VisualSoft Suite User Manual

VisualDVR 2023 Edition 11.0

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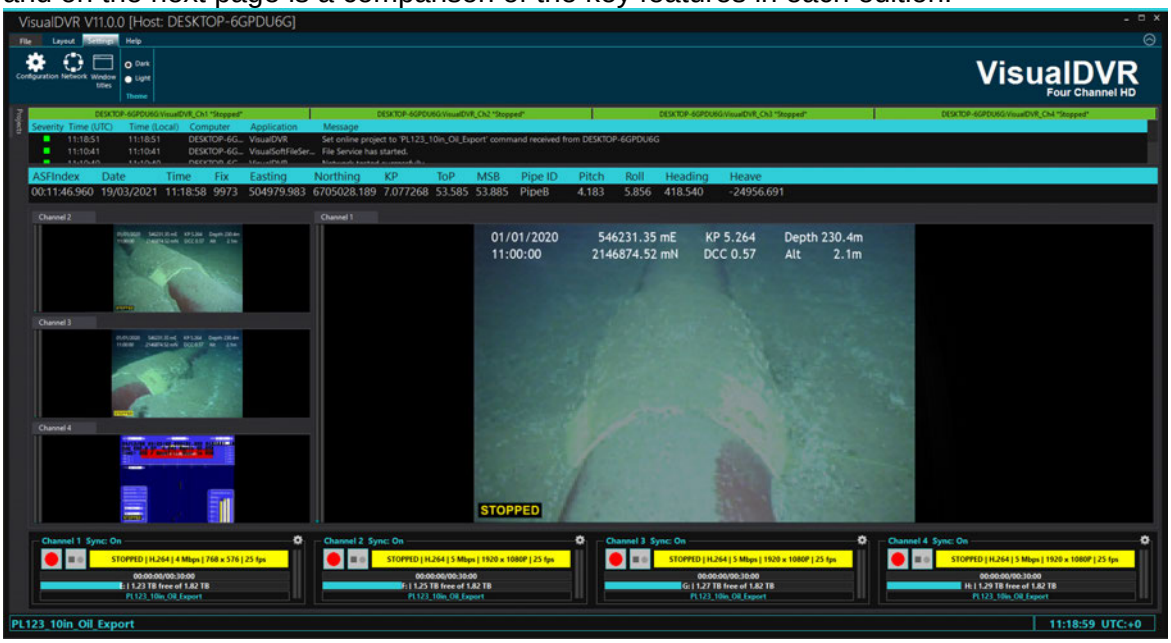
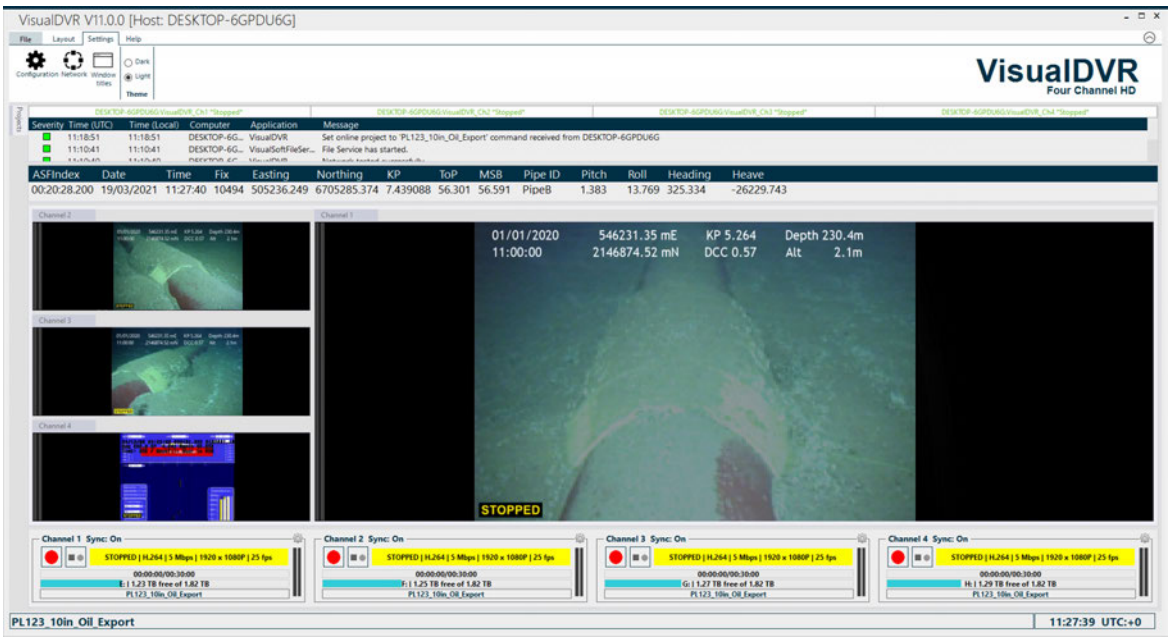
1 VisualDVR (2023 Edition)

1.1 VisualDVR (2023 Edition) – Introduction

In version 11 of the VisualSoft Suite we have introduced a new "2023 Edition" of VisualDVR with a new appearance and some new features. In the first release this new edition will support the recording of video received via hardware cards using composite or SDI connections and we have added some more affordable cards for this. In later releases we will add input over IP streams. In the 2023 Edition we have added video output via SDI or Ethernet IP stream, and we have discontinued some older, less-efficient recording methods. Eventually the Legacy Edition of VisualDVR will be fully replaced by the newer 2023 Edition. Until then, both editions will be installed and available under the same licence. The images below show the 2023 Edition in both its dark and light themes, and on the next page is a comparison of the key features in each edition.





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Features	VisualDVR Legacy edition (Winnov SD)	VisualDVR Legacy edition (Vitec VMC-7440 SD/HD)	VisualDVR 2023 edition
Video Inputs			
HD digital video (HD-SDI)	✗	✓	✓
SD digital video (SDI)	✗	✓	✓
SD analogue video (Composite)	✓	✓	✓1
IP stream HD video	✗	✗	Coming Soon
IP stream SD video	✗	✗	Coming Soon
Video and Overlay Outputs			
HD digital video+overlay (HD-SDI)	✗	✓	✓
SD digital video+overlay (SDI)	✗	✓	✓
SD analogue video+overlay (Composite)	✓2	✓	✓3
IP stream HD video+overlay	✗	✗	✓ New
IP stream SD video+overlay	✗	✗	✓ New
Video Encoding Formats			
MPEG-2 in PS or TS container	✓	✗	✗
H.264/AVC in MP4 container	✓	✓	✓
H.265/HEVC in MP4 container	✗	✗	✓ New
Audio and Overlay			
Audio recording	✓	✓	✓
Video overlay – recorded	✓	✓	✓
Video overlay – distributed output	✓2	✓	✓

1: Input via Analogue to SDI converter (available from VisualSoft).
2: Extra Overlay I/O card required.
3: Output via SDI to Analogue converter (available from VisualSoft).

For more information on any of the terms used in this document see our Glossary 103.

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1.2 What has changed in VisualDVR (2023 Edition)?

The interface has a new look so some things are in new places. We have included a summary of some of the main features to highlight the main changes or similarities from version 10 of DVR.

Standard Windows appearance: VisualDVR now has standard toolbars and menus, and dockable, moveable panels that you can arrange the way you want them.

H.265 (HEVC) Recording: We have added an option for H.265 (HEVC), in addition to the previously available H.264 (AVC).

Configuration & Settings: The start-up Configuration Wizard 23 and the internal Settings window now match each other and all settings have been moved into one tool so that they are easier to find.

Start & Stop Recording: There are now dedicated buttons to start and stop 70 recording. You no longer need to click on the preview screen to open the menu.

Projects: You will find that projects & tasks 33 have moved and are now on a slide-out panel at the left-side of the screen, the same as they are in VisualReview, VisualEdit and VisualArchive.

Overlay: There is a new tool to set up your overlay 49 which has more intuitive functionality. It has a similar feel to the older version so returning users should hopefully find their way around. You can still open the overlay settings by pressing the F6 short-cut key.

File Copying: The way in which you copy video files and datasets to backup devices uses a new **Storage Manager** system. Take some time to read the instructions for setting up and Using DVR File Copying 78.

- **Event logging:** The way in which events are logged in DVR has not changed for version 11. The add-ons and short-cuts remain the same:
  - o VisualEvent Logger for inspection and survey event logging
  - o The space bar for the basic DVR log
  - o F2 for a still image grab
  - o F3 followed by F4 to start and stop a video clip.

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1.3 Getting started - Video & Audio Connections

In "Getting Started" we will guide you through the basic setup of your VisualDVR so that you can start recording quickly. It will not explain all of the available features which are covered later in this User Manual, but will just focus on the most commonly used and most essential features.

1.3.1 Capture Card Support and Capabilities

Card	Capabilities
🟠 **DELTACAST** **DELTA-3G-elp-d 8c** **DELTA-3G-elp-d 84**	**Supported in VisualDVR 2023 Edition only** SD or HD*1 H.264 or H.265 Uses software encoding Record 4 cameras per card
○ **Vitec** **VMC-7440 HD**	**Currently supported in VisualDVR Legacy Edition only***2 **May be supported in VisualDVR 2023 Edition in a future release***2 SD or HD*1 H.264 only Uses hardware encoding Record 1 camera per card with up to 4 cards per PC
🟢 **Winnov** **Videum Duo / Quattro**	**Supported in VisualDVR Legacy Edition only***5 SD only MPEG-2*3, or H.264*4 Uses software encoding Record 2 (Duo) or 4 (Quattro) cameras per card
🟠 **Osprey** **815e/825e HD**	**Supported in VisualDVR Legacy Edition only***5 SD or HD*1 MPEG-2*3, or H.264*4 Uses software encoding Record 1 camera per card with only one card per PC

*1 : HD recording is available from these cards with an HD DVR license.
*2 : May move from Legacy to 2023 edition during 2024.
*3 : MPEG-2 recording with these cards needs an add-on licence in Legacy DVR.
*4 : H.264 recording with these cards needs an add-on licence in Legacy DVR.

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*5 : These cards will become obsolete once other cards marked with *2 have been moved from the Legacy Edition to the 2023 Edition.

