parameter on the server-based interface. When Redundancy or Dual Mode is enabled, the status of both PC LAN connections is specified and PC LAN #1 and PC LAN #2 share a common IP address. When Dual Mode is enabled, an IP address, subnet mask and gateway have been defined for PC LAN #2 that differ from PC LAN #1. When Redundancy Mode is enabled, PC LAN #1 and PC LAN #2 share a common IP address.
Values	The IP addresses 0.0.0.0 and 255.255.255.255 are not allowed. The connection status can be **Up** or **Down**.

Subnet Mask

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

(Default) Gateway

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

4.2.6. Domain Name System Settings

User Interface

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

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

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

Apart from the **NMOS Unicast** parameter, the Domain Name System settings are read-only in the Multicam Configuration window. You can modify them in the Multicam Setup window, by pressing **L**. See section "Configuring a DNS Server Connection" on page 31 for more information.

NMOS Unicast

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

Primary

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

Secondary

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

Search Domain

Description	Specifies the search domain of the DNS server.

4.3. Channels Tab

4.3.1. Channels

Overview

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

- in the basic or advanced display mode in the server-based and web-based interfaces. In the web-based interface, the settings are all displayed on one page.
- in the **Technical Setup** menu (T2.X) of the Remote Panel.

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

Setting Name	Basic	Advanced	Technical Setup
Base settings			
Inputs	X	X	X
Outputs	X	X	X
Base config	X	X	X
UHD-4K Format	X	X	X
UHD-8K Format	X	X	X
Interface	X	X	X
Port settings			
RS422 #1-#6	X	X	X
Channels and control settings			
OUT1 / IN1	X	X	X
Name	X	X	X
Main ctrl	X	X	X
Sec. ctrl	–	X	X
Mode	–	X	X
OSD	–	X	–
Audio I/Os settings			

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

Base Settings

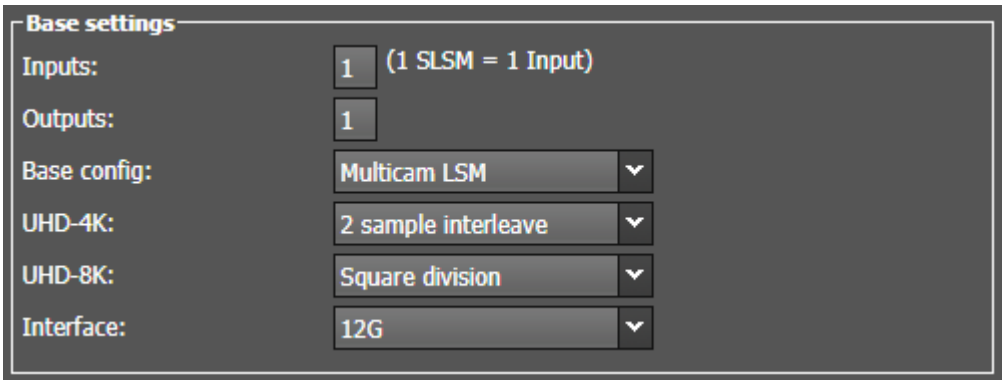
User Interface

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

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

These fields are available in the following interfaces:

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



Inputs

Description	Number of logical record channels in the given configuration. The partition of the disk storage between these channels, and the advanced audio settings are automatically adapted to the number of record channels.
Values	The number of supported channels depends on the chassis, and the mode: • on XT-VIA UHD-8K: 1 (LSM) See section "General Information on UHD-8K Configurations" on page 55 for more information on supported configurations.

Outputs

Description	Number of logical play channels in the given configuration.
Values	The number of supported channels depends on the chassis, and the mode: • on XT-VIA UHD-8K: 1 (LSM) See section "General Information on UHD-8K Configurations" on page 55 for more information 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 and by industry-standard protocols: Sony BVW75, VDCP, Odetics, DD35, EVS' AVSP, IPDP or LinX API, or from the Multicam production screens. License code: 103
	• **Replay-Only LSM**: restricted Multicam LSM mode without playlist management, split audio, nor support of hypermotion cameras. License code: 103

UHD-4K Format

Availability	The parameter is only available when the UHDTV-4K or UHD-8K resolution is selected in the Server tab, Video and Reference settings, **Resolution** field.
Description	Defines the format used to transfer the UHD-4K image (i.e. the 4 UHD-4K images included in an UHD-8K image) to and from the EVS server.
Values	The value is forced to: • **two-sample interleave**: the UHD-4K is transported as four images at 1/4 of the original 4K resolution.

UHD-8K Format

Availability	The parameter is only available when the UHD-8K resolution is selected in the Server tab, Video and Reference settings, **Resolution** field.
Description	Defines the format used to transfer the UHD-8K image to and from the EVS server.
Values	The value is forced to: • **square division**: the UHD-8K is transported as four UHD-4K quadrants.

Interface

Availability	The parameter is only available with one of the following license code active or with the following hardware: • XT-VIA rear panel
Description	Defines the interface the EVS server will use in 1080p or XT-VIA rear panel: • The **12G-SDI interface** consists of a single serial link corresponding to 4 x 3G-SDI links. This provides an uncompressed interface for UHD-4K.
Values	• **12G**: 12G-SDI connection for an UHD-8K image. ◦ available with code 25 (UHD-8K) with XT-VIA rear panels.

Port Settings

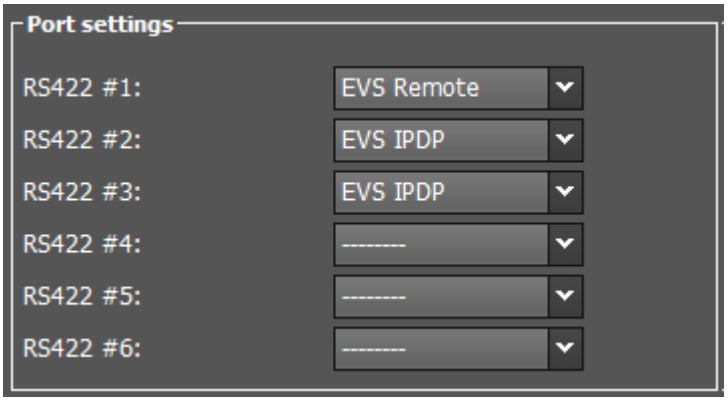
User Interface

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 value is available if the required license codes are active: • EVS Remote for LSM Remote Panel (code 103). All Remote Panels must be the first in the list of main controllers, without gap.

Channels and Control Settings

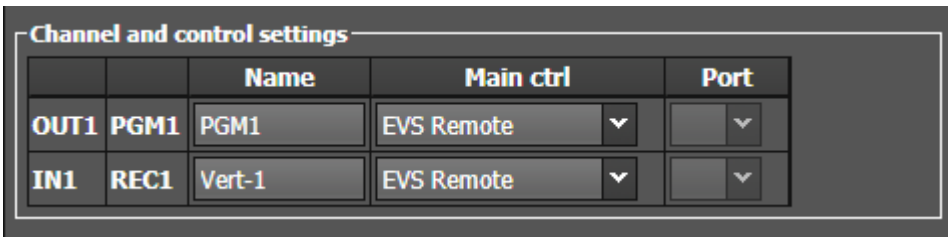
User Interface

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)

Some parameters may not be relevant with an XT-VIA UHD-8K server



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. A Remote Panel has to be assigned as main controller of the record and play channels.
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 combination with other controllers) to play or/and record channels. An error message will be displayed to warn you in case of a wrong protocol selection or protocol combination, and the fields that contain errors will be highlighted in red.

Sec. ctrl (Secondary Controller)

Description	Name of the secondary device/controller allowed to control the given play or record channel.
Values	For a controller to be available in the list of values, it must first be assigned to an RS422 port in the port settings. In addition, rules specific to each controller apply to the assignment of the controller (used alone or in combination with other controllers) to play or/and record channels. 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. This settings is not relevant on an XT-VIA UHD-8K server.
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.

Recorder Settings

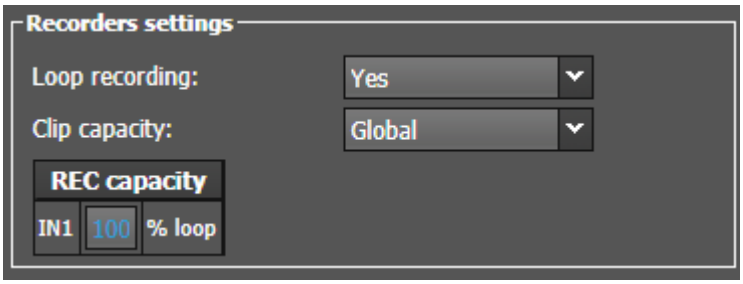
User Interface

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).

Some parameters may not be relevant with an XT-VIA UHD-8K server



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 the supported base 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)**.

Rec Auto Start

Description	Automatic start of the record channels after the EVS server has initialized. In a Multicam LSM configuration, the setting is not displayed and the **Rec Auto Start** is automatically activated in the background.
Values	Yes (default) / No

REC Capacity

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. • **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'.

4.3.2. Audio

Audio I/Os Settings

User Interface

The Audio I/Os settings allow users to specify the audio connectors (MADI) that correspond to the physical connectors available on the rear panel of the EVS server.

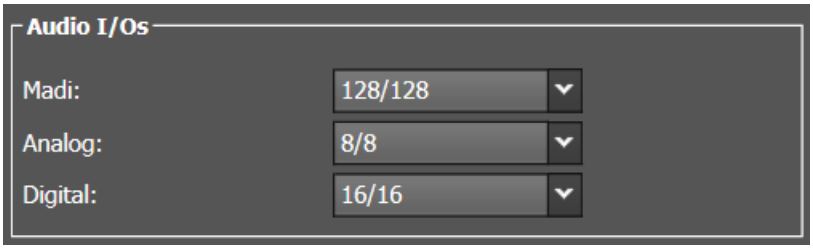
The hardware configuration defined in the audio I/O settings is used, among others, to provide a default audio channel association in the advanced audio settings.

The settings available and the setting values defined for these parameters are not automatically validated against the real hardware configuration. Therefore you have to make sure the settings you define reflect accurately the available physical connectors you want to use.

These fields are available in the following interfaces:

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

The following screenshot displays the Audio I/Os settings defined on the Channels tab in the web-based interface:



MADI

Availability	This parameter is available even if the connectors are not fitted on the EVS server.
Description	Number of IN and OUT MADI audio mono channels available on the EVS server rear panel.

Values	• None
	• 128/128
	  ◦ 128 IN mono audio channels
	  ◦ 128 OUT mono audio channels

Default value	None

Analog

Availability	This parameter is available even if the connectors are not fitted on the EVS server.
Description	This parameter is not relevant on an XT-VIA UHD-8K server. Number of IN and OUT analog audio mono channels available on the EVS server rear panel.
Values	• None • 4/4 ◦ 4 IN mono audio channels ◦ 4 OUT mono audio channels • 8/8 ◦ 8 IN mono audio channels ◦ 8 OUT audio channels
Default value	None

Digital

Availability	This parameter is always available even if the connectors are not fitted on the EVS server.
Description	This parameter is not relevant on an XT-VIA UHD-8K server. Number of IN and OUT digital audio mono channels available on the EVS server rear panel.
Values	• None • 8/8 ◦ 8 IN mono audio channels ◦ 8 OUT audio channels • 16/16 ◦ 16 IN mono audio channels ◦ 16 OUT mono audio channels
Default value	None

Audio Settings

User Interface

The Audio settings allow users to specify some general audio settings. Other general audio settings are available in the Audio I/Os settings and Audio Monitoring settings.

These fields are available in the following interfaces:

- in the Multicam Configuration window, Channels tab, in the advanced display mode.
- in the Technical menu of the Remote Control Panel (T2.X).

The following screenshot displays the Audio settings defined on the Channels tab in the web-based interface, in advanced mode:

Number of Tracks

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 "Audio with an XT8K server" on page 96.
Values	32 Monos (forced)

Sample Rate Conv. (Conversion)

Availability	This parameter is not available when the **Digital** parameter is set to **None** in the Audio IOs settings. The parameter is indeed only relevant with the digital AES/EBU audio format.
Description	This setting is not relevant on an XT-VIA UHD-8K server. Specifies whether the input sample rate is converted. If this parameter is set to **No**, the user has to make sure that the signals are properly synchronized.
Values	Yes (default) / No

Audio Monitoring Settings

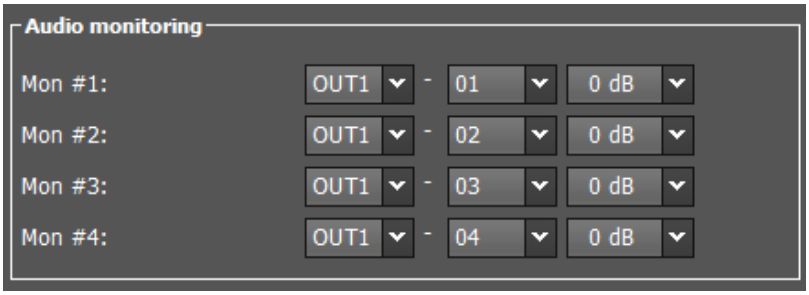
User Interface

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

These fields are available in the following interfaces:

- in the Multicam Configuration window, Channels tab, in the advanced display mode.
- in the Technical menu of the Remote Control Panel (T2.X).

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



Audio Monitoring: Mon #1 - Mon #4

Description	Specifies the source of the audio signal that will be sent to each of the four audio monitoring connectors (numbered from left to right on the backplane).
Value	For each audio monitoring connector, the audio signal to be monitored is specified by the video channel number and the audio mono channel number. **Example:** The value 'OUT2-04' for Mon #1 means that the audio signal of the 4th audio mono channel of the PGM2 is sent to the monitoring connector 1.
Default Values	By default, the audio signal of the first play channel, and the audio mono channels from 1 to 4 (OUT1-01 to OUT1-04) are respectively assigned to the Mon #1 to Mon #4 connectors.

Audio with an XT8K server

Each channel of the XT-VIA UHD-8K server generally works with 22.2 audio. This requires 32 tracks. These audio tracks will be split over the first two 12G-SDI links, 16 audio embedded channels on each.

