MMR 410 User Manual

HISTORY

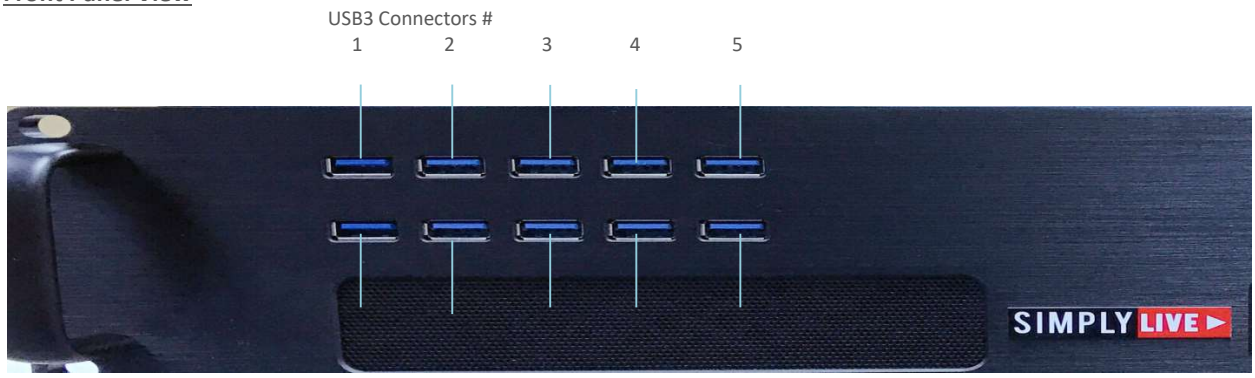
Date	Author	Version	Description
2016/01/22	Bernard Stas	1.0	Creation
2016/11/22	Jerry NG	1.1	Update document with MMR-410 v3.2.32
2016/11/24	Jerry NG	1.2	Update document with MMR-110 v3.2.33
2017/01/17	Jerry NG	1.2.1	Notes section added