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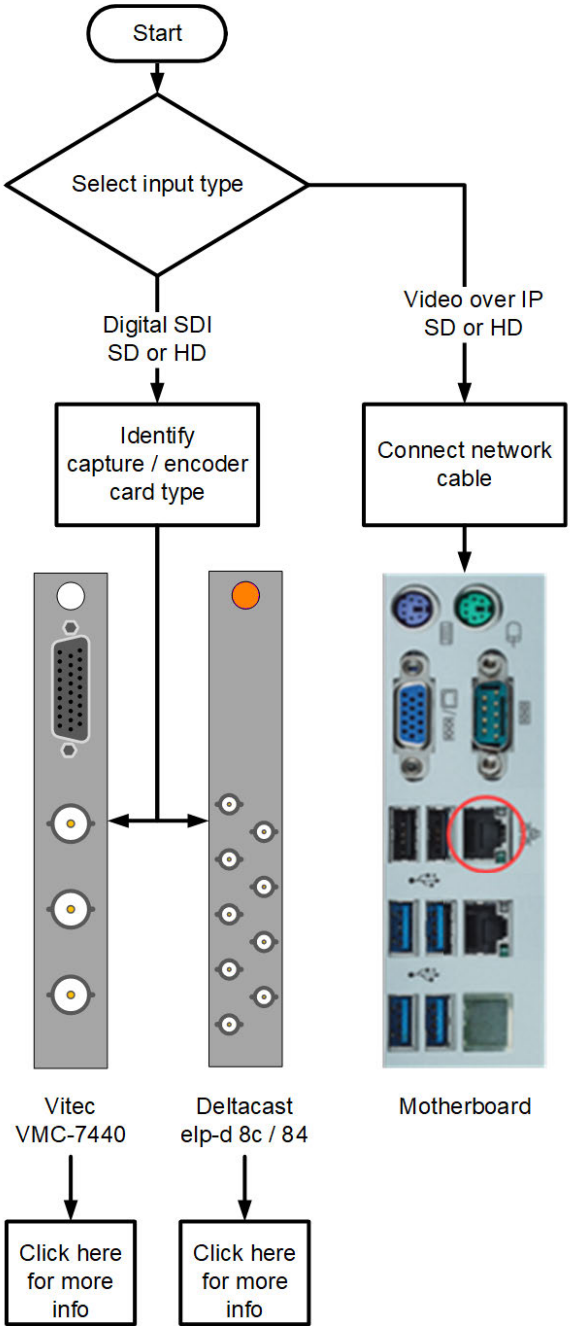
1.3.2 How do I connect Video Inputs?

Use the flowchart below to work out how to connect your video. Any capture card should have a coloured dot, like those at the top of each card below – ○, or ●. If the coloured dot is missing from your card, use the pictures of the cards to work out which one you have.



For printed manuals where you cannot click the boxes above, see the Vitec VMC-7440, or Deltacast elp-d 8c/84 12 sections.

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Deltacast DELTA-3G-elp-d 8c/84

These cards are identified in a VisualDVR unit by a orange dot attached to the card.

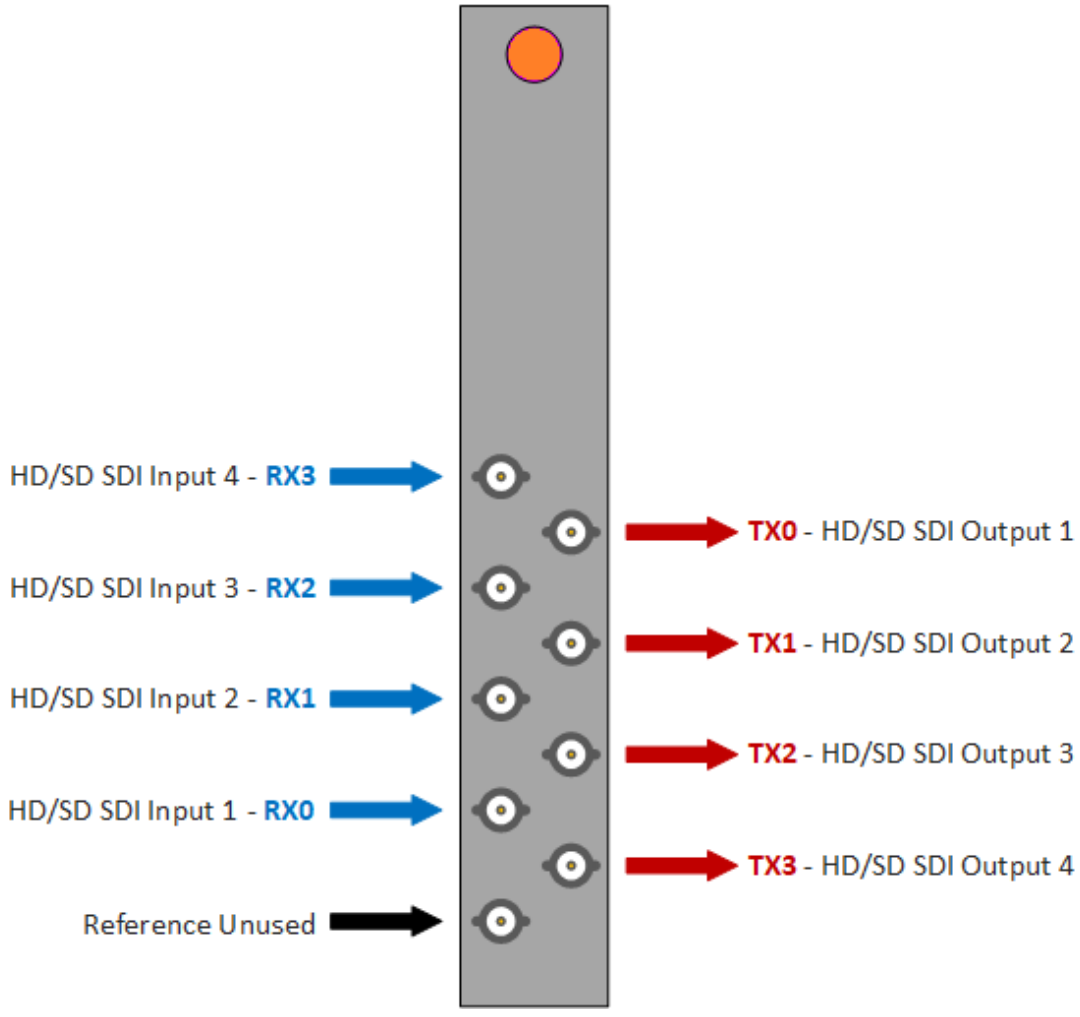
The **DELTA-3G-elp-d 8c** or **84** each have nine DIN 1.0/2.3 ports, for which converters to the more commonly used SD/HD SDI connections are supplied. This provides **eight SD/HD SDI ports**, which are used as four inputs and four outputs.

Ports on the left of the card are the main inputs, RX0-RX3.

Ports on the right of the card are the outputs, TX0-TX3, for distributing video with embedded overlay. These can be used as additional inputs, but the card supports a maximum of four simultaneous inputs.

The bottom port on the left is for reference, and unused.

We recommend that you always use the ports as shown below.



See also: Connecting a Composite Source 13

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Connecting a Composite Source

As the **Deltacast** cards do not support composite video, an **Analog to SDI converter** is required to record a composite source.

You should have received a converter with a layout similar to this:

For each channel connect the composite source to the "Y or NTSC/PAL In" connector. Then connect one of the "SDI Out" connectors to the input on the **Deltacast** card.

On the side of the converter you will find a selection of dip switches like this:

Switch 5 should both be ON. All other switches should be OFF.

You should have also received a 3U rack that looks like this:

The converters will fit neatly in the slots. The unit can then be rack mounted or placed close to the DVR.

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1.3.3 How do I connect Audio Inputs?

The way in which you connect audio will depend on whether you are using an IP camera on the network or a wired video feed into a Capture Card.

For IP cameras, you will need to use a USB microphone or USB headset for your audio input.

For a capture card, you can either use a USB microphone or USB headset, or you can use a microphone connected to the card itself. For the latter, the connection will depend on your card type.

When connecting your video you should have identified your card type. If you have not yet done so, take a look at How do I connect Video inputs? 11.

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Deltacast DELTA-3G-elp-d 8c/84 Audio

The Deltacast DELTA-3G-elp-d 8c/84 12 capture card can use either a USB headset 15, or an XLR microphone, connected through a USB audio interface.

The audio device can be selected from the Audio Source menu in the Recording Settings section.

For more information, see the Video and Audio Inputs 26 section.

Audio from a USB Headset

A USB headset with microphone can be connected to any free USB 2.0 or higher port on the VisualDVR PC.

Once the headset is available in Windows, it will become selectable 26 in the VisualDVR software.

Audio from an XLR Microphone via a USB Audio Interface

An Audio interface must be used to amplify audio from Mic Level to Line Level. Audio levels are too low without Audio Interface. The Audio Interface supplied is Behringer U-PHORIA UMC22. This compact device amplifies audio coming from your microphone to VisualDVR.

When using Behringer U-PHORIA UMC22 Audio Interface a 3M long XLR / ¼ cable needs to be plugged in MIC/LINE 1 connection. USB type B then is plugged into back of Audio interface and its other end USB type A then needs to be plugged into the VisualDVR motherboard panel in the back.

Audio Recording Setup

Plug USB cable between rear of Audio device and DVR chassis

To get high and clear volume when recording we need to adjust the GAIN 1 knob to 3 o'clock or 75% input level. Set the OUTPUT knob to 12 o'clock or 50% output level.

