Technical Reference Software

Version 10.03 - July 2010

XT nano

Production & Playout Server

EVS

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IMPROVEMENT REQUESTS

Your comments will help us improve the quality of the user documentation. Do not hesitate to send improvement requests, or report any error or inaccuracy on this user manual by e-mail to doc@evs.tv.

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1. EVS Software

1.1 INTRODUCTION

The EVS software is used for configuration and maintenance operations. 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…).

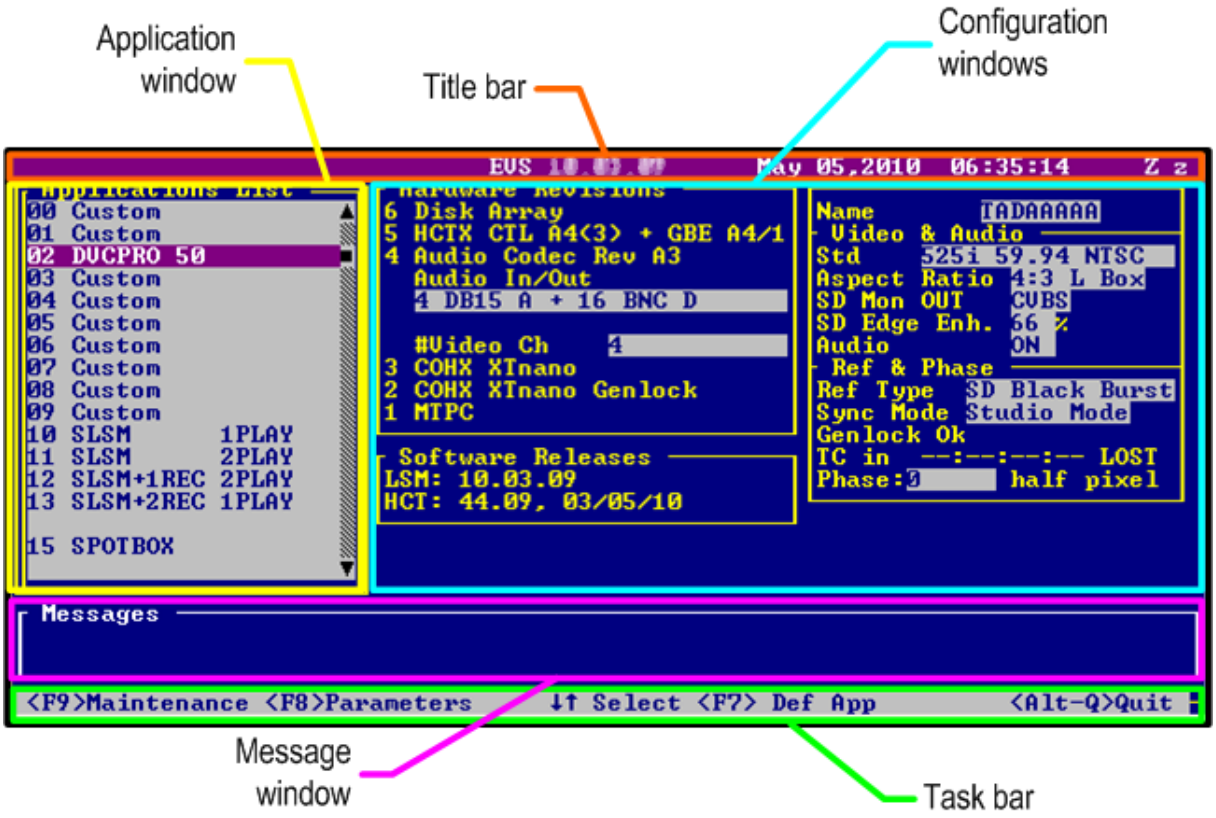
When turning on the EVS mainframe, the first step is the PC boot sequence, followed by the boot of the video I/O boards, and finally the EVS software is started.

If a default application has been previously selected, this application will start automatically after a few seconds if no key is hit.

If a default application has not been defined or if the space bar is hit, the system will remain in the EVS main menu (see snapshot on next page) and wait for the operator's next command.

1.2 EVS MAIN MENU

1.2.1 EVS SCREEN LAYOUT



Title bar: the first line of the VGA screen is the title bar. It contains the EVS software revision and current date and time.

Task bar: the last line of the VGA screen is the task bar. It contains a summary of the keyboard controls available.

Application window: this window contains the list of all applications installed on the system.

Configuration windows: the windows show the hardware configuration of the system.

Message window: messages are displayed in this space to provide more information on the current selection.

1.2.2 TIPS TO MOVE INSIDE THE EVS SOFTWARE

- The active window is always shown with a double frame.
- Press the **UP ARROW**, the **DOWN ARROW** or the **TAB** key to change the selection inside the active window.
- Press the **SPACEBAR** to toggle between pre-defined values.
- Press **ENTER** to select an item or to confirm an entry.
- Press **ESC** to go back to the previous menu or to cancel an entry.

1.2.3 STARTING AN APPLICATION

Select the appropriate application from the Applications List, then press **ENTER** to confirm the selection.

1.2.4 COMMANDS AVAILABLE FROM THE MAIN MENU

The **UP ARROW** and **DOWN ARROW** keys of the keyboard can be used to select an application. The purple line shows the current selection. The black line shows the default application, if one of these applications has been chosen as default.

ENTER is used to start the selected application.

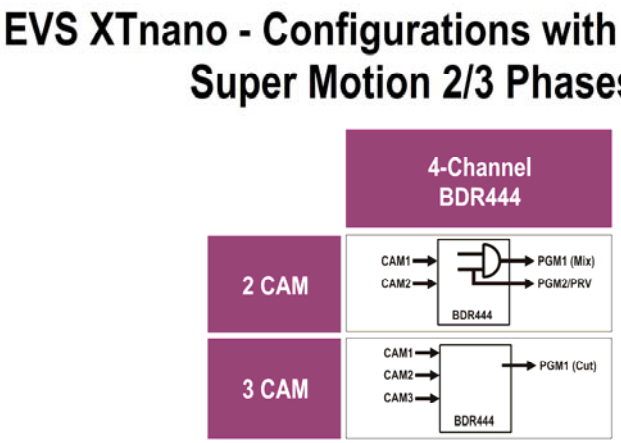
Press **F7** to make the currently selected application the new default one. The default application is automatically started every time the EVS program is entered. When the application currently selected is already the default application, pressing **F7** will disable the default application and the system will remain in the EVS main menu each time the EVS software is launched.

Press **F8** to immediately open the Channels Config window related to the selected application. Press **ALT+Q** to come back to main menu.

Press **F9** to enter the Maintenance menu.

To exit the EVS software and go back to the DOS prompt, press simultaneously **ALT+Q** and confirm with **ENTER**. To restart the EVS software from the DOS, simply type **RUN**.

1.2.5 CONFIGURATIONS AVAILABLE ON XTNANO SYSTEMS



Note on clips compatibility:

Clips are compatible across all Multicam configurations. Record trains are also compatible as long as the number of record channels (cameras) is not increased in Sportlight mode.

Ex.: 3CAM (1PGM) → 2CAM (2PGM): Record trains are compatible.

1.3 AUDIO & VIDEO CHANNELS CONFIG (AVCFG)

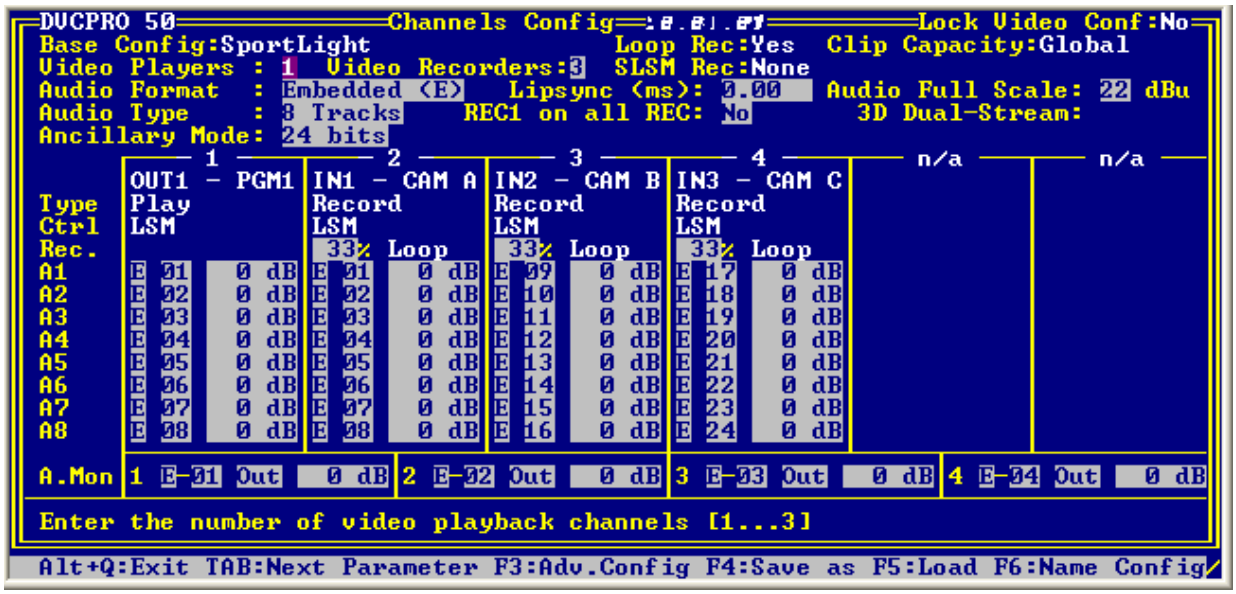
1.3.1 INTRODUCTION

Important

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.