TABLE OF CONTENT

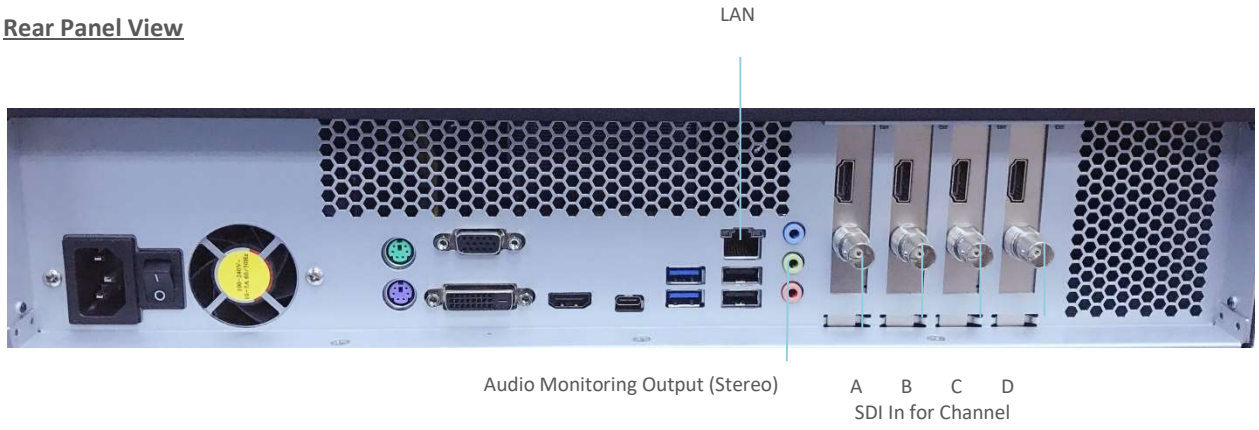
SPECIFICATIONS & HARDWARE DESCRIPTION

- Dimensions (HxWxD) : 90 x 485 x 330 mm / 3.54 x 19.09 x 12.99 inch - 19” rack mount (2U)
- Weight : 11.7 kg / 25.8 lbs
- Power : 100~240V DC (autoswitch), 230W
- Operating temperature : 10 to 40°C / 50 to 104°f
- Operating system : Professional Windows 8.1
- Video input formats (auto sense) : 1080i50, 1080i59.94, 720p50, 720p59.94, 720p60, 1080p23.98, 1080p24, 1080p25, 1080p30, 625i25 (PAL), 525i29.97 (NTSC)
- Audio : 8-channel embedded per SDI input
- Timecode : VITC per SDI input
- Multi-destination recording : up to 10 USB3 connections
- Recording format : H.264 at up to 10Mbps (1920x1080, 1280X720, 720X480) ; AAC LC audio codec - 192Kbps ; .mov wrapper

Front Panel View



Rear Panel View



SYSTEM STARTUP

Connect screen (VGA, HDMI or DVI), keyboard and mouse. Connect the corresponding SDI sources to inputs A, B, C and D. Connect a set of audio speakers or headphones to the audio monitoring output. Connect to your local network if needed. Connect the power cord to the mains connector and turn on the mains power switch..

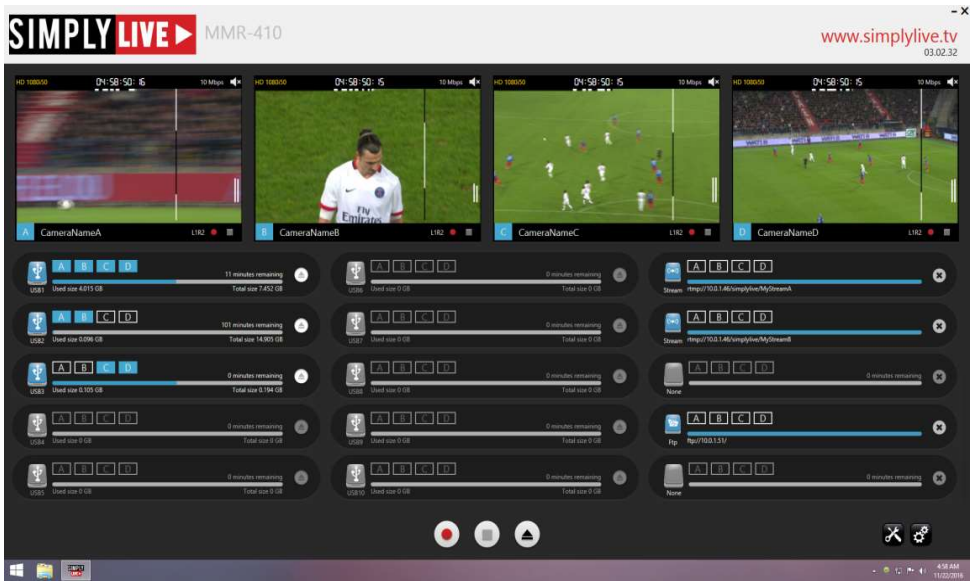
The MMR-410 will take approximately 45 seconds to complete its boot sequence. If you are connected to your local network and booting for the first time, adjust Windows network settings as required.

Once the boot sequence completed, click on the Simplylive icon in the left part of the taskbar to open the MMR-410 user interface.

User Interface Description

When starting the MMR-410 application, the main screen appears

.



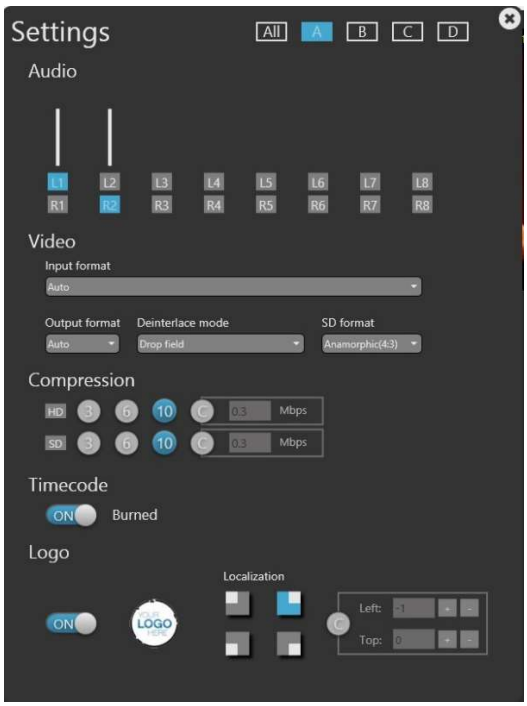
Monitoring of channels 1-4 + individual channel controls

Management of recording media

Global controls

Application Settings

Click on the icon in the lower right corner of the main screen to open the setup window



Note : any setting change is immediately applied and saved.