They will be assigned in the following way:

- **Tracks 01-24:** 22.2 SHV sound
- **Tracks 25-30:** 5.1 surround
- **Tracks 31-32:** Stereo down mix

This audio configuration can also be carried out using the MADI ports.

This is the required number of mono audio channels per video channel:

- **Embedded:** twice 2*16 audio mono per video channel (=64 tracks)
- **MADI:** 2*32 audio mono (= 64 tracks)

Overview on Advanced Audio Settings

Introduction

The Advanced Audio settings are defined in the Channels tab of the Multicam Configuration window. In the server-based application, they are displayed from page 3 and are only available in the advanced mode. They allow audio channel routing, muting, and adjusting the audio gain.

The Advanced Audio settings for the **inputs** allow users to specify how the audio sources are routed to the audio mono channels of each record channel.

The Advanced Audio settings for the **outputs** allow users to specify how the audio mono channels are routed to each play channel (for embedded audio) or to the various physical audio connectors (MADIconnectors).

In the server-based application, the advanced audio settings are available on different pages:

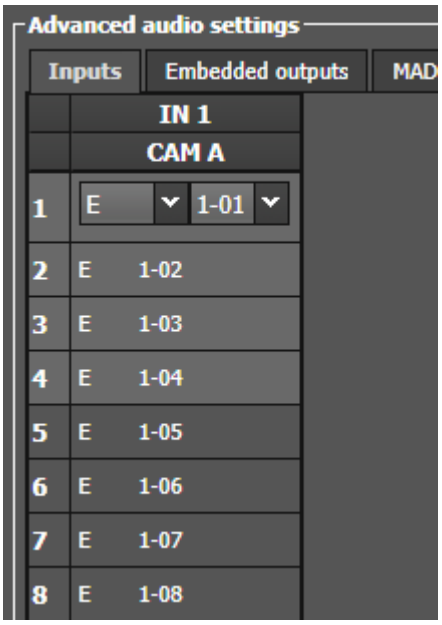
- audio inputs
- audio embedded outputs
- audio MADI outputs

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.

The settings for 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:



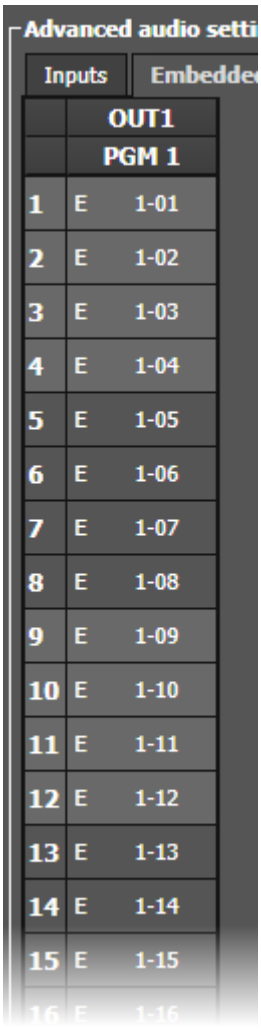
In the table, the information is organized as follows, for input or output settings:

- 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 32 audio tracks required are embedded on the first two 3D-SDI links. They will appear as 32 audio tracks on the IN1 (not all displayed on the screenshot).



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, EY for Dolby Embedded, M for MADI, MY for Dolby MADI).

For **embedded audio or MADI** (for example 1-01):

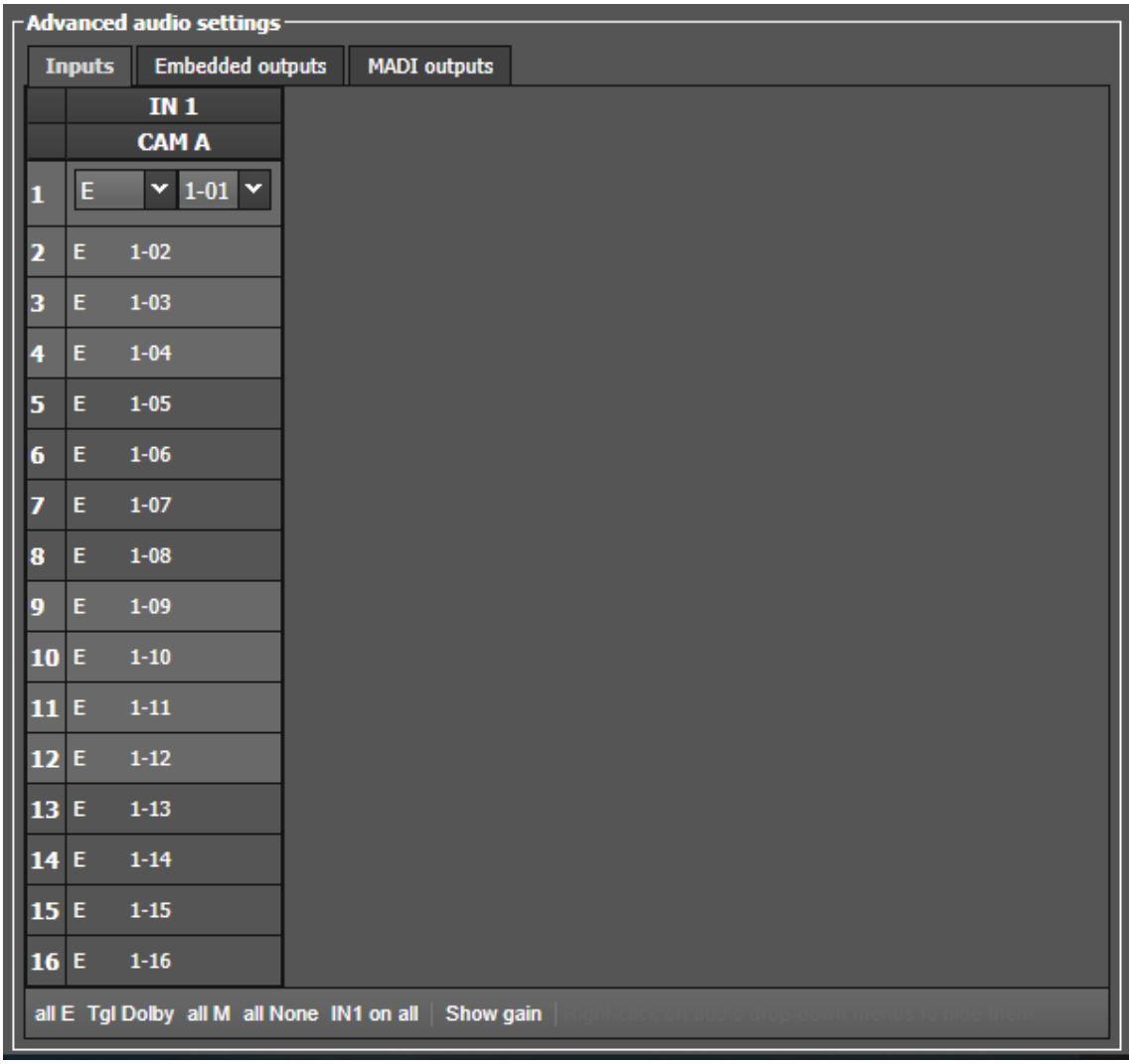
- The first number before the hyphen refers to the number of the play or record channel.
- The figure after the hyphen refers to the audio mono channel.

Audio Input Settings

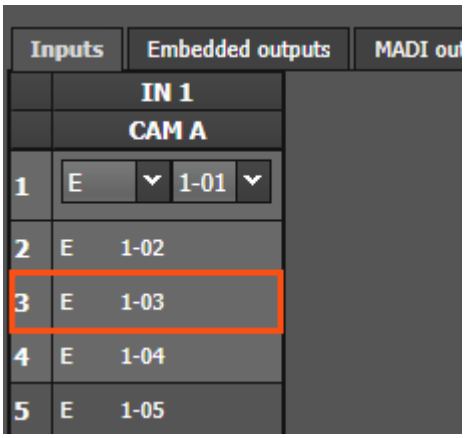
Introduction

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.

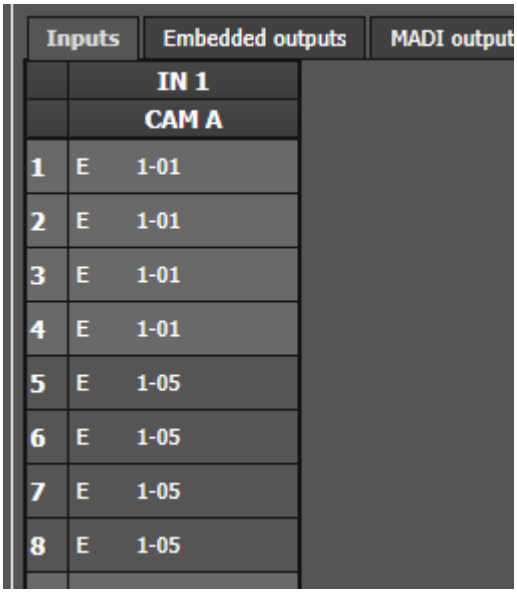


Example 1



The E1-03 value located in the intersection between row 3 and column IN1 means that the 3rd audio mono channel of the embedded audio source plugged into the IN1 (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) 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) will be stored on mono channels 5 to 8 of the recorded material.

Audio Output Settings

Introduction

The audio output settings for audio allow users to do the following:

- Map the audio mono channels of the material stored on the EVS server to an output mono channel of a play channel.
- Specify the audio gain to be applied to each output mono channel.
- Mute an output mono channel.

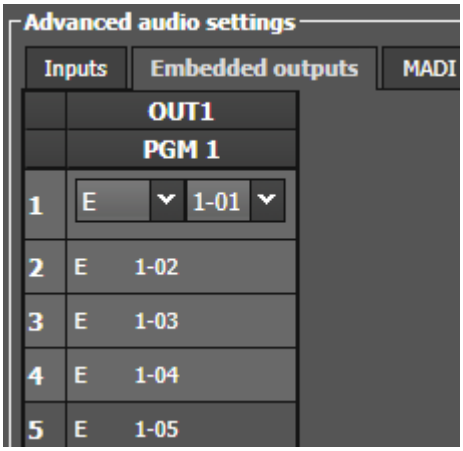
This can be defined for the various audio types: embedded audio, if the corresponding connectors are available on the hardware configuration.

User Interface

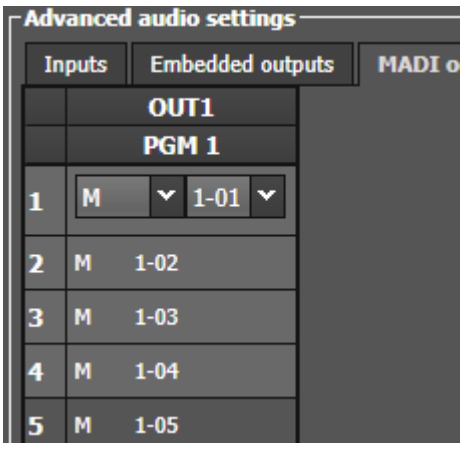
The screenshots below show an abstract of the default audio channel assignment for the various audio types in a configuration.

See section "Default Mapping for Audio Inputs and Outputs" on page 103 for a full overview on the default mono channel assignment in the various supported configurations.

Embedded outputs



MADI outputs



Example

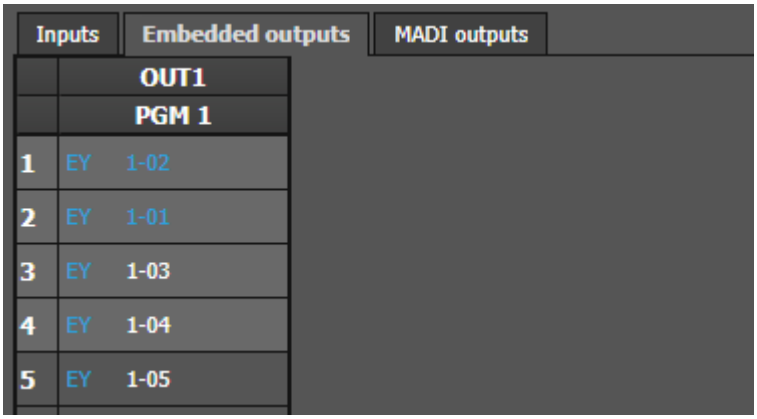
In the screenshot below, the audio mono channels defined on the A/V material on the EVS server are allocated to the play channels in the following way:

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:

- XT-VIA UHD-8K chassis
- 1 recorder or player (see section "General Information on UHD-8K Configurations" on page 55).
- Audio hardware configuration: BNC MADI

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 1 recorder, and an audio configuration with 16 tracks (mono channels):

	IN 1
Mono1	E 1-01
Mono2	E 1-02
Mono3	E 1-03
Mono4	E 1-04
Mono5	E 1-05
Mono6	E 1-06
Mono7	E 1-07
Mono8	E 1-08
Mono9	E 1-09
Mono10	E 1-10
Mono11	E 1-11
Mono12	E 1-12
Mono13	E 1-13
Mono14	E 1-14
Mono15	E 1-15
Mono16	E 1-16

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 1 player, and an audio configuration with 16 tracks (mono channels):

	OUT 1
Mono1	E 1-01
Mono2	E 1-02
Mono3	E 1-03
Mono4	E 1-04
Mono5	E 1-05
Mono6	E 1-06
Mono7	E 1-07
Mono8	E 1-08
Mono9	E 1-09
Mono10	E 1-10
Mono11	E 1-11
Mono12	E 1-12
Mono13	E 1-13
Mono14	E 1-14
Mono15	E 1-15
Mono16	E 1-16

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 1 player, and an audio configuration with 16 tracks (mono channels):

	OUT 1
Mono1	M1-01
Mono2	M1-02
Mono3	M1-03
Mono4	M1-04
Mono5	M1-05
Mono6	M1-06
Mono7	M1-07
Mono8	M1-08
Mono9	M1-09
Mono10	M1-10
Mono11	M1-11
Mono12	M1-12
Mono13	M1-13
Mono14	M1-14
Mono15	M1-15
Mono16	M1-16

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 MADI	CTRL+M	all M
Toggle all audio channels to Dolby Audio	CTRL+Y	Tgl Dolby
Set all audio channels to None	CTRL+N	all None applicable to all E,D or A outputs at a time
Reset all the audio configuration (also on other pages) to default values	F5	-
Route all audio input channels of REC1 to the other record channels (only audio inputs)	CTRL+0	Rec 1 on all
Validating the changes	ALT+A	Apply

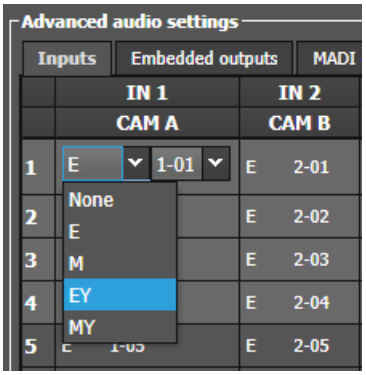
Individual Editing Actions in the Server-Based Application

In the server-based application, you can use the following editing commands for modifying individual field/cell values (audio type or audio routing), when available on your EVS server, and on the current page:

Command description	Command key
Selecting a field value	TAB
Scrolling down in the list of the possible values for the selected field	SPACEBAR
Scrolling up in the list of the possible values for the selected field	SHIFT + SPACEBAR
Increasing the audio channel number by 8 audio mono channels (valid when the audio channel is selected)	CTRL + RIGHT ARROW
Decreasing the audio channel number by 8 audio mono channels. This is valid when the audio channel is selected.	CTRL + LEFT ARROW
Increasing by 1 the ID of the audio source channel. This is valid with audio channels with ID - embedded 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.