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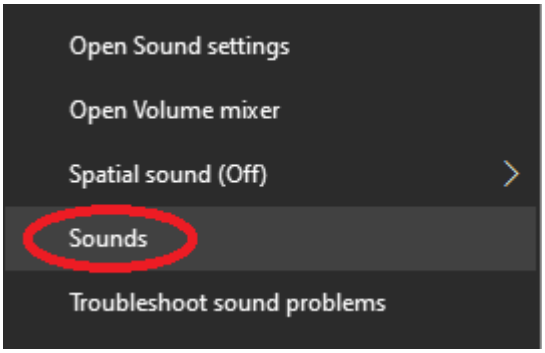
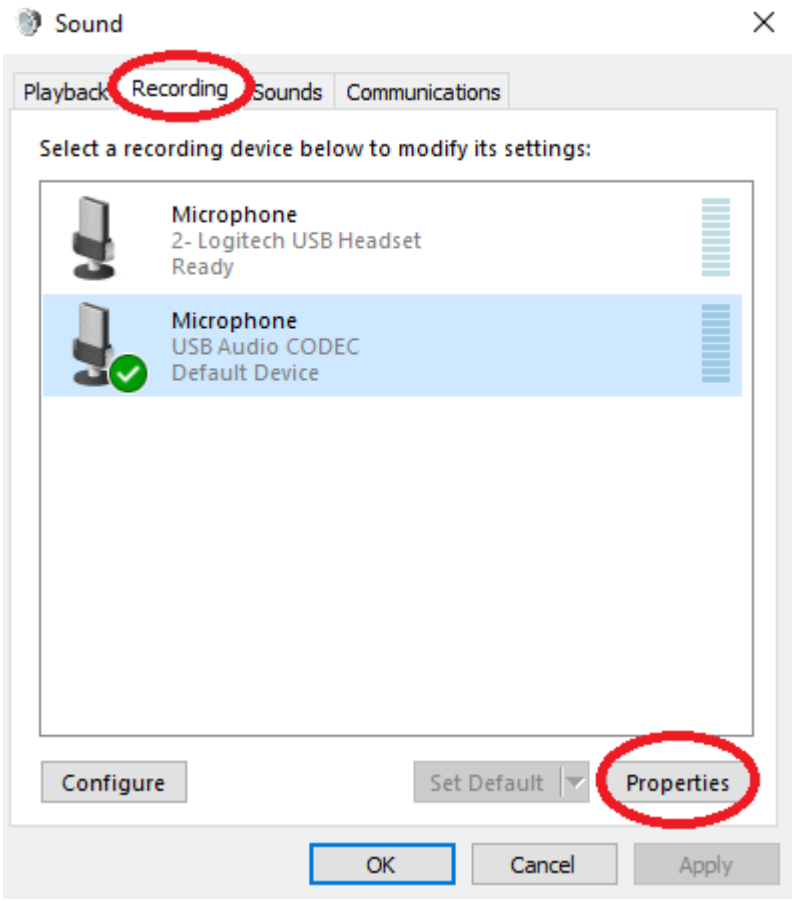
The microphone volume level in Windows also needs to be set. By default, the Microphone volume level in Windows settings will be set to 54. To change it, select the “Speakers” icon on the taskbar using mouse then right-click. Choose “Sounds”



Navigate to the Recording tab, then left mouse click on Microphone USB Audio CODEC then navigate to Properties.



Navigate to “Levels” tab and set Microphone volume to 100, click OK.

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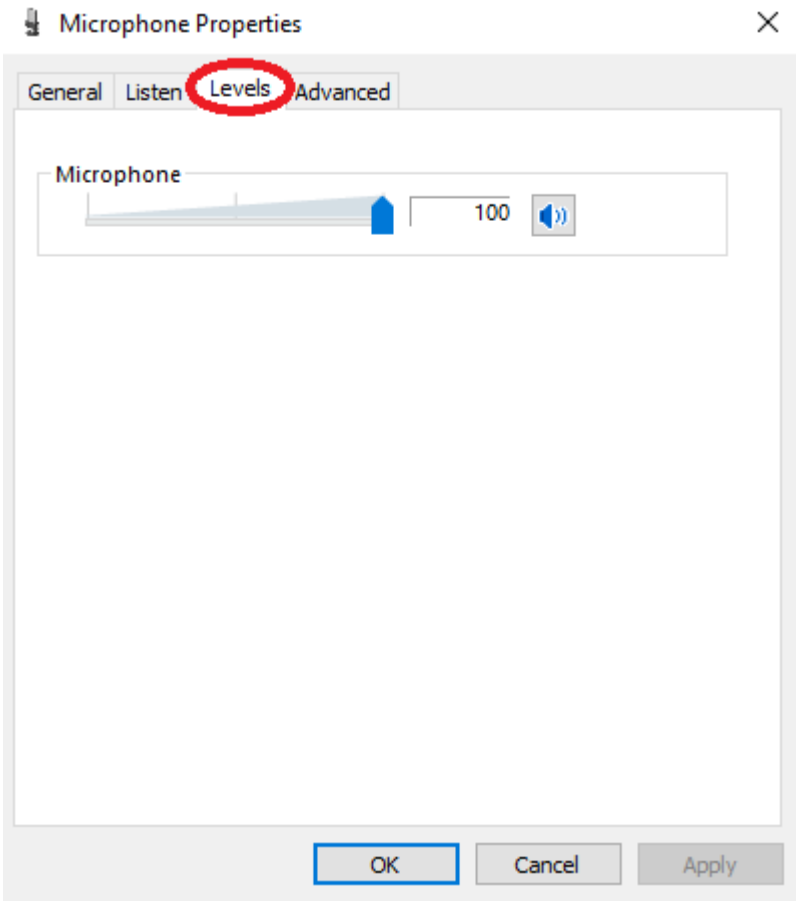

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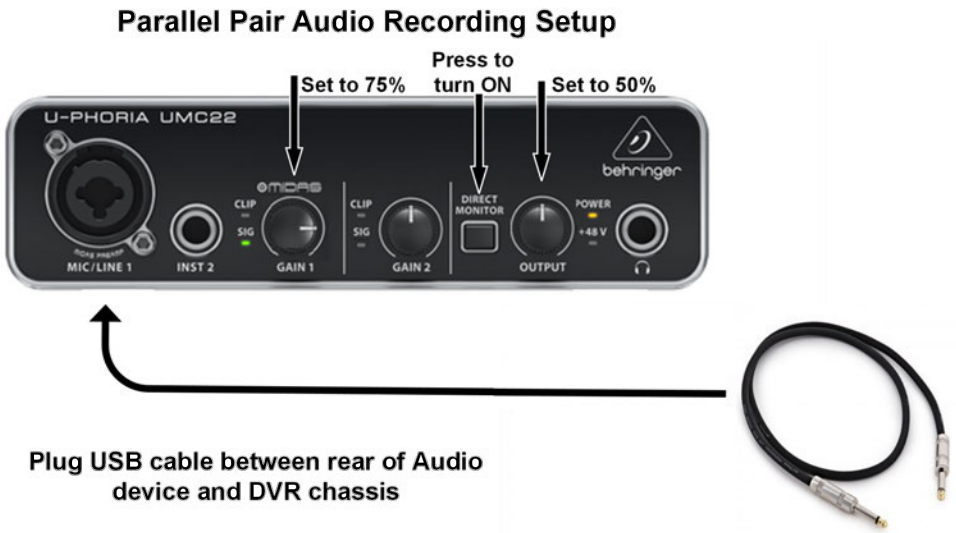
Audio into a Parallel Pair

If you wish to record audio in Parallel pair you can only do so by using USB Audio Interface 15.

Parallel pair recording needs two VisualDVR PCs, two USB Audio Interface kits and a ¼ inch instrument cable. Two Audio Interfaces needs to be plugged in to two separate VisualDVR PCs. These two Audio Interfaces then need to be setup as previously mentioned in the topic Audio from an XLR Microphone via a USB Audio Interface 15.

Plug your Microphone in and set knobs to previously suggested Audio Interface levels as shown in the image below.

Use the ¼ inch cable to connect the Headphone connection at the front right of Audio Interface one (see image above) to the Microphone connector of Audio Interface 2 (see image below).



You can now record using one Microphone, and audio recording will be the same on the two separate VisualDVR PCs.

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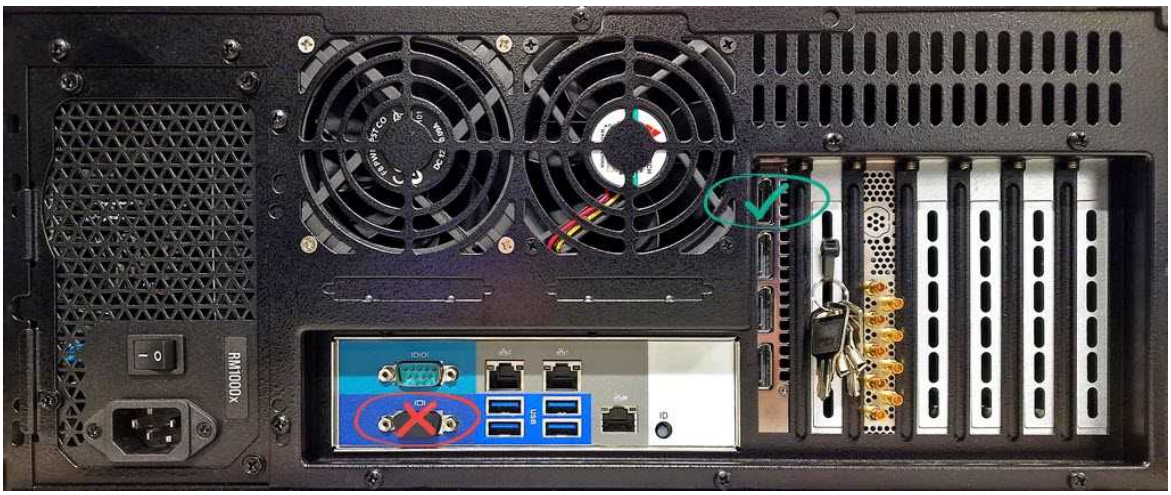
1.3.4 How do I connect the PC Monitor?

✔ The VisualDVR unit has an NVIDIA Graphics Card with four Display Port connections, and is supplied with a Display Port cable to connect to the monitor.

✘ The VGA port on the motherboard is disabled and should not be used. The VGA port usually has a black silicon cover; please do not remove it!



1.3.5 How do I open the software?

You will find the VisualDVR application in the Windows Start Menu. It may also have a short-cut on the desktop or on the Start screen.

When you open the software for the first time you will see a configuration wizard which steps you through all the settings that you might want to change before you start recording.

1.3.6 How do I record video?

The configuration wizard contains several pages which you should work through in sequence so that your project will run as smoothly as possible.

As a minimum, you must configure the following:

- Select video and audio inputs,

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- Select format and quality settings,
- Select a recording drive where the video will be stored.

We strongly recommend you spend the time to complete all of the start-up settings, but if you need to quickly test that your camera is connected and can record then only the above settings will be needed.

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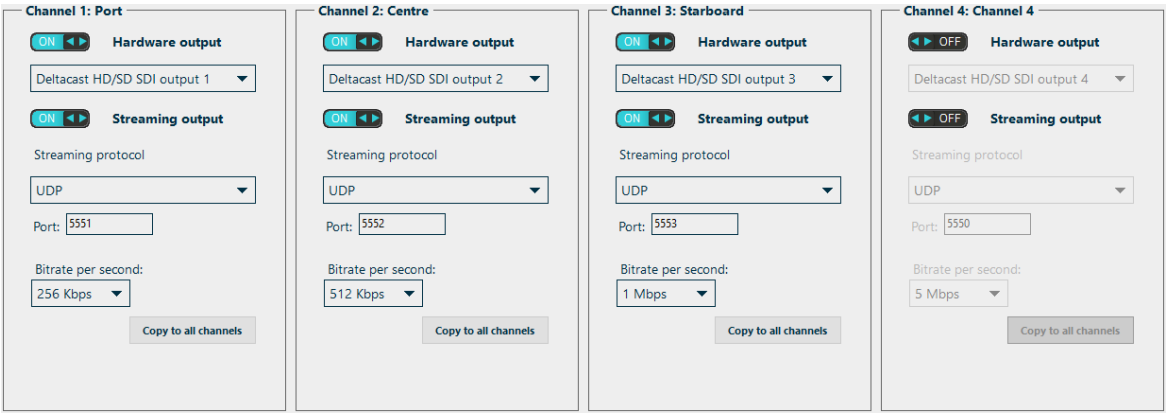
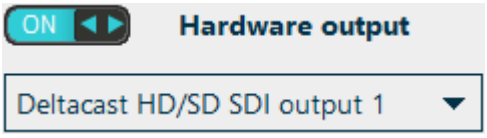
1.3.7 How do I connect Video Outputs?