Select if current settings apply to all channels, or individually to channel A, B, C or D

Audio : select 2 mono audio tracks (from 8 embedded mono audio tracks) to record for the selected channels. VU meters show in real time the incoming audio of each track. In the current example, the left audio track recorded for channel D is the first embedded audio track and the right audio track recorded for channel D is the second embedded audio track.

Video / Input Format : define the format of the incoming video signal for the selected input channel(s).

Auto [Default]
HD 1080i50
HD 1080i59.94
HD 720p50
HD 720p59.94
SD 625i50 (PAL)
SD 525i59.94 (NTSC)
HD 1080i60
HD 1080p30
HD 1080p29.97
HD 1080p25
HD 1080p24
HD 1080p23.98
HD 720p60

Note : Auto detection of video format : the video format is automatically detected on each individual channel when a valid video signal is applied before the recording is started on this channel. If there is no valid video signal present on an input channel and the record is started, a correct video recording can not be guaranteed if a valid video signal is applied later.

Video / Output Format : define the format of the video in the recorded file for the selected input channel(s)
Auto
720p/SD

Video / Deinterlace Mode : select the desired deinterlacing method
Merge : both fields of the interlaced source signal are merged to create a single progressive frame.
Drop : every other field of the interlaced source signal is dropped, the other field being resized to create a single progressive frame.
Bob : every field of the interlaced source signal is resized to create a single progressive frame.

Note : Bob mode is only available for 720p or SD output formats

Video / SD Format : select the desired resizing mode for SD source signals
Anamorphic : keep the orginal SD resolution (720x576 PAL or 720x488 NTSC) in the output file.
16:9 Square Pixels : rhe output file resolution to 720x404 pixels to create a 16:9 aspect ratio on computer monitors.

The following tables show the resulting file format (resolution, frequency, deinterlace mode) depending on the input signal, output format, deinterlace mode and SD format. The first table is valid when Output Format is set to Auto, the second table is valid when Output Format is set to 720p/SD.

Input Format						
Output Format	Output = Auto					
Deinterlace Mode	Merge		Drop			
HD 1080i50	1080p25, Merge		1080p25, Drop			
HD 1080i59.94	1080p29.97, Merge		1080p29.97, Drop			
HD 1080i60	1080p30, Merge		1080p30, Drop			
HD 1080p30	1080p30					
HD 1080p29.97	1080p29.97					
HD 1080p25	1080p25					
HD 1080p24	1080p24					
HD 1080p23.98	1080p23.98					
HD 720p50	720p50					
HD 720p59.94	720p59.94					
HD 720p60	720p60					
SD Format	SD = Anamorphic			SD = 16:9 Sq Pix		
Deinterlace Mode	Merge	Drop	Bob	Merge	Drop	Bob
SD 625i50	625p25, Merge	625p25, Drop	625p50, Bob	404p25, Merge	404p25, Drop	404p50, Bob
SD 525i59.94	525p29.97, Merge	525p29.97, Drop	525p59.94, Bob	404p29.97, Merge	404p29.97, Drop	404p59.94, Bob