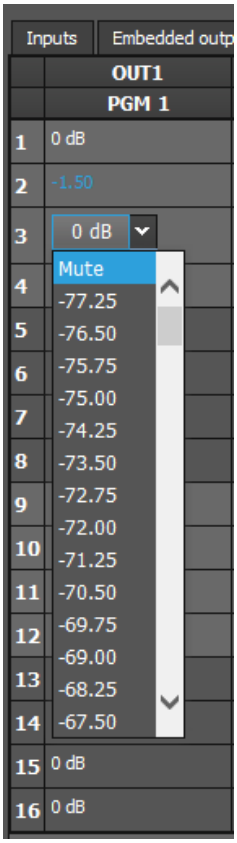
In the server-based application, the audio gain and audio mute information can be displayed via the CTRL+G command, which allows you to toggle the display in the tables to show the audio gain and mute information.

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.

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.

Available Dolby Configuration

The 5.1 audio signal is carried on 6 discrete PCM audio channels

- It is available on an XT-VIA UHD-8K server in all configurations.
- The audio can be embedded depending on the configuration.

4.3.3. Timecode and Data Insertion

Timecode Settings

User Interface

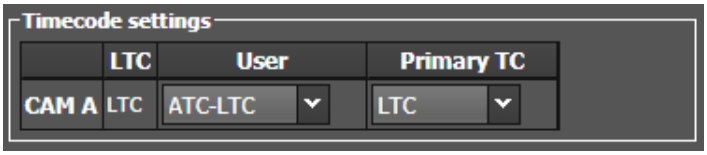
The Timecode settings allow specifying which type of timecode the users want to use as the reference to work on a given recorder of an EVS server.

The selection of a timecode type, using the timecode settings, rely on the management of two timecode jump tables.

These fields are available in the following interfaces:

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

The following screenshot displays the Timecode settings defined on the Channels tab in the web-based application:



LTC

Description	Longitudinal timecode (timecode defined on or plugged into the EVS server) automatically stored in the first timecode jump table (LTC table). 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 UHD-8K: • 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

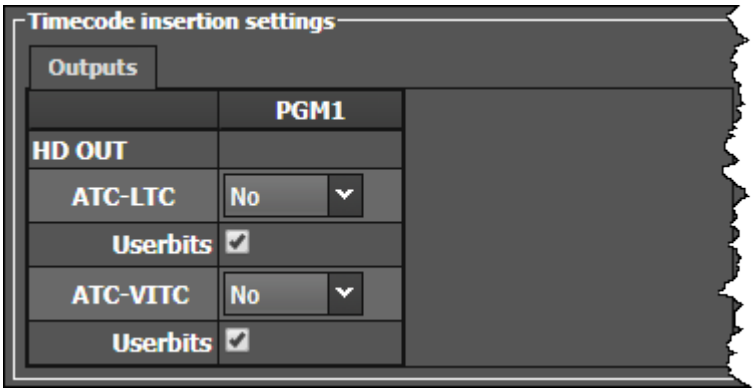
The Timecode Insertion settings allow the management of VITC or ancillary timecodes channel by channel.

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.

Some settings may not be relevant with an XT-VIA UHD-8K server.

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



Output Tab

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

Description	Enables/disables the insertion of the embedded timecode (ATC-LTC or ATC-VITC) in the HD output.
Values	The values specified for the ATC-LTC and ATC-VITC fields have to be the same. The values can be as follows: • 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

SMPTE 334M Packet Management Settings

User Interface

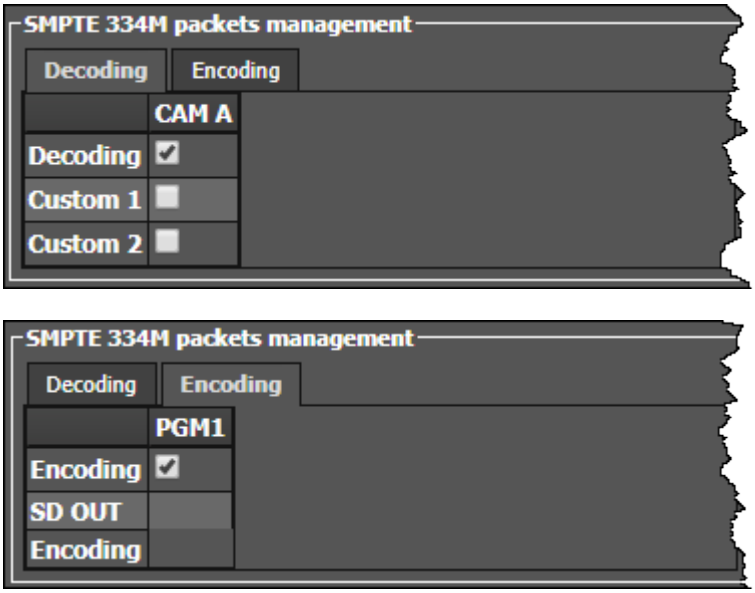
The SMPTE 334M Packet Management settings specify how ancillary data packets stored in the vertical ancillary data space in HD signals are handled.

These fields are available in the following interfaces:

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

Some settings may not be relevant with an XT-VIA UHD-8K server.

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



Supported Packets

The supported ancillary data packets must comply with the SMPTE standards 334M, 291M (type 2 ANC packet).

Up to now, SMPTE 334M data packets carried on the chrominance (C) data stream within the SMPTE 292M signal are not decoded (HD).

All DIDs mentioned in the SMPTE 334M standards are supported:

- 61 => 62
- 40 => 5F
- C0 => DF

Those DIDs are saved and restored on the output channels on their original lines. The other DIDs are not saved.

The maximum number of bytes saved per field (frame for 720p) is 2014. One saved SMPTE 334M packet is composed of user data word (UDW) plus 7 configuration bytes. It has to be taken into account to compute the number of bytes saved.

Please refer to the SMPTE RP 291-2006 standard for the assignment of DIDs to specific applications.

Decoding Tab

Decoding

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

Custom 1/2

Description	Enables/disables a customized decoding of the SMPTE 334M data packets. See section "Customizing the Decoding of SMPTE Data" on page 117 for more information.
Values	Yes / No (default)

Encoding Tab

Encoding

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

SD OUT Encoding

Description	This setting is not relevant with an XT-VIA UHD-8K server. Enables/disables the encoding of the SMPTE334M data present on the HD output on the SD downconverted output on each play channel. See section "SMPTE 334M Packet Management Settings" on page 115 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.

4.4. Network Tab

4.4.1. Overview

The Network tab includes the settings on the Gigabit Ethernet network, both networks used for the backup and transfer of video and audio data.

Note
On an XT-VIA UHD-8K server, the following setting sections are not applicable:
- **XNet settings** as no XNet network is available.
- **Gigabit Prioritization settings** as only the Intra essence is available.
- **IP IO settings** as the video is not transferred using V4X SFP+ ports.

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
Net name	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

4.4.2. Net Name

Introduction

No XNet network is available with an XT-VIA UHD-8K server.

The Net name can however be useful.

This field is available

- in the Multicam Configuration window, Network tab, in the basic and advanced display mode on page 1 in the server- and web-based interfaces.

The following screenshot shows the Net Name field on page 1 of the Network tab in the server-based application in advanced mode when no XNet network is available:

Net Name

Description	Machine name on the XNet 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.
Values	The Net Name is user-defined and cannot exceed 8 characters.
Default Values	By default, no Net Name is assigned.

4.4.3. Gigabit Connection

Introduction

The Gigabit connection allows the backup and transfer of the audio and video data without going through the XNet network. The Gigabit Connection settings specify which interface provides the gigabit connection on the EVS server.

The Gigabit connection can be available via the following interface, having the following characteristics:

- The internal GbE (Gigabit Ethernet) board is equipped with two 1GbE ports and two 10GbE ports.

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

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).

Teaming

Teaming is available with the GbE board, on both its 1GbE or 10GbE interfaces. Teaming can be enabled using the **Link Aggregation** setting.

When teaming is active, and one of the GbE link fails, the other will seamlessly take over all ongoing and pending tasks.

Physical Interface

Availability	This section is only available if the server is equipped with a GbE board.
Description	Specifies the physical interface that provides the Gigabit Ethernet connection.
Values	The following values are available: • **None** No gigabit interface is present. • **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.

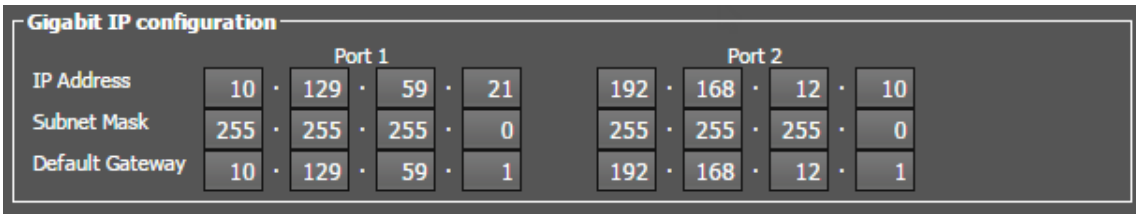
Changes to the Gigabit settings require an application reboot (**ALT+Q** from the operational windows) to be applied.

User Interface

The **Gigabit IP Configuration** settings are available:

- in the Multicam Configuration window, Network tab, in the basic and advanced display modes in the server-based application (page 1), and web-based interface.
- in the Technical menu of the Remote Control Panel (T3.X).

The following screenshot displays the Gigabit IP Configuration settings on the Network tab in the web-based interface:



Gigabit Connection Problems

When no Gigabit module is present or when the Gigabit connection has been lost, the first line of the Gigabit IP Configuration settings displays the message `!Not detected!`.

When the Gigabit connection of the GbE board has been lost, the last line of the Gigabit IP Configuration settings will display the message `Connection problem`.

When the teaming is active, and only one of the connection is lost, the Gigabit transfers will continue as the second connection will take over. No warning message is displayed in the Multicam configuration module, but this information is however available in XNet Monitor or XNet Web Monitor.

IP Address (Port 1/Port 2)

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

Subnet Mask (Port 1/Port 2)

Description	Range of logical addresses within the address space assigned to the Gigabit Ethernet connection. 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.

4.5. Monitoring Tab

4.5.1. Overview

The Monitoring tab includes the settings of the Multiviewer output, the OSD information to be displayed, and the downconverted outputs configuration.

The table below presents the settings of the Monitoring tab. It specifies where the setting groups are available (page) and whether each setting is available:

- in the basic and advanced display mode in the server-based and web-based interfaces
- in the **Technical Setup** menu (T4.X) of the Remote Panel

Setting Name	Basic & Advanced	Technical Setup
Multiviewer Settings		
Layout	X	–
Display	X	–
Audio Monitoring from video	X	–
Audio Monitoring left-right tracks	X	–
HD output format	X	–
Multiviewer Input	X	–
OSD Settings		
Genlock Error	X	X
Disk Error	X	X
Network error	X	X
Clip name	X	X
Tally	X	–

4.5.2. Multiviewer Settings

Introduction

The EVS servers equipped with the MV4X multiviewer on the MTPC board and with the internal LAN provide the following ports on the rear panels:

- four output ports to allow the connection of four independent multiviewers;
- two intput ports to allow external feeds to be displayed on the multiviewer.

The output ports allow the following use:

- operators to display an UHD-8K play channel on one multiviewer and an UHD-8K record channel on a second multiviewer.

The **Multiviewer settings** make it possible to specify the settings for each multiviewer, such as the number of channels to combine and display, the audio and output video configuration.

OSD with Multiviewers

The monitoring outputs of the multiviewer provide the following main information:

- The OSD is displayed over the full screen.
- Tally information is integrated into the OSD.
- Channel names can be assigned by UMD/Tally protocol.
- Audio meters are displayed on the right margin.
- Clip ID and name (up to 24 characters) are displayed on the upper right corner.

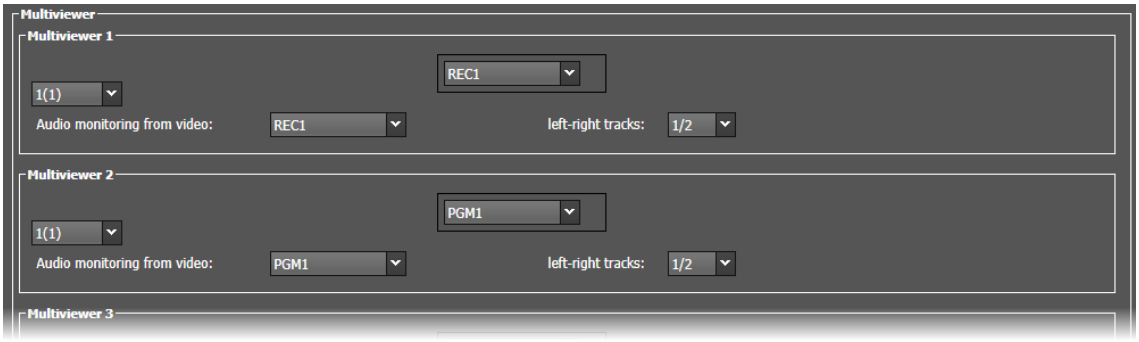
Specific Cabling for UHD-8K Record Channel

When you want to display an UHD-8K record channel onto a multiviewer, you need to cable the Monitoring 7 and 8 connectors respectively into the connectors IN 1 and IN 2 of the multiviewer, as shown on the following drawing:

User Interface

The Multiviewer settings are available in the Multicam Configuration window, Monitoring tab.

