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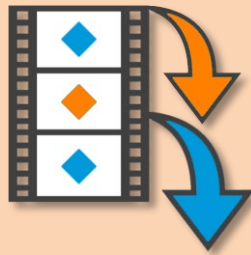
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VideoMipExport

MIP Application for
Video Exports

Rev. 4.0.0.0

User Guide

Revision Table

Rev.	Date	Changes
1.0.0.0	10/02/2020	First Public Issue of Application
2.0.0.0	13/06/2020	Added movie hourly fragmentation and Export Period time limits
3.0.0.0	10/09/2020	Added XProtect Export format, changed name from VideoMkvExport to VideoMipExport
4.0.0.0	05/08/2021	Changed Color Style from Light Blue to Orange Added various features to improve usability Added second language (English) selectable from the menu

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1 Copyright and Limitation of Liability

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Limitation of Liability

This document is intended solely for general information purposes of the Application in question and its application to the Milestone XProtect Platform, of which at least basic knowledge is required.

Any risk deriving from the use of this information and/or the Application itself is the responsibility of the recipient who will in no case be able to claim against the Manufacturer.

All references to plants, people and organizations used in the document are fictitious and any resemblance to real situations is purely coincidental and unintended.

SecurSys reserves the right to make changes to the Application without prior notice.

2 Introduction

This Application was developed in order to automate and make it easier to export recordings of the XProtect VMS Platform, both in native XProtect format and in standard MKV format.

During export in MKV format the recorded videos are converted from the native and proprietary format of the Platform to the native format of the cameras (M-JPG, H.264/265 for video), using a MKV container (MatrosKa Video), so that they can be reproduced using a normal player available on the market. The export also manages one or more audio channels, if they are present in the original movies.

The application was developed, by means of the XProtect Platform SDK, using the technique defined "Component Integration" which, unlike the "Plugin" technique, does not produce an extension integrated into the platform, but a normal Windows Application which, using the platform libraries, accesses it to carry out its tasks; this is because the main purpose of the application is to perform the exports automatically (scheduled), without the presence of any Operator, which would be indispensable for accessing one of the clients (Smart and/or Management), in the case of it was a Plugin.

The application has a double mode of operation, which can be defined:

- Manned Mode
- Unmanned Mode

In the first case, the application allows you to export video, in both formats, with suggested parameters coinciding with those of the scheduled exports, but all of which can be modified at will, and without altering the settings and historical data of the scheduled exports.

The Application also allows you to configure all the parameters used by the scheduled mode, to access the configuration section, the presence of an Operator who has the Platform Administration privileges is required in order to guarantee access to all cameras and devices. connected (microphones, speakers, etc.), to configure the list of cameras and all the parameters necessary for unattended export.

In Unattended Mode, the Application behaves like a Windows Service, except that instead of being always resident in memory as a real Service, it is periodically activated through the Task Scheduler of the Operating System. In this mode it reads all the data configured with the previous mode (cameras, time intervals, destination folder, etc.), and autonomously carries out the foreseen exports.

The Application implements, in addition to video exports, some specific features aimed at ensuring the completeness of both the recorded and exported information, as well as allowing easier management of the produced videos; in particular:

- Synchronous export, only with the MKV format⁽¹⁾, of any Bookmarks present in the export range associated with the selected cameras; all information relating to each bookmark is exported through XML files relating to the export time interval
- The Application records the progress of the scheduled export so that, in the event of an interruption, the next time it resumes from where it left off
- Only for the MKV format it is possible to define a parameter, expressed in hours, which represents the maximum duration of the videos to ensure that each of them is not very large⁽²⁾

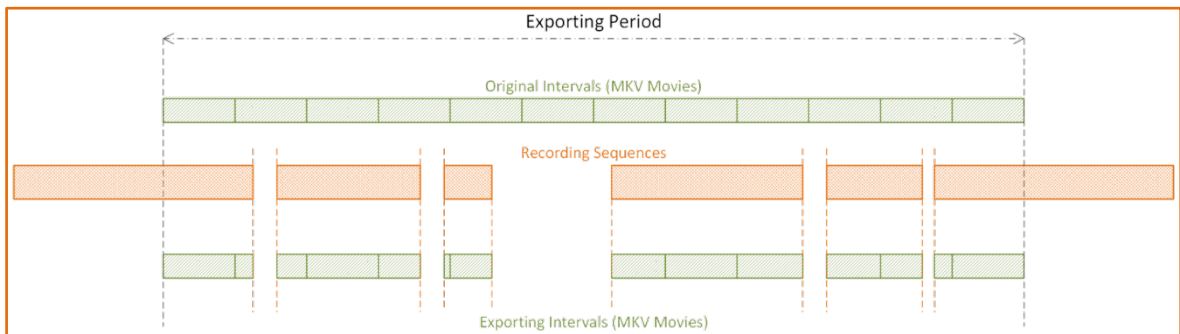
Example: suppose you have defined a schedule that occurs every night at 02:00, if there are no interruptions, each schedule will export the last 24 hours of recordings

⁽¹⁾ In XProtect format Bookmarks are always included with recordings.

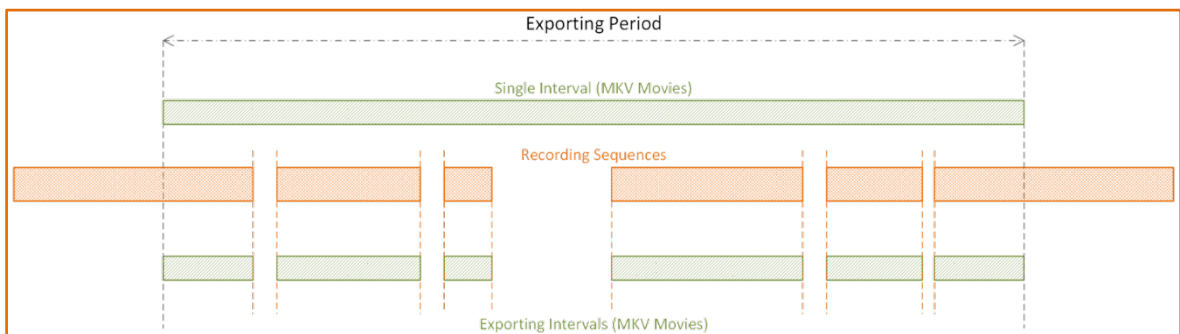
⁽²⁾ In the XProtect format the recordings are fragmented into blocks of one hour but in a transparent way for the User.

for each camera, if the source camera is configured in H.264 with a bitrate of the order of 2 Mbps each movie will have a size of just under 24 GB, not really easy to manage (copy, delivery, etc.); on the contrary, if you set this parameter to 1 hour, 24 videos of just under 1 GB each will be produced.

- Again only for the MKV format, the intervals deriving from the previous setting are conditioned by the presence or absence of recordings, by calculating the recording sequences of the given camera in the export period; below is a graphic example



WARNING – Even if the hourly fragmentation of the MKV file is not required to produce, the export result can still be fragmented in the case of registration holes; below is an example from the same previous period.



All this to prevent arising of two specific problems:

- If you request the export of a period in which the first frames are missing, the server generates the "No video or audio in selected time period" error and does not export the entire period, resulting in the loss of part of the recordings
- If, on the other hand, the missing parts are beyond the beginning of the period, the server exports the entire period of the requested duration, but the missing piece (or pieces) is composed of the last recorded frame, which repeats for the entire missing recording duration, and with the time slider advancing abnormally.

Given the environment in which the Application operates, it records any operation performed independently and/or by the Operators; this is done through:

- Writing of the activities on the Server Logs of the XProtect Platform, in particular in the register defined Audit Log
- Writing of the activities on a specific Windows registry, called VideoMipExportLogRegister, through which it is easy to check, in addition to what has been done, if the schedules are working correctly
- Writing detailed information on a specific Log file (VideoMipExport.log), including those of a diagnostic nature. The activation or not of this feature is linked to a specific configuration parameter


3 Export Procedure Specifications

Regardless of whether the Application is run in Supervised Mode or not, following the choice of Parameters, which may differ between the two modes, the export procedure determines the time interval for each camera with the following criteria:

- The end of the interval coincides with the Date/Time of the Application start⁽³⁾
 - In Unattended Mode this coincides with the Date/Time of the scheduling
 - In Manned Mode it can be changed at will
- The beginning of the Export Interval:
 - In Unattended Mode it coincides with the second following the last export performed (Date/Time saved on file). In the case of normal operation, for example a scheduling every 24 hours, the start date and time will therefore be 24 hours before the end date; if the scheduling has been stopped for a certain number of days when it will return to work, beyond the last 24 hours, the Procedure will also export the days in which it was not active⁽⁴⁾

Only at the first scheduling, when the previous scheduling does not yet exist, does it coincide with the Period Start Date/Time, if specified, or with the 24 hours prior to the Scheduling Start Date/Time
 - In Manned Mode, the beginning of the suggested interval is that of the last schedule, which can always be modified by the Operator

Once the export interval has been established, the procedure, in the case of MKV format, performs the following steps for each selected camera:

- Set up the MIP video export library
 - *(if at least one audio channel is associated with the camera)* Enables the previous library to export audio as well
 - If necessary, subdivide the Time Interval into subsets of the configured duration (e.g. 1 hour)
 - It carries out as many audio/video exports as there are temporal subsets (at the end of each export it saves the Date/Time of the last interval on file)
-  **WARNING:** if no subdivision of the time interval is made and the procedure has been stopped for a few days, the export, recovering the days of downtime, can produce a file of considerable size (on average just over 4 days is 100 GB); it is therefore recommended to use this feature, even when it is not of immediate interest, by setting the parameter, for example, to 24 hours, which will represent the maximum time limit for each exported video

⁽³⁾ Obviously beyond this Date/Time there are still no recordings.