Input Format						
Output Format	Output = 720p/SD					
Deinterlace Mode	Merge		Drop		Bob	
HD 1080i50	720p25, Merge		720p50, Drop		720p50, Bob	
HD 1080i59.94	720p29.97, Merge		720p59.94, Drop		720p59.94, Bob	
HD 1080i60	720p30, Merge		720p60, Drop		720p60, Bob	
HD 1080p30	720p30					
HD 1080p29.97	720p29.97					
HD 1080p25	720p25					
HD 1080p24	720p24					
HD 1080p23.98	720p23.98					
HD 720p50	720p50					
HD 720p59.94	720p59.94					
HD 720p60	720p60					
SD Format	SD = Anamorphic			SD = 16:9 Sq Pix		
Deinterlace Mode	Merge	Drop	Bob	Merge	Drop	Bob
SD 625i50	625p25, Merge	625p25, Drop	625p50, Bob	404p25, Merge	404p25, Drop	404p50, Bob
SD 525i59.94	525p29.97, Merge	525p29.97, Drop	525p59.94, Bob	404p29.97, Merge	404p29.97, Drop	404p59.94, Bob

Compression : select the desired bitrate (3, 6 or 10Mbps, or Custom value) for the selected channel(s) in HD and in SD. Authorized bitrate range is 0.1 to 10 bps in HD and in SD. The following table shows the file size for 1 hour of recording based on the selected bitrate.

Bitrate	3Mbps	6Mbps	10Mbps
File size (1 hour)	**1.35GB**	**2.7GB**	**4.5GB**

Timecode : enable this option if you want timecode to be burned in the video in the recorded file for the selected channel(s). Timecode reference is the VITC of the incoming SDI signal if present, or PC clock otherwise.

Logo : enable this option if you want a logo to be burned in the video in the recorded file for the selected channel(s). Click on the Logo icon to open a browser and select the graphic file to use for the logo. Select the position of the logo : upper left corner, upper right corner, lower left corner, lower right corner or Custom (enter horizontal and vertical offset in pixels from the top left corner)

Specifications of the graphic files used as logos with MMR-410 : PNG 32bits PNGA. The maximum size displayed is 400x300. If the logo size is bigger, it will be truncated to 400x300 automatically.

Defining recording media files

The central part of the main screen of the MMR-410 application allows to define what content should be recorded where.

The left hand column corresponds to USB connectors 1 to 5 on the front panel of the MMR-410 ; the central column to USB connectors 6 to 10 ; the right hand column allows to define 5 local network destinations.

Note : for each channel, the master record file, stored on the on-board hard drives (E:\), remains after the event ensuring that there is always an additional secure copy available even after the content has been transferred on to various destinations or taken away on USB drives. This master file also acts as a buffer in case the record to one of the USB destinations is slower than real time.

Note : the maximum record duration for 1 file is 24h.

Configuration of USB destinations

The icon of a USB destination will light blue if a USB storage is detected on the corresponding USB connector, and the used and total capacity (in GB) will show next to it. An indication of the remaining capacity in minutes (based on the bitrate selected in the Settings window) will also appear. Clicking of the USB destination icon will open a file browser of the corresponding USB storage.

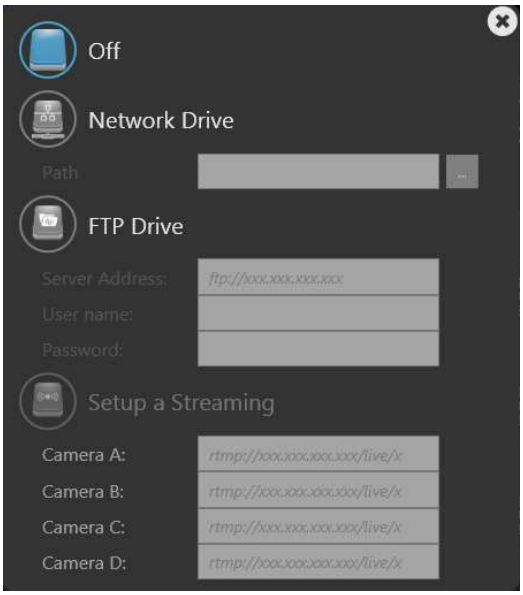
Click on A, B, C and/or D to select the channels you want to record on the corresponding USB destination.

Eject button : click on this button to eject the corresponding USB storage. Note that this button is disabled if a record is currently active on this storage.

Tip : if you mouse over the icon of a USB destination , a popup will appear to indicate the corresponding drive letter.