Using VisualDVR 2023 Edition, video (with overlay) can be output either as a video stream over a network, or as a digital SDI signal. Either of these may be HD or SD to match the recorded video sources. To configure video outputs, open the **Settings** and go to the **Video Outputs** section.



Video Output using SDI

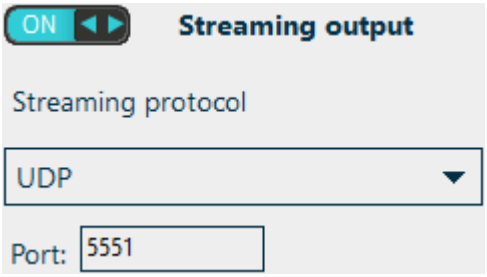
To output a digital SDI signal, either HD or SD according to the recorded signal type, turn on the Hardware Output, and select the desired port on the Deltacast card. The outputs from the Deltacast card use the column of four mini-BNC ports.



See also: Converting digital SDI output to analog composite 22

Video Output over IP

To output video over IP (streaming) turn on Streaming Output, and enter the required port number. **Note that each channel should use a different port number. We recommend 5551, 5552, 5553 and 5554 for the four video channels.**



In the current release, the only streaming protocol is **UDP**. In future releases we will probably to introduce other protocols.

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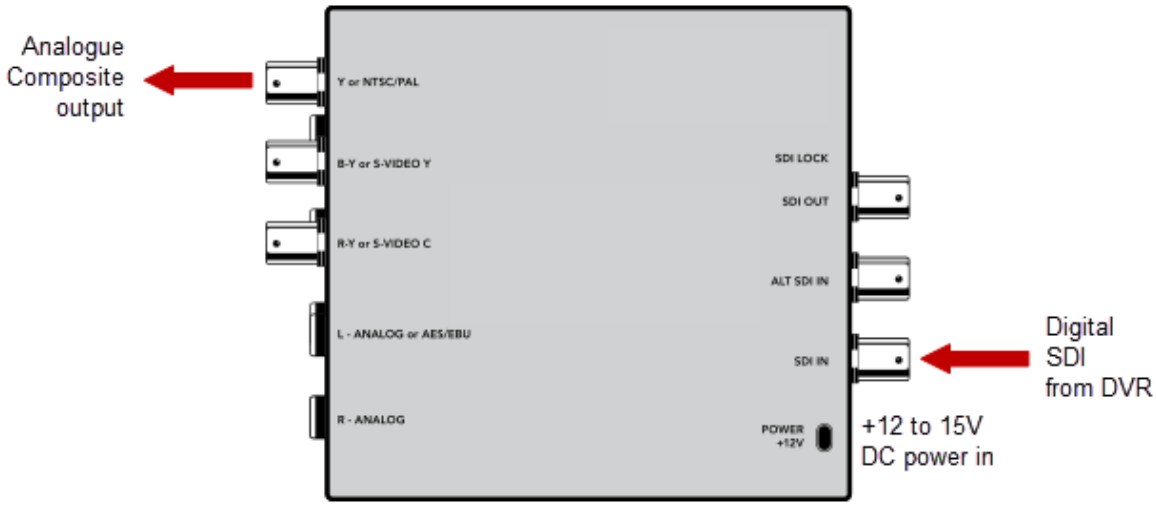
Converting digital SDI output to analog composite

Deltacast cards support up to 4 channels of output video which can be used to output the feed locally. This feed is in an SDI format so to be able to display on a composite monitor or connect to an analogue video switcher you will need to convert the signal to composite using an **SDI to Analog converter**.

You may have received converters with a layout similar to the one below. If you do not have these, and would like to rent or purchase them, please contact visualsoft.support@f-e-t.com or visualsoft.sales@f-e-t.com. **Note that you need one converter per video channel.**



For each channel connect the **Deltacast** output to the "SDI IN" connector. Then connect the "Y or NTSC/PAL" connector to wherever you want to send the analog signal.

On the side of the converter you will find a selection of dip switches like this:

Switch 5 should both be ON. All other switches should be OFF.

You may have also received a 3U rack that looks like this:

The converters will fit neatly in the slots. The unit can then be rack mounted close to the DVR. If you need a rackmount kit, please contact visualsoft.sales@f-e-t.com.

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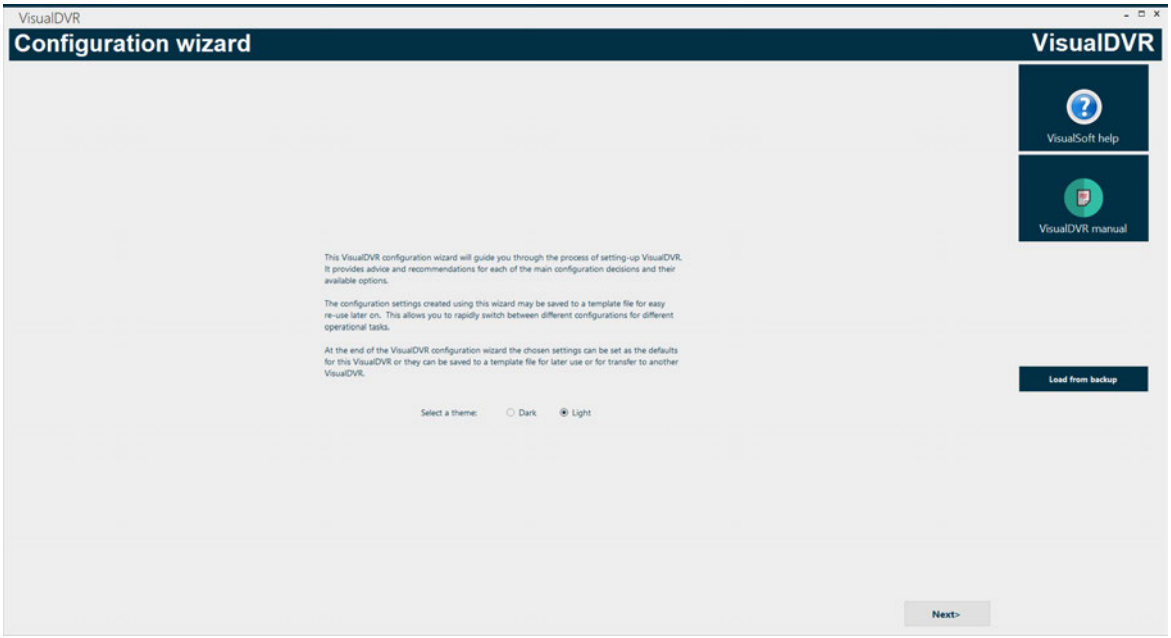
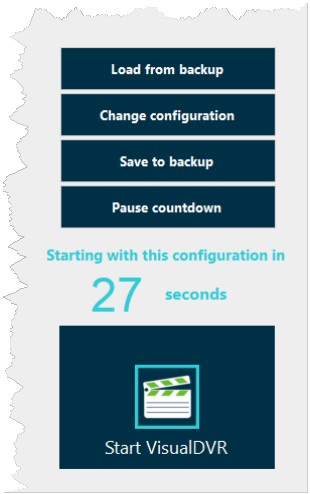
1.4 Startup Configuration Wizard

When you start VisualDVR, there is a configuration wizard to guide you. This section of the help, and also the Configuration Wizard itself will take you step by step through all of the options. At the end of this section you should be ready to start using VisualDVR to record video and log events.

The first time that you run VisualDVR on a particular PC you will see the first page of the configuration wizard – The Dark/Light Theme and the Style colour choice.



If the wizard has already been run at least once, you will instead see a **Current Settings** summary page with a countdown in the lower right corner, giving you a chance to run the wizard again or just start VisualDVR with the previously used, current settings. You can interrupt the countdown to change settings or load other settings from a backup, or just Pause to give yourself more time to decide.



If you leave the countdown to reach zero, VisualDVR will start with the current settings, i.e. the same as when it was last used.

If in doubt, it is probably a good idea – and will do no harm – to click **Change Settings** and step through the wizard to check that all settings are how you want them to be.

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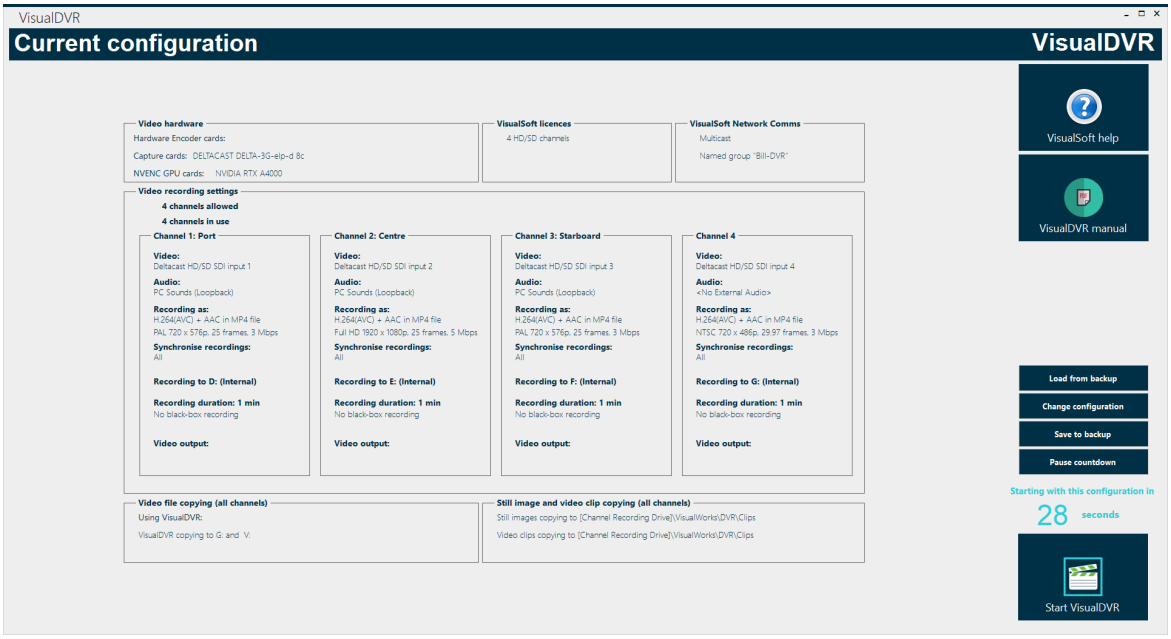

