New Product Release – Package 9

XT[2] System and Software

Multicam 09.00.74 Release 19 Jan 2009

1.1 Introduction

Multicam 9 is compatible only with XT[2] servers, it will not run on XT Servers and due to change in the recorded file structure clips made in previous software versions will not be playable in a Server running Multicam 9. If the clips are from an XF[2] archive they are reconstructed to make them compatible with version 9 as they are restored.

When starting an XT[2] server a choice of software will be offered to the user but clips **WILL HAVE** to be cleared when changing Software versions. For more details on the installation and boot screens for Multicam 9 please follow this link: *Installation procedure for Multicam 9*.

When an XNet[2] Media Sharing Network contains XT and XT[2] servers then Multicam 8 software should be used to retain compatibility.

1.2 New Operational Features of Multicam 9.

1.2.1. New Date and Timecode Management

Each channel now records 2 time codes LTC and User TC (HANC in HD and VITC in SD).

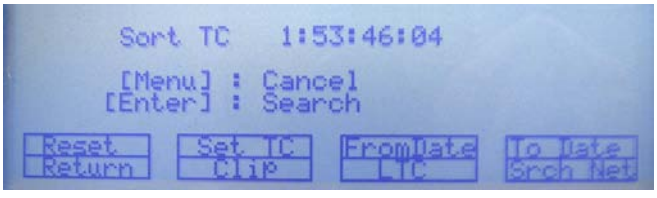
User can choose which time code source to be displayed and also be searched on, User TC will be displayed on the OSD in yellow and LTC displayed as before in white.

User TC displayed

LTC displayed

Selection of the time code to be displayed: see section 1.3.1.1. below.

Search for clips or trains:



Besides the usual date, clips/train, local search/network search parameters, a Time Code selection parameter is now available. A search can be done on either the LTC (LTC), the user-defined time code type (USER) or whatever Time Code (LTC+USER). The definition of the user Time Code is done in the Setup Configuration screen (SHIFT-F2). For more details see section 1.3.1.1. below.

1.2.2. Playback of Growing Clips

Clips can now be played while they are being created, moved, copied, restored as soon as the first frame is received the growing clip can be played.

This change is immediately noticeable on the Remote Panel as a clip location button will flash until the clip is fully created or copied/restored. When creating a clip this means the button will flash until all the guardband on the clip is present in the record train. This will also be the case when transferring a clip between XT[2] servers or restoring from XFile or 3rd party software. In version 8 or below the full outgoing guardband was never included if the clip was stored before it had been recorded.

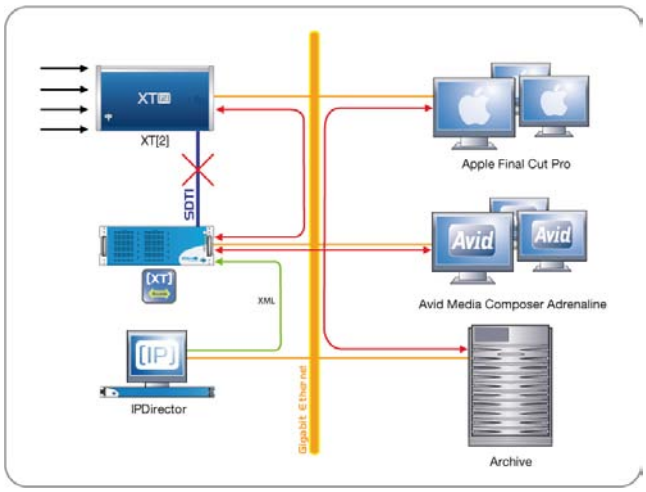
HOWEVER, unlike previous software versions where a flashing clip location meant the clip could NOT be played until the process had finished, the clip CAN now be selected and played before the transfer is complete.