Configuration of Network destinations

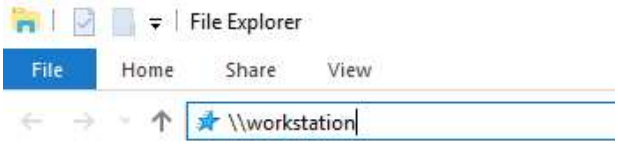
Click on the Drive icon in the right-hand side column of the user interface to open the network configuration window. The blue icon shows the current active mode for the selected network destination (Off, Network Drive, FTP Drive).



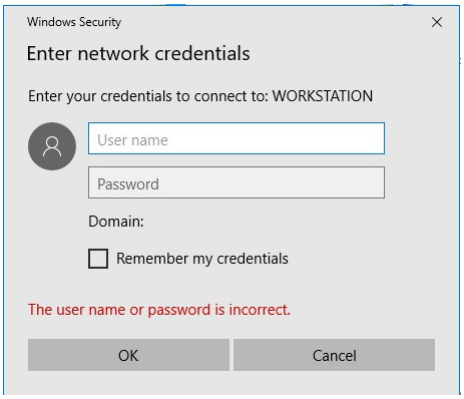
To define a Network Drive :

Click on the Network Drive icon  ; then enter the mapped drive letter or click on the  icon to open a Windows browser and select the network destination to an existing folder or create a new folder.

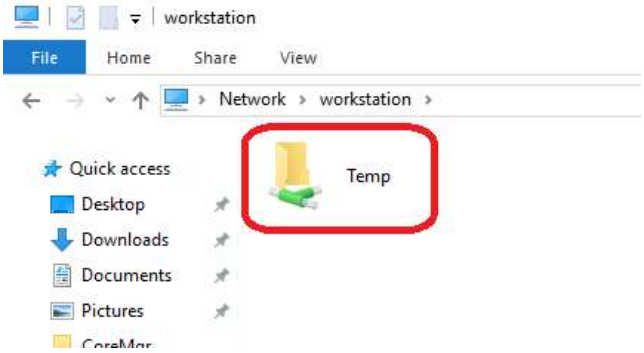
To map a drive, start Windows explorer and type the UNC path on the address bar. You must map the drive in order to have this function enabled.



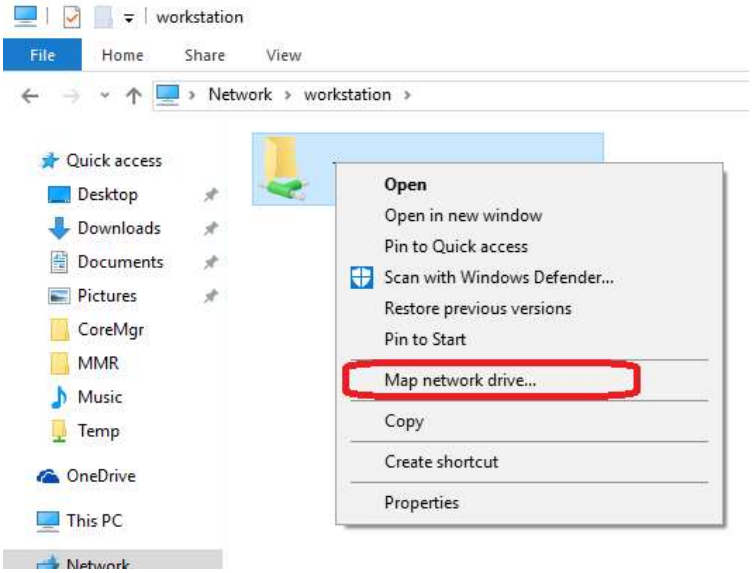
Enter the credeintal for accessing to the network drive.