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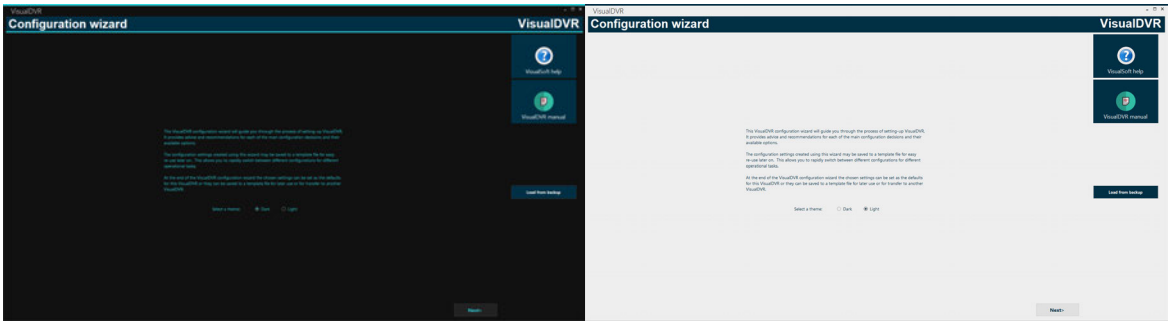
1.4.1 Dark or Light Theme

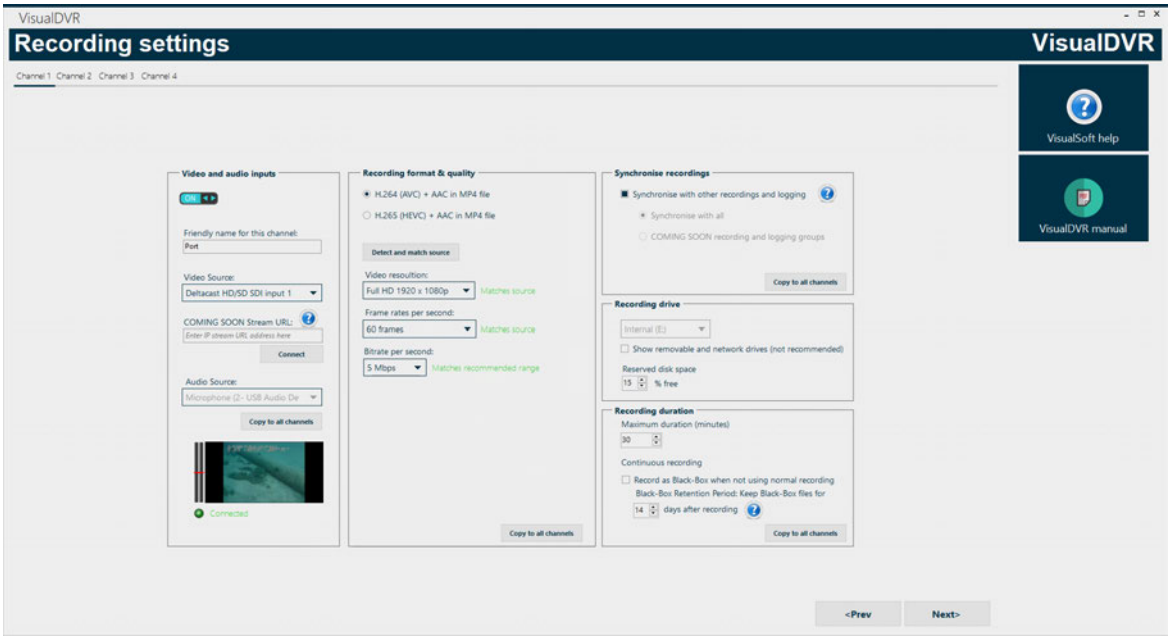
The first page of the Configuration Wizard lets you select a **dark or light Theme**. You might want the dark Theme for night-time use, and the light Theme for daytime or you may simply prefer one or the other. When you select a theme it will change the background colour of the Configuration Wizard, or VisualDVR itself and of the companion applications such as the Storage Manager and the Video Player. Below you can see both dark and light versions of this page.

Click Next in the bottom right corner to move to the next page of the Configuration Wizard.



1.4.2 Recording Settings

There is one page of Recording Settings for each of up to four video channels. The next few pages explain these Recording Settings – if you work through the boxes in order, left to right, top to bottom (as we will in this help), it is not as complicated as it first looks!



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Video & Audio Inputs

Turn a video channel on using the sliding button at the top left, as shown in the picture below, then follow the steps here to configure video and audio settings.

1) Enter a "friendly name" for your camera, for example Port or Centre, so that you can identify the cameras easily. The name that you type will be used in VisualDVR and offline in VisualEdit and VisualReview. It is the name that your client will see in all recordings so keep it short and simple but descriptive.

2) Choose the Video Source from the available options. You may have a network stream, or a physical connection from a capture card.

   a) If you have a capture card, such as Winnov Videum, select the relevant channel, e.g. Videum 1.1, 1.2, 1.3 or 1.4. When you select a device with a live video connection you will see it in the preview window.

   b) If you have a network stream, enter the Stream URL being sent out by your camera then click "Connect". When it is connected, it will appear in the preview window.

3) Choose the Audio Source from the available options. To the left of the video preview are small audio level indicator bars, so you can tell whether the selected source is working or not. Click "Copy to all channels" to use the chosen audio settings on all other channels. (You will almost always want the same audio commentary on all cameras.)

4) You can adjust the recording volume using the small red bar — on the audio level indicator. Drag the bar up or down to change the level.

5) If you want to save these settings to use later or to use on another DVR, click "Save input settings". You can then select the destination to save the VisualDVR input settings file (*.vsins). Next time you come to this page you can load those saved settings using "Load input settings" at the top of this section.

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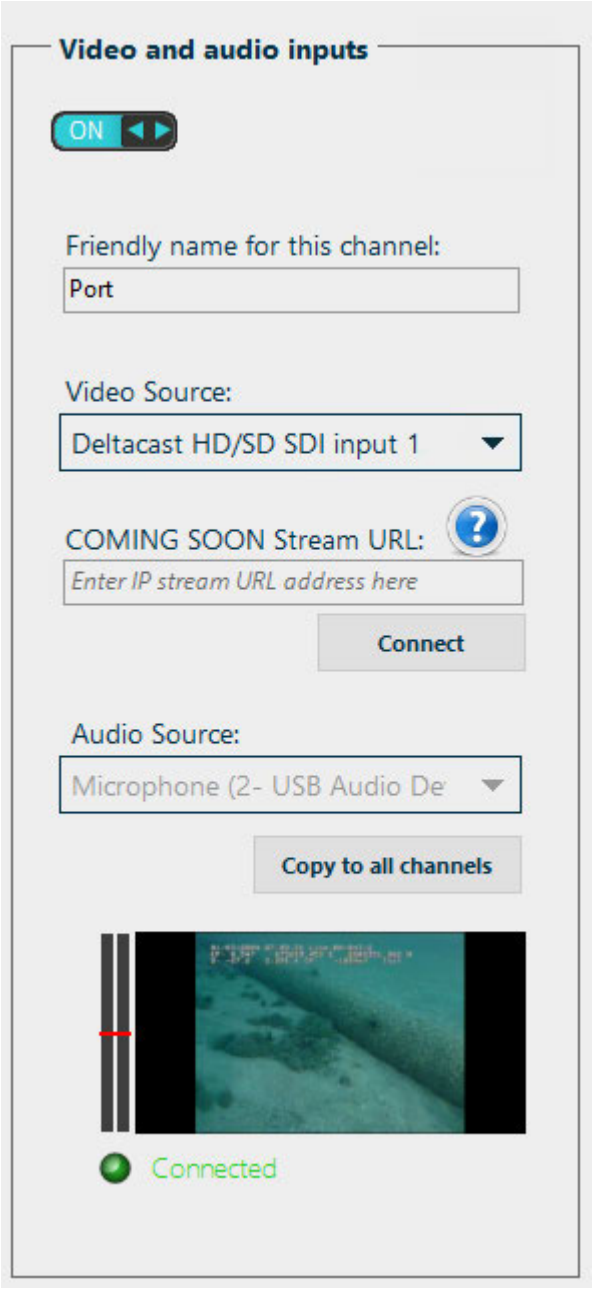

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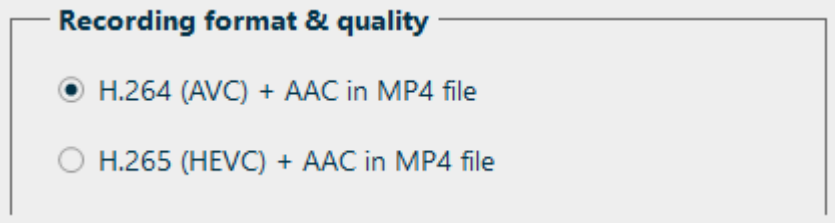
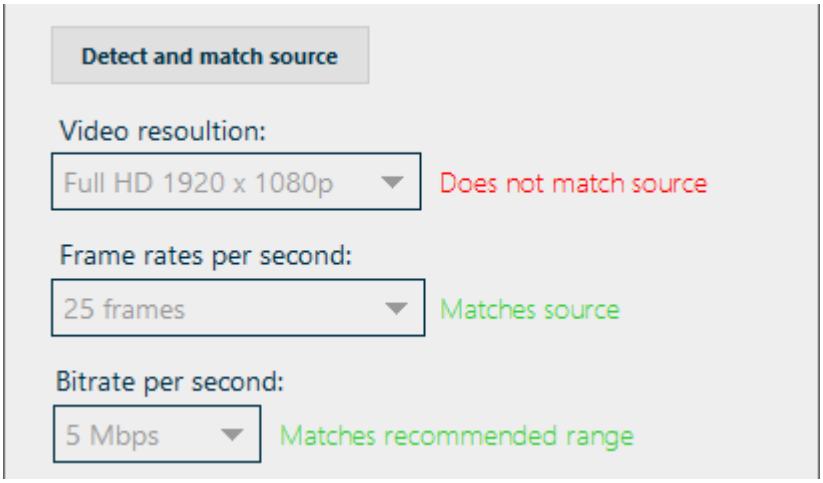
Recording Format and Quality

VisualDVR is set to record using H.264 (AVC) + AAC in MP4. Using H.264 will allow for smaller files with the same quality, and H.265 even more so - but before using H.265 you must ensure that your client is able to play it. In later software versions we may re-introduce some of the older formats used in the Legacy Edition of VisualDVR.