⁽⁴⁾ Unless you reset all the time parameters, which is allowed by the Configuration section.

- Search and, if present, export the data of the Bookmarks associated with the camera in the entire export range (and save the Date/Time)

If, on the other hand, the export mode chosen is the native XProtect one, the steps are as follows:

- Set up the video export MIP library for the required camera group
- *(if at least one audio channel is associated with selected cameras)* Enables the previous library to export audio as well
- Exports, with the set parameters, the video clips from the cameras to the destination folder; any bookmarks are included in the export

4 Application Functionality

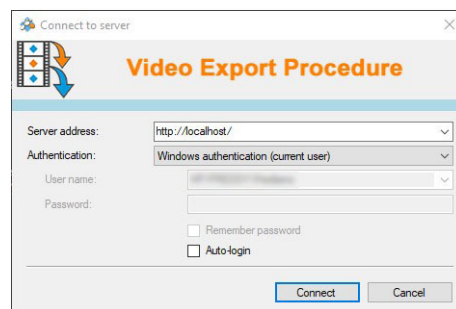
As indicated above, the Application works both in Manned and Unmanned Mode.

In the Unmanned Mode, the Application has no interaction with the User and/or the desktop, it executes the Export Procedure in the manner described above until all the cameras are completed, then it stops returning a numeric code that represents the outcome of the job.

4.1 Manned Mode

To start the application in this mode, simply start it without any parameters.

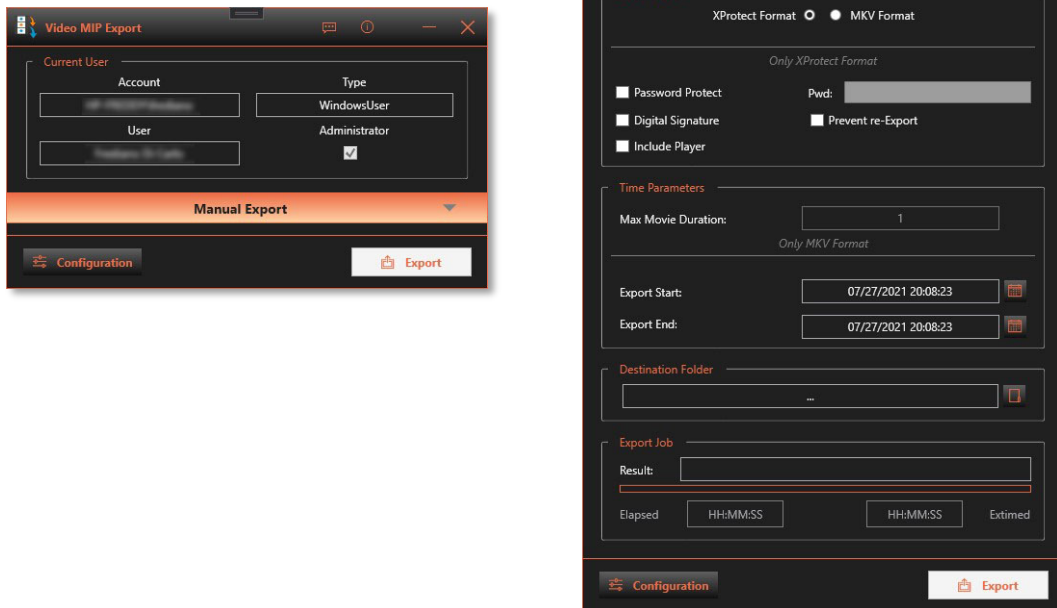
As a first step, the XProtect Platform Login window will appear, in which the User must enter the access parameters; the parameters are the same as those required by the login windows of the Smart Client and the Management Client.



WARNING – Please note that in order to access all the features you must belong to the Role of Administrators of the XProtect Platform, to ensure that you have full access to all the configured cameras, and related accessory devices.

For access in Unmanned Mode, it is not necessary to use administrative credentials, as long as the User Profile allows access to all devices and features required by the Application.

Once logged in to the Platform, the Application starts showing the following screens.



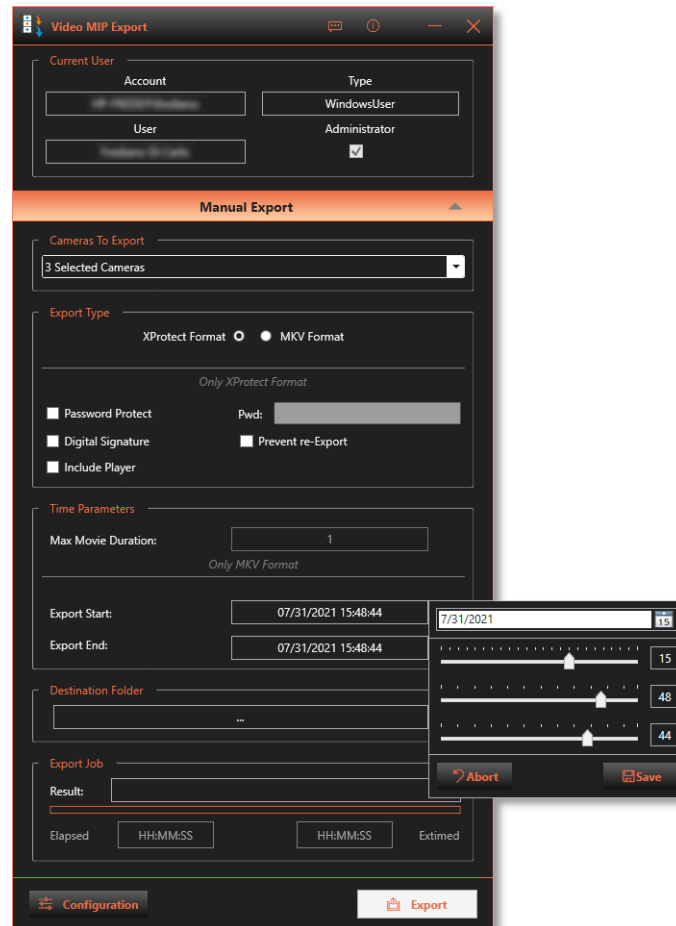
By default, when opened, the area with the manual export parameters is hidden to emphasize that the main purpose of the application is the scheduled export and not the manual one, which can also be done with the Smart Client.

Just click on the orange bar to open/close the export area.

All the parameters reported in the export area (cameras, type of export, time parameters and destination) have the same values as those of the periodic schedules, but each of them can be varied according to your needs without causing any changes to the normal scheduled activities; the parameters of the scheduled activities are saved on file while those of this window are valid only for the specific execution, then they are discarded.

The data relating to Export Progress/Outcome are evaluated during the export procedure performed by the Operator via the "Export" button. During this phase, everything is inhibited, except for the button to stop exports in progress.

Whenever time intervals need to be changed there is a Date/Time Picker control as shown below.



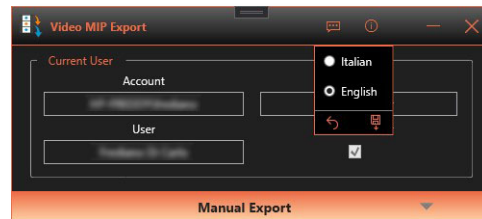
The Encryption, Password (Encryption), Electronic Signature, Re-Export Block and Include Player parameters are accessible and used exclusively with the XProtect Format. On the other hand, the Max Movie Duration is only valid for MKV format, since in XProtect mode the recordings are always fragmented into one-hour stubs.



WARNING – If you export in XProtect mode to a folder where a previous export has already been carried out, the procedure fails if the aforementioned parameters have been changed compared to the previous time, this is because it is not possible to manage registrations that have part of the Electronic Signature and/or Encryption and partly not. On the contrary, if the exports are made using the same parameters, the Milestone Player will consider the contents of the folder as the only recording.

4.1.1 Application Language

In the title bar of the application there is a specific menu for selecting the language to be used, to be chosen between Italian and English.



The selected language will be used the next time the Application is started.

4.1.2 Application Information

To the right of the language menu is the one for Application Information, which illustrates its parameters.