Please refer to the parameters' charts for correct values (See section 1.4.8 'Default Parameters', on page 27).

Each application has its own set of parameters. When the user selects an application in the EVS main menu and press **F8** (Parameters), the A/V Channels Config (also called AVCFG) appears:



This window is used to define video & audio channels, type and configuration of recorders, audio format and audio-video synchronization parameter. All the parameters are described in this section.

1.3.2 How to Modify A/V Channel Parameters

1. From the EVS main menu, press **F9** to open the Maintenance menu.
2. Select the 'Channel Parameters' item and press **ENTER**.
3. Select the application to configure and press **ENTER**.

   The A/V Channel Config window appears.
4. Use the **TAB** key to move from one box to the next one. Some information about the current parameter is displayed in the INFO area.
5. Press the **TAB key** or the arrow keys to move across the different parameters in the window.
6. When the desired field is selected, modify the parameter to its new value by pressing the **SPACEBAR** or by entering its numeric value and then pressing **ENTER** to validate.
7. Press **F3** to enter the Advanced Parameters.
8. Press **F4** to save the current configuration. A dialog box appears to enter a name.
9. Press **F5** to load the list of configurations previously saved.
10. Press **ALT+Q** to exit the A/V Channel Config window.

Or:

1. From the 'Application List' in the EVS main menu, select the application to configure and press **F8.**
2. Continue from step 4.

1.3.3 AUDIO & VIDEO PARAMETERS OVERVIEW

Note:

When modifying the value of a parameter in the Audio & Video Channel Config, always press **ENTER** after changing the value of a parameter to validate the new choice. Check the channels table in the centre of the screen to make sure that the changes are reflected there.

LOCK VIDEO CONFIGURATION

Possible values: Yes or No

This item enables/disables the access to the modifications of the next three items: Video Players, Video Recorders and Type for REC1.

The video configuration is locked if Option Code 4 (Authorize video configuration changes) is not active in the Options List.

BASE CONFIG

Only possible value: Spotlight.

LOOP REC

This parameter cannot be changed and enables the endless loop recording. It is applied to all recorder channels.

CLIP CAPACITY

Only possible value: Global

This parameter selects the recording mode.

In Global 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.

VIDEO PLAYERS

Possible values: 1 or 2

This parameter allows selecting the number of player channels of the application and the associated audio channels.

VIDEO RECORDERS

Possible values: 2 or 3

This parameter allows selecting the number of RECORD channels of the application. The partition of the disk storage between these channels, and the associated audio channels are automatically updated.

SLSM REC

Only possible value: None

This parameter defines the type of SLSM recorders and is not relevant on XTnano.

AUDIO FORMAT

Possible values:

- Analog (A)
- AES/EBU (D)
- Embedded (E)
- Dolby E AES (DY)
- Dolby E Emb. (EY)

This parameter allows selecting the audio format.

When the Audio Format is set to AES/EBU (D or DY) or Embedded (E or EY), the analogue audio outputs are automatically activated and can be used for additional monitoring.

When the Audio Format is set to Embedded (E or EY), the digital audio (AES/EBU) outputs are also active.

For more information on Dolby Audio Management, refer to section1.3.5 ‘Dolby Audio Management’, on page 12.

AUDIO TYPE

Possible values: 1 Track, 2 Tracks, 4 Tracks, 8 Tracks, 16 Tracks

This parameter allows selecting the type of audio (number of mono audio tracks associated to each video channel).

The following table specifies the audio types available for the various audio formats:

Audio Type	Analog (A)	Digital(D-DY)	Embedded(E-EY)
1 track	X		
2 tracks	X	X	
4 tracks	X	X	X
8 tracks		X	X
16 tracks			X

LIPSYNC (MS)

Range for PAL:

- From -41,458 ms to 14,708 ms ➔ 848 to 3544 (samples)
- With 0 ms = 2838

Range for NTSC:

- From -34,625 to 12,125 ms ➔ 688 to 2932 (samples)
- With 0 ms = 2350

The Lipsync parameter is the delay (in ms) between video and audio signals. A positive value means video is ahead of audio. A negative value means audio is ahead of video.

This parameter is also available from the **Setup** menu of the Remote when the Multicam application is started. Changing the Lipsync value in the **Setup** menu will update it in the EVS menu and vice versa.

CTRL+UP ARROW or **CTRL+DOWN ARROW** changes the value per 1 ms step. **CTRL+LEFT ARROW** or **CTRL+RIGHT ARROW** changes the value per 5 ms step. The operator can also enter directly a value with the keyboard.

Note:

This adjustment is done during the RECORD process. A new Lipsync value will apply for the next recorded pictures only.

AUDIO FULL SCALE

Range of value: [10...30] dB

The audio full scale parameter (in dB) specifies the maximum audio level for the analogue outputs on the server.

It allows to indirectly define the head room, as the audio full scale is 4 dB higher than the head room. As the default value for the audio full scale is 22 dB, the default value for the head room is 18.

Change the value per 1 dB step by pressing **CTRL+UP ARROW** or **CTRL+DOWN ARROW** or per 3 dB step by pressing **CTRL+LEFT ARROW** or **CTRL+RIGHT ARROW**.

REC 1 ON ALL REC

Possible values: Yes or No

All audio channels associated to REC1 (CAM A) will be automatically used for all other RECORD channels if 'Yes' is selected.

3D DUAL-STREAM

This parameter is not available.

ANCILLARY MODE

Possible values: 20 bits or 24 bits

This parameter defines the encoding method used for digital audio.

This parameter is solely applicable in SD, allowing you to have the output of the embedded audio in 20 or 24 bits. In HD, it is always 24 bits.

SAMPLE RATE CONVERTER

Possible values: On or Off

This parameter is available with AES/EBU (D) audio format.

If this parameter is set to OFF, the user has to ensure that the signals are properly synchronized.

1.3.4 CHANNELS OVERVIEW

Channels input/output and name are automatically defined according to the parameters entered in the fields: Base Config, Video Players, and Video Recorders.

The player channels are allocated first (starting with OUT1), then the record channels are allocated (starting with IN1)

Note:

To modify the parameters included in the "Channels' area", press **F3** to enter the Advanced Configuration mode

TYPE

Possible values: Record or Play

This parameter is automatically set according to the settings of the previous ones. It defines the type of channel and depends on the values of Video Players and Video Recorders.

CTRL

Only possible value: LSM

This parameter defines the system or the protocol controlling the current channel. This parameter is automatically set and not editable.

REC.

For a player channel, this parameter defines which record train is the default source.

For a recorder channel, two parameters are available:

- Recording Capacity: (% Disk) Percentage of disk space allocated to each channel. Total of all values must not exceed 100%.
- Loop/No Loop: depends on the value of Loop Rec, previously described. Always forced to "Loop" with the current version.

AUDIO TRACKS

The audio tracks are listed from A1 up to A16:

- A1 to A16 IN: Mono audio inputs of the current channel.
- A1 to A16 OUT: Mono audio output of the current channel.

Audio Format

Possible values:

- A: Analog
- D: AES/EBU
- E: Embedded
- DY: Dolby E AES
- EY: Dolby E Embedded

The available values depend on the type of audio connectors defined in EVS hardware configuration:

None	16 XLR Analog	16 XLR Digital	16 XLR Analog + 8 XLR Digital 16 XLR Analog + 16 BNC Digital 16 XLR Analog + 4 DB15 Digital 4 DB15 Analog + 16 BNC Digital 4 DB15 Analog + 4 DB15 Digital
E – EY	E – EY – A	E – EY – D – DY	E – EY – A – D – DY

Audio Channel

Range: [1 ... 64]

This parameter allows selecting each audio channel in the selected audio format. In 16 audio configurations, **PAGE DOWN** and **PAGE UP** make it possible to navigate through the list of 16 audio channels.

The values depend on the audio format and available connectors:

	Analog (A)	Digital (D - DY)	Embedded (E - EY)
Embedded only	n/a	n/a	1 – 64
16 XLR Analog	1 – 8	n/a	1 – 64
16 XLR Digital	n/a	1 – 16	1 – 64
16 XLR Analog + 8 XLR Digital	1 – 8	1 – 8	1 – 64
16 XLR Analog + 16 BNC Digital or 16 XLR Analog + 4 DB15 Digital	1 – 8	1 – 16	1 – 64

In an Embedded configuration, the audio output is also sent in AES and Analogue formats. In an AES configuration, the audio output is also sent in analog format.