We recommend that all channels are recorded using the same format. You can use the "Copy to all channels" button to quickly set the format for all channels.

Use the "Detect and match source" button to set your **video resolution** and **frame rate** to exactly match your camera signal. If necessary you can manually change these. You will see either red or green text, as in the example below, depending on whether or not we think you have the most appropriate settings.



If you connect an interlaced video source, we will match it to the closest available progressive recording resolution and frame rate. In this case you will see orange text saying "Best available match". In this case we will also display a message telling about the detected signal and how we will record it.

You can also change the **bitrate** for your recording. This will vary depending on your camera source, so we have included recommended ranges. Text to the right of the box will either be green (Matches recommended range) or red (Does not match) and will warn you if you have selected too high or too low of a value. Too low and the recording quality

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may be poor. Too high, and the recording file will be larger than it needs to be, without increasing the quality.

See our Glossary 103 for further explanation of terms including Resolution 106, Frame Rate 104 and Bitrate 104.

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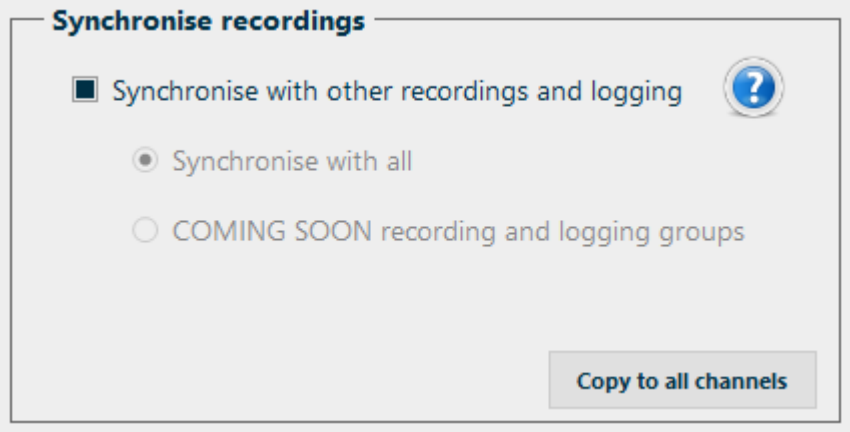
Synchronise Recordings

You will usually want all of the cameras or channels on your VisualDVR to start and stop recording together, so you should turn on "Synchronise with other recording and logging". This will mean that unless configured differently any other video channel on this DVR or another DVR, and any other VisualSoft logging device such as VisualDataLogger will all start and stop at the same time.



In a future update you will be able to "Synchronise with a recording and logging groups" so that you can have more than one group of video channels and loggers.

To apply the chosen setting to all cameras / channels of this DVR, click "Copy to all channels".

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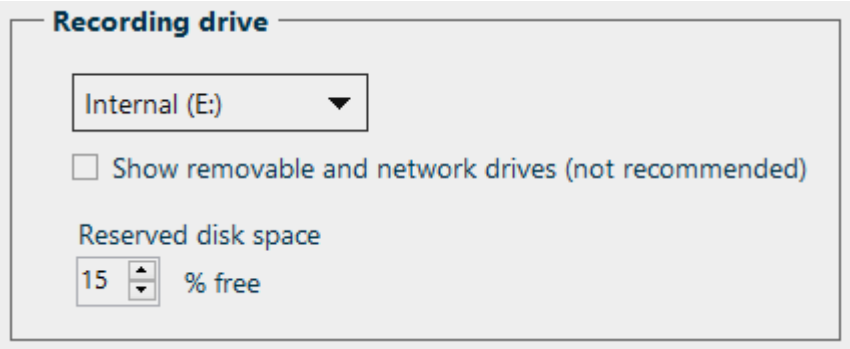
Recording Drive

Video is recorded to internal disk drives. We recommend that a separate drive is used for each video channel. You can choose from the list of available drives. Red warning text which will appear if you are using the same drive for more than one channel.



It is possible to record to removable or network drives but this is not recommended and should be avoided unless there is a serious problem with all of the internal drives.

Normally the reserved (free) disk space on each of the internal logging drives is 15%. You can increase or decrease the amount of reserved space if required, but we recommend that you leave it at 15% to help the efficiency of the recording process.

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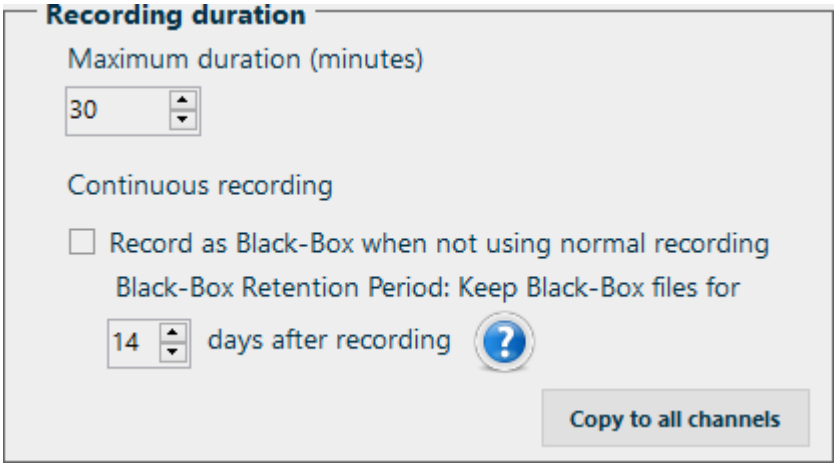
Recording Duration

By default DVR records files that are no more than 30 minutes long. This means that if the recording reaches 30 minutes long, a new file will start automatically with no gap. You can change the maximum duration if you want to; some companies prefer 15 or 20 minutes.

The option to record in Black-Box mode can be turned on with Continuous recording. Black-Box mode records continuously from the moment the DVR application starts until it is shut down, or until Continuous Recording is turned off. You are still able to record normally using the standard Start and Stop buttons. If you start a normal recording the Black-Box file will close and a normal file will open with no gap. When you end normal recording the system will go back to using Black-Box files. Black-Box recordings are typically kept for a minimum of 14 days. After that they are deleted automatically to stop the recording drives becoming too full. You can change the number of days that Black-Box files are kept, but try not to set it too too high as the recording drive space is limited. If you need to save and keep a Black-Box recording you would probably expect to know about it within a few days so you don't need to keep them for too long. (To keep a black box fie you can drag and drop to a copy target in the VisualDVR Storage Manager.)



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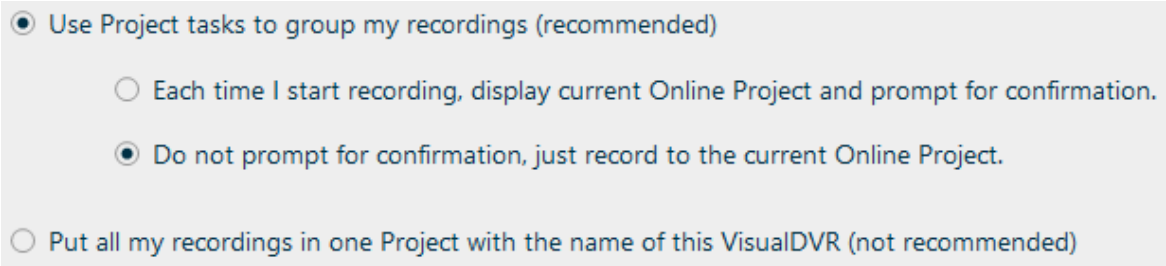
1.4.3 Projects and Tasks

All video and other data in VisualSoft applications can be grouped using "Projects" or "Project Tasks". A Project might be one pipeline or one oil field, or one platform, template or manifold structure, or perhaps one wind farm site. A Project can have Sub-Projects, so an oil field Project might have Sub-Projects for different pipelines or platforms, and a wind farm Project might have Sub-Projects for each different turbine. A Project that represents an annual inspection campaign might have Sub-Projects for each entity being inspected, and perhaps further Sub-Projects drilling down into components of those entities.



You will see different of options for Project Tasks in the VisualDVR configuration wizard and settings menu. You can choose to be shown a promptwith the name of the current Project each time you begin recording. This will allow you to cancel recording if the wrong project is set. Or you can choose to select a Project the first time you start recording, and then continue to use this until you change it. Sometimes it might be useful to get a prompt for every individual recording session, for example on a structure inspection with lots of short videos that are probably each looking at different things. At other times, such as during a pipeline inspection, you will be recording the same pipeline for a long time with many starts and stops. In that case you probably do not want a prompt each time.

If you do not have any Projects created in advance, the recordings will be put in a default Project created with the name of the VisualDVR PC where the files are recorded. You can always move the recorded data into a different Project later, but it is best – and probably far easier for you and your offline colleagues – if you select the Project before recording.

Please refer to How do I create a Project? 66 and How do I choose a Project? 68 for further explanation on these aspects of the Project tree.

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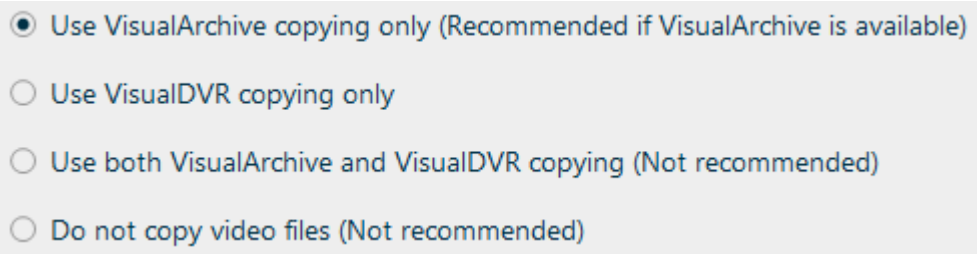
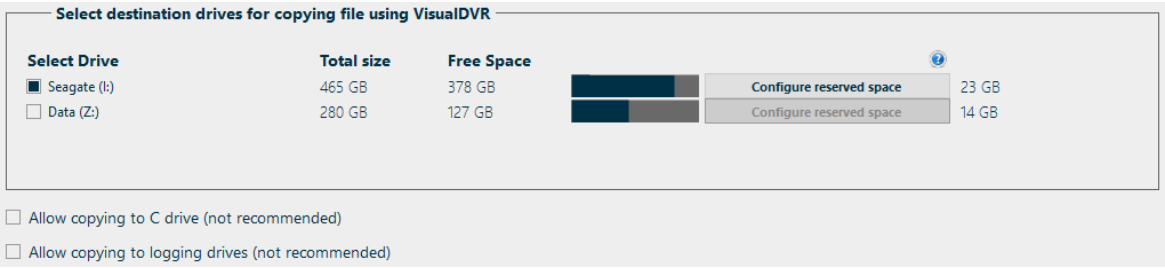
1.4.4 File Copying

There are a few different options for copying files that have been recorded in VisualDVR:



If you have a VisualArchive PC available then it is recommended that you use it to handle all file copy operations. In this case, you need to make sure that VisualArchive has access to the folders where the datasets, including video files, are located on the VisualDVR PC(s). This is quickly and easily done in the Online Setup section of VisualArchive, as described in the VisualArchive User Manual.