4.1.3 Configuring Export Parameters

To access the Parameter Configuration section, use the button at the bottom left, having the administration privileges of the XProtect Platform (as in the example in the image), you can access the screens of the following blocks:

- Cameras
- Export Type
- Export Parameters
- Credentials

4.1.3.1 Cameras

The Cameras section allows both to select the cameras to be exported from the list of those available on the platform⁽⁵⁾, and to know the recording details on the Recording Server.

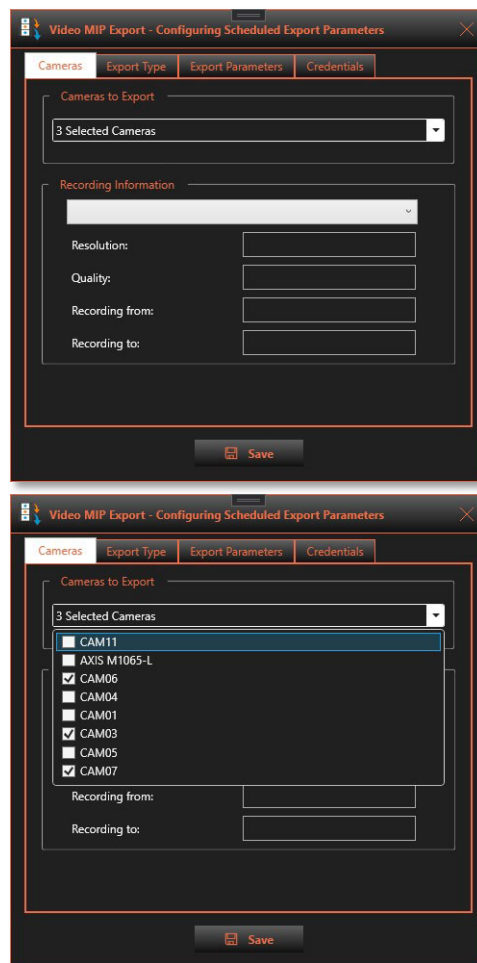
The choice of cameras to export is done by selecting the checkboxes in the drop-down list at the top, as shown below.

These selections, if saved, will later be read by the procedure in unattended mode to build the export list.

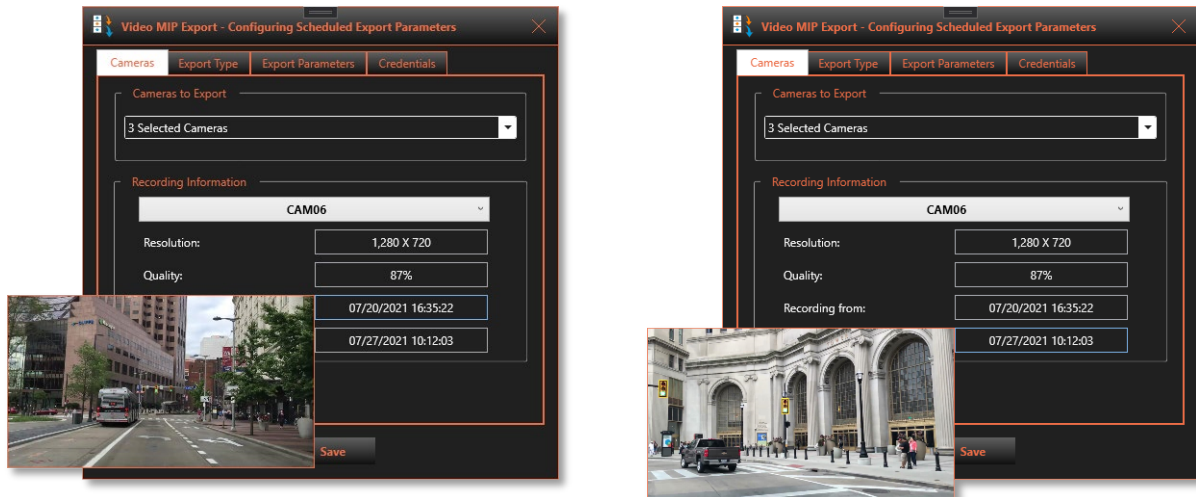
Note that keeping the left shift key pressed when selecting/deselecting a box, the same operation is performed on all boxes at the same time.

If you want information on the Recordings of each camera, use the selector of the Record Information zone in a similar way to the previous one, but where only one selection at a time is possible.

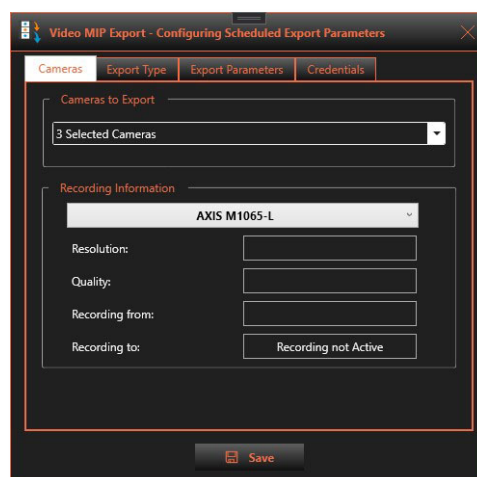
Once a camera has been selected, the Application evaluates the information boxes, of which the last 2 represent the registration details present on the Platform. By moving the cursor over each of the two boxes, the first and last frame of the recording appear.



⁽⁵⁾ By available cameras we mean those cameras that, in addition to being configured, are enabled and their recording is enabled. For non-enabled cameras, it is the same platform that prevents them from appearing in the selection lists, they are accessible only with the Management Client which has, among the various managed parameters, also the disabling/enabling one. For cameras not subject to registration, even if they are included in the general list, the Application itself prevents them from being included in the export list, to avoid the occurrence of an error that rise when requesting the export of an unknown camera to the Recording Server.



If the selected camera does not have recordings, the information boxes will have the appearance shown in the following figure and this camera cannot be included in the video export list.

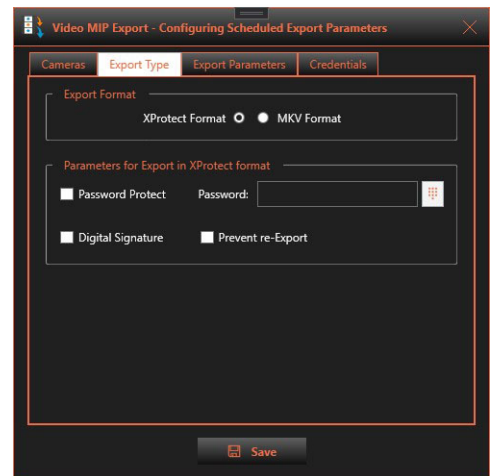


4.1.3.2 Export Type

The "Export Type" section allows you to select which type of Export you want to carry out: XProtect or MKV format.

If you choose XProtect mode you can specify the additional parameters shown opposite. All parameters are optional, if the Encryption of Recordings is enabled, a password must be specified which must be at least 8 characters long. The password is never shown in clear text and the saved version is encrypted.

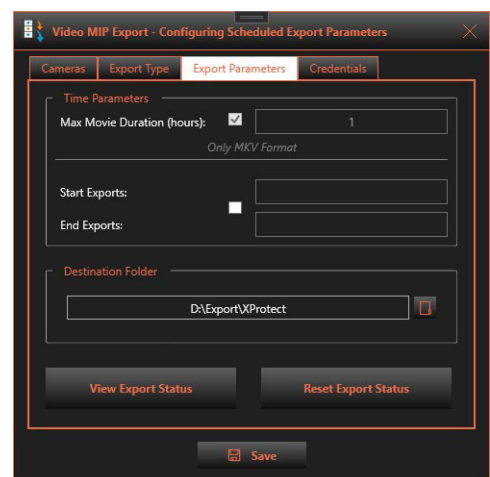
Encryption prevents exported videos from being displayed if you do not know the relevant password. The Electronic Signature allows you to check if the recordings have been altered, the Re-Export Block parameter finally prevents you from being able to re-export the already exported recordings.



If the XProtect format has been chosen, the Max Duration of Movies parameter, illustrated in the following paragraph, will be inhibited, as it is not allowed on the native format that has its own organization.

4.1.3.3 Export Parameters

The "Export Parameters" section allows both to define where the export is to be performed, the so-called Destination Folder or Root, and to set some time parameters. The first represents the maximum length of the movies, a parameter shown above and valid only for exporting in MKV format. The other two Date/Time values represent the extremes of the Export Period; these values may not be set, in which case the exports will start with the first scheduled scheduling and will go on until the stop or new settings.



Exporting Period

It is worth explaining in detail the behavior of the Application in relation to what is specified in the Start/End Export Period Parameters.