The following tables specify the outputs the audio is sent to in the various audio formats at the same time:

None / 16 XLR D / 16 BNC D / 4 DB15 D + 16 XLR A								
4 tracks	**PGM1**				**PGM2**			
Embedded	E1	E2	E3	E4	E9	E10	E11	E12
AES	D1	D2	D9	D10	D3	D4	D11	D12
Analog	A1	A2	A5	A6	A3	A4	A7	A8

None / 16 XLR D / 16 BNC D / 4 DB15 D + 16 XLR A																
8 tracks	**PGM1**								**PGM2**							
Embedded	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	E13	E14	E15	E16
AES	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16
Analog	A1	A2	A3	A4	A5	A6	A7	A8								

None / 16 XLR D / 16 BNC D / 4 DB15 D + 16 XLR A																
16 tracks	**PGM1**															
Embedded	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	E13	E14	E15	E16
AES	D1	D2	D3	D4												
Analog	A1	A2														
	PGM2															
Embedded	E17	E18	E19	E20	E21	E22	E23	E24	E25	E26	E27	E28	E29	E30	E31	E32
AES	D5	D6	D7	D8												
Analog	A3	A4														

Audio Gain

Range: [from -78 dB to +23.5 dB]

This parameter allows the operator to adjust the audio gain for each audio track. The adjustments are done by pressing **CTRL-**↓/↑ (±0.75dB steps) or **CTRL-**←/→ (±6dB steps).

CTRL+UP ARROW or **CTRL+DOWN ARROW** changes the value per 0.75 dB step. **CTRL+LEFT ARROW** or **CTRL+RIGHT ARROW** changes the value per 6 dB step.

A. MON (AUDIO MONITORING)

This parameter defines the audio monitoring outputs, selects the type of audio and allows adjusting the audio gain for each channel.

1.3.5 DOLBY AUDIO MANAGEMENT

SOME DEFINITIONS

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.

DOLBY CONFIGURATIONS IN XTNANO SERVERS

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

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

Case 2: The 5.1 audio signal is coded in the two-channel Dolby E standard

- Dolby E over AES/EBU links
  - Set the configuration of the pair of channels carrying the Dolby E signal to "DY" in the AVCFG. This has two effects :
    - It disables the sample rate converter on the input channels
    - It forces all transitions to a hard cut.

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

- Dolby E Embedded in the SDI/HD SDI stream
  - Set the configuration of the pair of channels carrying the Dolby E signal to "EY" in the AVCFG. This will force the transition to a hard cut.
  - The sample rate converter parameter does not apply to embedded audio.

  The Dolby E transitions will be correct as long as:

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

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

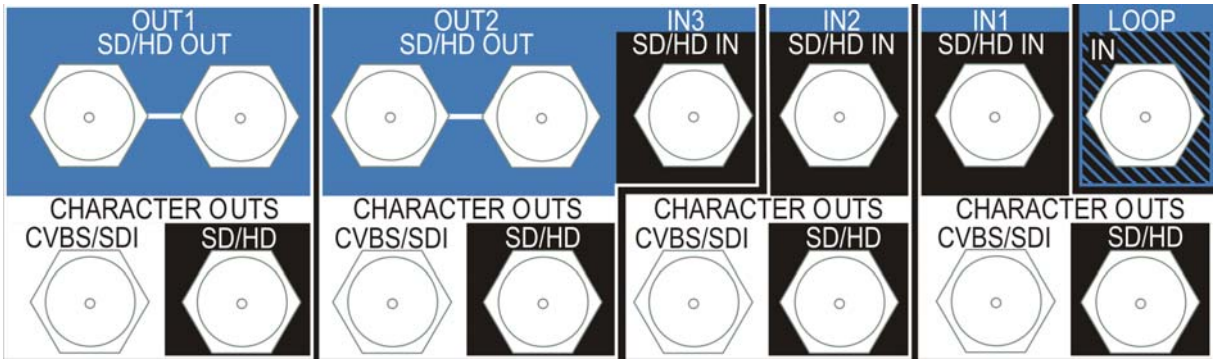
  Audio effects (scrub, slow motion) are not possible in Dolby E. If they are used anyway, the audio will be muted.

1.3.6 OSD, VIDEO AND AUDIO SIGNALS ON COHX IN RECORD/PLAY

Embedded audio is present on the monitoring of the codecs in rec.

The following table summarizes what is present on each of the BNC of a COHX input/output.

COHX backplane connector



HD Codec in Rec

BNCs	Video	Embedded Audio (if present at input)	Delay	Phase
J8	HD Input	n/a	n/a	n/a
J1	SD SDI or CVBS signal of BNC 1 with OSD (08.03)	Audio of BNC 1 only in SDI	No*	Adjustable
J4	HD signal of BNC 1 with OSD	Audio of BNC 1	n/a	n/a

* No delay if the **Rec HD -> SD Low Latency** setting is set to 'ON' in the Advanced Parameters window of the selected application in the EVS software.

SD Codec in Rec

BNCs	Video	Embedded Audio (if present at input)	Delay	Phase
J8	SD Input	n/a	n/a	n/a
J1	SD SDI or CVBS signal of BNC 1 with OSD	Audio of BNC 1 only in SDI	n/a	n/a
J4	SD signal of BNC 1 with OSD	Audio of BNC 1	n/a	n/a

HD Codec in Play

BNCs	Video	Embedded Audio (depending on the avcfg configuration)
J6	HD output	Yes
J7	HD output	Yes
J1	SD SDI or CVBS signal output with OSD	Only in SDI
J4	HD output with OSD	Yes

SD Codec in Play

BNCs	Video	Embedded Audio (depending on the avcfg configuration)
J6	SD output	Yes
J7	SD output	Yes
J1	SD SDI or CVBS output with OSD	Only in SDI
J4	SD signal output with OSD	Yes

1.4 MAINTENANCE MENU

The Maintenance menu contains various options to configure and check the system. These options are described in details in the next sections.

To select an option, press the **UP ARROW** and **DOWN ARROW** keys to highlight the corresponding line and press **ENTER** or press the shortcut key corresponding to the character between brackets.

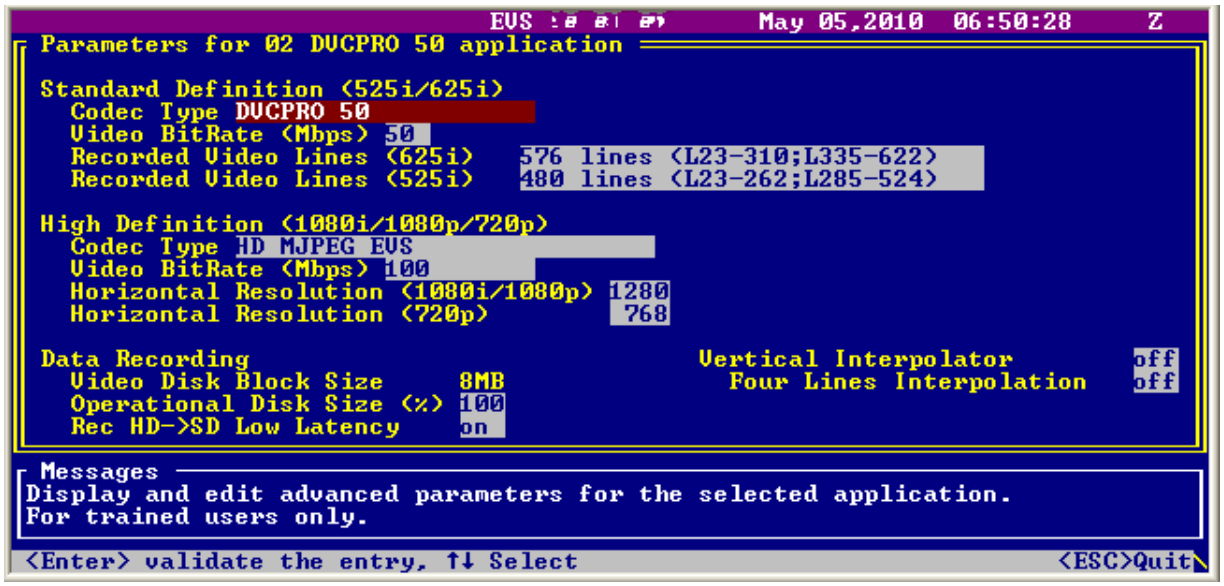
To go back to the applications window, press **ESC**.

1.4.1 ADVANCED PARAMETERS

Important

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. Please refer to the parameters charts for correct values. (See section 1.4.8 ‘Default Parameters’, on page 27)



How to Modify Advanced Parameters

1. Press **F9** to open the Maintenance menu.
2. Select the 'Advanced Parameters' item and press **ENTER.**
3. Press the **UP ARROW** and **DOWN ARROW** keys to select the parameter to modify and press **ENTER.**
4. Enter the desired value then press **ENTER.**
5. When all parameters are set, press **ESC.**

A confirmation message is displayed, press **ENTER.**

Codecs Availability and Options Depending on the Video Standard and the Hardware

	COHX	
	SD 625i	*SD 525i*
Codec Type	**DVCPro 50**	
Bitrate	50 Mbps	
Recorded video lines	576 lines (L23-310 ; L335-622)	480 lines (L23-262 ; L285-524)

	COHX			
	HD 1080i/1080p 50Hz	**HD 1080i/1080p 59,94Hz**	**HD 720p 50Hz**	**HD 720p 59,94Hz**
Codec Type	**DVCPro HD**			
Bitrate	100 Mbps			
Horizontal Resolution	1440	1280	960	

Note:

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

VIDEO DISK BLOCK SIZE

[8MB]

This parameter indicates the size (in MB) of data blocks to be recorded to or read from the disks.

OPERATIONAL DISK SIZE

Range: [0...100]

This parameter indicates the percentage of the disks actually used to store the data. Restricting access to the centre part of the drives increases the performance of the system but decreases capacity.

REC HD–> SD LOW LATENCY

Possible values: on or off

This parameter prevents the downconverted output of the record channels from being delayed. This is very useful in setups including high resolution and low resolution servers.