The Multiviewer settings will only be displayed if a Multiviewer board is present on the EVS server.



Multiviewer 1-4

Maximum Number of Sources

With the MV4 multiviewer, the overall number of sources displayed in the multiviewers is not limited.

Layout

Description	Specifies how the sources are displayed on the Multiviewer 1 to Multiviewer 4, one section being dedicated to each Multiviewer. The number of Multiviewer sections displayed depends on what the hardware configuration supports.
Values	The following layout is available: • 1

Source Display

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)
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** • **REC1**

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	From **1/2** up to **15/16**, depending on the value defined for the **Number of tracks** setting in the Channels tab, Audio settings.
Default value	**1/2**: By default, the first stereo pair of the source is selected.

Multiviewer Format

HD Output Format

Description	Specifies the format for the HD output of the multiviewer. Both multiviewers use the same HD output format.
Values	The following values are available: • **1080i** • **1080p**
Default value	• **1080i**

Multiviewer Input

By default, the external Multiviewer input feeds are named EXT1 and EXT2. The Multiviewer Input area allows you to give a more meaningful name to each input.

The new name will appear in the Multiviewer layouts.

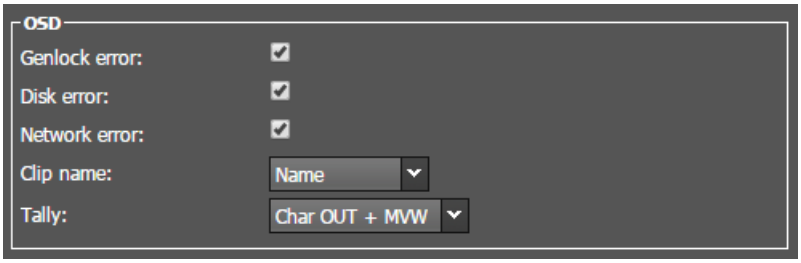
4.5.3. OSD Settings

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)



Genlock Error

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

Disk Error

Description	Enables or disables the disk error information display on the monitoring output. As the server is equipped with a RAID disk array, the operation can continue seamlessly even with 1 faulty disk. If 1 disk is disconnected during operation, the **!RAID** message appears on all monitoring outputs, and another message appears when the operator shuts down the application, to invite him to replace the disk and rebuild the RAID array. Please, refer to the Technical Reference manual for details on the RAID system and its maintenance.
Values	**Yes** (default) / **No**

Network Error

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

Clip Name

Description	Specifies how the clip name is displayed.
Values	**VarID** / **Name**
Default	**Name**

Tally

Description	Defines on which monitoring outputs the Tally signal will be displayed.
Values	The following values are available: • Char OUT: The tally signal will be displayed on the discrete OSD of the Char OUT monitoring outputs. • Multiviewer: The tally signal will be displayed on the OSD of the Multiviewer monitoring outputs. • Char OUT + MVW: The tally signal will be displayed both on the OSD of the Multiviewer and of the Chart OUT monitoring outputs.
Default value	Char OUT + MVW

4.5.4. Configuring OSD Display

Overview

This section explains how you configure the OSD-related settings to get the requested OSD display on an EVS server equipped with V4X boards and an MV4X multiviewer.

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

	OSD MV4X REC	OSD MV4X PGM
OSD on Outputs = YES		Yes
OSD on Outputs = NO		No
OSD on Inputs = YES	Yes	
OSD on Inputs = NO	No	

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
Tally/UMD Settings			
Protocol	X	X	–
UMD O/W	X	X	–
Display Index	X	X	–
RS422 VarID Settings			
Uniqueness	–	read only	–
Length	–	read only	–
Format	–	read only	–
VDCP visibility Settings			
Port #1...6	–	read only	–

The following features are not supported on XT-VIA UHD-8K:
- Edit Rec

4.6.2. RS422 Protocols Settings

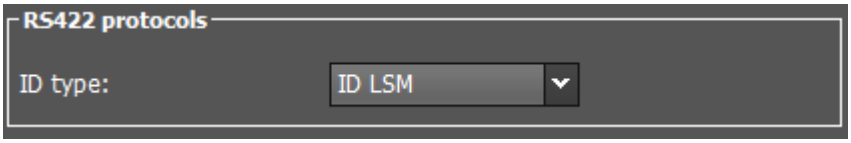
User Interface

The **RS422 Protocols settings** allow specifying the settings related to the clip identification used to access the video clips.

These fields are available in the following interfaces:

- in the Multicam Configuration window, Protocol tab, on page 1 in the basic and advanced display mode in the server- and web-based interfaces

The following screenshot displays the RS422 Protocol settings on the Protocols tab in the web-based interface:



ID Type

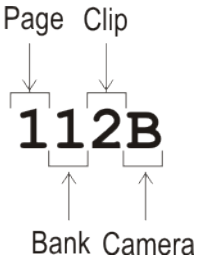
Description	Specifies the clip ID used by the protocols to access and identify the clips. Please note that at any time, the VDCP protocol can decide to use either the default value or the VarID (see RS422 VarID Settings). See section "Clip Identifiers" on page 135 for more information on clip identifiers.
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:



UmID

The UmID is an 8-bytes ID with fixed length.

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) - not relevant on this server
- Protocol visibility (list of Net Numbers of the servers) - not relevant on this server

4.6.4. Tally Feature

Introduction

The Tally feature allows a protocol to send tally information on the monitoring outputs of the EVS server.

The Tally feature relies on the following technical characteristics:

- **Tally protocol:** TSL 5.0 (defined in the Tally settings).
- **Listening port (on EVS server):** 9800
- **Transport protocol:** UDP inbound

Tally information is available:

- with the MV4 multiviewer and internal LAN.
- via the SDI Char Out monitoring outputs.

The tally information consists in red, green or amber color applied to different OSD elements.

Displayed Tally Information

The tally information displayed on the monitoring outputs depends on the following elements:

- Configuration of the hardware
- Selection of the monitoring outputs (Char OUT and/or MVW)

  with the **Tally** setting in Monitoring tab, OSD section
- Selection of the channels (Rec and/or Play, or no display)

  with the **Tally** setting in Operation tab, OSD section

The following table summarizes which Tally information is displayed depending on the hardware and the **Tally** setting in the Monitoring tab.

Hardware > Tally value V	SDI Char Out outputs	MV4 Multiviewer (and Internal LAN)
Char OUT	Channel name highlighted (upper left)	Nothing displayed
Multiviewer	Nothing displayed	Colored frame around channel thumbnail + Colored rectangles (lower left and right)
Char OUT + MVW	Channel name highlighted (upper left)	Colored frame around channel thumbnail + Colored rectangles (lower left and right) + Channel name highlighted (upper left)

In addition, the value for the **Tally** setting in the Operation tab will determine whether the tally information is displayed for record channels, play channels, for both record and play channels, or not displayed at all.

Protocol Tally versus GPI Tally

The GPI tally is independent of the protocol tally (over PC LAN) and cannot be used at the same time as the protocol tally.

A tally command sent via GPI will be represented as a red rectangle around the monitoring output of the channel on which the GPI is defined.

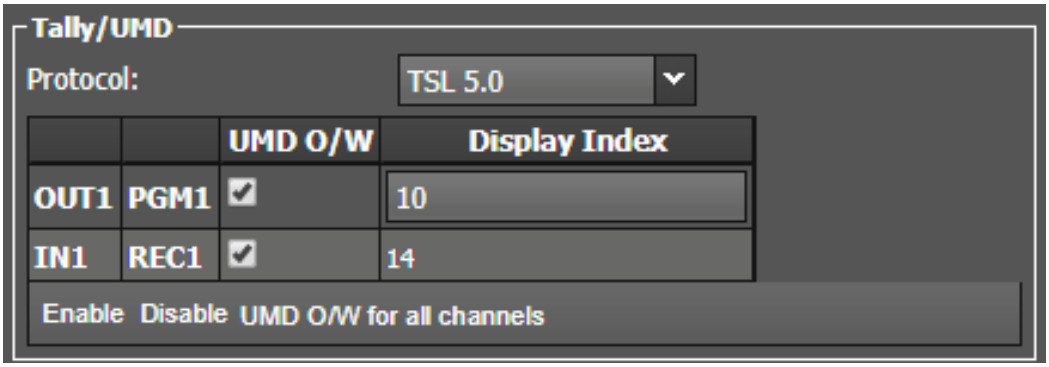
4.6.5. Tally/UMD Settings

User Interface

The **Tally/UMD settings** allow specifying some settings related to the Tally and UMD information that can be displayed on the monitoring outputs (multiviewer or discrete OSD).

The Tally/UMD settings are available in the Multicam Configuration window, Protocol tab, in the basic and advanced display mode in the server- and web-based interfaces.

The following screenshot displays the Tally/UMD settings on the Protocols tab in the web-based interface:



Protocol

Description	Specifies the UMD protocol used to communicate with the control system that provides the UMD and Tally information.
Values	• **Off**: No communication protocol is defined, and the Tally/UMD features over PC LAN are disabled. • **TSL 5.0**: The TSL protocol is used to communicate with the control system to provide the Tally/UMD information.
Default value	Off

UMD O/W

Description	Allows the UMD protocol to overwrite the name of the corresponding external MVW input or REC/PGM (Channels tab, Channel and Control settings, **Name** field) with the name defined in the control system. Once the channel names have been overwritten, the original channel names defined on the EVS server can not be restored. You have to retype them when you disable the **UMD O/W** field.
Values	• **Yes**: The channel names are overwritten. • **No**: The channel names are preserved.
Default value	No

Display Index

Description	Display number assigned to each EVS server output (REC/PGM or external MVW inputs). It should logically correspond to the display number defined in the control system. Only the first number is defined manually.
Values	**0 to 65,495** (maximum value with TSL 5.0 protocol)
Default value	10 (1st number)

The display number values for the IN, OUT and MVW channels are calculated and assigned as follows:

- The display number value of the first IN channel (REC) has to be set manually. The display number value of all subsequent IN channels is automatically calculated from that first value and incremented sequentially.

  Display number values are reserved for 24 IN channels.

- The display number value of the first OUT channel (PGM) is based on the display number value of the first IN channel + 24. The display number value of all subsequent OUT channels is sequentially and automatically incremented.

  Display number values are reserved for 12 OUT channels.

- The display number value of the first external multiviewer input (EXT) is based on the display number value of the first IN channel + 36 (24 + 12). The display number value of all subsequent external multiviewer input channels is sequentially and automatically incremented.

  Display number values are reserverd for 4 external multiviewer inputs.

The following example (8 IN and 4 OUT) clarifies the rules above:

CHANNEL	Display Index
IN1 (manually set by the user)	22
IN2	23
IN3	24
IN4	25
IN5	26
IN6	27
IN7	28
IN8	29
IN9	<not visible>
IN10	<not visible>
IN11	<not visible>
IN12	<not visible>
Multicam currently only supports up to 12 REC	
OUT1	46
OUT2	47
OUT3	48
OUT4	49
OUT5	<not visible>
OUT6	<not visible>
Multicam currently only supports up to 6 PGM	
EXT1	58
EXT2	59

Collective Commands

The following table presents the name and description of the collective command, as well as the keyboard shortcut available in the server-based interface:

Command	Description	Shortcut
Enable	Enables the overwrite command for all channels (Rec/Play) and external inputs that can be displayed in a monitoring output.	CTRL + Y
Disable	Disables the overwrite command for all channels (Rec/Play) and external inputs that can be displayed in a monitoring output.	CTRL + N

4.6.6. RS422 VarID Settings

User Interface

The **RS422 VarID 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.

These settings may not be relevant with an XT-VIA UHD-8K server.

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

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.

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.

VarID Configuration File

The VarID parameters are defined in a configuration file. This file, named `varid.ini`, is located in the `/mnt/apps/data/user` folder (`/user` folder when you connect to the EVS server using an FTP client).