A) Limits not set (unchecked box)

Practically this setting is equivalent to the Archiving of the Platform, with the ability to specify the cameras involved. The export begins with the first schedule and continues indefinitely



WARNING – When carrying out the scheduled export procedure for the first time, or after deleting the parameters that take into account the progress of exports, the program assumes as the beginning of the interval the 24 hours prior to the start of the procedure. If there are older registrations that you want to include in the export, it is therefore essential to indicate what the start date should be.

Schedules subsequent to the first assume as export start date/time the second following the conclusion of the previous one, so if, for example, 2 exports are scheduled per day, the duration of the videos will be 12 hours, 24 for one schedule per day, and so on. If the schedules are interrupted for any reason, the next time the duration will take into account the period in which the Application has not performed exports.

If you select the Export Period (check the box), but the start and end date / time are not set (whose boxes can be deleted), the Application behaves exactly as described above.

B) Start Exports set (checked box)

This option is useful when you know the Date/Time in which the Exports must start, which obviously must be after the configuration one.

It is therefore possible to schedule the launch of the Application which in any case will not carry out any export until the set Date/Time is reached.

Unlike the previous case, the actual date / time of the start of exports will be that indicated and not the 24 hours prior to the start of the Application (used only when the start is not filled).

C) End Exports set (checked box)

This option is useful when you know the Date/Time in which the Exports must end, which obviously, also in this case, must be subsequent to the configuration one.

In this case, of course, the duration of the exported videos will depend on the set End Date/Time and not, as during the export period, on the scheduling interval. For example, if the schedules take place at 02:00 and the end time is set at 12:00, the last export will produce 10-hour and not 24-hour movies as during the normal export cycle.

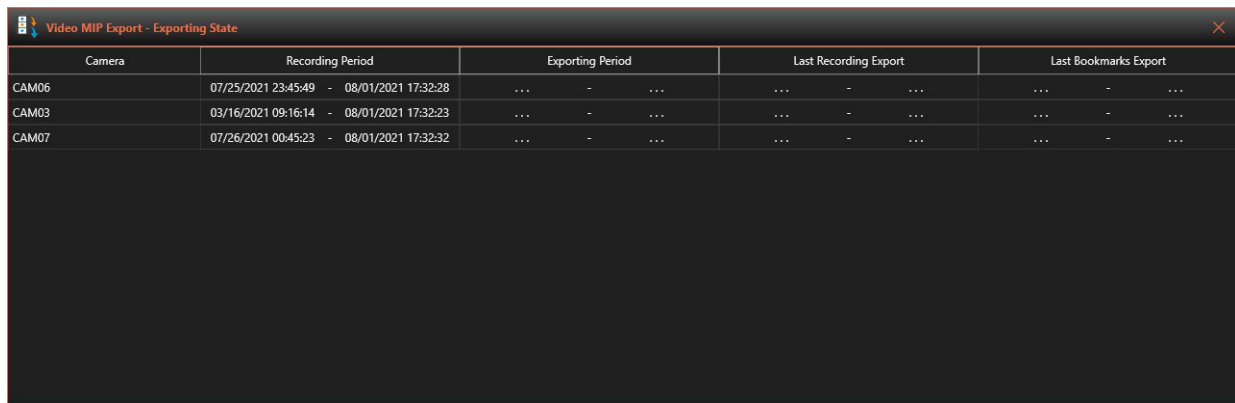
It is important to emphasize that this parameter can be set at any time since the value of all parameters is read by the application during startup. If the Date/Time indicated is prior to the next scheduling, the Application will not carry out any export since the period has ended.

D) Both Parameters set (checked box)

This case represents the sum of the two previous ones.

Continuing in this Tab there is the section to indicate the destination Folder for Exports; if it does not exist, it can be created during the configuration phase.

Finally, there are two buttons for viewing and resetting the progress of exports. The first allows you to view it, as illustrated below.



Camera	Recording Period	Exporting Period	Last Recording Export	Last Bookmarks Export
CAM06	07/25/2021 23:45:49 - 08/01/2021 17:32:28	... - - - ...
CAM03	03/16/2021 09:16:14 - 08/01/2021 17:32:23	... - - - ...
CAM07	07/26/2021 00:45:23 - 08/01/2021 17:32:32	... - - - ...

There are the following ranges for each of the cameras to be exported:

- Recordings on the Platform
- Export timestamps (if set)
- Last recordings export job made
- Last export of bookmarks done; for MKV format only, XProtect format are included in the recordings

In general, the extremes of the latest exports reported in the table coincide with each other, as long as all exports are concluded positively. On the contrary, if the scheduled procedure is interrupted after exporting some cameras, but not all, these intervals would be different from each other, and then realign themselves the next time.

To finish with this Tab, the button at the bottom right (Reset Exports Status), upon confirmation, resets the data of the exports made so that at the next scheduling the procedure does not take into account what was previously performed.

In practice, if the scheduled procedure is used in Campaigns, i.e. export periods dedicated to a given group of cameras, with the need to change the time period and / or the cameras several times, the procedure to be followed for the creation of a new Export Campaign is as follows:

1. Reset the Export Status
2. Select the Cameras involved in the Campaign (*if different from the previous Campaign*)
3. Set the Export Campaign Start Date/Time, if left free the procedure assumes the 24 hours prior to the first scheduling, therefore if exports must start before the last 24 hours (or even after) this parameter must be specified.

Note: once the first export has been made, the parameter value will no longer be used since the procedure will use the Date/Time of the last export performed as a reference.

4. If known, set the Campaign End Date/Time, after which the procedure will stop the Exports; this parameter is optional and can be entered at any time during the Campaign.

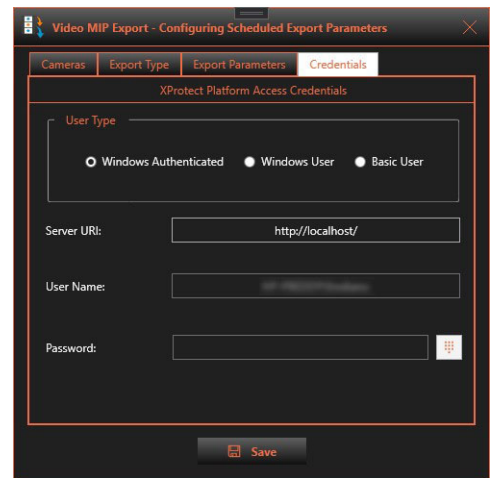
Note: the value of this parameter is checked at the beginning of each schedule, if entered after the actual Campaign End Date/Time it will simply prevent other exports from being made from that moment.

4.1.3.4 Credentials

The "Credentials" section allows you to enter the parameters necessary for access to the XProtect Platform used by the Application when started in Unattended Mode, or Scheduled.

First of all, it is necessary to specify what Type of User must access; the rules to be respected are the following:

- If the Type is Current User, that is, the one logged on to Windows, there is no need for the Account Parameters (User Name and Password); the Platform asks the Windows Active Directory who it is, given that this service has identified it; precisely for this reason, the User Name box is enhanced with the account returned by Windows
- If the Type is a Windows User, the Password (saved encrypted and never visible) and the account in the form WinHost\User must be indicated, where WinHost represents the name of the Windows host which is responsible for the authentication of the User
- If the Type and Basic User must indicate both the password and the User Name which must NOT be preceded by any Host name, since it is the Platform itself that authenticates this type of User.



WARNING – The specified Credentials must correspond to a User Profile that has authorization to access all the objects of the Platform used by the Application (cameras, bookmarks, etc.), otherwise the Application itself will behave abnormally.

Finally, there is the Address (URI) of the XProtect Server to which you want to connect; if the application runs on the same machine as the XProtect server, simply leave the default parameter, otherwise you must indicate the IP address or the machine name, always preceded by the suffix http://.

4.2 Unmanned Mode (Schedule)

To start the Application in Unattended Mode, i.e. to start a scheduling, you must use the "SilentMode" command line parameter (exactly as written):

VideoMIPExport SilentMode

The application, after the pre-start checks, reads the export parameters from the progress file, then reads the progress status, i.e. the data of the previous scheduling, and starts the operations from one second after the last one up to the scheduling, whatever the time interval, for each export performed (one in XProtect format, one or more for each camera in MKV format) at the end it records the details to be used in the next scheduling.

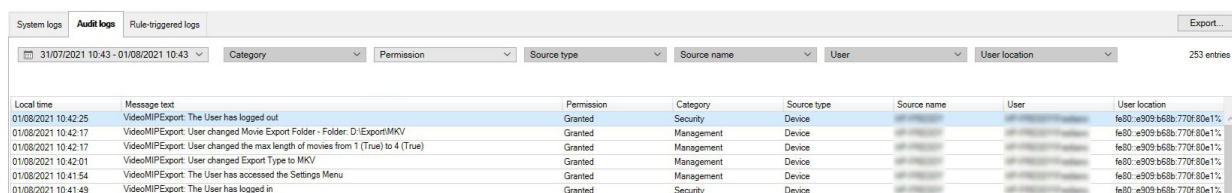
5 Additional Features

5.1 Activity Log and Diagnostic Information

As indicated above, any activity performed by Users, as well as those performed independently during scheduling are recorded by the Application. It also records diagnostic information in case of anomalies.