VERTICAL INTERPOLATOR & FOUR LINES INTERPOLATION

Possible values: on or off

This parameter enables or disables the interpolation processes. Select ‘off’ to disable the interpolation process, or ‘on’ to enable the interpolation process selected by the 'Four lines interpolation' parameter. An interpolation process is aimed 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 2 interpolation modes: the 2-line interpolator and the 4-line interpolator. The disadvantage of this method is that it reduces the vertical resolution. This is particularly true with the 4-line interpolator.

The user can choose between 3 modes:

no interpolation: maximize the vertical bandwidth of the picture but a vertical jitter appears in “SloMo”. [set 'Vertical Interpolator' to ‘off’, whatever the value of 'Four Lines Interpolation']

2-line interpolator: reduce the vertical jitter but the vertical bandwidth is reduced. [set 'Four Lines Interpolation' to ‘off’ and 'Vertical Interpolator' to ‘on’]

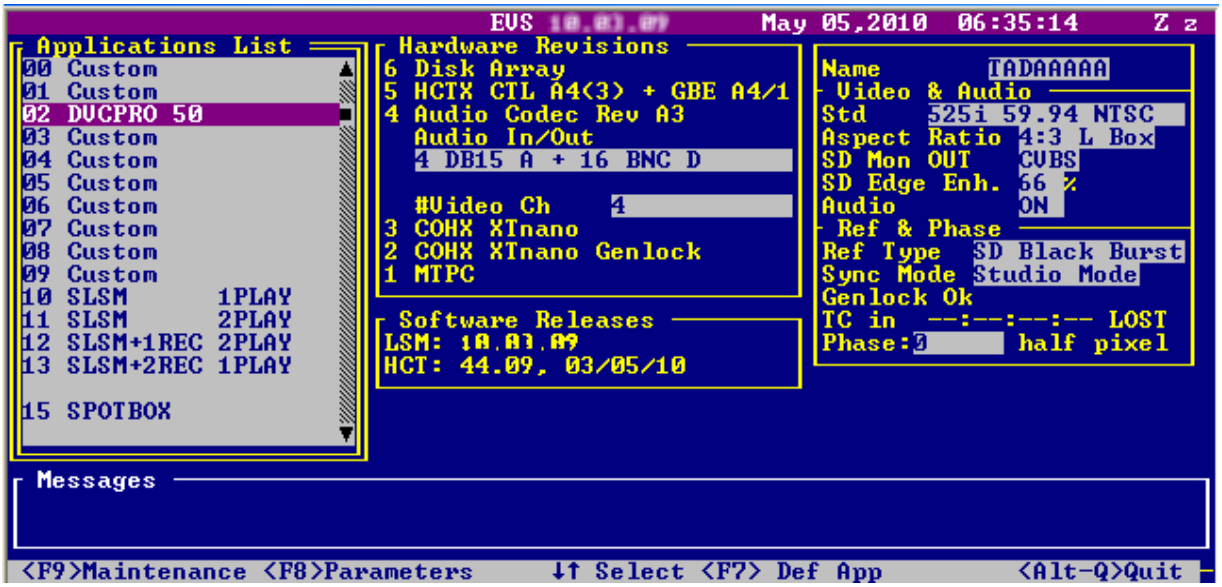
4-line interpolator: the picture is perfectly steady but the vertical bandwidth is even more reduced. [set both 'Four Lines Interpolation' and 'Vertical Interpolator' to ‘on’]

Note:

All VTRs use interpolation in PLAY VAR mode.

1.4.2 CONFIGURATION

This function is used to set the hardware configuration of the system (boards release numbers, port settings...).



HOW TO ENTER THE CONFIGURATION WINDOW

To enter the configuration window, press **F9** to open the Maintenance menu, select 'Configuration' and press **ENTER**. A double frame appears around the Configuration window, and the cursor blinks next to one of the parameters in this window part.

HOW TO MODIFY AN ITEM IN THE CONFIGURATION WINDOW

1. Press the **UP ARROW**, **DOWN ARROW**, or **TAB** keys to select the desired item.
2. Press the **SPACEBAR** several times until the correct value appears.
3. Select another item to modify or press **ESC** to go back to the Maintenance menu.

HARDWARE REVISIONS AREA

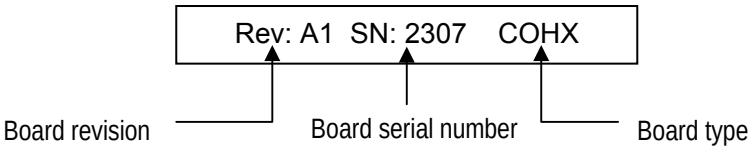
This area indicates, board by board, the detected hardware inside the chassis. Please refer to the XTnano Technical Reference Hardware manual for more information about the hardware.

Three pieces of information cannot be detected:

- **Audio In/Out:** defines the audio input and output connectors available from the rear panel.
  - 4 DB15 Analog + 16 BNC Digital,
  - 4 DB15 Analog + 4 DB15 Digital
  - None
- **#Video Ch:** the number of available video channels can be adjusted.

Note:

The order of the boards in this list is the same as inside the mainframe, from top to bottom. The revision of a board located in the front part of the mainframe is always written on a white label on the left front end of the board.



SOFTWARE RELEASES AREA

LSM

This parameter displays the version number of Multicam software installed.

HCT

This parameter displays the version number and release date of HCT microcode installed.

VIDEO & AUDIO AREA

Std

This parameter allows selecting the video standard:

- 625i 50.00 PAL (default for SD)
- 525i 59.94 NTSC

- 525i 59.94 NTSC Japan
- 1080i 50.00 PAL (default for HD)
- 1080i 59.94 NTSC
- 1080i 59.94 NTSC Japan
- 720p 50.00 PAL
- 720p 59.94 NTSC
- 720p 59.94 NTSC Japan

Aspect Ratio

In High Definition, this parameter allows the user to select the format of the image for the downconverted outputs of the XTnano (not used in SD configurations).

4:3 L Box	letterbox *(default)*, the entire width of the 16:9 original picture is shown, but there are black panels horizontally above and below the picture.
4:3 Crop	the sides of the 16:9 picture are cut off but the 4:3 frame is filled.
16:9	anamorphic, widescreen mode. The 16:9 picture area is squeezed horizontally to fit inside the 4:3 space.

In Standard Definition, the parameter defines the aspect ratio of the incoming video feeds.

SD Mon OUT

Possible values: CVBS or SDI

This parameter specifies the type of output monitoring.

SD Edge Enh.

Range: [0…200]% (default: 66%)

This parameter specifies the value of the edge enhancer for the SD downconverted outputs of the XTnano server set in HD.

Audio

Possible values: ON or OFF

This parameter enables or disables the audio.

REF & PHASE AREA

Ref Type

Possible values: SD Black Burst or HD Tri-Level S

This parameter allows selecting the genlock reference input between:

- SD Black Burst *(default)*
- HD Tri-Level Sync (HD only)

Sync Mode

Possible values: Studio Mode or Resync Mode

This parameter allows selecting the frame synchronizer mode between:

- **Studio Mode:** should be used when the video input signals are synchronized. *(default)*
- **Resync Mode:** should be used when the video input signals are not synchronized. In this case, they will be re-synchronized on the digital I/O board. This can cause a shift of up to 3 fields between the various video input signals.

Genlock

Possible values: OK or BAD

This information is automatically displayed.

This parameter checks if the genlock input is valid.

TC in

This parameter displays the status of the LTC input of the server, and the video format corresponding to the incoming time code.

Ex: “TC in 12:24:45:09 PAL” or “TC in 12:24:45:09 NTSC”. If no valid time code is detected, the display will show “TC in --:--:--:-- Bad”.

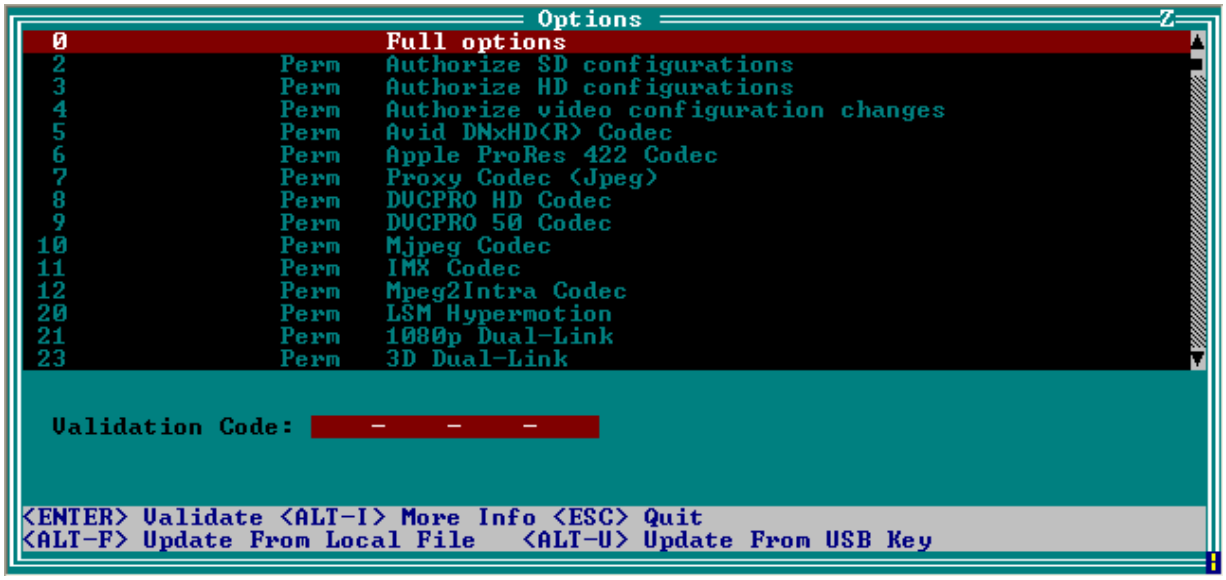
Phase

This parameter shows the value currently set for the main video phase of the digital video outputs. Refer to the ‘Phase Definition’ section for details.