The file has the following syntax:

```
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
; VARID settings
;-----------------------------
;Parameter values and [default]
;
; Uniqueness= [Local] or Global
; Length= [32] or 8
; Format= [ASCII] or Binary
; Visibility= [], 1..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	This field is not relevant on this type of server.
Value	The value is forced to 'Local', which means that the VarID is unique at the server level.

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	This field is not relevant on this type of server.
Value	The value is forced to the default value, but is not taken into account.

4.7. GPI Tab

4.7.1. Overview

The GPI tab includes the settings of the GPI inputs and outputs signals.

The table below presents the settings of the GPI tab. They specify where the setting groups are available (page) and whether each setting is available:

- in the server-based and web-based interfaces
- in the **Technical Setup** menu (T6.X) of the Remote Panel.

Setting Name	Basic & Advanced	Technical Setup
GPI Settings		
TTL GPIs set as GPIs	X	T6.1
GPIs IN		
Channel/Device	X	T6.2 to T6.3
Port	X	T6.2 to T6.3
Function	X	T6.2 to T6.3
Delay	X	T6.4
GPIs OUT		
Function	X	T6.5
Type	X	T6.5
Advance	X	T6.6
Pulse duration	X	T6.6
Tally Playlist Settings		
Tally	X	X
Add Clip to PL	X	X
Clips guardbands	X	X

4.7.2. GPI Settings

User Interface

The **GPI Settings** allow specifying the settings related to the GPI inputs and outputs features.

These fields are available in the following interfaces:

- in the Multicam Configuration window, GPI tab
- in the Technical menu of the Remote Control Panel (T6.X)

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

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.

- 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.

For all protocols, use the channel assignment (PGM1 to PGMx) instead of the device protocol type (Sony BVW75, Odetics).

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. • RMT1: 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. • **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**

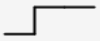
GPIs IN - Delay

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 Playlist Settings

Introduction

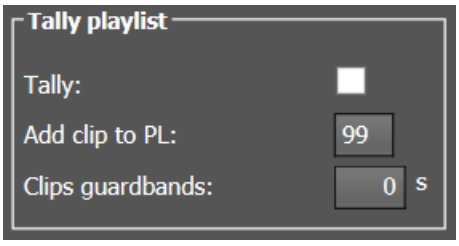
The **Tally Playlist settings** allow specifying the settings related to the tally feature. This feature allows the user to automatically create a clip for each change of camera performed with the Director's Cut and to add these clips to a playlist. The clips are created automatically by the server as it receives GPIs IN signals from a switcher when the director changes the camera angle.

User Interface

These fields are available in the following interfaces:

- in the Multicam Configuration window, GPI tab
- in the Technical menu of the Remote Control Panel (T6.X)

The following screenshot displays the Tally settings on the GPI tab in the web-based interface:



How to Activate the Tally Playlist Function

To use the tally function, proceed as follows:

1. Activate it using the **Tally** parameter.
2. Go to the GPIs IN settings area and select the GPI IN used for the tally control.
3. Set the Channel/Device on the REC on which the Director's Cut is performed.
4. Set the function as **Mark Tly**.

The tally function is now active, and works as follows:

When the server receives a 'Mark tally' GPI IN, an IN point is marked on the corresponding record train (for ex. cam a). When a second 'Mark Tally' GPI IN is received on a different record train (for ex. cam b), the server marks an OUT point on the first record train (cam a) and an IN point on the second record train (cam b). All the clips created this way are added to the defined playlist.

Tally

Description	Activate or deactivate the playlist tally function.
Values	**Yes**/**No**
Default Value	**Yes**

Add Clip to PL

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

Clips Guardbands

Description	Specifies the guardbands length of the tally clips, in seconds.
Values	**0** to **250**
Default Value	**0**

4.8. Operation Tab

4.8.1. Overview

Operation Tab

The **Operation** tab is available as the default tab with operational settings. It consists of several pages in the basic mode in the server-based application. No advanced mode is available in this tab.

The table below presents the settings of the Operation tab. They specify whether the various settings are available:

- in the basic or advanced display mode in the server-based and web-based interfaces.
- in the **Operational Setup** menu of the Remote Panel.

- Some operational settings and/or setting values may be displayed although they are not relevant to the EVS server you are operating or to the configuration you are running.

OSD Settings

Setting Name	Basic	Operational Setup
OSD settings		1.x
Cue Number on OSD	X	X
Keyword info	X	X
OSD on outputs	X	X
OSD on inputs	X	X
Background	X	X
Tally	X	X
Audio meters OSD settings		1.x
Audio Meters	X	X
DB Adjust	X	X
Style	X	X
Thickness	X	X

Clips Settings

Setting Name	Basic	Operational Setup
Clips settings		2.x
Automake clip for cam A	X	X
Guardbands	X	X
Default clip duration	X	X
Autoname clips	X	X
Clip post-roll	X	X
Mark cue points	X	X
Preroll	X	X
Record trains OUTs	X	X
Freeze on cue points	X	X
Network Copy/Push	X	X
Protocol receive page	X	X
Playlist receive page	X	X

Playlist Settings

Setting Name	Basic	Operational Setup
Playlist settings		3.x
Video effect duration	X	X
Wipe type	X	X
Default playlist speed	X	X
Insert SLSM native speed	X	X
Insert in playlist	X	X
Confirm Ins/Del clips	X	X
Playlist loop	X	X
Playlist auto fill	X	X
Fade to/from color	X	X
Load playlist	X	X

Miscellaneous Settings

Setting Name	Basic	Operational Setup
Protection settings		5.x
Protect pages	X	X
Confirm delete clips/playlists	X	X
Keywords settings		6.x
Keyword files	X	X
Keyword mode	X	X
Push settings		7.x
Push target	X	X
Push target 1/2	X	X
Push mode	X	X
Push receive page	X	X
Push receive slots	X	X
Audio settings		8.x
Audio slow motion	X	X
Lipsync value	X	X
Aux track output	X	X

EVS Controller Settings

Setting Name	Basic	Operational Setup
EVS Controller settings		9.x
Effect duration for take	X	X
Fast jog	X	X
PGM Speed/Var max	X	X
Lever engage mode	X	X
Second lever range	X	X
Recall clip toggle	X	X
Record key	X	X

Setting Name	Basic	Operational Setup
VGA & Remote sync	X	X
Call channel VGA	X	X
PGM/PRV mode	X	X
Loop button	X	X
Browse button	X	X

Special Effects Settings

The Special Effects Settings are available for this EVS server but are not applicable. For this reason, they have not been described in the configuration manual.

Setting Name	Basic	Operational Setup
Special Effects settings		12.x
Set colour for	X	X
Colour	X	X
Custom Y	X	X
Custom U	X	X
Custom V	X	X
Epsio	X	X
IP address	X	X
Default tool	X	X
Auto mark	X	X

4.8.2. OSD Settings

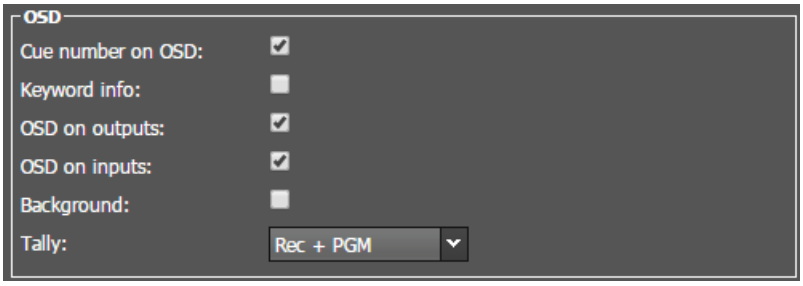
User Interface

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 monitoring outputs when a cue point is recalled inside a record train.
Values	Yes (default) / No

Keyword Info

Description	Shows / hides the defined keywords and ranking on the OSD of the monitoring outputs when the clip is loaded on its Short IN point. As soon as the operator starts jogging into the clip or initiates a playback, this information is removed from the OSD so that the video content is clearly visible.
Values	Yes / No (default)

OSD on Outputs

Description	Enables / disables the OSD on the play channels on discrete monitoring outputs. See section "Configuring OSD Display" on page 131 for more information on how to configure OSD-related settings on an XT-VIA UHD-8K equipped with V4X boards.
Values	Yes (default) / No

OSD on Inputs

Description	Enables / disables the OSD on the record channels on discrete monitoring outputs. See section "Configuring OSD Display" on page 131 for more information on how to configure OSD-related settings on an XT-VIA UHD-8K equipped with V4X boards.
Values	Yes (default) / No

Background

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

Tally

Description	Defines whether the Tally signal will be displayed on the record and/or play channels.
Values	The following values are available: • No: The Tally signal is not displayed at all on the monitoring outputs. • Rec only: The Tally signal is displayed on the monitoring outputs of the record channels. • PGM only: The Tally signal is displayed on the monitoring outputs of the play channels. • Rec + PGM: The Tally signal is displayed on the monitoring outputs of the record and play channels.
Default value	PGM + REC

4.8.3. Audio Meters OSD Settings

User Interface

The Audio Meters OSD settings allow users to specify whether and how the audio meters are to be displayed on the OSD.

These fields are available in the following interfaces:

- in the Multicam Configuration window, Operation tab
- in the Operational menu of the Remote Control Panel (1.2)

The following screenshot displays the Audio Meters OSD settings on the Operation tab in the web-based interface:

Display On PGM

Description	Shows/hides the audio meters on the OSD. The Audio Meters parameter impacts the output channels of both discrete OSD (Char OUT) and multiviewer, but not the input channels.
Values	Yes / No
Default value	Yes

DB Adjust

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

Style

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

Thickness

Description	Specifies the thickness of the audio meters; The **Thickness** parameter impacts the audio meters of the discrete OSD (Char OUT), but not those of the multiviewer.
Values	Thin, Medium, Thick
Default value	Thin