If you do not have a VisualArchive PC, then you should use **VisualDVR copying**, (previously known as Auto-Copy**)**. When you select this option you are asked to choose what drive(s) to copy to. We recommend that you do not use the logging drives or the C: drive. Instead you should copy to an external USB drive or NAS (Network Attached Storage) drive.



You can choose to use both VisualArchive and VisualDVR for copying at the same time but this is not recommended. Note that if you do select this option then you **must** set VisualArchive and VisualDVR to each copy to a different disk drive. Copying the same files to the same drive twice serves no purpose will cause conflicts between VisualArchive and VisualDVR.

Finally you can choose to not the copy video files at all but this is also not recommended. You should always make at least one, and preferably multiple copies of your files. If you make no copies and the logging disk fails you might have to repeat a survey. **It is always a safer option to make copies of your video recordings even if you might decide later that you don't need to keep them.**

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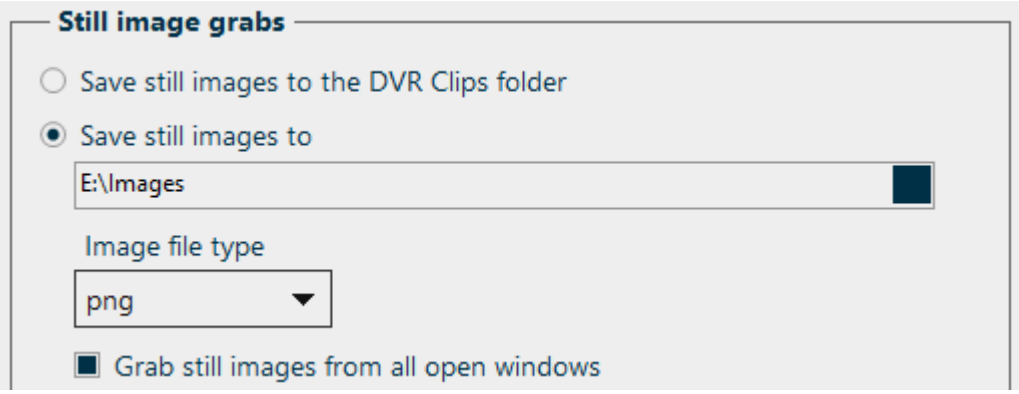
1.4.5 Still Image Grabs

VisualDVR will normally save still images to a “DVR Clips” folder on the first logging drive. If the first channel is logging to the E: drive then the still images will be in E:\VisualWorks\DVR\Clips.

If you want to use a different folder, choose the option "Save still images to" and click the button in the box below that to locate the folder you want to use.

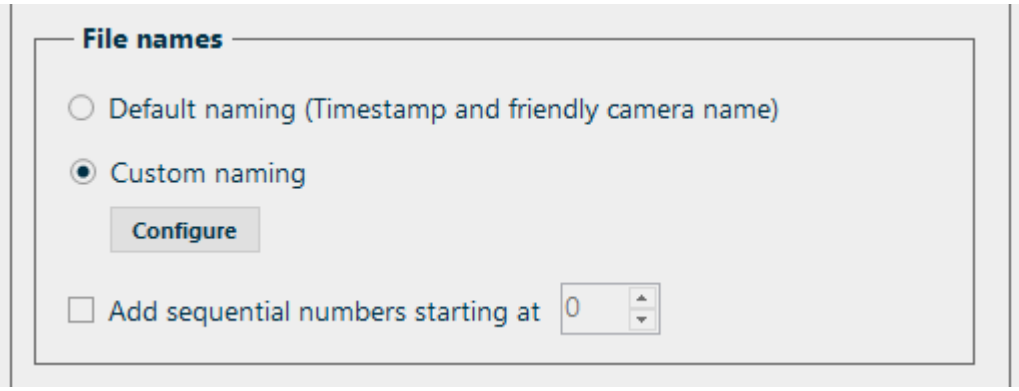


Still images are normally saved in a PNG image file format, but you can change this to any of BMP, PNG, JPG, TIFF or TGA.

You can choose whether you want to grab still images from all open video windows, or only the one where you click the camera button.

Still image or video clip file names normally use the date and time (in UTC) and the camera’s friendly name.

If you want to create your own file name format, choose "Custom naming", and click the Configure button just below that to open the file name builder.



The file name builder (shown in the picture below) lets you build a file name template from a list of name components shown in the yellow box on the left. Available components include; date, time, project information, and channel number.

Simply drag and drop the components you want from the list into the wide preview box above the coloured lists. You can also drag and drop inside the preview box to get things in the correct order.

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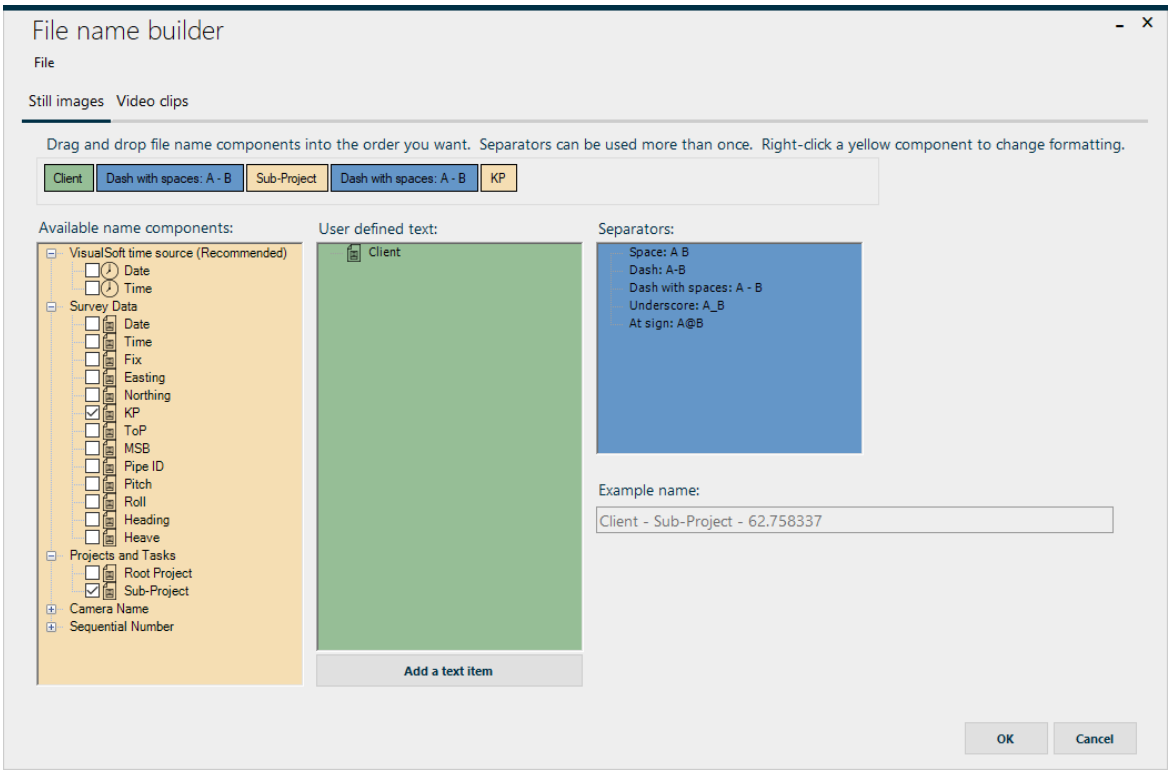
Right-click the coloured boxes in the preview for formatting options or to remove them.

You can create your own text to use in the file names by clicking “Add a text item” below the green User defined text box.

In the blue box on the right are some commonly used separators such as spaces, dashes, and underscores. These can be included in the same way, by dragging and dropping them in the preview window, between the other name components.



For example image names can include the timestamp and the channel number or perhaps a formatted date and time with the friendly name:

"20220427145205148@Ch_1.png" or "27 Apr 2022 14-52-05@Port.png".

Note: If you do not specify a friendly channel name then the channel number will be used instead.

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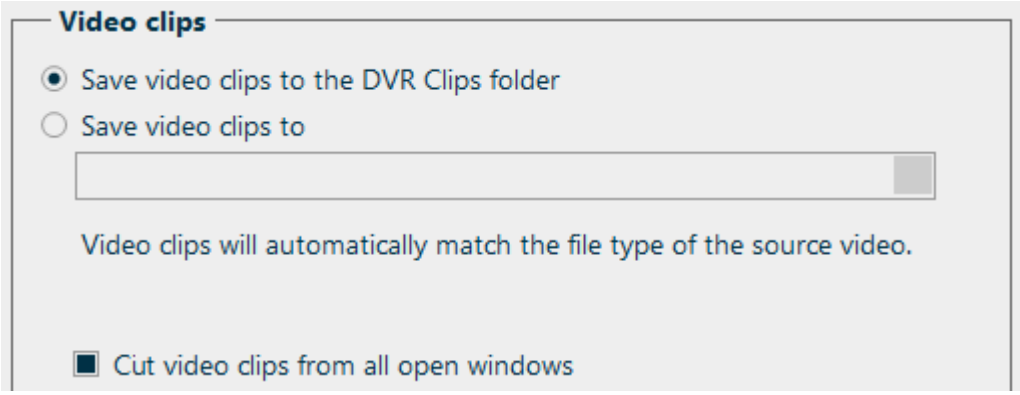
1.4.6 Video Clips

VisualDVR will save video clips to a “DVR Clips” folder on the first logging drive. If the first channel is logging to the E: drive then the clips will be in E:\VisualWorks\DVR\Clips.

If you want to use a different folder, choose the option "Save video clips to" and click the button in the box below that to locate the folder you want to use.