1.4.3 OPTIONS

ACCESSING THE OPTIONS MENU

To enter the Options menu, open the Maintenance menu, then press the **UP ARROW** and **DOWN ARROW** keys to highlight the 'Options' line, and press **ENTER**. The Options window appears as shown below:



INTRODUCTION

This window is used to manage software license codes for all applications. This window only displays the permanent codes you have subscribed to, as well as valid or expired temporary codes.

To run particular application software and/or specific software options, not only the software itself is required but also a license key, which is unique for every option on every system.

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

Example of line for a PERMANENT option

104	**PERM**	**Multicam LSM Base 1 PLAY**

Example of line for a TEMPORARY option

108	**DEMO**	**Multicam LSM Base 5 PLAY**

Example of line for a TEMPORARY option with From Date/To Date

109	**01/12/05-31/12/05**	**Multicam LSM Base 6 PLAY**

DISPLAY

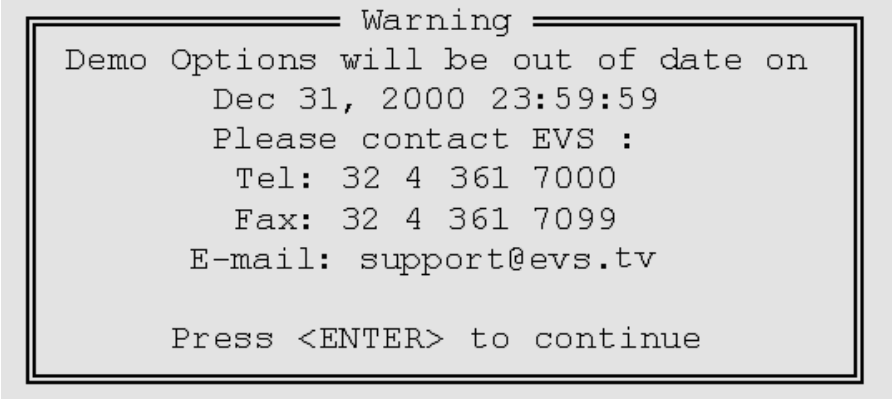
In the Options menu, the highlighted lines show the valid options. The red line is the current line. Press the **UP ARROW** and **DOWN ARROW** keys to move inside the options list.

When temporary options are present, the limit time for these is shown in the lower part of the Options window.

To go back to the Maintenance menu, press **ESC.**

EXPIRATION AND WARNING

When a temporary license key is about to expire, the system will warn the operator. The warning is displayed every time the EVS software starts, from 2 weeks before the expiration date. The following message appears:



HOW TO ENTER NEW LICENSE CODES

To enter new license codes, proceed in one of the following ways:

- If you have received a xxxxx.COD file (xxxxx = serial number of the server for which this file has been calculated) from EVS, copy this COD file on a USB key and press simultaneously **ALT+U** keys. The license codes will be automatically read from the USB key and the system will be updated.

or

- You can also copy manually the xxxxx.COD file to the C:\ drive, then restart the EVS menu, enter the Options windows and press simultaneously **ALT+F** keys. The codes will be read from the local file on the C:\ drive and the system will be updated.

or

1. Make sure the cursor blinks in the 'Option' box in the lower part of the Options windows.
2. In the **Validation Code** field, enter the code corresponding to the selected option (license codes are sent by EVS Technical Support Dpt) and press **ENTER**.
3. Repeat this operation for the next license code.
4. You can check that the corresponding options are enabled by scrolling into the options list.

HOW TO REMOVE A LICENSE CODE

To remove a license code, proceed as follows:

1. Press the **UP ARROW** and **DOWN ARROW** keys to browse the options list and select the option that must be removed.
2. When the option is selected (white characters), press simultaneously **CTRL+DEL**.
3. Confirm the deletion of the option with **ENTER** or cancel with **ESC.**

HOW TO CHECK HARDWARE KEY (DONGLE) INFORMATION

When the Options window is open, press simultaneously **ALT+I**. A new window 'Option Info' appears. The following information is available:

System ID:	ID code of the hardware key. This information is necessary for license code calculation. Factory setting only.
User:	User's name. This information is a label and is for information only. Factory setting only.
Serial #:	Serial number of the mainframe. The S/N is also written on the back plate of the mainframe. Factory setting only.

Chassis:	Defines the type of mainframe, should be 'XTnano'. If this value is wrong, audio and video routing inside the system will not work properly. Factory setting only.
PSU Type:	Defines the type of power supply installed in the chassis: Standard or Redundant (hot swap).
Limit time:	Expiry date & time for temporary license codes. This line does not appear when the permanent codes are installed.
Key time:	Current date & time of the hardware key displayed in a GMT+1 Timezone (Belgium Time). This is the date used to determine whether limit time for temporary license codes has been reached or not. Factory setting only.

Press **ENTER** to go back to the Options window.

1.4.4 CLEAR VIDEO DISKS

This function is used to erase all media from the RAID disk array.

Important:

Caution: This will definitely delete all video and audio data, including protected clips and record trains.

To clear video disks, proceed as follows:

1. Press **F9** to open the Maintenance menu.
2. Press the **UP ARROW** and **DOWN ARROW** keys to select the **Clear Video Disks** option line and press **ENTER.**
3. Confirm the deletion with **ENTER** or cancel with **ESC**.

1.4.5 FORCE LOAD CLIPS

This function is used when swapping disks arrays between XTnano servers. If clips are saved to disks, this command forces the system to re-load the clips.

To force loading of clips, proceed as follows:

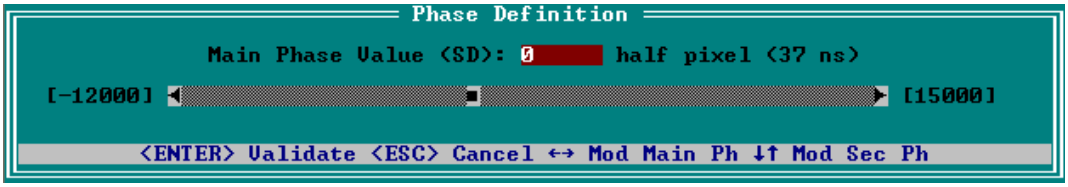
1. Press **F9** to open the Maintenance menu.
2. Press the **UP ARROW** and **DOWN ARROW** keys to select the **Force Load Clips** option line and press **ENTER.**
3. Confirm the reloading with **ENTER** or cancel with **ESC**.

1.4.6 PHASE DEFINITION

This option is used to adjust the digital phase of the mainframe.

STANDARD DEFINITION

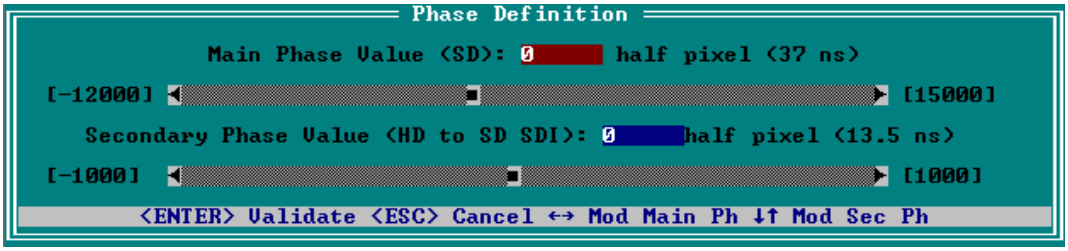
If the Ref Type (see Configuration windows) is set to 'SD Black Burst', the phase definition window is as follows:



The phase value for SD can be adjusted between - 12000 ns and +15000 ns by 37 ns steps.

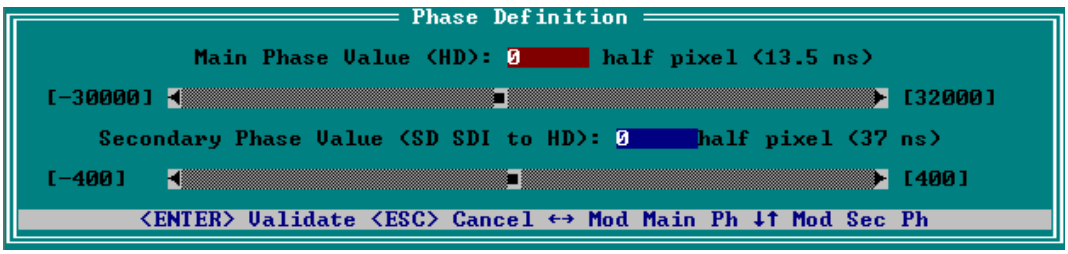
HIGH DEFINITION

If the Ref Type is set to 'SD Black Burst' and if the system is configured for HD, the phase definition window appears as follows:



The main phase value for SD can be adjusted between -12000 ns and +15000 ns by 37 ns steps and the secondary phase value (relative phase of the HD SDI outputs compared to the phase of the SD SDI outputs) can be adjusted between -1000 ns and +1000 ns by 13.5 ns steps.