4.8.4. Clips Settings

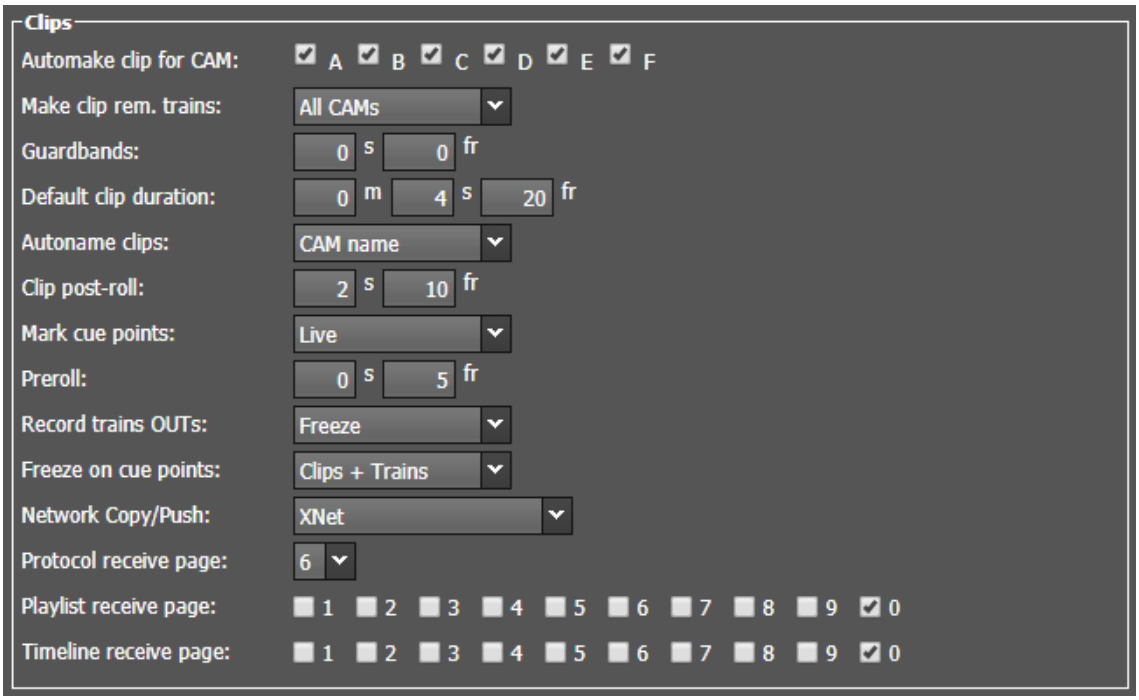
User Interface

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

The Clips settings are available in the following interfaces:

- in the Multicam Configuration window, Operation tab
- in the Operational menu of the Remote Control Panel (2.X).

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



Automake Clip for CAM A

Availability	This parameter is only displayed in Multicam LSM 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 camera A 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: • **Disabled:** 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	Disabled

Clip Post-Roll

Description	When the post-roll function is enabled from the secondary clip menu, the clip will play through its OUT point for the duration defined by the Clip post-roll parameter. This is also valid inside record trains if the Record Train OUTs parameter is set to **Freeze**.
Values	From 00s00fr to 600s00fr
Default value	02s00fr

Mark Cue Point

Description	Specifies how the cue point timecode will be memorized.
Values	Two values are possible for this parameter: • **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

Freeze on Cue Points

Description	Specifies whether Multicam will freeze or not when it reaches a cue point marked on the clip and/or the record train that is being played back. The post-roll parameter is not taken into account for this functionality.
Values	• **No:** The playout plays through the cue points when playing clips or record trains. • **Clips + Trains:** The playout freezes on the cue points when playing clips or record trains where cue points have been defined. • **Clips:** The playout freezes on the cue points when playing clips where cue points have been defined. • **Record Trains:** The playout freezes on the cue points when playing record trains where cue points have been defined.
Default value	No

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

Description	This setting is not relevant on an XT-VIA UHD-8K server which does not support XNet. Allows you to select the prefered network for copying, pushing and creating a clip on a distant server. This setting is taken into account when the destination machine is visible both on the XNet and GbE networks.
Values	The value is forced to **Gigabit** for this parameter on an XT-VIA UHD-8K server. • **Gigabit:** The copy operations are first executed via the GbE interface.

Protocol Receive Page

Description	Specifies on which page the clips created by protocols are stored. When a page is full, clips are stored on the next page. Only clips created on this page (and the other protocol pages if the first page is full) are visible for protocols.
Values	1 to 10 (=0)
Default value	6

Playlist Receive Page

Introduction	This setting is linked to the copy function that allows users to automatically create a local copy of all network clips when copying a local or network playlist. For details, refer to the description of the Playlist copy function in the Operations manual.
Availability	The setting is only available if the license code 111 is valid.
Description	Specifies on which page(s) of your EVS server the clips received when using the PLST+CLIPS copy function must be stored. 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)

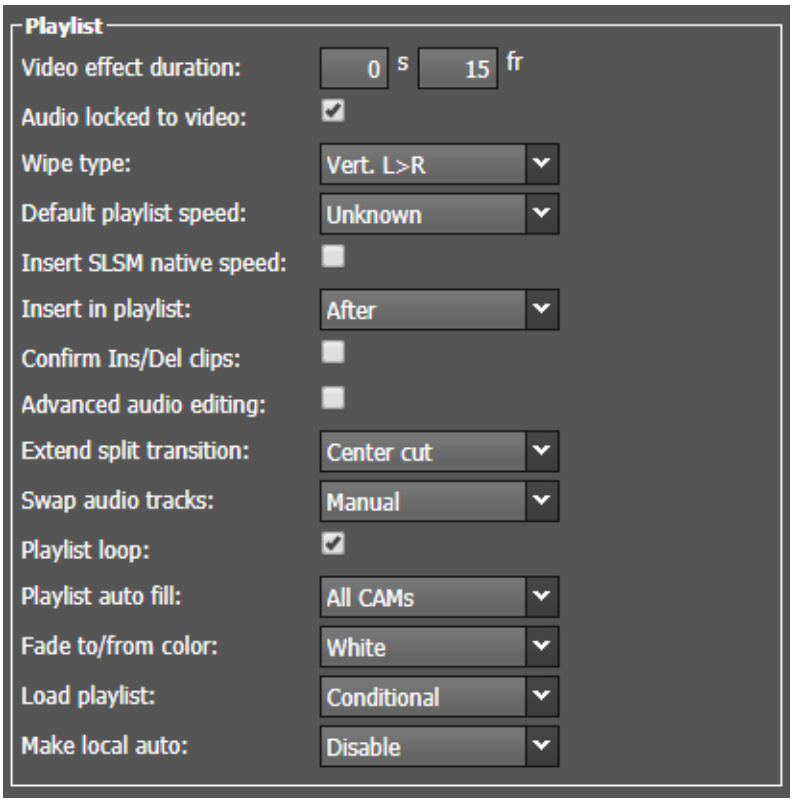
4.8.5. Playlist Settings

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)



Availability

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.

Some operational settings may be displayed although they are not relevant to the EVS server you are operating or to the configuration you are running.

Video Effect Duration

Description	Sets the duration of video transition effect. The specified value is used as default value in the Playlist Edit mode. Note that the duration of the video transition when using the **TAKE** button in 1PGM+PRV mode has its own parameter, **Effect for take**, defined in the EVS Controller section of the Operation tab.
Values	0s00fr to 20s00fr
Default value	00s10fr

Wipe Type

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

Default Playlist Speed

Description	Defines the default speed used to play clips in a playlist.
Values	The following values are possible Unknown, and from 0% to 100%: • **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 SLSM Native Speed

Description	Defines whether an SLSM clip inserted into a playlist will automatically be set to be played out at its native speed, or at the value defined in the **Default playlist speed** parameter.
Values	The following values are possible: • **No** means that playout speed of the SLSM clips depends on value defined in the **Default playlist speed**. • **Yes** means that the speed of the playout SLSM clips is automatically set to its native speed.
Default value	No

Insert in Playlist

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

Confirm Ins/Del Clips

Description	Specifies whether a confirmation will be required each time the operator wants to add a clip to the playlist or remove a clip from the playlist.
Values	• Enabled (Yes) • Disabled (No)
Default value	Disabled (No)

Playlist Loop

Description	Specifies whether the playlists in play mode will be looped and played back continuously.
Values	• Enabled (Yes) • Disabled (No)
Default value	Disabled (No)

Playlist Auto Fill

Description	Specifies which camera angles will be added to the playlists when using the **Fill Playlist (F9)** function from the main menu of the Remote Panel.
Values	The following values are possible: • All Cams: 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 The clips corresponding to the defined camera angle will be added to the playlist.
Default value	All Cams

Fade To/From Color

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

Load Playlist

Description	This parameter is only used in 2PGM or 3PGM mode.
Values	The following values are available: • 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

Make Local Auto

Description	When this setting is enabled and a local playlist is loaded on a play channel, local clips corresponding to distant elements of that playlist are automatically created. The local copy of the playlist elements are stored on the first available locations on the Playlist Receive Page.
Values	• Enabled (Yes) • Disabled (No)
Default value	Disabled (No)

4.8.6. Protection Settings

User Interface

The Protection settings aim at protecting clips stored on the EVS server from deletion.

These fields are available in the following interfaces:

- in the Multicam Configuration window, Operation tab
- in the Operational setup menu of the Remote Control Panel (5.1)

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

Protect Pages

Description	Specifies the pages on which the clips stored are protected from accidental deletion. 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 65 for more information on how to enable pages.
Values	Page 1 to 10 (=0). Several pages can be selected.

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.

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

This parameter does not apply to the **Clear Video Disks** command, available in the Multicam Setup window of the server-based application, which already has its own confirmation message.

4.8.7. Keywords Settings

User Interface

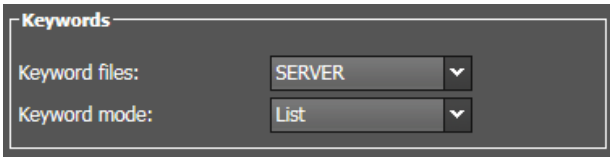
The Keywords settings allow the management of keywords on the EVS server.

These fields are available in the following interfaces:

- in the Multicam Configuration window, Operation tab
  - on page 1 on the web-based interface
- in the Operational setup menu of the Remote Control Panel (6.1)

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 XNet network will be used. This value is only available if the XNet network is used. • **<Keywords file name>:** ◦ Other file names will appear if keywords files (files with a .KWD extension) have been loaded in the `/mnt/apps/data/kwd` directory of the system (`/kwd` via FTP). ◦ 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 52 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

4.8.8. Push Settings

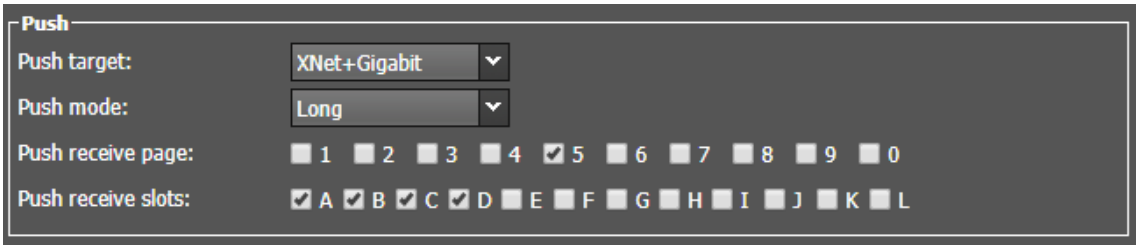
User Interface

The Push settings relate to the management of the Push function on the EVS server. The Push function allows users to easily send a copy of a clip to another machine on the network via the GbE network.

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)

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 value is forced to: • **Gigabit:** Only EVS servers reachable via the GbE network. The servers are listed by their GbE server name, and IP Address.
Default Value	Gigabit

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. • **<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 65 for more information on how to enable pages.
Values	Page 1 to 10 (=0). A single page can be selected.
Default Values	(Page) 5

Push Receive Slots

Description	Specifies the clip position(s) (A to L) where the pushed clips will be stored in priority, starting on the page specified in the **Push Receive Page** setting. See section "Navigating and Editing in the Multicam Configuration Window" on page 65 for more information on how to enable slots.
Values	Slot A to L. Several slots can be selected.
Default Values	(CAM) A,B,C,D

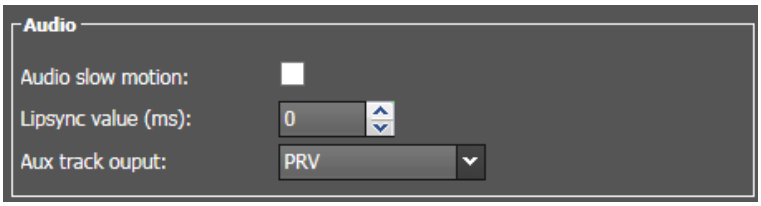
4.8.9. Audio Settings

User Interface

These fields are available in the following interfaces:

- in the Multicam Configuration window, Operation tab
- in the Operational setup menu of the Remote Control Panel (8.1)

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



Audio Slow Motion