1.2.3. Gigabit Connections now active

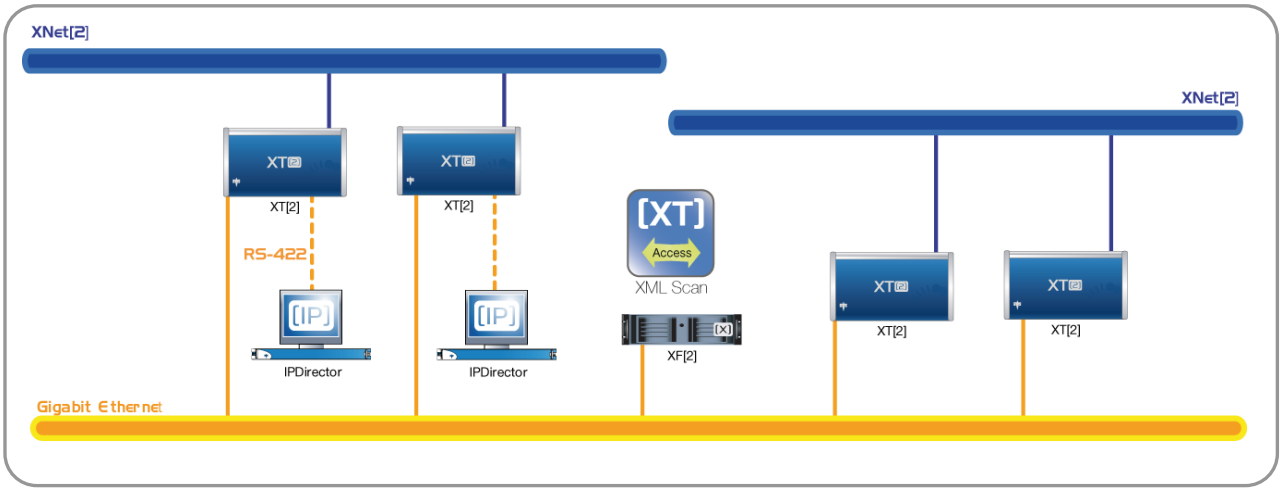
An XT[2] Server with the optional Gigabit connection hardware can now transfer clips between systems using the new XT Access software (version 1.05.11). Clips can also be transferred between servers on different XNet[2] Media Sharing Networks (SDTI networks) and directly to 3rd party systems such as Avid and Final Cut Pro.

Using the Gigabit connection for the transfers between XTs and between an XT and an external storage leaves the capacity of the XNet[2] network free for the on-air playout of content across the network and other operational tasks.

There is also a new plug-in software for Final Cut Pro to import clips directly from XT[2] servers into Final Cut Projects from the Mac. Please see the *FAQ about the integration with Avid* for more details.



File transfer to standard Non Linear Editors and archive systems



Clips transfer between servers on different XNet[2] Media Sharing Networks

1.2.4. Two HD Super Motion Cameras per XT[2] Server

It is now possible to use two Thomson Grass Valley LDK 8000 SportElite HD 2xSLSM cameras on one 6 channel XT[2] Server. Each camera takes 2 record inputs, leaving 2 available as outputs. This configuration was not included in previous releases.

Different possible configurations allow recording and controlling two HD Super Motion Cameras 2x video feeds on a single XT[2] server with a lot of possibilities such as 2 HD Super Motion cameras in ingest with two play-out channels or 2 HD 2-speed SLSM cameras and 1 HD camera in ingest with 1 play-out channel.

1.2.5. Default clip duration extended to 4 hours

A clip of up to 4 hours in duration can be made by marking only an 'IN' point and selecting a free clip location, or marking only an 'Out' point and selecting a free clip location.