If the Ref Type is set to 'HD Tri-Level S', the phase definition window is as follows:



The main phase value for HD can be adjusted between -30000 ns and +32000 ns by 13.5 ns steps and the secondary phase value (relative phase of the SD SDI outputs compared to the phase of the HD SDI outputs) can be adjusted between -400 ns and +400 ns by 37 ns steps

COMMANDS

- Press the **LEFT ARROW** and **RIGHT ARROW** keys to adjust the main phase value in half pixel steps (that is SD: 37 ns or HD:13.5 ns) or type in the value in the **Phase Value** field.
- Press the **CTRL+LEFT ARROW** and **CTRL+RIGHT ARROW** keys to adjust the phase value by 1-line steps (that is 1440 half pixels in SD; 2880 half pixels in HD 720p; and 3840 half pixels in HD 1080i).
- Pres the **TAB** key to toggle between **Main Phase** and **Secondary Phase** fields.
- Press the **UP ARROW** and **DOWN ARROW** keys to adjust the secondary phase value in half pixel steps (that is SD: 37 ns or HD:13.5 ns) or type in the value in the **Secondary Phase Value** field.
- Press **ENTER** to save the new values and return to the Maintenance menu or press **ESC** to go back to the Maintenance menu without saving the changes.

Important note 1:

The SD phase is always adjusted according to the SDI outputs. Internal CVBS outputs have a delay of 48 x 37 ns compared to the corresponding SDI outputs.

Important note 2:

The internal CVBS outputs cannot be used to feed directly a vision mixer or any equipment performing video effects, since the phase of the chroma subcarrier is not adjustable internally.

1.4.7 DEFAULT APPLICATION

This option is used to define the default application that is automatically started by the system. Every time the EVS software is entered, the default application is started a few seconds later.

You can avoid the automatic start by pressing the **SPACEBAR** or the **UP ARROW** and **DOWN ARROW** keys immediately when entering the EVS software. If no default application has been defined, the system will remain in the EVS software.

The default application is shown against a black background in the Application window.

HOW TO DEFINE A DEFAULT APPLICATION

- In the Application window, select the new default application using the **UP ARROW** and **DOWN ARROW** keys and press **F7**

Or:

- Call the Maintenance menu with **F9** and select 'Default Application', select the defined application from the list, and press **ENTER**
  - If a default application was already defined, a message warns the operator that it will be disabled. The command can be confirmed with **ENTER** or cancelled with **ESC**.
  - If the command is confirmed, another message warns the operator that a new default application has been defined.

HOW TO REMOVE THE DEFAULT APPLICATION

- In the Application window, select the application that is the current default application (blue characters with black background) using the **UP ARROW** and **DOWN ARROW** keys, and press **F7**.

Or:

- Call the Maintenance menu with **F9** and select 'Default Application'. Then select the current default application from the list and press **ENTER.**

  A message warns the operator that the current default application will be disabled. The command can be confirmed with **ENTER** or cancelled with **ESC.**

1.4.8 DEFAULT PARAMETERS

This command erases all current parameter settings and restores the default factory settings for all applications. When selecting this option, you are asked to confirm the command or cancel it.

DEFAULT PARAMETERS FOR ALL APPLICATIONS

Multicam LSM	HD XTnano
00 Custom	Y
01 XTnano 2REC 2PLAY	Y
02 XTnano 3REC 1 PLAY	Y

1.4.9 DEFAULT TO VGA & DEFAULT TO VIDEO

Between the PC boot and the I/O boot, the video driver is loaded and the display is switched to one of the following mode:

- VGA mode
- B&W video mode, allowing the VGA screen to be displayed on a standard composite video monitor using the VGA↔BNC adapter provided with the unit.

Press **ENTER** to switch from one setting to the other. The switching is done directly in the Maintenance menu and no dialog box is opened.

	**Note:** At start-up, **ALT+BACKSPACE** is still available on the keyboard for switching from one mode to the other.

1.4.10 SET DATE & TIME

The Set Date & Time command allows adjusting the system date & time.

Example of date format (dd/mm/yyyy):

24/10/2007 for October 24, 2007

15/03/2008 for March 15, 2008

Example of time format:

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

1.4.11 TS CALIBRATION

When the Touch Screen option is installed, it can be calibrated using this command. If the Touch Screen is not installed, a warning message is displayed.

1.4.12 HARDWARE CHECK

The purpose of this tool is to check the hardware and to verify the validity of the data recorded on the video disk array. After the selection of this command from the Maintenance menu, the system automatically starts the test processes.

One after the other, the different stages are displayed in the BOOT.HCTX window. The test process is complete once the HCTX board is initialized.

Important:

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

DISK ERRORS AND DISCONNECTION

Disconnection

When one disk of the video raid array exhibits 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 to work as usual and the message “!Raid” appears on all monitoring outputs.

Exit

When exiting the Multicam application, 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:

```
To protect disk array integrity, a disk has been disconnected. At
the next opportunity please perform a hardware check to evaluate
the faulty disk, and perform a rebuild to correct the problem.
                        Enter: OK
```

Restarting

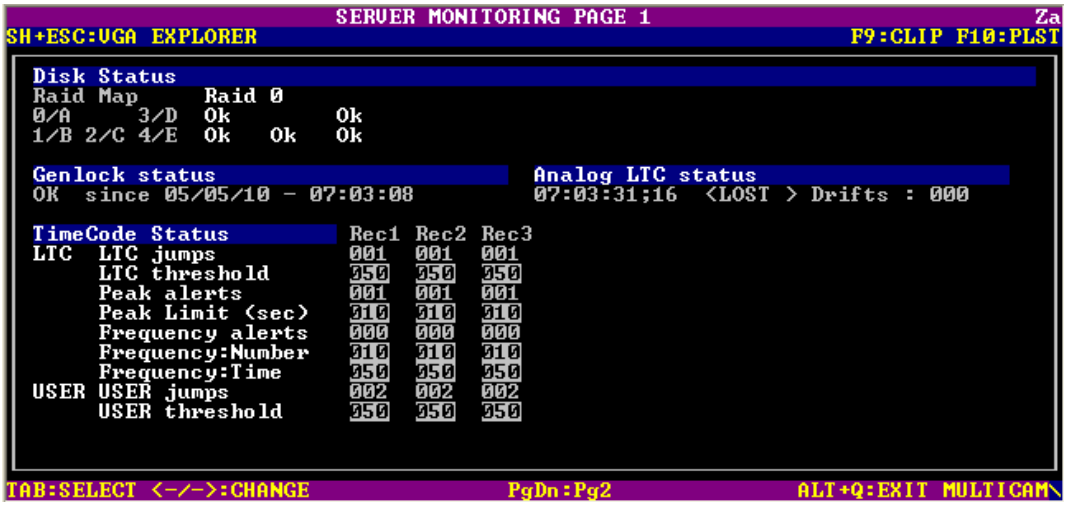
If Multicam is restarted without the RAID being rebuilt, the following message is blinking during the Bootwins: "SCSI Controller #C disconnected in operation!". Then when entering Multicam, another message appears:

```
To protect disk array integrity, a disk has been disconnected. At
the next opportunity please perform a hardware check to evaluate
the faulty disk, and perform a rebuild to correct the problem.
              ESC: Exit        Enter: Continue
```

The operator can press **ENTER** and operate as usual on 4 disks or exit the software and return to EVS menu to run a Hardware Check (including the disk rebuild process).

DISKS MONITORING

The 1st page of the Server Monitoring screen allows disk monitoring. Press **Shift+F5** to access this screen:



In the Disk Status section, the screen indicates the position of the disks on the disk array and the status of each disk:

/	Not present
!Raid	Disconnected disk
OK	Disk present

When a disk is disconnected, the message "Rebuild xx.xx%" will appear next to the disk array to which the disconnected disk belongs. This value shows the advance of the rebuild process. When a disk is disconnected but new pictures are still being recorded on the disk array, this number will decrease until the disk is replaced and the rebuild process starts. The rebuild is complete once this number reaches 100%.

REBUILD PROCESS

The XTnano server is capable of performing a rebuild process of the SCSI 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 previous section, 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.

Maximum duration for on-line rebuild:

- 5 x 300 GB : 66 h

Off-line rebuild time takes about 6 h for 5 x 300 GB disks.

Note:

If errors are detected during the rebuild process, a message appears after the rebuild is complete to warn the operator, and the raid is not considered as properly rebuilt. In this state, the system will keep working on 4 disks. If you want to run on 5 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 XTnano will keep running on 4 disks only, and you will see a warning message appearing each time you start or close the Multicam application. Normal operation can be achieved on 4 disks, but then, if another disk fails, the system will hang and all video and audio data will be definitely lost.

Important:

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

RETRIEVING SCSI LOGS

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

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

2. Bootwins & Error Messages

2.1 INTRODUCTION

This section of the manual describes:

- The sequences of the system initialization and the errors that might occur during this process.

  These different error messages will allow the EVS engineers to identify quickly the reason of a hardware problem and to provide the operator with a relevant solution.

- The tool, called EVS Disk Doctor, which makes it possible to recover the disk data in case Multicam would not succeed in reading it when the application is started.