Description	Allows users to play back or mute the audio track when the playing speed is different than 100%.
Values	The following values are possible: • **No**: The audio track is muted during the playback. • **Yes**: The audio track is not muted during the playback. It will be faded in, then muted above a given threshold (400%).
Default value	No

Lipsync Value (ms)

Description	Specifies the delay (in ms) between video and audio signals: • 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

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

4.8.10. EVS Controller Settings

Introduction

The EVS Controller settings gather:

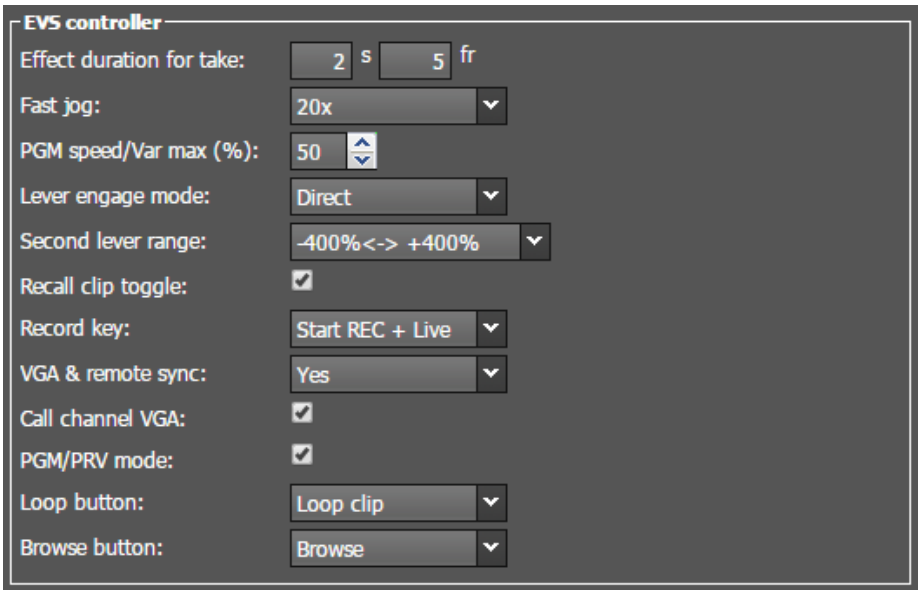
- Settings related to the behavior of the keys, lever or jog of the Remote Panel.
- Settings associated to the EVS server itself.

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

User Interface

These fields are available in the following interface:

- in the Multicam Configuration window, Operation tab.



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

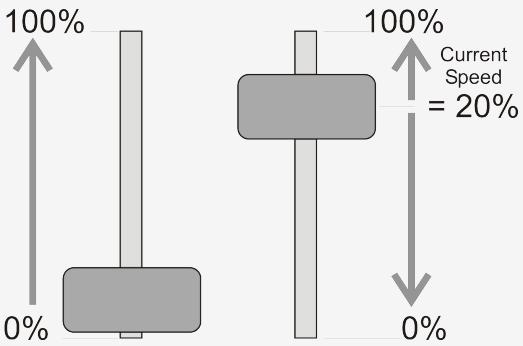
Fast Jog

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

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** command is 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.
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 → +300% • 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

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

Loop Button

Description	Defines the behavior of the loop function enabled with the **SHIFT + Loop**.
Values	The following values are possible: • **Loop clip:** Pressing the loop button loops the loaded clip between its Short IN and Short OUT points, when you are located between these two points. • **Loop clip bounce:** Pressing the loop button loops bounce the loaded clip between its Short IN and Short OUT points, when you are located between these two points. • **Disable:** Pressing the loop button has no effect.
Default value	Loop clip

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

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.

This section is only available in the server-based application. It is not available from the web-based interface.

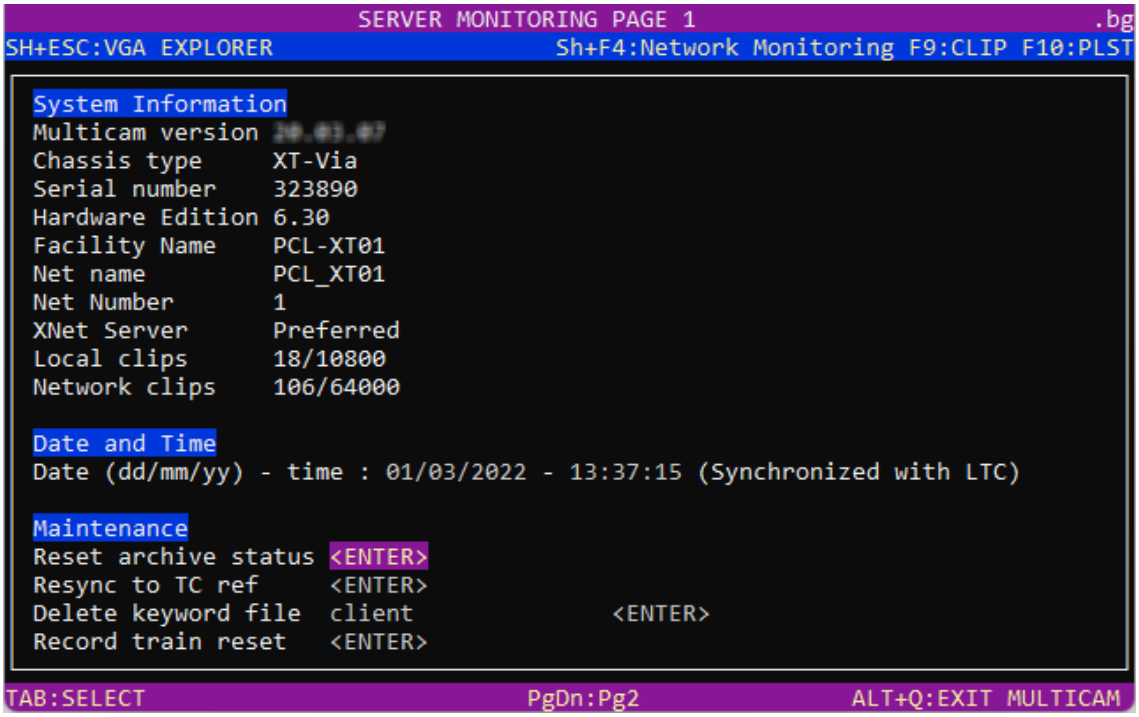
It contains the pages shortly presented in the following table. The page name in this table allows you to directly jump to the corresponding page:

Page	Page Name	Description
#1	General Information window	Provides general system information and maintenance commands on the EVS server.
#2	RAID and Disk Status window	Gives information on the disks or raids from internal and/or external storage.
#3	Timecode Status window	Gives information on the genlock, analog LTC and timecode statuses from the EVS server. This page is also used to set up how the timecodes are managed in the timecode jump tables.
#4	Timecode Monitoring window	Displays timecode information from recorders (SD or HD).
#5	Log Management window	Allows a user-friendly and easy management of the logs.
#6 / #7	Input Monitoring	Provides information to monitor the status of the SDI inputs streams.

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
Hardware edition	Hardware version of the EVS server
Facility name	Name assigned to the EVS server for internal maintenance via the **Tools** menu, **Assign server facility name** option, in the Multicam setup window.
Net name	Machine name on the XNet network. 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, **XNet** section, **Net name** parameter.
Net number	Machine number on the XNet network (from 1 to 9). This number is user-defined and must be unique for each system on the network.
XNet server	Role and privileges of the EVS server on the XNet network.
Local clips	Number of clips (out of the max. clip numbers) stored locally on the EVS server.
Network clips	Number of clips (out of the max. clip numbers) stored on the XNet network. Not applicable to an XT-VIA UHD-8K server.

Date and Time

This section specifies the date and time of the EVS server.

Maintenance

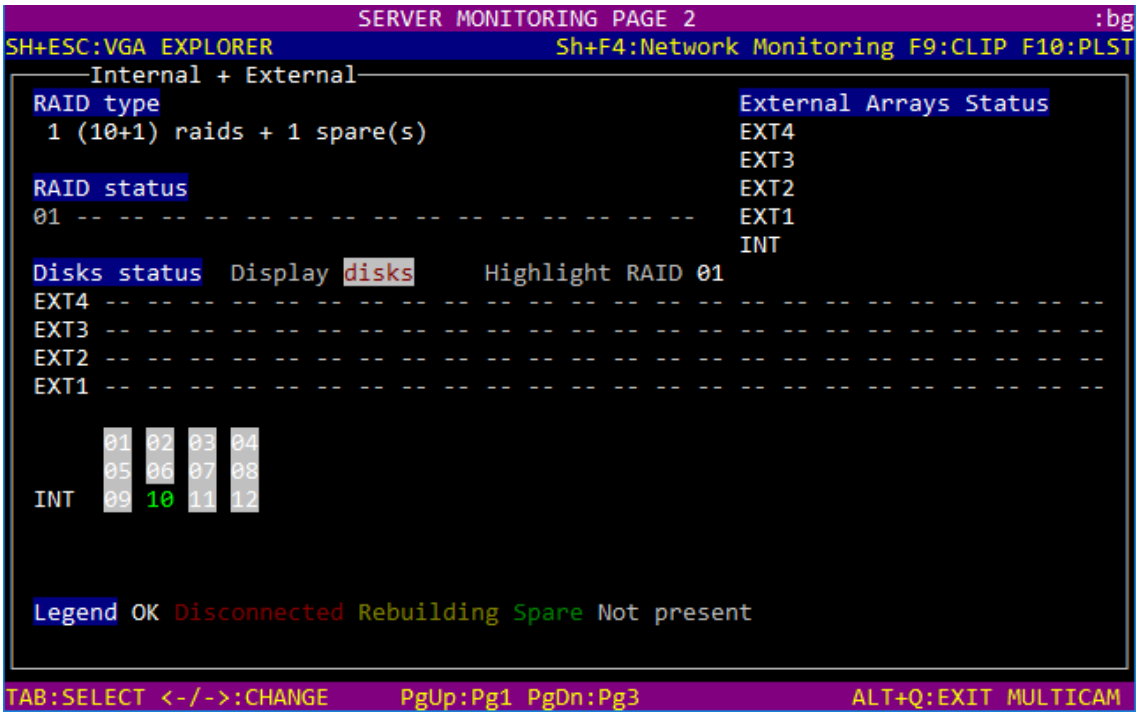
This section provides some commands to perform the following maintenance actions:

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 49

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

NEW ! The RAID type section displays the number of RAIDs, the type of RAID (**10+1**, **10+2**) and the number of spare disks.

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 186 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 45 for more information on the rebuild process.

External Array Status

This section displays the status of the internal array and each external array, including potential alerts:

Status	Meaning
OK	No alert
PSU1!, PSU2!	Problem with a power supply unit
FAN1!, FAN2! or FAN3!	Problem with a fan

Disk Status

This section provides a representation of the disks contained in the external and/or internal arrays, as well as their status as described below:

Color Code	RAID Status
Light gray	OK: The disk is connected in a RAID.
Red	Disconnected: The disk is physically present but disconnected by the software.
Orange	Rebuilding: The disk is being rebuilt.
Green	Spare: The disk is connected but is not included in a RAID.
gray dashes	Not present: The disk is not physically connected to the hardware.

How to Highlight the Disks of a RAID

In the Disk Status area, the **Highlight RAID** field allows you to highlight, with a light gray background, the disks belonging to the raid number specified on the right of the field.

To change highlight a given disk raid:

1. Press **TAB** until you select the **Highlight RAID** field
2. Press the **+** or **-** keys or **up** and **down** arrow keys to change the raid you want to highlight.

How to Change the Disk Status Display

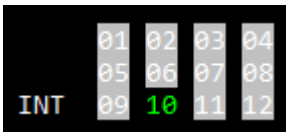
In the Disk Status area, two types of representations are available depending on the selection made in the **Display** field, by disk number or by RAID number.

To change the Disk Status display:

1. Press **TAB** until you select the **Display** field
2. Press the **Spacebar**,**+** and **-** keys or **up** and **down** arrow keys to toggle the value from **disks** to **raids** or vice versa.

Disk Display

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



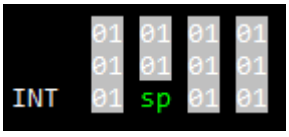
The external arrays can contain up to 24 disks, with a minimum of 5 disks.

The internal arrays can be organized as one or two arrays of 6 disks.

See section "RAID Status" on page 186 for more information on the raid status.

RAID Display

The **RAID** display represents each disk by the raid number it is included in, or gray dashes if not present, and uses a color code to display the disk status. Spare disks are represented by the letters **sp**.

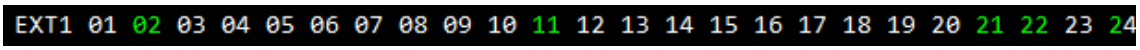


Disk Numbering

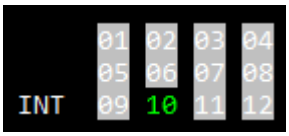
No specific disk numbering has to be followed or preserved with SAS disks.

By default, however, the disks will be numbered as described in this section.

In the external array, the disks are numbered from 1 up to 24, from left to right:



In an internal array of hot-swappable disks, the disks are numbered as follows from 1 to 12:

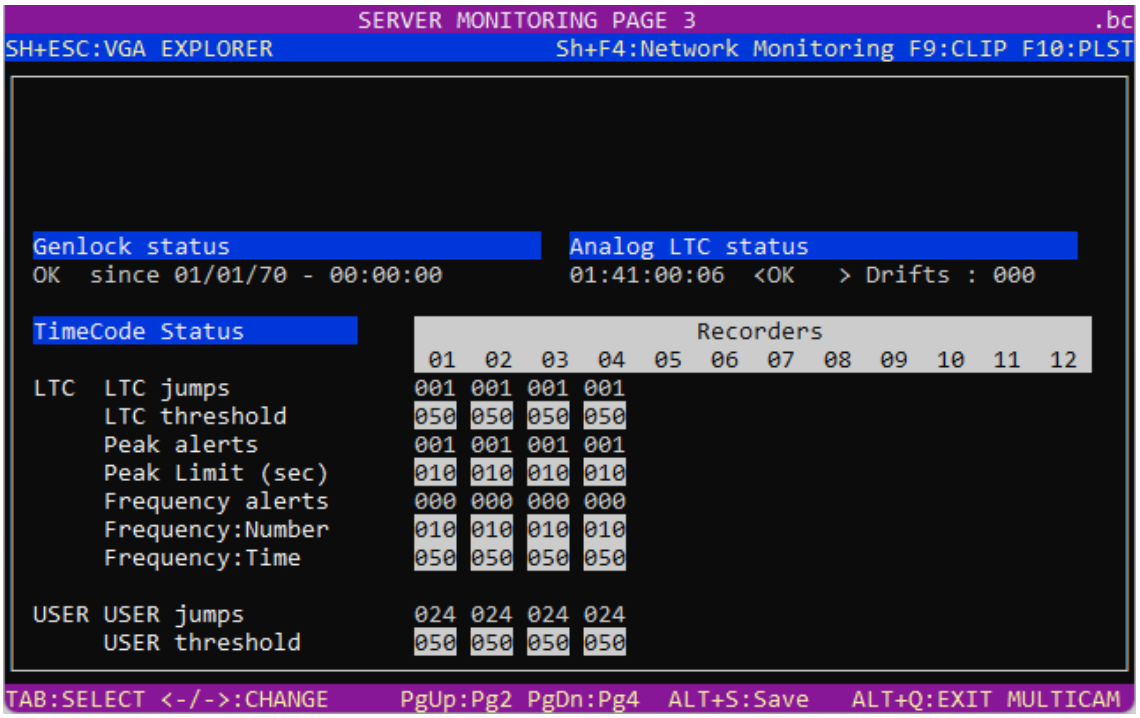


The disk within a raid are organized independently of the physical disk numbering.

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 XT-VIA UHD-8K 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 112 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

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

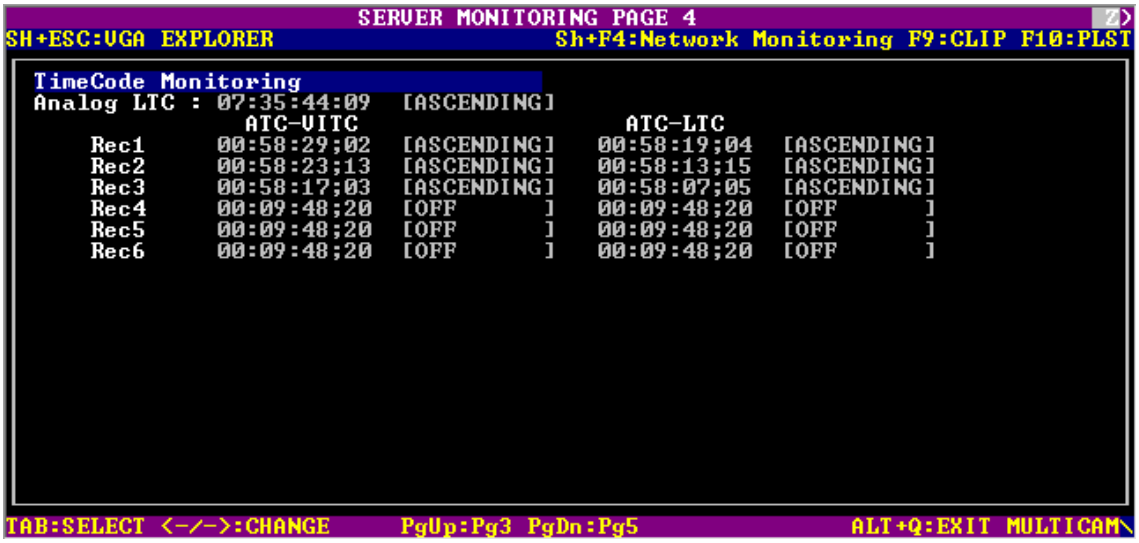
Introduction

The Timecode Monitoring Window displays the various timecodes used in the running configuration.

Timecodes on HD Recorders

The following timecode information is displayed:

- LTC timecode
- ATC timecodes on the various recorders



5.1.6. Input Monitoring

Introduction

In the Input Monitoring window on page 5, you can monitor the quality of the incoming SDI signals.

The monitoring data is delivered for each input signal. The values represent the total number of occurrences (per type) since the last Multicam reboot. They are displayed in hexadecimal format.

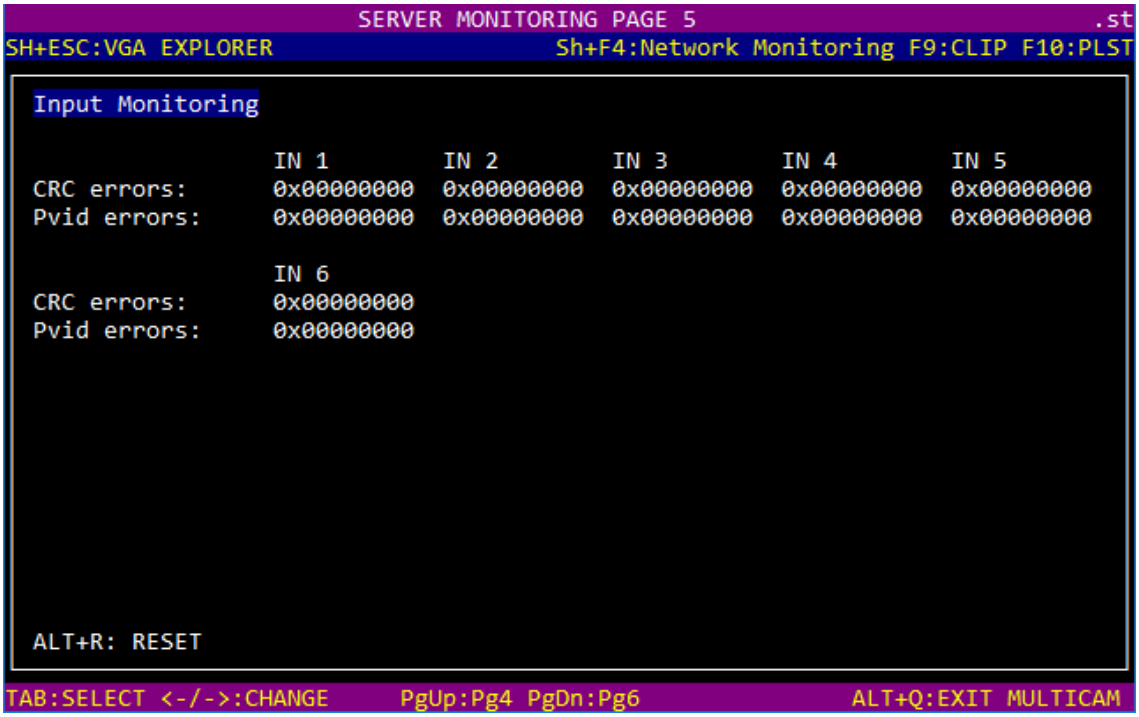
The counters can be reset by pressing ALT+R.

Input Display

Input Name	Description
IN 1-A	Record channel for a regular camera in UHD-8K resolution with 12G. e.g.: IN 1-A is 1st quadrant of recorder 1, IN 1-B is 2nd quadrant of recorder 1, IN 1-C is 3rd quadrant of recorder 1, IN 1-D is 4th quadrant of recorder 1.

Monitoring of SDI Inputs

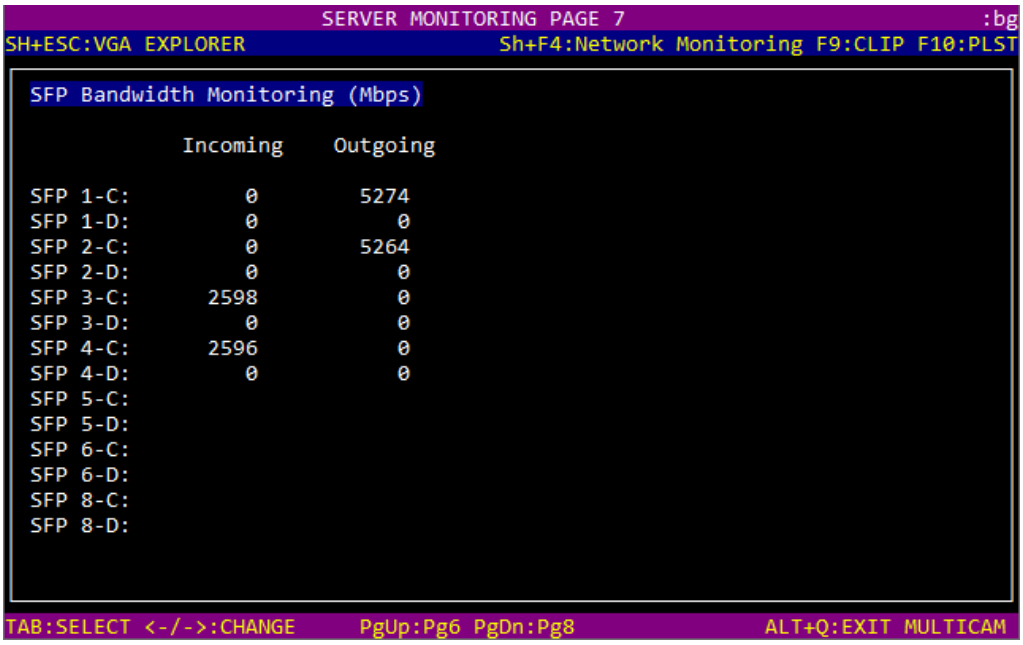
The monitoring of the SDI inputs is mainly relevant with SDI transceivers that support 12G-SDI.



Field Name	Description
CRC error	• The Cyclic Redundancy Check (CRC) validates packets of information sent by devices and verifies it against the data extracted, ensuring its accuracy. • CRC errors indicate when data is corrupted. • The value returned is the number of corrupted and rejected packets. • Having some CRC errors is normal. Consequently, this is normal if this number grows slowly but not constantly.
PVID error	PVID errors occur when the video payload does not contain a valid signal. When this error occurs, the CRC errors are reset.

SFP+ Bandwidth Monitoring

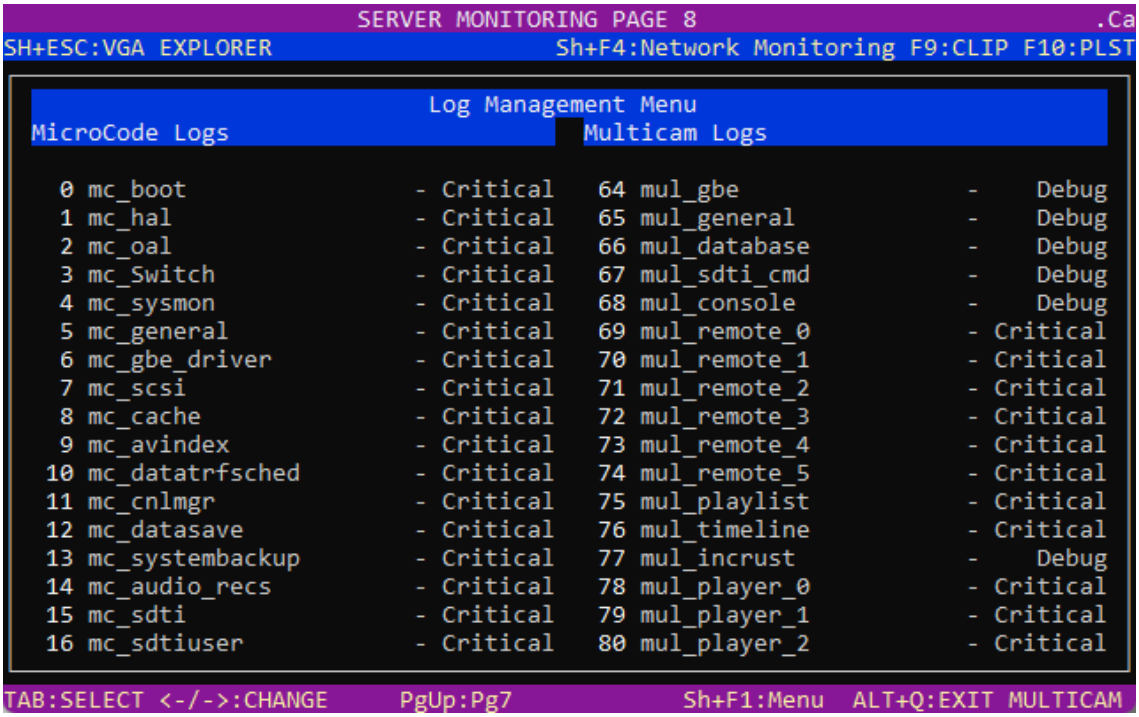
This screen allows to monitor the input and output bandwidth (expressed in Mbps) for each SFP interface.



5.1.7. Log Management

Introduction

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



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.