5.1.1 Activity Log

The Activity log is performed on the Platform log (Server Logs) called the "User Activity Log". To facilitate identification, each message begins with "VideoMIPExport: ", below is an example.



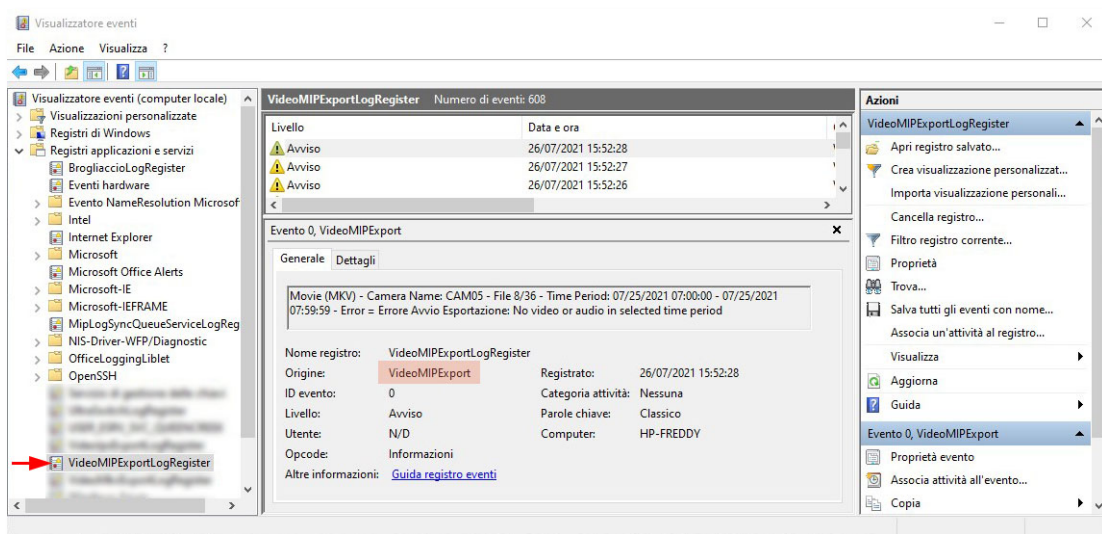
Local time	Message text	Permission	Category	Source type	Source name	User	User location
01/08/2021 10:42:25	VideoMIPExport: The User has logged out	Granted	Security	Device			fe80:e909:b68b:770f:80e1%1
01/08/2021 10:42:17	VideoMIPExport: User changed Movie Export Folder - Folder: D:\Export\MKV	Granted	Management	Device			fe80:e909:b68b:770f:80e1%1
01/08/2021 10:42:17	VideoMIPExport: User changed the max length of movies from 1 (True) to 4 (True)	Granted	Management	Device			fe80:e909:b68b:770f:80e1%1
01/08/2021 10:42:01	VideoMIPExport: User changed Export Type to MKV	Granted	Management	Device			fe80:e909:b68b:770f:80e1%1
01/08/2021 10:41:54	VideoMIPExport: The User has accessed the Settings Menu	Granted	Management	Device			fe80:e909:b68b:770f:80e1%1
01/08/2021 10:41:49	VideoMIPExport: The User has logged in	Granted	Security	Device			fe80:e909:b68b:770f:80e1%1

5.1.2 Diagnostic Information

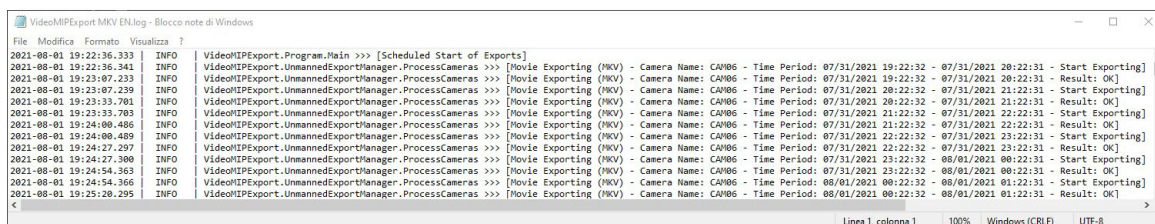
When the Application detects an anomaly, it saves the related information to allow Users to check, and if necessary correct, what is happening.

This diagnostic information can be saved in two different places:

1. In a dedicated Windows registry, called **VideoMIPExportLogRegister**, in compact form; below is an example



2. In a specific file, called **VideoMIPExport.log**, in more detail. In the same file, the Application also saves detailed information on the activities carried out during scheduling. However, writing to this file is conditioned by a specific parameter contained in the configuration file, so it can be disabled; below is an example.



```
File Modifica Formato Visualizza ?
2021-08-01 19:22:36.333 INFO VideoMIPExport.Program.Main >>> [Scheduled Start of Exports]
2021-08-01 19:22:36.341 INFO VideoMIPExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAV06 - Time Period: 07/31/2021 19:22:32 - 07/31/2021 20:22:31 - Start Exporting]
2021-08-01 19:23:07.233 INFO VideoMIPExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAV06 - Time Period: 07/31/2021 20:22:32 - 07/31/2021 21:22:31 - Start Exporting]
2021-08-01 19:23:07.239 INFO VideoMIPExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAV06 - Time Period: 07/31/2021 20:22:32 - 07/31/2021 21:22:31 - Result: OK]
2021-08-01 19:23:33.703 INFO VideoMIPExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAV06 - Time Period: 07/31/2021 21:22:32 - 07/31/2021 22:22:31 - Start Exporting]
2021-08-01 19:23:33.703 INFO VideoMIPExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAV06 - Time Period: 07/31/2021 21:22:32 - 07/31/2021 22:22:31 - Result: OK]
2021-08-01 19:24:00.480 INFO VideoMIPExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAV06 - Time Period: 07/31/2021 22:22:32 - 07/31/2021 23:22:31 - Start Exporting]
2021-08-01 19:24:00.489 INFO VideoMIPExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAV06 - Time Period: 07/31/2021 22:22:32 - 07/31/2021 23:22:31 - Result: OK]
2021-08-01 19:24:27.297 INFO VideoMIPExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAV06 - Time Period: 07/31/2021 23:22:32 - 08/01/2021 00:22:31 - Start Exporting]
2021-08-01 19:24:27.300 INFO VideoMIPExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAV06 - Time Period: 07/31/2021 23:22:32 - 08/01/2021 00:22:31 - Result: OK]
2021-08-01 19:24:54.353 INFO VideoMIPExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAV06 - Time Period: 08/01/2021 00:22:32 - 08/01/2021 01:22:31 - Start Exporting]
2021-08-01 19:24:54.366 INFO VideoMIPExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAV06 - Time Period: 08/01/2021 00:22:32 - 08/01/2021 01:22:31 - Result: OK]
2021-08-01 19:25:20.295 INFO VideoMIPExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAV06 - Time Period: 08/01/2021 01:22:32 - 08/01/2021 02:22:31 - Start Exporting]
```

5.2 Application License

The management of the license to use the application complies with the requirements of the Milestone Licensing Framework, therefore the specific license represents an extension of the base license of the Platform, defined as SLC (Software License Code).

The licensing scheme is based on the single Server.

5.2.1 Additional License Information

There are two particular aspects to highlight regarding the License:

A) Single Instance of the Application

To prevent a burdening of the Recording Server, which actually executes the Exports, the application during startup checks if there is already an active instance on the computer, in which case it signals the situation and stops processing.

This regardless of the number of Licenses you have; even when there are more than one, the mechanism prevents the application from running.

B) Multiple Schedules

In some cases it may be necessary to act autonomously with respect to several groups of cameras; for example to distinguish the destination of one group of cameras from that of another group.

Since the Application does not allow you to configure this situation (it is not possible to save two different groups of cameras) it is necessary to perform more than one installation, each in its own folder. We then proceed, installation by installation, to configure the appropriate parameters, saved in the installation folder, and then to schedule the start of each installation.

For the reasons described above, it is necessary to be sure that the schedules are interspersed at least for the period necessary to complete the activity. If a scheduling starts while the previous one is still running, it is not executed at all for the mechanism described above.

The positive aspect that derives from this behavior is that it is not necessary to have more than one User License per Server since you can schedule as many different activities as you want.

5.3 Installation Procedure

The application has its own installation procedure that creates the folder containing all the libraries and other files necessary for operation. The installation procedure proposes **C:\Program Files\VideoMipExport** as a folder, but this value can be changed.

In case of update, the procedure will uninstall the previous version before installation.

It is not necessary to stop any Milestone service to carry out the installation.