2.2 INITIALIZING THE DISKS

Step 1: Initialization Start

The system is trying to initialize the SCSI hard disks.

The message "`Waiting for disk information…`" appears. The procedure is started on the system to initialize hard disks.

Step 2: Disk Status

A status table is displayed:

	DISK A	**DISK B**	**DISK C**	**DISK D**	**DISK E**
Board #0	READY	READY	READY	READY	READY
Board #x	READY	READY	READY	READY	READY
Primary defects	XXX	XXX	XXX	XXX	XXX
Grown defects	YYY	YYY	YYY	YYY	YYY

It gives the status of each disk of each board. The different statuses are:

NOT PRESENT	Disk is not found.
PRESENT	Disk is present but test unit ready function failed.
MAJOR ERROR	A major error has been detected: Disk cannot be used.
READY	Disk initialization succeeded.
NOT_READY	Time out after attempting to start the disk.
VERIFY_ERROR	An error occurred while verifying sectors on the disks. The system can probably work for a while but should be disconnected in operation.
LBA ERROR	LBA size is not 512. System cannot work.
SYS ERROR	All other possible errors.

Note:

The information regarding primary and grown defects is only available in maintenance mode (start a hardware check in EVS maintenance menu). XXX is the number of primary defects found on each disks. YYY is the number of defects found on each disks.

Step 3: Board Capacity Display

After this table, the system displays the total capacity of all boards.

The message "Capacity of board #x: m.n GBytes or XXX blocs of YYY KBytes" is displayed,

where:

x	is the board number
m.n	is the size of the board in base 1024*1024*1024 (Giga bytes)
XXX	is the number of blocs available on the disks
YYY	is the size of each bloc.

Possible Error Messages

- If a major error has been detected on a disk, it has been disconnected. In this case, the system displays the message:

  "!!! SCSI CONTROLLER #X DISCONNECTED!!!"

  where X is the number of the controller. It is advised to replace this disk and to rebuild its data if necessary.

  In that case, start the CHECK program in EVS menu to rebuild the data.

- If more than 2 disks are faulty at start-up, the system displays the message:

  "MORE THAN 2 CONTROLLERS IN ERROR. SYSTEM CANNOT WORK PROPERLY".

  In that case, the faulty disks must be replaced. Data rebuild is not possible.

- If a major error occurred on the board, the board is not correctly plugged, or the board is missing, the system displays the message:

  "!!! ERROR: TIMED OUT -> SCSI BOARD #0 PROBABLY NOT PRESENT".

  In that case, check the board installation. If the error persists, install a new board or contact EVS support.

2.3 READING THE CONFIGURATION FILE

After the disk initialization sequence, the system reads the configuration file stored on the disk. This file contains the parameters that guarantee the coherence of main parameters of the system from session to session. Those parameters are: diskBlockSize and operationalDiskSize.

The message "Reading configuration file... please wait" is displayed during process.

If the Configuration File is Found on Disks

The parameters are displayed:

Configuration	of user	on disks
block size	xxx kBytes	yyy kBytes
nbr of blocks	aaa	bbb

This table shows the parameters stored on the system ('on disks' column) and the ones from the EVS advanced parameters ('of user' column).

The values from both columns must be identical to use properly the system. If not, the system displays a warning message:

"A parameter incoherence has been detected" "Would you like to format the system".

Answer 'Yes' to format the A/V data saved on disks.

Answer 'No' to go back to EVS main menu.

Important:

If you answer 'Yes' and decide to format the system, all clips will be cleared. This operation is instantaneous.

If the Configuration File is not Found

A warning message appears:

"Your system is not formatted" "Would you like to format the system?".

Answer 'Yes' to format the A/V data saved on disks.

Answer 'No' to go back to EVS main menu.

If Errors Occur While Reading the Configuration File

The following message appears:

"Error reading configuration file – status = [Err]".

The type of error [Err] can be:

1.	**Block error**	A disk error occurred while loading the configuration file to disks. In this case, the disks have to be replaced by new ones.
2.	**Cache overflow error**	No more memory blocks are available from the memory cache.
3.	**Checksum error**	This error might occur when a disk has been replaced but the data of this disk is not restored. For solving the problem, start the Rebuild data process.
4.	**Signature error**	The signature of the configuration file is modified or the file format is modified and then the file is not compatible with the microcode. In this case, select the Format command to correct the error.

If the loading duration of the configuration file is too long, a time-out error message appears:

"READ CONFIGURATION ERROR: TIMED OUT – state = [ST]".

In this case, reset the system and start again the application.

2.4 FORMATTING THE CONFIGURATION FILE

If the operator answers 'Yes' to the message "Would you like to format the system", the system generates a new configuration file on disks. The following message appears:

```
Format:    creating a new configuration file.

           blk size =            xxx kBytes

           number of blocs =     aaa

Formatting … please wait.
```

If an error occurs, the message is displayed: "FORMAT ERROR: TIMED OUT – state = [ST]". In this case, reset the system and start again the application.

When format is completed successfully, the message "Format completed" is displayed and the system read the configuration file to be sure everything is in order.

Important:

If you answer 'Yes' and decide to format the system, all clips will be cleared. This operation is instantaneous.

2.5 INITIALIZING THE MICROCODE

The final step is the initialization of the microcode.

If the first line of the application is flashing with the message "Disk #x has been disconnected in operation", the system will display the message: "Disk to be disconnected: x". The system will work on 4 disks. Raid function is turned off.

The message "Init board: nb blocks of size kBytes. Audio:aud DiskUse:use%" is displayed.

where

nb	is the number of blocks used on the system
size	is the size in kBytes of a block on a disk
aud	is ON/OFF
use	is the operationalDiskSize in %

If the system must load tables (no clear clips done in EVS main menu), the

message "Loading tables ..." will appear.

When the initialization is complete, the system displays the message "HCTX board initialized" and the system is ready. If an error occurs, the message "ERROR (0xErr): HCTX board not correctly initialized" is displayed. The error (Err) are detailed in the following section.

Possible Errors

If an error is detected while loading tables, the following message is displayed: " LOAD <TAB>LE ERROR – state = [St]" where 'St' can be:

1.	**Block error**	A disk error occurred while loading the table on hard disks. Maybe a disk failure. Replace disks.
2.	**Cache overflow error**	No more blocks available in cache. Algorithm problem. Contact EVS.
3.	**Checksum error**	This can occur if a disk has been replaced and data not rebuilt on it. Rebuild data on the disk to clear the message. If no disk has been replaced, try to re-start the server to clear the error message. If it does not resolve it after a few re-start, a clear clip will be necessary.
4.	**Signature error**	The signature on the table file is not found in the header file. Try to re-start the server to clear the error message. If it does not resolve it after a few re-start, a clear clip will be necessary.

If the message "INIT ERROR: TIMED OUT – state = [St]" is displayed, it means the initialization is not complete. 'St' refers to a position in the code.

Note:

Never forget that to start Multicam, the bootwins must successfully initialize the microcode. In that case, the message "HCTX board initialized" is displayed. In all other error case, the boot sequence or initialization phase is cancelled and Multicam cannot be started.

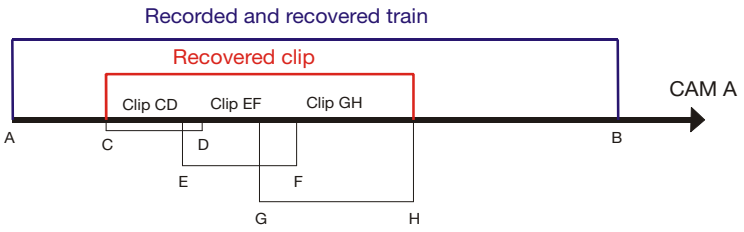
2.6 DISK DATA RECOVERY

When Multicam is started, it sometimes happens that the application does not succeed in reading the data stored on the disks. However, the data is still available on the disks.

The EVS Disk Doctor has been developed to address this issue. This tool allows reconstructing the data (trains and clips) stored on the disks.

The tool scans each data block, identifies the recorder on which the data has been created and reconstructs the whole audio and video material.

The clips will also be recovered. However several overlapping clips will be recovered as one single long clip. This means that, in the schema below, the clips CD, EF and GH will be recovered as one single long clip for which the IN point will be C and the OUT point will be H.

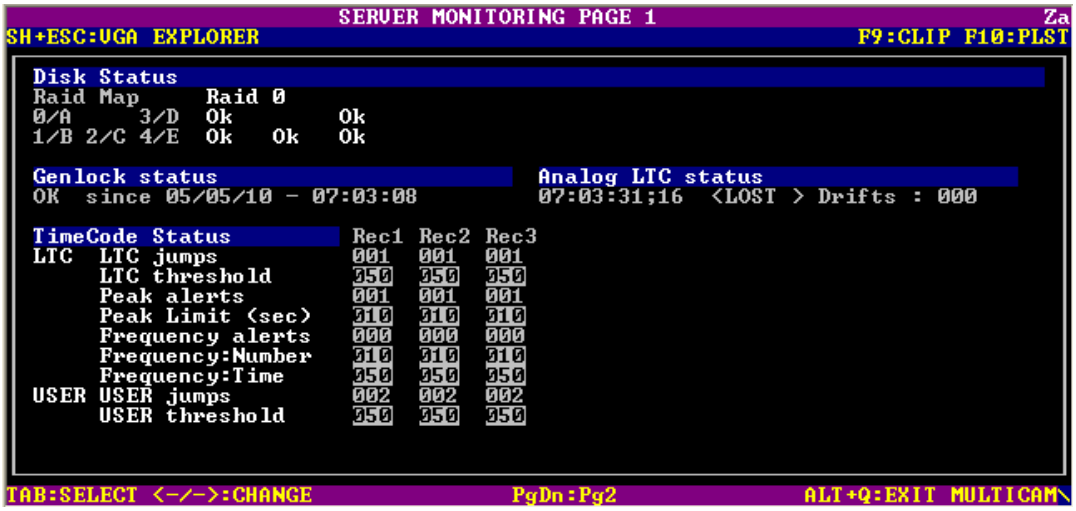


If you want to use this tool, please contact the EVS support.