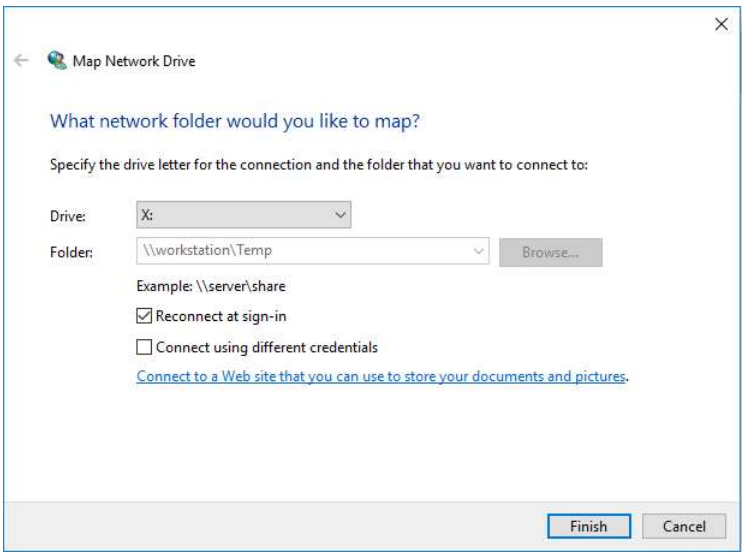
Right click on the shared folder.



Select “map network drive”



Press OK to process.



To define a FTP Drive :

Click on the FTP Drive icon  ; then enter the FTP server address, the user name and the password in the corresponding fields

To define a stream :

Click on the setup a stream icon  ; then enter the streaming server address.

You can enter the parameters for Network Drive, FTP drive and streaming for one network destination, and easily toggle between Off, Network Drive, FTP drive and Live streaming mode by clicking on the corresponding icon ; the blue icon shows the current active mode.

Click on A, B, C and/or D to select the channels you want to record on the corresponding Network destination.

Remove button : click on this button to remove the corresponding Network destination. Note that this button is disabled if a record is currently active on this storage.

Defining channel names

A name can be assigned to each individual channel. To define the name of a channel, click on its name in the corresponding video window.

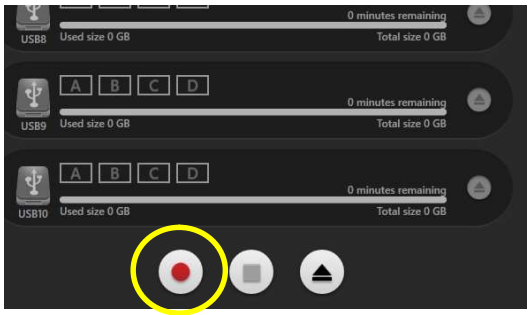
This name will display on the video monitoring window of the channel, and will also be used to generate file names. When a record is started, the corresponding file name will be created as YYYYMMDD_HHMMSS_ChannelName.mov, where YYYY is the year, MM the month, DD the day, HH the hour, MM the minute, SS the second, when the record was started. Example of file name : 20150903_190123_Camera1.mov.

Starting and stopping recordings

Once USB and local network destinations have been defined, recordings can be started individually or globally.

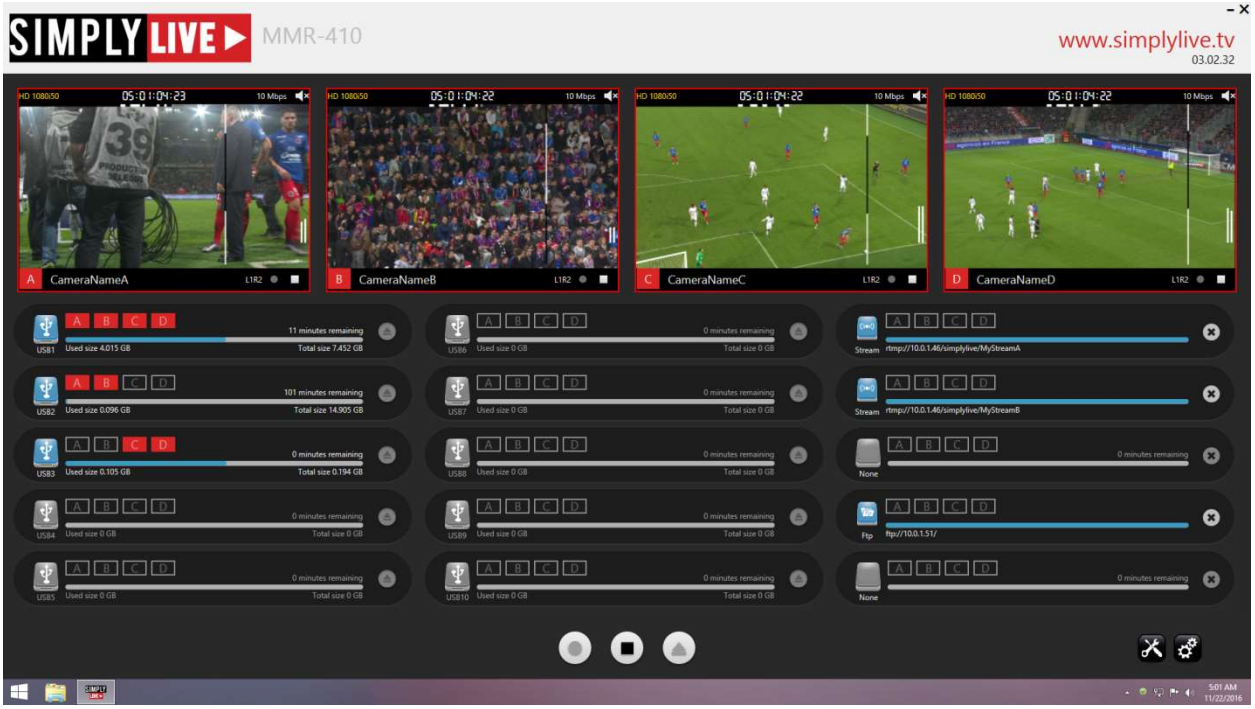
To start recording a specific channel on all defined media destinations, click on the Record button in the corresponding video window.