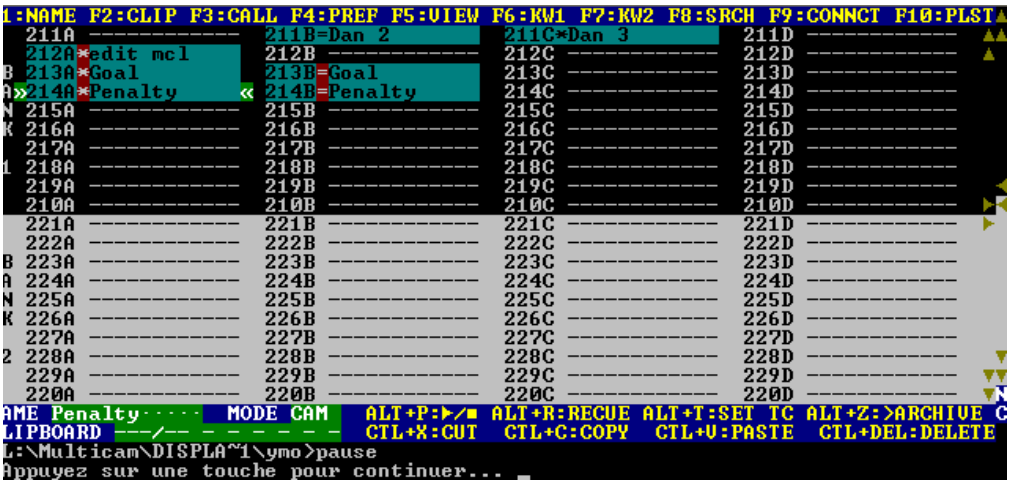
Very useful when the duration of a recording session is known and the whole of the recording is to be retained as a clip. If an 'IN' point is made and a free clip location is selected, the button will flash until the selected duration and its guardband have been reached, making the media protected from loop recording as soon as it has been completed.

1.2.6. Recordings in Apple ProRes 422 and Apple ProRes 422 HQ codec

The Apple ProRes 422 and Apple ProRes 422 HQ codec can now be chosen as the recording format allowing direct transfer of native files between EVS XT[2] servers and Final Cut Pro NLE's.

Record Trains can be streamed and clips sent using XFile (in case of SDTI network) or XTAccess (in case of gigabit Ethernet) with IPDirector. Clips on the XT[2] Servers can be seen from the new EVS Media Importer software installed on a Mac and imported directly into a Project in Final Cut Pro. Please see the *FAQ about the integration with Apple* for more details.

1.2.7. Protection of Clips made with IPDirector



Clips can be protected using an IPDirector Workstation and not be able to be deleted by a user on the XT VGA or remote panel user. The protection is indicated on the VGA by a red background on the preference area of the clip display.

1.2.8. Disk Bandwidth increased by 50%

Although not strictly an operational feature this improvement facilitates the use of higher bitrates than was previously possible leading to higher quality recordings in High Definition. It also helps the Operator trying to play High Definition super motion clips across the network at full speed. Before this improvement there were problems of freezing with clips being used in this way. Although still requiring high network bandwidth this should be handled better with this software. It is still recommended to copy Super motion clips first to the local machine if they are to be played at full speed.

1.2.9. Restripe of TC.

Time Codes restripes from the Multicam interface are replicated from the new time codes to the legacy time code, and vice-versa. For instance, this allows an IP Director to see the correct time code after a restripe from the Multicam VGA.

1.2.10. Protocol AVSP option.

Disable auto NEXT behaviour for PLAY command.

1.3 Engineering Features of Multicam 9.

Many of the Features of Multicam 9 are improvements in the set-up and monitoring.

1.3.1. Setup Configuration Screen

On the Setup Configuration Screen (SHIFT+F2) there are more features:

- Time code settings
- VITC/ANC Management
- SDTI Network Monitoring
- Server Monitoring
- RS422 Protocol Settings
- Gigabit Port Settings

1.3.1.1. Time Code Settings

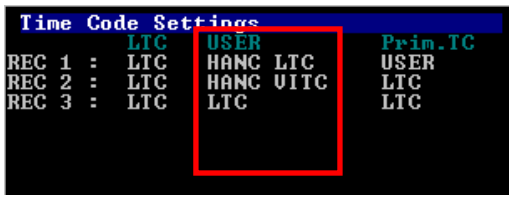
The management of time codes has been improved. Although only one source of LTC is present in the hardware, users are now given the possibility to choose which type of time code should be used as the reference to work on a given recorder of an XT[2] server. The types are dependant on the recording format.