3. Monitoring

3.1 SERVER MONITORING

The first page of the Server Monitoring section makes it possible to monitor the recording activity and the timecodes on the XTnano server. It is also used to set up how the timecodes are managed in the timecode jump tables. It is available by selecting **SHIFT-F5** in Multicam.



3.1.1 DISK STATUS

In this section, the Raid Map indicates the position of the disks on the disk array and the status of each disk on each existing raid on the right.

/	Disk not present
!Raid	Disk disconnected
OK	Disk present

When a disk is disconnected, the message “Rebuild xx.xx%” will appear next to the disk array to which the disconnected disk belongs. This value shows the progress of the rebuild process. For more information on the rebuild, please go to section ‘Disks Monitoring’, on page 29.

3.1.2 GENLOCK STATUS

This section displays the current status of the genlock.

3.1.3 ANALOG LTC STATUS

This section specifies the current status of the analogue LTC timecode and specifies the number of drifts detected compared to the genlock.

The possible status values are the following depending on the MTPC board used:

MTPC A2/A4	
OK	The timecode is incremented in a normal way.
Drift	The received timecode and the genlock are not synchronous.
Bad	The received timecode is not correct. For example when an NTSC timecode is received instead of a PAL timecode (freq. error), or when there are disturbances in the timecode reception (bad signal).
Lost	No timecode is available.

3.1.4 TIMECODE STATUS

This 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 XTnano server.

There are two timecode jump tables:

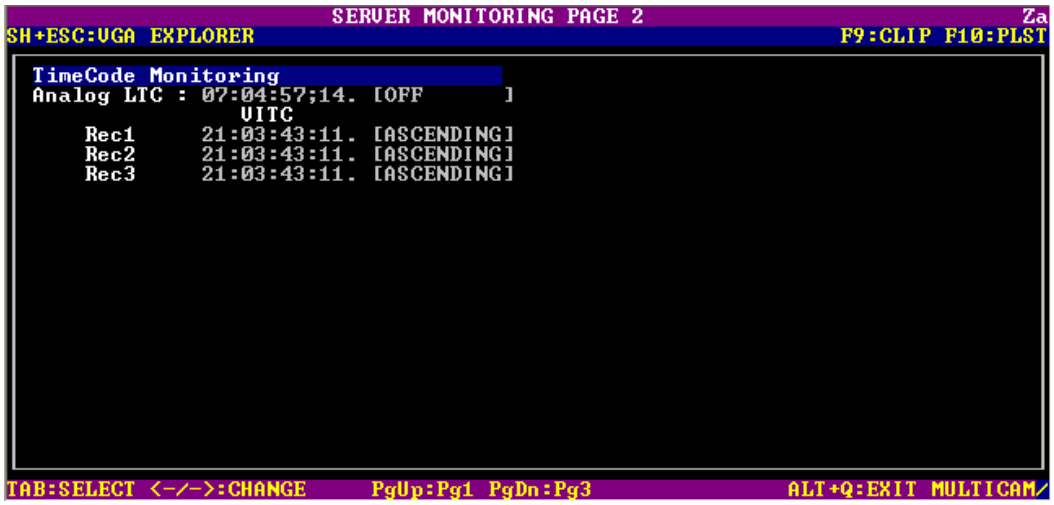
- Timecode jump table for the LTC timecodes
- Timecode jump table for the timecodes specified by the user in the VITC setting on the first page of the Setup screen.

LTC		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 last server start. 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 Limit (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 alerts	Number of frequency alerts generated for the recorder since last server start. 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		Default Values
USER jumps	Number of timecode jumps calculated in the VITC timecode jump table for the given recorder since last server start.	1
USER 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

3.1.5 TIMECODE MONITORING ON SD RECORDERS

The second page of the Server Monitoring section displays the following information:

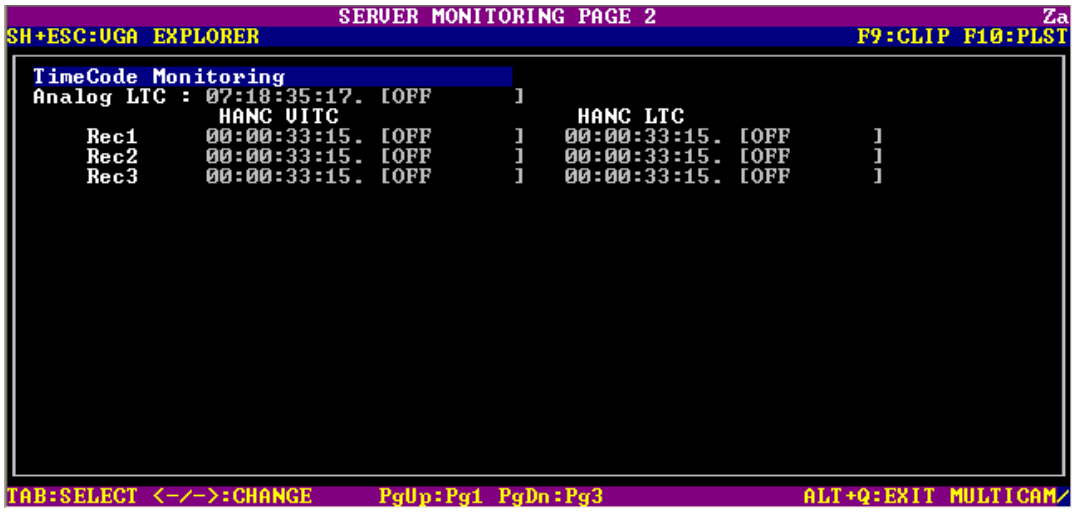
- LTC timecode on the XTnano server.
- VITC timecode on the various recorders.



3.1.6 TIMECODE MONITORING ON HD RECORDERS

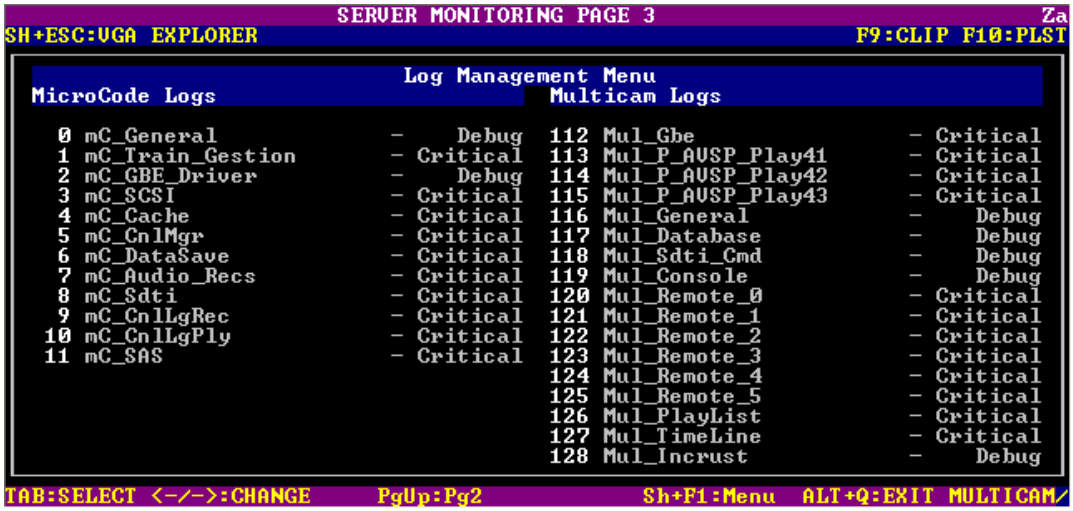
The second page of the Server Monitoring section displays the following information:

- LTC timecode on the XTnano server.
- VITC timecode on the various recorders.



3.1.7 LOG MANAGEMENT

The third page of the Server Monitoring section displays a menu dedicated to log management. This new page allows a user-friendly and easy management of the logs where log files can be accessed from a remote computer while the Multicam is still in use.



LOG FILE TYPES

The left column displays items related to the 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 using the **SPACEBAR**:

- The log can be disabled with the 'No Log' value.
- The lowest and default level of criticality is 'Critical', where the log is limited to recording critical and important commands.
- 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.

The default value for all items is 'Critical'.

A help screen can be reached by pressing **SHIFT+F1**.

EXTRACTING LOG FILES

This screen also offers the ability to extract log files when the Multicam is running. On this third page of the Server Monitoring section, press **E** to extract the log files instantly so that a user can access them through a common FTP client application from a remote computer.

The extracted files are located in C:\LSMCE\DATA\LOG. Their name starts with an underscore: The regular log file “Multicam_Database.log” is renamed “_Multicam_Database.log” once extracted when the application is running.

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