When you have to switch to **Debug** mode, first reproduce the problem, then extract the logs, and finally switch back to the default **Critical** mode.

Extracting Log Files

This window also offers the ability to extract log files when the Multicam is running.

When the Log Management window is open, press **E** to extracts the log files instantly so that a user can access them through a common FTP client application from a remote computer.

The extracted files are located in `/mnt/apps/data` (root folder when you connect to the EVS server using an FTP client). Their name starts with an underS-CORE: The regular log file `Multicam_Database.log` is renamed `_Multicam_Database.log` once extracted when the application is running.

You can extract logs from the XNetMonitor for any server running on the XNet network. For more information, refer to the XNetMonitor manual.

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:

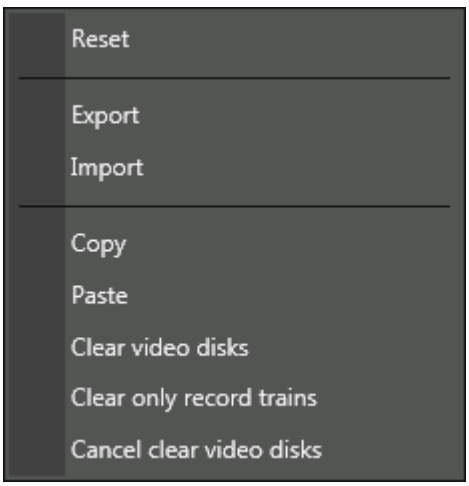
Part	Name	Description
1.	Plugin name	Field to expand or collapse the plugin area.
2.	**Apply** button	Button to apply the parameter values to Multicam.
3.	**Menu** icon	Icon to open the contextual menu, which provides general commands, or commands specific to Multicam. See section "Contextual Menu" on page 197.
4.	Configuration Area	Area that allows users to select the configuration line, and access the advanced Multicam parameters. See section "Configuration Area" on page 198.
5.	Server Area	Area that allows users to set the main server parameters of Multicam. See section "Server Area" on page 199.
6.	Channels Area	Area that allows users to set the main channels parameters of Multicam. See section "Channels Area" on page 200.
7.	Network Area	Area that allows users to set the main network parameters of Multicam. See section "Network Area" on page 203

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

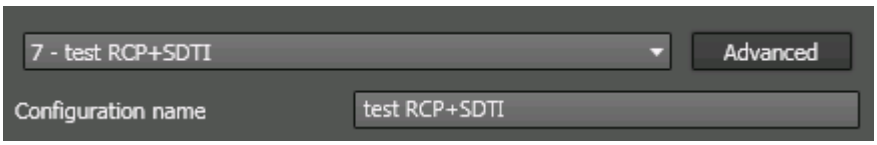
The table below describes the various commands of the contextual menu:

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.
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)

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.
Values	In UHD-8K: • **UHD-8K** (available with code 25)

Codec Intra

Codec

Description	Algorithm used to compress the video signal. With Intra codecs, the compression techniques are performed exclusiverly relative to information contained within the current frame.
Values	In UHD-8K: • XAVC-Intra 300 • XAVC-Intra 480 See section "Codec Availability" on page 77 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 78 for detailed information on bitrates per codec.

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. 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 XT-VIA UHD-8K: 1 (LSM) See section "General Information on UHD-8K Configurations" on page 55 for more information on supported configurations.

Outputs

Description	Number of logical play channels in the given configuration.
Values	The number of supported channels depends on the chassis, and the mode: • on XT-VIA UHD-8K: 1 (LSM) See section "General Information on UHD-8K Configurations" on page 55 for more information 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 and by industry-standard protocols: Sony BVW75, VDCP, Odetics, DD35, EVS' AVSP, IPDP or LinX API, or from the Multicam production screens. License code: 103
	• Replay-Only LSM: restricted Multicam LSM mode without playlist management, split audio, nor support of hypermotion cameras. License code: 103

Interface

Availability	The parameter is only available with one of the following license code active or with the following hardware: • XT-VIA rear panel
Description	Defines the interface the EVS server will use in 1080p or XT-VIA rear panel: • The 12G-SDI interface consists of a single serial link corresponding to 4 x 3G-SDI links. This provides an uncompressed interface for UHD-4K.
Values	• 12G: 12G-SDI connection for an UHD-8K image. ◦ available with code 25 (UHD-8K) with XT-VIA rear panels.

Audio Settings

Description	Number of mono audio tracks associated to each video channel. See section "Audio with an XT8K server" on page 96.
Values	32 Monos (forced)

Port Settings

Port #1 -

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

Description	Specifies what type of device/controller is connected to each RS422 port of the EVS server.
Values	The following value is available if the required license codes are active: • EVS Remote for LSM Remote Panel (code 103). All Remote Panels must be the first in the list of main controllers, without gap.

Channel and Control Settings

Name

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

Main ctrl (Main Controller)

Description	Name of the main device/controller allowed to control the given play or record channel. A Remote Panel has to be assigned as main controller of the record and play channels.
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 combination with other controllers) to play or/and record channels. 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.

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.

Net Name

Description	Machine name on the XNet 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.

Gigabit IP Configuration

IP Address (Port 1/Port 2)

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

Subnet Mask (Port 1/Port 2)

Description	Range of logical addresses within the address space assigned to the Gigabit Ethernet connection. The IP addresses of both GbE ports must belong to different subnet masks. Otherwise, Multicam will return an error message.

Default Gateway (Port 1/Port 2)

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

Glossary

1

12G-SDI

Interface to transfer digital video content. It consists of a single serial link corresponding to 4 x 3G-SDI links.

3

3G-SDI

Interface to transfer digital video content. It consists of a single 2.970 Gbit/s serial link. It is standardized in SMPTE 424M and replaces the dual link HD-SDI.

C

Cable

Part of a cable that arrives from the camera and is plugged into a video BNC connector.

Channel

Video connection interface on the V3X codec module. It can be used and assigned as a player or record channel in a given configuration. They are named with J8 for the primary channel when the codec module is used as a recorder, J5 for the secondary channel when the codec module is used as a recorder, J7 for the primary channel when the codec module is used as a player, J3 for the secondary channel when the codec module is used as a player. One channel 3G-SDI can handle a bandwidth equivalent to 2 x HD-SDI.

Codec module

On the rear panel, it refers to a set of 6 BNC connectors labelled as "Codec 1" to "Codec 6". On the V3X board, it refers to the corresponding module board (COD A or COD B) fitted on one of the codec base board. There are two codec modules per codec board.

Connector

Video connection interface (BNC) on the rear panel. The primary connector is named with from 1 to 6, the secondary connector is named from 1B to 6B.

D

Decoder

Processing unit that actually decodes the video signal.

E

Encoder

Processing unit that actually encodes the video signal.

G

GPI

Abbreviation for General Purpose Interface. This refers to a device used as an communication interface with the EVS server. It has digital lines which may be used for input, output, or both, depending on the function.

I

Intra-frame codec

Codec type for which the compression techniques are performed relative to information contained within the current frame, and not relative to any other frame in the video sequence. It is shortened by 'intra' in the manual.This is opposed to long-GOP codecs. (Source Wikipedia)

L

Logical channel

Logical player or recorder channel in a given configuration, independent from the physical connections that have to be used to enable this logical channel.

M

Multicam Configuration window

Window in the server-based and web-based Multicam Setup application from where you can define all configuration parameters.

Multicam Setup application

Term used to refer equally to the server-based or web-based user interface used to set up and configure the EVS servers.

Multicam Setup window

Initial Window in the server-based and web-based Multicam Setup application, that is displayed when the EVS server is not running a given configuration yet. It gives access to the configuration lines defined on the EVS server and to the commonly used maintenance tools.

O

Operational Setup menu

Menu accessible on the Remote Panel using the SHIFT+D keys form the main menu. It allows users to define operational parameters.

OSD

Abbreviation for on-screen display.

P

Physical channel

See also Channel.

Play channel (or Player)

Codec module used as a player.

R

Record channel (or Recorder)

Codec module used as a recorder.

S

Server-Based Multicam Setup application

Server-Based application used to set up and configure the EVS servers. The short form is 'Server-Based application' in this user manual. This is accessible from the EVS Server itself when it has been started.

T

Technical Setup menu

Menu accessible on the Remote Panel using the F0 key. It allows users to define currently used configuration parameters.

W

Web-Based Multicam Setup interface

Web-Based interface used to set up and configure the EVS servers. The short form is 'web-based interface' in this manual. This is accessible from any machine (PC or server) that is on the same network range as the EVS server. This can be accessed from a web browser using the following URL pattern: http://xxx.xxx.xxx.xxx/cfgweb/ where the crosses correspond to the IP address of the PC LAN of the EVS server.

→ evs.com