The time code settings are specified on the first page of the VGA Setup screen (accessed via SHIFT+F2) and allow the user to define:

The second type of time code that can be used on a recorder, besides the LTC.

The primary time code, i.e. the time code with which the user will work.

Time Codes Types Available on a Recorder



The operators can use two types of time codes to work with the video material stored by a given recorder on an XT[2] server:

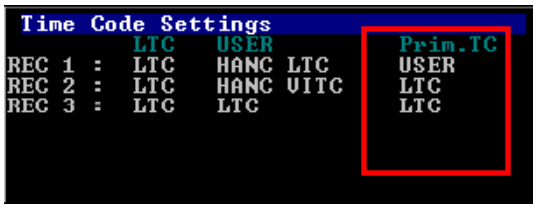
- LTC timecode which is automatically recorded and cannot be edited
- The second type of timecode specified by the user in the USER field.

The users can specify one of the following time code types in the USER setting:

- LTC and VITC time codes in SD
- LTC, HANC LTC and HANC VITC in HD

An Example of the use of this feature is that normally, the LTC time code is set to be “Time of Day” and is used to perform operations on live events. A VITC time code is taken from the video signal of the ingested media that has been recorded previously, for example tape archive or camera rushes, this original timecode can then be used in an EVS workflow environment.

Time Code Type Used on a Recorder



On the first page of the VGA Setup screen, the Primary TC field specifies which time code type will be displayed at the bottom of the OSD and will be used when working with the video material stored on the given recorder.

Possible Values

The values can be the following:

LTC	LTC time code, which is automatically stored.
USER	User-defined time code, which is stored in the USER TC table and specified in the USER field.

Time Code Colour on the VGA

Depending on the value selected for this setting, the time code displayed at the bottom of the VGA will have a different colour:

- If the LTC time code is selected, the time code colour will be white.
- If the USER time code is selected, the time code colour will be yellow.

1.3.1.2. VITC/ANC Management

Page 2 in the Setup Configuration menu (SHIFT+F2) on XT[2] servers allows the channel-by-channel management of VITC or ANC TC management.

It also allows the users an option to clean the VBI information: the VITC being recorded in the active video lines, which can sometimes be invalid due to interpolation or parity violation on some fields in PlayVar. Also, if the server inserts VITC on the output while there is already VITC on another line, it can create problems.

The server allows now to totally clean the VBI information from the vertical blanking at playback or to clean it only when it would not have been preserved.

VITC/ANC Management in SD

In SD, the page is as follows:

The following parameters can be defined:

IN LOOP	
D-VITC	The TC and user bits are always written on the SD outputs of the record codec and are the same as on the source video.
Lines	Lines on which the VITC must be written on the output connectors of the record codec. By default, these are lines 14-16 in NTSC and 19-21 in PAL.

SD OUT		
D-VITC	Field to specify if embedded timecode has to be inserted in the output. The possible values are:	
	No	No new timecode inserted in the output.
	In (default)	Same timecode as in the input inserted in the
	LTC	Timecode from the LTC table inserted in the
	USER	User-defined timecode inserted in the output.
Lines	Lines on which the specified timecode must be written on the output.	

UserBits	Yes/No flag to specify if the user bits have to be included in the output. The default value is 'Yes'.
Clean VBI	Field in which the user specifies whether the VBI needs to be cleaned on the output. The possible values are: No — The VBI is not cleaned in the output. Always — The VBI is always cleaned in the output. If not OK — The VBI is cleaned in the output if it is not correct (PlayVar mode, vertical split screen, etc.)

VITC/ANC Management in HD IN and on the HD/SD OUTS

In HD, the page has HD time code attributes:

The following parameters can be defined:

IN LOOP	
D-VITC	The TC and user bits are always written on the monitoring SD outputs of the record codec and are the same as on the source video.
Lines	Lines on which the VITC must be written on the monitoring output connectors of the record codec. By default, these are lines 14-16 in NTSC and 19-21 in PAL.