6 Specifications of Exported Data

The application uses, for the MKV format, the following conventions for the names of files and folders where they are stored:

1. The exported data are stored in folders whose root is one of the configuration parameters, called Destination Folder, which must exist, but can also be created during the configuration phase, and can reside in any local and/or network path
2. Within the root folder, folders are automatically created whose names coincide with those of the related cameras⁽⁶⁾
3. Inside each of these folders are recorded video files, whose names are:

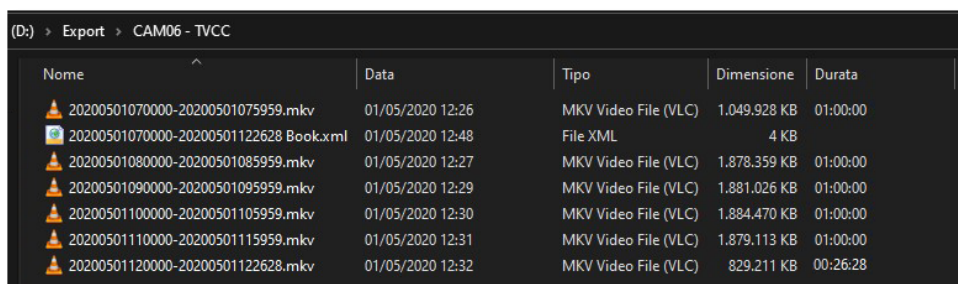
yyyymmddhhmmss_s-yyyymmddhhmmss_e.mkv

(s = interval start, e = interval end)

4. The same goes for any files containing Bookmark information, whose names are:

yyyymmddhhmmss_s-yyyymmddhhmmss_e-Book.xml

in such a way that the file names uniquely identify the reference time interval; that of Bookmarks refers to the entire scheduling interval and does not take into account any fragmentation of MKV files (in the example from 07:00:00 to 12:26:28); below is an example.



Nome	Data	Tipo	Dimensione	Durata
20200501070000-20200501075959.mkv	01/05/2020 12:26	MKV Video File (VLC)	1.049.928 KB	01:00:00
20200501070000-20200501122628 Book.xml	01/05/2020 12:48	File XML	4 KB	
20200501080000-20200501085959.mkv	01/05/2020 12:27	MKV Video File (VLC)	1.878.359 KB	01:00:00
20200501090000-20200501095959.mkv	01/05/2020 12:29	MKV Video File (VLC)	1.881.026 KB	01:00:00
20200501100000-20200501105959.mkv	01/05/2020 12:30	MKV Video File (VLC)	1.884.470 KB	01:00:00
20200501110000-20200501115959.mkv	01/05/2020 12:31	MKV Video File (VLC)	1.879.113 KB	01:00:00
20200501120000-20200501122628.mkv	01/05/2020 12:32	MKV Video File (VLC)	829.211 KB	00:26:28

⁽⁶⁾ The creation of subfolders whose names coincide with those of the cameras is managed directly by the Platform and cannot be changed.

Since Milestone allows camera names to contain characters not supported by the File System, eg. ":", Before proceeding with the export, which in similar cases would fail as the specific folder cannot be created, any characters that are not allowed are automatically replaced with "_".

In this case the Destination Folder is D:\Export, the camera (and relative folder) is called "CAM06 - CCTV", in the interval from 07:00:00 on 05/01/2020 to 12:26:28 on the same day, there are Bookmarks and the video files have a duration of 1 hour (the dimensions range from 1.0 to 1.8 GB, the one from 0.8 GB has a duration of 26' and 28"), in relation to the movement present in the scenes.

To show some examples, suppose we start a schedule with the following parameters:

- Export Format = MKV
- Schedule start Date/Time = 31/07/2021 18:54:56
- Cameras = CAM03, CAM06 e CAM07
- Max movie duration = 1 hour

The export will end at the start date/time of the schedule and will start from the previous 24 hours, each camera will produce 24 videos.

This is the state of exports before they started.

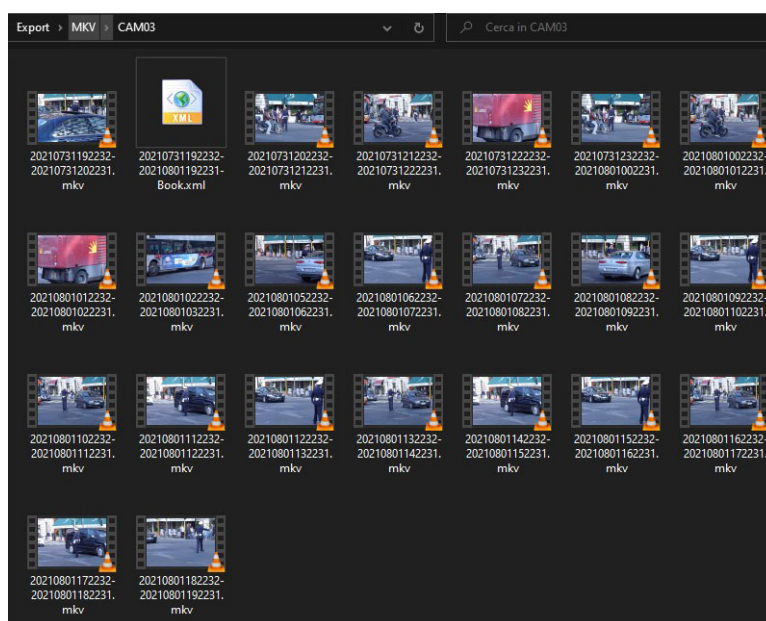
Video MIP Export - Exporting State				
Camera	Recording Period	Exporting Period	Last Recording Export	Last Bookmarks Export
CAM06	07/25/2021 23:45:49 - 08/01/2021 17:32:28	...	...	...
CAM03	03/16/2021 09:16:14 - 08/01/2021 17:32:23	...	...	...
CAM07	07/26/2021 00:45:23 - 08/01/2021 17:32:32	...	...	...

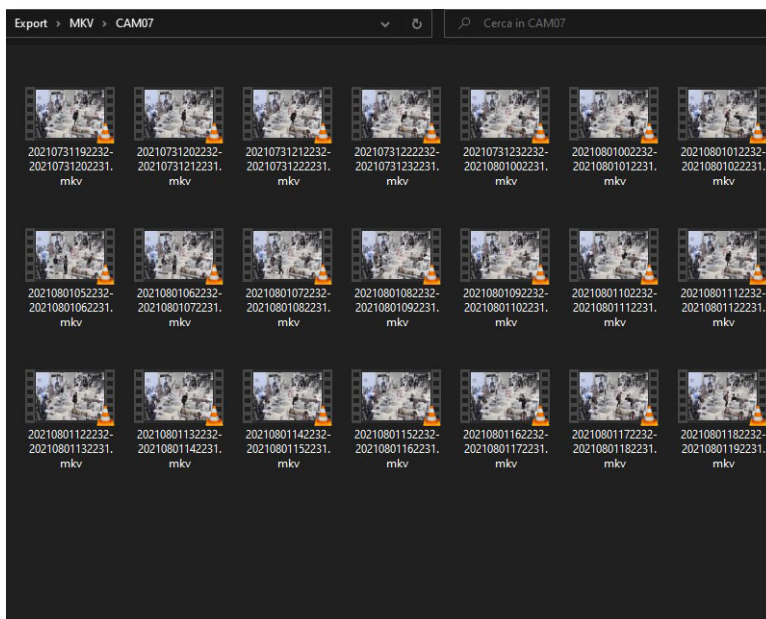
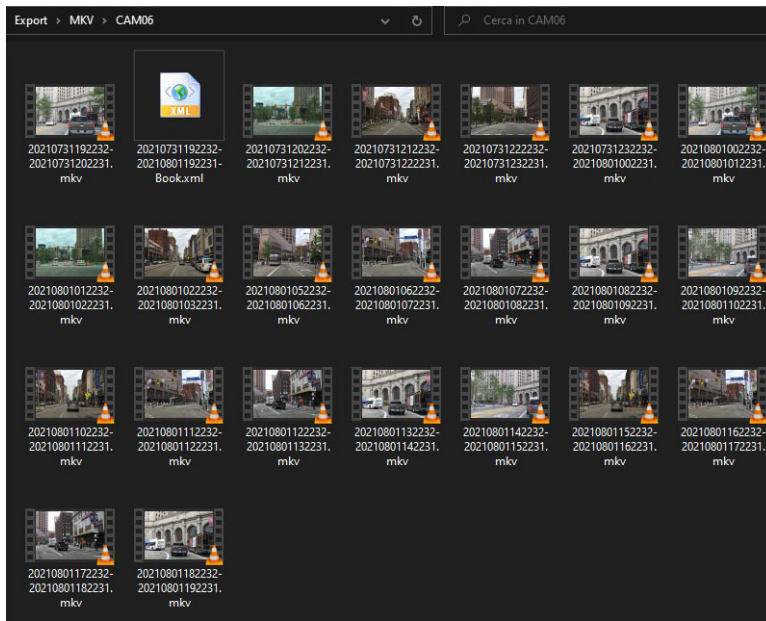
This is the progress at the completion of the export. The last block indicates that in the export interval there were Bookmarks for the CAM03 and CAM06 cameras.