To start recording all channels at once on all defined media destinations, click on the global Record button in the lower part of the main window

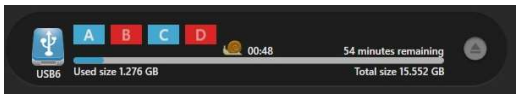


When one or multiple records are running, a red box appears around the video monitoring of the corresponding video channels, and the letters of these channels also turn red next to each media destination.

Note : the global REC button is only active when no record is running. If one or several records are already started, the global REC button is disabled and recorders must be started individually.



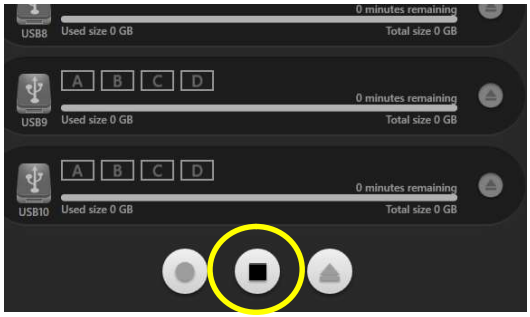
If the recording on a specific destination is running behind real time, a snail icon will show next to this destination, showing how much behind real time the record is on this specific media. The recording will catch up with real time as soon as possible based on the bandwidth available on the destination media. In the example below, the record is 48 sec behind real time on USB #6 for channels B and D.



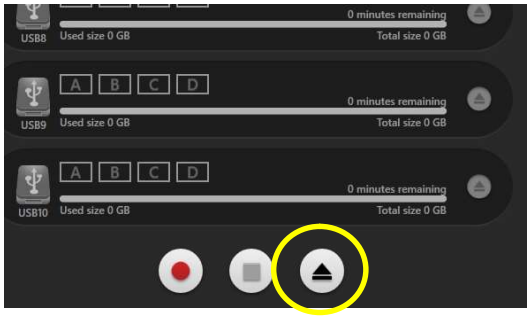
Note : Closing the MMR-410 user interface will not stop ongoing records ! If you close and re-open the MMR-410 user interface, it will pick up the current status of each channel without altering it.

To stop recording a specific channel, use the individual Stop button in the video monitoring window of a specific channel.

To stop recording all channels at once, use the global Stop button in the lower part of the main window.



To eject all USB media at once, use the global Eject button in the lower part of the main window. USB media with active recordings will not be ejected.



Do not remove a USB storage that has not been properly ejected (using either the individual or the global Eject button), since files could still be recording on this destination !