HD OUT	
HANC LTC	Field to specify if embedded timecode has to be inserted in the output. The value specified has to be the same as for the HANC VITC field. The possible values are: No — No newtime code inserted in the output. In (default) — Same timecode as in the input inserted in the LTC — Timecode from the LTC table inserted in the USER — User-defined timecode inserted in the output.

UserBits	Yes/No flag to specify if the user bits have to be inserted in the output. The default value is 'Yes'.
HANC VITC	Field to specify if embedded timecode has to be inserted in the output. The value specified has to be the same as for the HANC LTC field. The possible values are: No — No newtime code inserted in the output. In (default) — Same timecode as in the input inserted in the LTC — Timecode from the LTC table inserted in the USER — User-defined timecode inserted in the output.

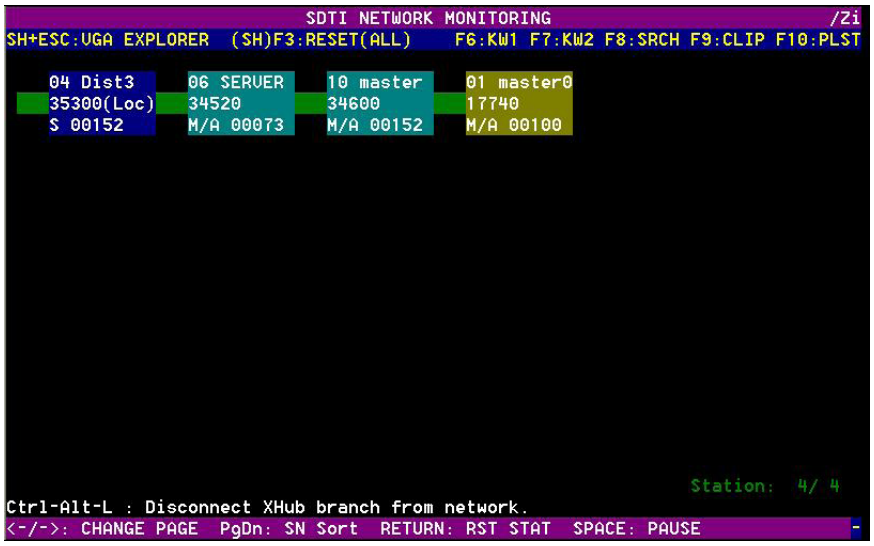
SD OUT

D-VITC	Field to specify if embedded timecode has to be inserted in the output. The possible values are: No — No new timecode inserted in the output. In (default) — Same timecode as in the input inserted in the LTC — Timecode from the LTC table inserted in the USER — User-defined timecode inserted in the output.
Lines	Lines on which the specified timecode must be written on the loop of the input. By default, these are lines 14-16 in NTSC and 19-21 in PAL.
UserBits	Yes/No flag to specify if the user bits have to be inserted in the output. The default value is 'Yes'.
Clean VBI	Field in which the user specifies whether the VBI needs to be cleaned on the output. The possible values are: No — The VBI is not cleaned in the output. Always — The VBI is always cleaned in the output. If not OK — The VBI is cleaned in the output if it is not correct (PlayVar mode, vertical split screen, etc.)

1.3.1.3. SDTI Network (XNet[2] Media Sharing Network) Monitoring

In conjunction with XHub[2] v.3.01 there are two new features:

- **Connection of the machines in the order of the XHub BNCs.**
  This allows the order of connection to be ordered as necessary and be logical with the set up and installation. It therefore helps with network issues.
- **Possibility to disconnect a device from the network.**
  Disconnecting individual machines from the network from inside the software of the XT[2] allows for less inhibitive testing of the SDTI network to fault find network issues without exiting the software.