Camera	Recording Period	Exporting Period	Last Recording Export	Last Bookmarks Export
CAM06	07/26/2021 09:37:12 - 08/01/2021 20:31:39	...	08/01/2021 18:22:32 - 08/01/2021 19:22:31	07/31/2021 19:22:32 - 08/01/2021 19:22:31
CAM03	03/16/2021 09:16:14 - 08/01/2021 20:31:42	...	08/01/2021 18:22:32 - 08/01/2021 19:22:31	07/31/2021 19:22:32 - 08/01/2021 19:22:31
CAM07	07/26/2021 09:36:26 - 08/01/2021 20:31:44	...	08/01/2021 18:22:32 - 08/01/2021 19:22:31	...

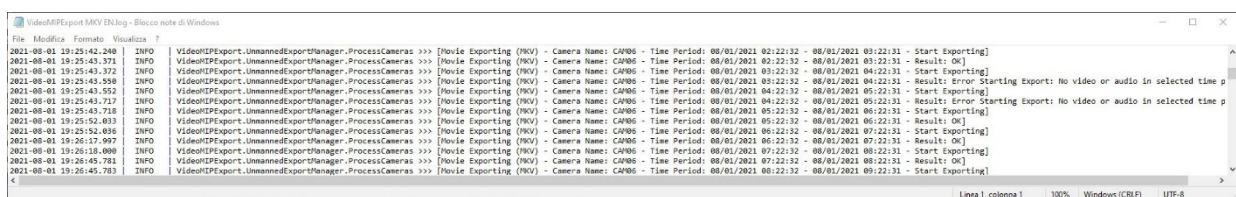
Below is the status of the Destination Folder and its subfolders. Note the presence of the XML files containing the Bookmarks in the CAM03 and CAM06 camera folders.

Nome	Ultima modifica	Tipo	Dimensione
CAM03	31/07/2021 19:02	Cartella di file	
CAM06	31/07/2021 18:55	Cartella di file	
CAM07	31/07/2021 19:09	Cartella di file	





It should be noted that the 3 camera folders contain 22, 22 and 21 videos and not 24 as expected, this is because not all of them were in recording during the exported period; the Application managed the situation by exporting only the intervals present. Below is a part of the product log relating to these situations.



The part of the log illustrated below shows the completion of the CAM06 export, the export of the related bookmarks present in the period, then the start of the CAM03 export.

```

2021-08-01 19:30:32.121 INFO VideoMipExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAM06 - Time Period: 08/01/2021 15:22:32 - 08/01/2021 16:22:31 - Result: OK]
2021-08-01 19:30:32.124 INFO VideoMipExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAM06 - Time Period: 08/01/2021 16:22:32 - 08/01/2021 17:22:31 - Start Exporting]
2021-08-01 19:31:00.563 INFO VideoMipExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAM06 - Time Period: 08/01/2021 16:22:32 - 08/01/2021 17:22:31 - Result: OK]
2021-08-01 19:31:00.566 INFO VideoMipExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAM06 - Time Period: 08/01/2021 17:22:32 - 08/01/2021 18:22:31 - Start Exporting]
2021-08-01 19:31:27.900 INFO VideoMipExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAM06 - Time Period: 08/01/2021 17:22:32 - 08/01/2021 18:22:31 - Result: OK]
2021-08-01 19:31:27.904 INFO VideoMipExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAM06 - Time Period: 08/01/2021 18:22:32 - 08/01/2021 19:22:31 - Start Exporting]
2021-08-01 19:31:55.994 INFO VideoMipExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAM06 - Time Period: 08/01/2021 18:22:32 - 08/01/2021 19:22:31 - Result: OK]
2021-08-01 19:31:56.094 INFO VideoMipExport.UnmannedExportManager.ProcessCameras >>> [Exporting Camera Bookmarks - Camera Name: CAM06 - Time Period: 07/31/2021 19:22:32 - 08/01/2021 19:22:31 - Result: OK]
2021-08-01 19:31:56.096 INFO VideoMipExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAM03 - Time Period: 07/31/2021 19:22:32 - 07/31/2021 20:22:31 - Start Exporting]
2021-08-01 19:32:22.211 INFO VideoMipExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAM03 - Time Period: 07/31/2021 19:22:32 - 07/31/2021 20:22:31 - Result: OK]
2021-08-01 19:32:22.213 INFO VideoMipExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAM03 - Time Period: 07/31/2021 20:22:32 - 07/31/2021 21:22:31 - Start Exporting]
2021-08-01 19:32:50.500 INFO VideoMipExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAM03 - Time Period: 07/31/2021 20:22:32 - 07/31/2021 21:22:31 - Result: OK]
2021-08-01 19:32:50.582 INFO VideoMipExport.UnmannedExportManager.ProcessCameras >>> [Movie Exporting (MKV) - Camera Name: CAM03 - Time Period: 07/31/2021 21:22:32 - 07/31/2021 22:22:31 - Start Exporting]

```

Below is the content of the xml file relating to the CAM06 bookmark.

```

<?xml version="1.0"?>
<ArrayOfBookmarkParameters xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <BookmarkParameters>
    <Title>Bookmark for CAM06</Title>
    <Description>Test Export Bookmark</Description>
    <Reference>no.000127</Reference>
    <User></User>
    <DateStart>08/01/2021 06:59:56</DateStart>
    <DateEnd>08/01/2021 07:00:29</DateEnd>
    <DateTrigger>08/01/2021 06:59:59</DateTrigger>
  </BookmarkParameters>
</ArrayOfBookmarkParameters>

```

Now let's repeat the export of the same cameras but using the XProtect format:

- Export Format = XProtect
- Schedule start Date/Time = 02/08/2021 08:39:47
- Cameras = CAM03, CAM06 e CAM07

L'esportazione terminerà alla Data/Ora di avvio della schedulazione ed inizierà dalle 24 ore precedenti.

This is the state of exports before they started.

Camera	Recording Period	Exporting Period	Last Recording Export	Last Bookmarks Export
CAM06	07/26/2021 13:37:47 - 08/02/2021 08:35:48	...	...	...
CAM03	03/16/2021 09:16:14 - 08/02/2021 08:35:48	...	...	...
CAM07	07/26/2021 13:36:49 - 08/02/2021 08:35:56	...	...	...

This is the progress at the completion of the export. In this case, the last block is not filled in because the Bookmarks are part of the standard export in the XProtect format.

Camera	Recording Period	Exporting Period	Last Recording Export	Last Bookmarks Export
CAM06	07/26/2021 14:37:56 - 08/02/2021 09:19:22	... - ...	08/01/2021 08:39:47 - 08/02/2021 08:39:46	... - ...
CAM03	03/16/2021 09:16:14 - 08/02/2021 09:19:15	... - ...	08/01/2021 08:39:47 - 08/02/2021 08:39:46	... - ...
CAM07	07/26/2021 14:36:55 - 08/02/2021 09:19:24	... - ...	08/01/2021 08:39:47 - 08/02/2021 08:39:46	... - ...

Finally, the log produced for this export.

```

VideoMipExport.log - Blocco note di Windows
File Modifica Formato Visualizza ?
2021-08-02 08:39:50.634 INFO VideoMipExport.Program.Main >>> [Scheduled Start of Exports]
2021-08-02 08:39:50.639 INFO VideoMipExport.UnmannedExportManager.ProcessFolder >>> [Exporting Movie (XProtect) - Camera Name: 3 Cameras - Time Period: 08/01/2021 08:39:47 - 08/02/2021 08:39:46 - Start Exporting]
2021-08-02 09:09:57.132 INFO VideoMipExport.UnmannedExportManager.ProcessFolder >>> [Movies Exporting (XProtect) - Camera Name: 3 Cameras - Time Period: 08/01/2021 08:39:47 - 08/02/2021 08:39:46 - Result: OK]
2021-08-02 09:09:57.239 INFO VideoMipExport.Program.Main >>> [Exporting Completed]

```

7 Appendices

This chapter contains useful technical information both for diagnostic purposes and for creating automatisms in the use of the Application.

7.1 Application Return Codes

The application at the exit returns the following return codes.

CODE	MEANING
0	OK
-1	Invalid License
-2	General Error Unmanned Mode
-3	General Error Manned Mode
-4	Credentials inconsistent with User Type
-5	Parameter Access Error on Configuration File
-6	XProtect Platform login refused
-7	Application instance already in memory
-8	Server Type does not support all required features
-9	Screen size smaller than minimum required

7.2 Configuration File Parameters

The Application uses the standard Windows configuration file, which is often indispensable for starting the application by the Operating System, since it also contains the minimum requirements for the environment, to save the Parameters set with the Configuration procedure.