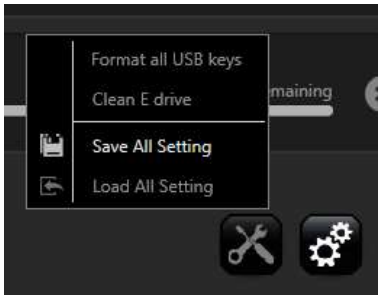
Video Monitoring Windows

The upper part of the main screen of the MMR-410 application features 4 monitoring windows, one for each input channel.

When a channel is recording, a red box will appear around its video monitoring window and the channel letter will turn red, as shown below. Individual REC button will turn gray, and individual STOP button will turn white.

Tools Menu

Click on the Tools icon in the lower right corner (next to the Settings icon) to open the Tools menu.



Format all USB keys : this option will format all connected USB keys in their original file system (i.e. a USB key currently in FAT32 will be formatted in FAT32, etc.)

Note : when using FAT32-formatted USB keys, the maximum file size is limited to 4GB. A warning will be displayed in the user-interface as shown in the screenshot below. To avoid this limitation, we recommend using exFAT-formatted USB keys (or NTFS-formatted USB keys if no OS X compatibility is required).

Clean E drive : this option will clean all files on the E: drive, i.e. the internal drive dedicated to video & audio recording

Save All Settings : this option allows the user to save all current settings under in a file with a user-defined file name

Load All Settings : this option allows the user to recall user settings from a previously saved setting file

REST API

A REST API is available for control from 3rd party or custom application. Please contact our support team if you want to receive the documentation specific to this API.

NOTES

iTunes application cannot be installed on the workstation..

FAQ

1. What is the video format supported by the MMR-410 ?
   HD : 1080 50/59.97/60i, 720 50/59.97/60p
   SD : 525i, 625i
   The MMR will auto-detect the format automatically. It may take up to 3 sec to detect the change of format on the fly.

2. In what resolution is the MMR-410 writing the video to the file ? Is it able to downscale the resolution ?
   1080i can be recorded in native 1080i or downscaled to 720 25/30p.
   720 50/60p is recorded in 720 25/30p resolution
   SD in SD resolution

3. Can I adjust the bit rate for each input ?
   Yes, each input is completely independent and can be set to a different bitrate individually. The bit rate is selectable from 100 Kbps to 10 Mbps.

4. What type of audio and how many audio tracks is the MMR-410 recording ?
   Each input supports up to 8 channels of embedded uncompressed audio and the MMR-410 records 2 user selectable audio channels per video input.

5. What is the audio format in the recorded file ?
   Aac 192 Kbps per audio channel.

6. What is the wrapper supported for the recorded files ?
   .mov.

7. Can I record all inputs on each USB keys?
   Yes, each input can be recorded simultaneously on each USB drive.

8. Can the MMR-410 record without USB key or drive connected to it?
   Yes, The MMR-410 is a disk recorder. It records everything to local disk before copying the content to USB drive or network destinations. Just press start and the inputs(s) will be recorded onto the local hard drive under E:\ even if you don't have a USB drive connected.

9. Can the MMR-410 copy on more than 10 USB keys or drives?
   Yes. As the content is recorded onto the local HDD under D:\mov, you can make extra copies on additional USB keys once the record on the 10 USB keys is done.

10. What happen if I remove a USB key during the record, does it stops the record?
    No. The MMR-410 records onto its own HDD first before transferring it to the USB drive.

11. If a USB key is full does it stop the record?
    No, the record process is independent from the copy to the USB keys. Therefore, the status of a USB key does not affect the record of the inputs. The record will continue on the local HDD and the USB drive will stay full.

12. Can I monitor the audio for each input?
    Yes, just select the listening icon of one of a recorder and you will have a stereo out of the stereo monitoring connector at the back of the system.

13. What logo format is the MMR-410 supporting?
    The format supported is PNG 32bits PNGA. The maximum size displayed is 400x300. If the logo size is bigger, it will be truncated to 400x300 automatically.

14. How many characters can a file name have?
    256

15. What is the maximum duration of a record?
    The system is designed to record a file for a maximum duration of 24h.

16. What if USB key can be detected by Windows but not seen in MMR application?
    This is because there is no serial number on the USB key and we have a tool to verify it.