To disconnect a machine from the server:
1. Press **SHIFT-F4** to access the SDTI Network Monitoring screen.
2. Press **CTRL-ALT-L** to disconnect the XHub branch from the network.
The following warning is displayed:

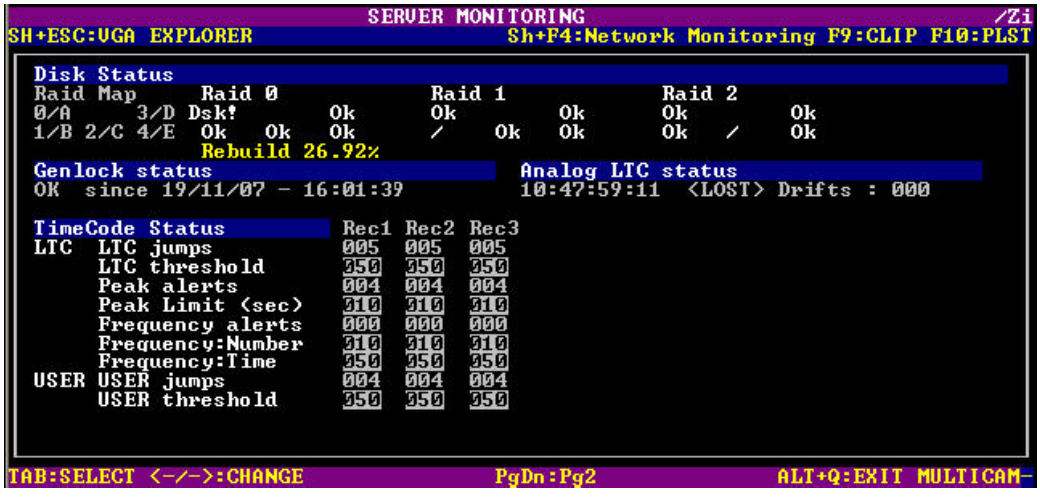
Warning
The network branch you are connected on
will be disconnected from the network.
All network actions will be disabled.
ESC: Cancel ENTER: Confirm

3. Press **ENTER** to confirm that you want to disconnect the XHub branch from the network.
On the SDTI Network Monitoring screen, the following message in red informs that the machine is disconnected and how it can be connected again:

"XHub branch disconnected from the network. Press **CTRL-ALT-L** to reconnect."

1.3.1.4. Server Monitoring

The Server Monitoring page (SHIFT+F5) makes it possible to monitor the Disk Status while the machine is operating, the timecode input status and also the genlock status on the XT[2] server, showing any drifts detected compared to the reference.



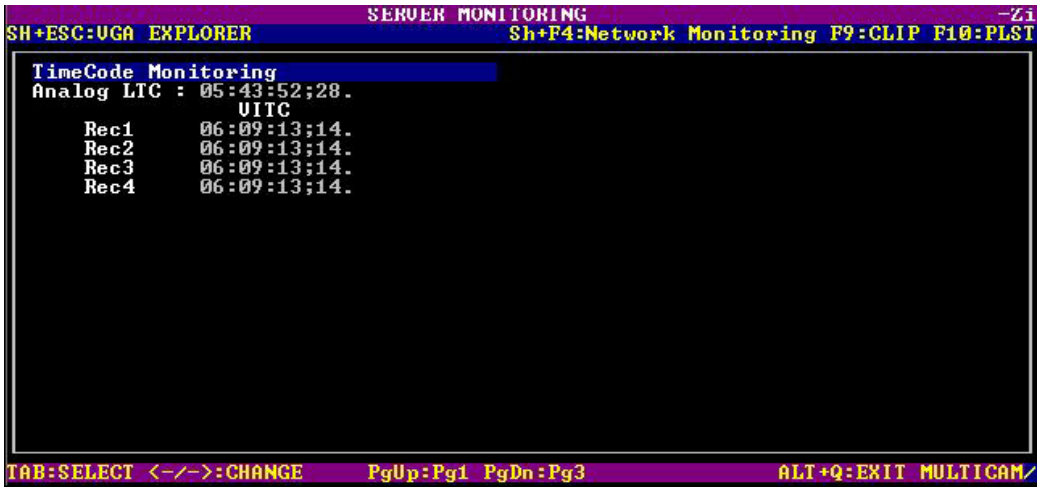
This area also contains settings to manage the handling of problems with timecode on each channel recording. For more details refer to 3.3.4 Timecode Status in the *XT Software Technical Reference Manual*.