By convention, this file is called as the executable with the addition, in the queue, of the ".config" extension, in our case therefore **VideoMIPExport.exe.config**, and contains the following parameters in the appropriate section.

PARAMETER	FUNCTION	ADMITTED VALUES
GENERIC		
- DebugLog	Enable diagnostic log on file	[True/False]
- Language	Language to use	[IT/EN]
OPERATIONAL		
- MovieMaxHoursEnabled	Single Movie Maximum Duration Limit	[True/False]

PARAMETER	FUNCTION	ADMITTED VALUES
– MaxNumHours	Maximum Single Movie Duration	[1..24] (if enabled)
– ExportLimitEnabled	Export Period Limits	[True/False]
– ExportStartDateTime	Exports Start Date/Time	(if enabled)
– ExportEndDateTime	Exports End Date/Time	(if enabled)
– ExportDir	Export Folder	(network path)
XPROTECT ACCESS		
– UserType	User Type	[C|W|B]
– UserAccount	User Account	(Tipo <> C)
– UserPassword	User Password	(Tipo <> C) (encrypted)
– HostURI	XProtect Host Uri	(default localhost)
XPROTECT FORMAT		
– IsMipFormat	Export to XProtect format	[True/False]
– Encryption	Movies Encryption	[True/False]
– CryptoPassword	Encryption password	(encrypted)
– HashSign	Electronic Signature	[True/False]
– NoReExport	Prevent Re-Export	[True/False]

Only the first parameter, the general debug one, must be changed by hand, all the others are managed by the Application, which also performs the related congruity checks.



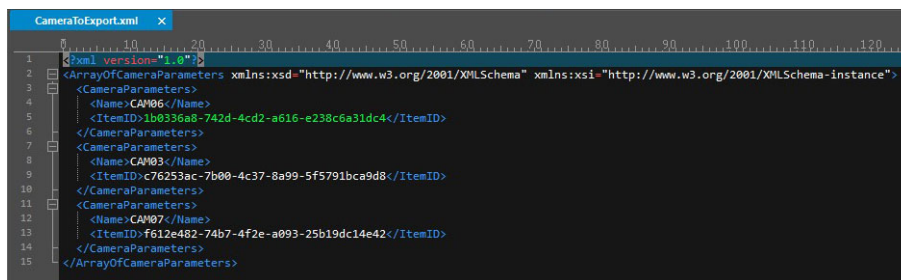
WARNING – The dates contained in the configuration file, as well as those in the ExportedCamera.xml file shown below, are always in dd/mm/yyyy format; it is the duty of the Application to show them appropriately according to the chosen language.

7.3 Used File Format

Below are the specifications of some files, not present in the installation procedure, which are created by the Application when it is used and affect the behavior of the scheduled executions.

7.3.1 Locally Created Files

In the installation folder, the Application creates (only the first time, then changes) the file containing the List of Cameras to be exported; this file is in XML format and contains as many records as there are cameras to be identified (the complete data can be read from the Platform DB). The file is called **CameraToExport.xml** and has the following format.



```

1 <?xml version="1.0"?>
2 <ArrayOfCameraParameters xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
3   <CameraParameters>
4     <Name>CAM06</Name>
5     <ItemID>1b0336a8-742d-4cd2-a616-e238c6a31dc4</ItemID>
6   </CameraParameters>
7   <CameraParameters>
8     <Name>CAM03</Name>
9     <ItemID>c76253ac-7b00-4c37-8a99-5f5791bca9d8</ItemID>
10  </CameraParameters>
11  <CameraParameters>
12    <Name>CAM07</Name>
13    <ItemID>f612e482-74b7-4f2e-a093-25b19dc14e42</ItemID>
14  </CameraParameters>
15 </ArrayOfCameraParameters>

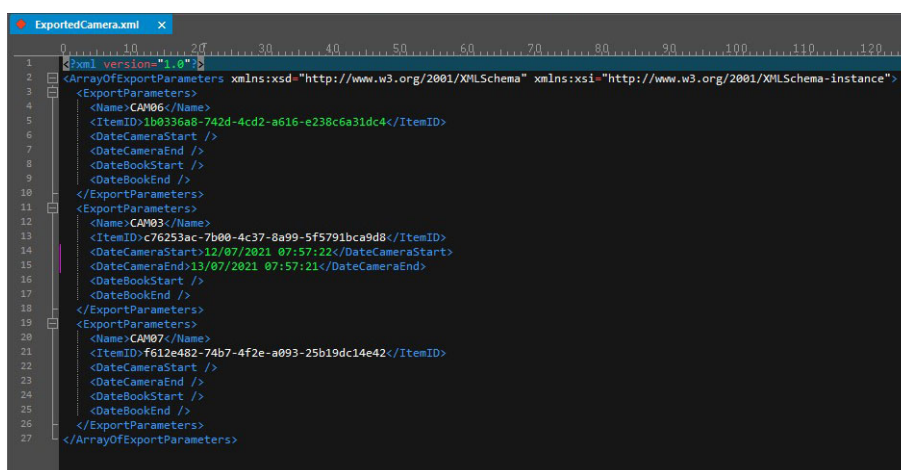
```

The name of the cameras is only to aid in reading this file, the important parameter is ItemID, which represents the unique identifier of the camera on the Platform.



WARNING – If a camera from the list is removed from the Platform and subsequently reconfigures it, with the same parameters and the same name, it is still a new Item for the Platform and assigns it a new ID, different from the one present in the xml file; the *new* camera that will appear in the list will not be selected, while the previous one (no longer existing) will be ignored. It is therefore necessary to select the camera and save the new list to restore the references.

Always in the installation folder, the Application, the first time it is scheduled, creates (subsequently modifies) the file containing the Data of the Exports carried out; this file is in XML format and contains as many records as there are cameras to export, whatever the format used. The file is called **ExportedCamera.xml** and has the following format.



```

1 <?xml version="1.0"?>
2 <ArrayOfExportParameters xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
3   <ExportParameters>
4     <Name>CAM06</Name>
5     <ItemID>1b0336a8-742d-4cd2-a616-e238c6a31dc4</ItemID>
6     <DateCameraStart />
7     <DateCameraEnd />
8     <DateBookStart />
9     <DateBookEnd />
10  </ExportParameters>
11  <ExportParameters>
12    <Name>CAM03</Name>
13    <ItemID>c76253ac-7b00-4c37-8a99-5f5791bca9d8</ItemID>
14    <DateCameraStart>12/07/2021 07:57:22</DateCameraStart>
15    <DateCameraEnd>13/07/2021 07:57:21</DateCameraEnd>
16    <DateBookStart />
17    <DateBookEnd />
18  </ExportParameters>
19  <ExportParameters>
20    <Name>CAM07</Name>
21    <ItemID>f612e482-74b7-4f2e-a093-25b19dc14e42</ItemID>
22    <DateCameraStart />
23    <DateCameraEnd />
24    <DateBookStart />
25    <DateBookEnd />
26  </ExportParameters>
27 </ArrayOfExportParameters>

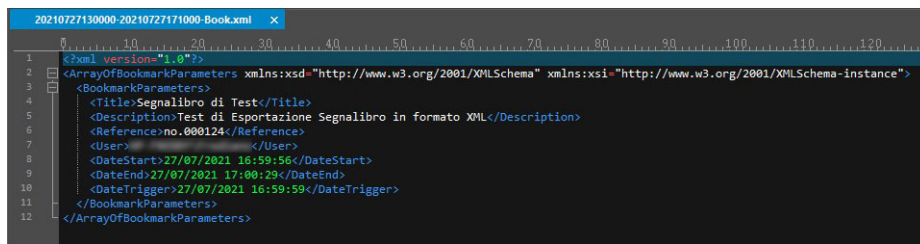
```

In practice, it contains, for each camera in the export list, the interval of the last export performed, both of the videos and bookmarks (if MKV format and if any).

This is the file that can be reset, at the beginning of a new Period, using the appropriate button in the Export Parameters section of the Configuration procedure.

7.3.2 Exported Files

As reiterated several times, using the MKV format if in the export period there are one or more bookmarks associated with the specific camera, these are exported, in the same folder as the videos, in XML format. The file is called **BEGINNING-END-Book.xml**, where BEGINNING/END are the ends of the export interval in `yyyymmddhhmmss` format, and has the following format.



```
1 <?xml version="1.0"?>
2 <ArrayOfBookmarkParameters xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
3   <BookmarkParameters>
4     <Title>Segnalibro di Test</Title>
5     <Description>Test di Esportazione Segnalibro in formato XML</Description>
6     <Reference>no.000124</Reference>
7     <User>                </User>
8     <DateStart>27/07/2021 16:59:56</DateStart>
9     <DateEnd>27/07/2021 17:00:29</DateEnd>
10    <DateTrigger>27/07/2021 16:59:59</DateTrigger>
11  </BookmarkParameters>
12 </ArrayOfBookmarkParameters>
```

It contains all the data of a Bookmark, including the User who created it.



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