On Page 2 of the server monitoring there is a display of current analog LTC and the other timecodes being recorded by each record channel. These other types of timecode will be different between SD and HD configured XT[2] Servers.

Timecode Monitoring on SD Recorders

The second page of the Server Monitoring section displays:

- LTC timecode on the XT[2] server
- VITC timecode on the various recorders



Timecode Monitoring on HD Recorders

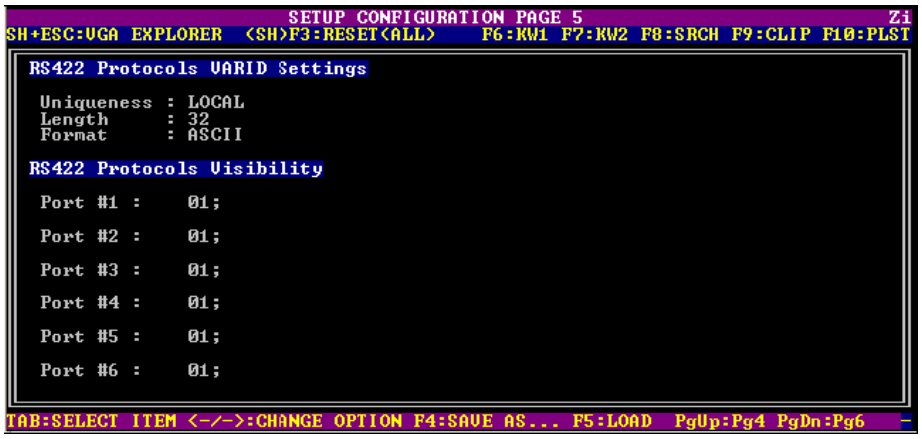
The second page of the Server Monitoring section displays:

- LTC timecode on the XT[2] server
- VITC timecode on the various recorders

1.3.1.5. RS422 Protocol Settings

In the Setup Configuration module (SHIFT + F2), press the Page Down key until you access the page 5. It displays the VAR ID settings for the VDCP protocol.

These settings make it possible for VDCP protocol to use the VAR ID to access the clip IDs on an XT[2] server or XNet network.



If the server is set up to use this protocol it is possible for 2 identical clips (NOT COPIES) to exist on the same XNet network, allowing the servers to be used in automation systems where full redundancy is necessary. This feature has never been possible before on XT servers.

This page is only for reference and the settings cannot be changed here.

For more information on how this is set up, see the section 3.1.6.1 VAR ID Configuration File in the *XT Software Technical Reference Manual* or contact the Customer Support.

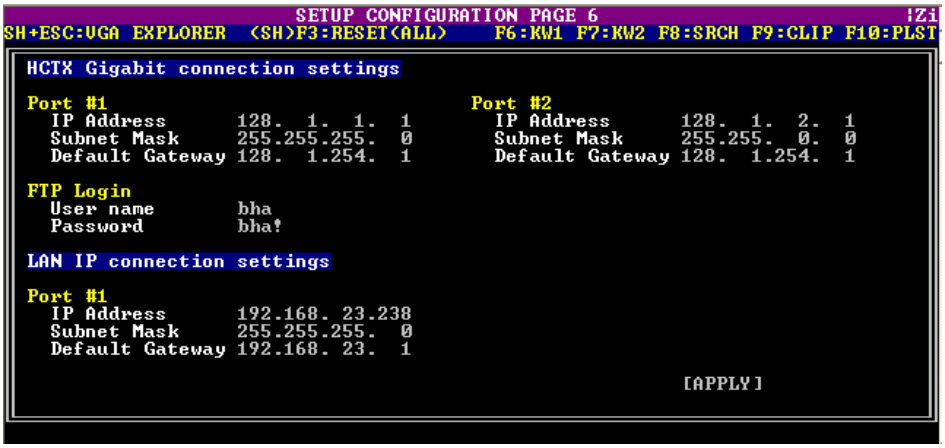
1.3.1.6. New Gigabit Ethernet Network Settings

In the Setup Configuration module (SHIFT + F2), press the Page Down key until you access the page 6. It displays IP connection parameters for the HCTX board and the MTPC board.

The XT2 servers now support a Gigabit Ethernet connection. It will allow the backup of the audio and video data without going through the XNet[2] (SDTI) network. The Gigabit connection is provided via the HCTX board. The two HCTX XT[2] gigabit ports should not be configured in the same subnet as:

- working with both ports won't bring any additional transfer performance
- there is currently no automatic redundancy mechanism offered when using both ports
- XT[2] could be attached to two different subnets.

The settings can be modified by navigating the screen using the TAB key and entering the required values.



Note: The modifications of parameter values in this screen are not applied when you leave the field. You need to select the **APPLY** option at the bottom right of the screen and press **ENTER** to apply the modifications.

1.4 New Hardware Complimenting Multicam 9.

1.4.1. MTPC Board (LAN access)

The function of the PC board is mainly the control of the Video hardware via the software and to interface the peripheral equipment (i.e. remote controller, IPDirector, 3rd Party control, etc) with the Video hardware. The Latest revision of the board is A2/A4 which has an HS870 motherboard and a new time code management module. There is also control available from Multicam 9 software to set the IP Address of the LAN connection on the MTPC. This will be used in future for system maintenance.

1.4.2. HCTX Board with Gigabit

The Gigabit connection is provided via the HCTX board. Its backpane is equipped with two Gigabit Ethernet ports, extended to the back panel of the XT[2]. If the gigabit module is not present no settings will be displayed in the Multicam software.

1.4.3. External RAID Array XT-HDX for XT[2] Server

The XT-HDX is an external disk storage containing up to 15 SCSI disks. It is connected to the XT[2] server via a dedicated cable on the backplane of the server. The XT-HDX is only available with XT[2] 6U with hot-swappable power supply.

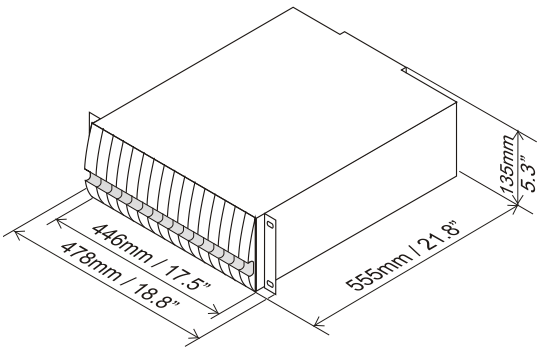
Necessary equipment:

- XT[2] 6U with XT-HDX connector on the back plane and MT5D_LNK board
- XT-HDX external RAID array

Important

An XT[2] server can not work simultaneously with an internal RAID array and an external RAID array (XT-HDX). When an XT[2] server is equipped with the XT-HDX external disk storage, the internal RAID is replaced by the MT5D_LNK board. This replacement has to be done by EVS staff.

XT-HDX dimensions



Installation and operation

Both the XT[2] server and the XT-HDX need to be switched off.

The XT-HDX expansion chassis must be located immediately above the chassis of the XT[2] server.

Connect the XT-HDX to the server **only with the external SCSI cable provided by EVS** (see picture).

Disks in the XT-HDX rack are hot-swappable. However, a disk can only be extracted from the rack when it has been stopped by the software application (disk led blinking slowly red with a 4-second cycle)

Power on the XT-HDX before powering on the XT[2] server.

Disk organisation

The XT-HDX can hold up to 15 disks organized in 3 RAIDs of 5 disks.

1.5 Bug Fixes up to 09.00.74

Please see the Release Notes in the Download Center of the Website (Support & Training page – Package 9) to determine if a previously reported bug has been fixed.