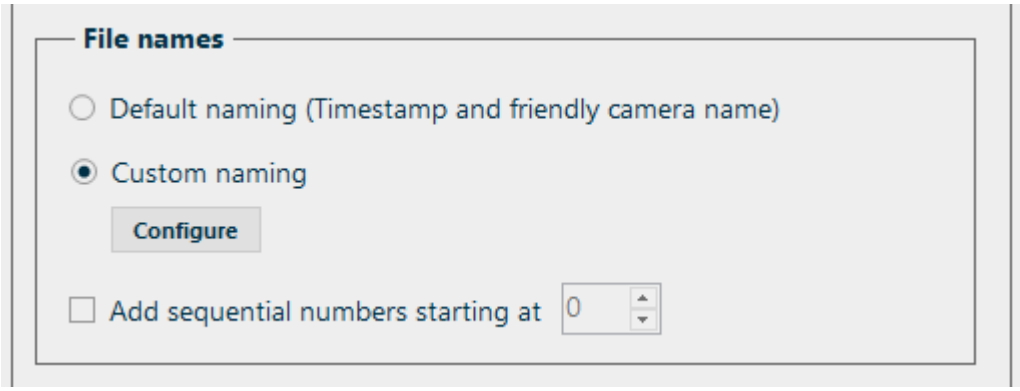
Video clip file types and encoding will match the the main recording settings.

You can choose whether you want to get clips from all open video windows or only the one where you click the clip button.



Still image or video clip file names normally use the date and time (in UTC) and the camera’s friendly name.

If you want to create your own file name format, choose "Custom naming", and click the Configure button just below that to open the file name builder.



The file name builder (shown in the picture below) lets you build a file name template from a list of name components shown in the yellow boxes on the left. Available components include; date, time, project information, and channel number. Note that there are separate entries for the start of the clip on the left, and the end of the clip to the right of that. This allows you to include start and end times, or start and end KPs

Simply drag and drop the components you want from the list into the wide preview box above the coloured lists. You can also drag and drop inside the preview box to get things in the correct order.

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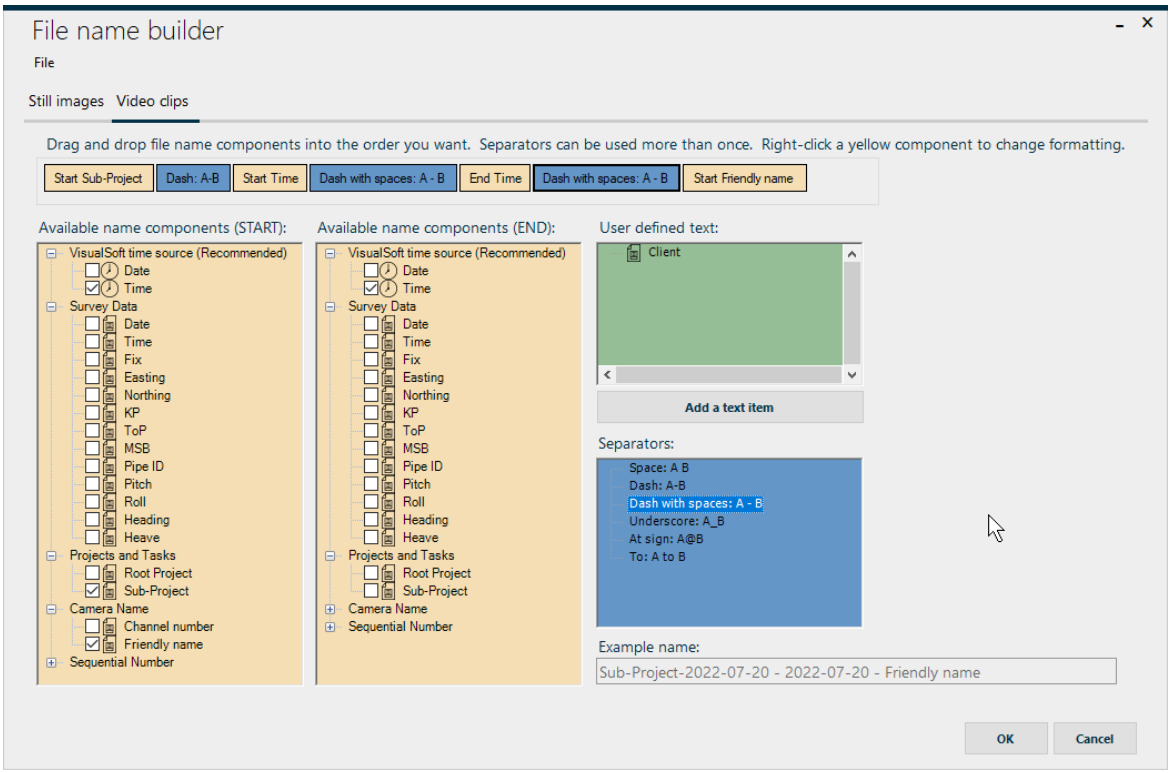
Right-click the coloured boxes in the preview for formatting options or to remove them.

You can create your own text to use in the file names by clicking “Add a text item” below the green User defined text box.

In the blue box on the right are some commonly used separators such as spaces, dashes, and underscores. These can be included in the same way, by dragging and dropping them in the preview window, between the other name components.



For example image names can include the timestamp and the channel number or perhaps a formatted date and time with the friendly name:

"20220427145205148 to 20220427145215211@Ch_1.png" or "27 Apr 2022 14-52-05 to 14-52-15@Port.png".

Note: If you do not specify a friendly channel name then the channel number will be used instead.

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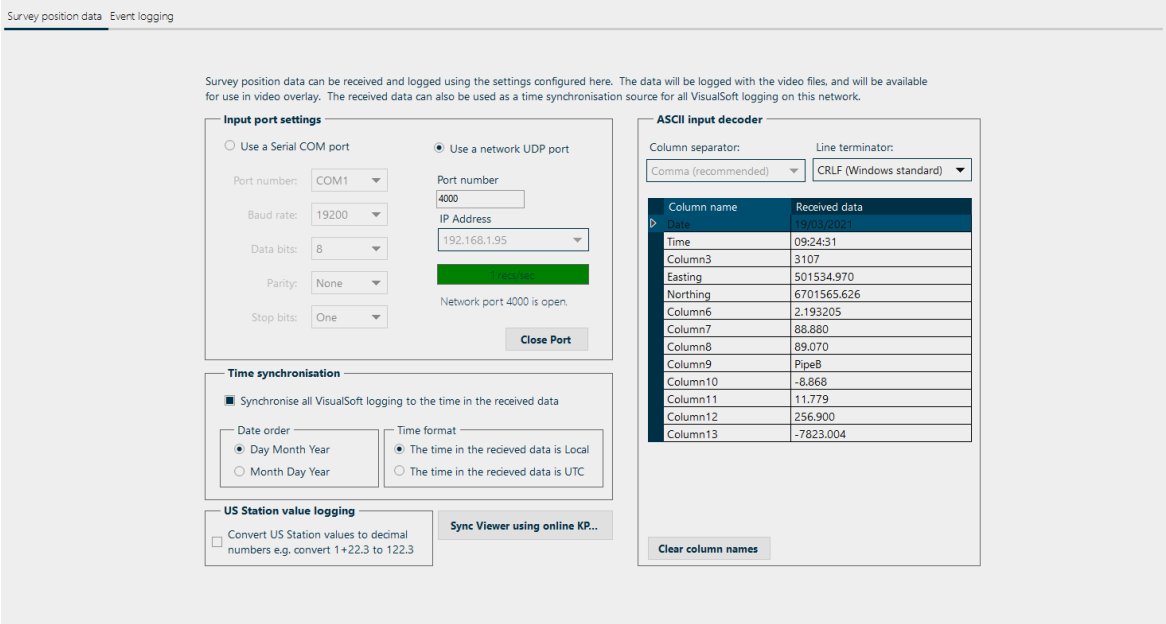
1.4.7 Survey Position Data

You can configure the input of the survey position data that will be logged with the recorded video files, and available for use in video overlay.



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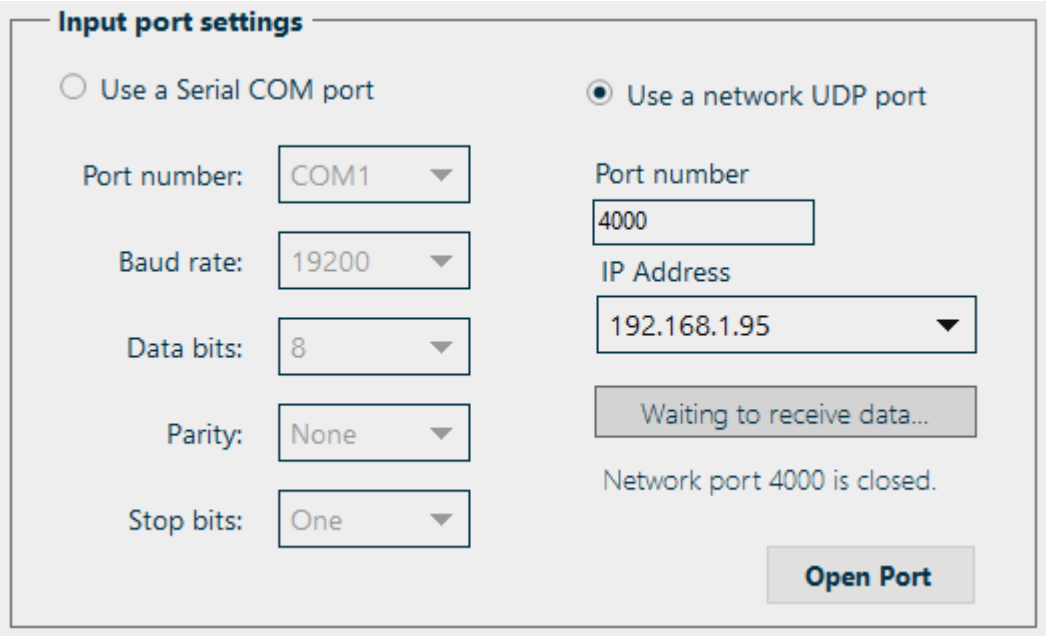
Input Port Settings

You can choose between either Serial or UDP Network inputs.

If you have a Serial input, you can change the settings below such as Baud Rate, Parity, etc. Make sure that these exactly match the setup at the other end of the serial cable - typically in your survey navigation software.

If you have a UDP network input, you should select the IP address of the port on which you are receiving the data.



Once you are happy with the settings, use the "Open Port" button to start receiving data. To the right-hand side in the ASCII input decoder section you will see the received data. If no data is received, check the settings are correct.

Within the ASCII input decoder section you should change the column separators and line terminators to match the source data.

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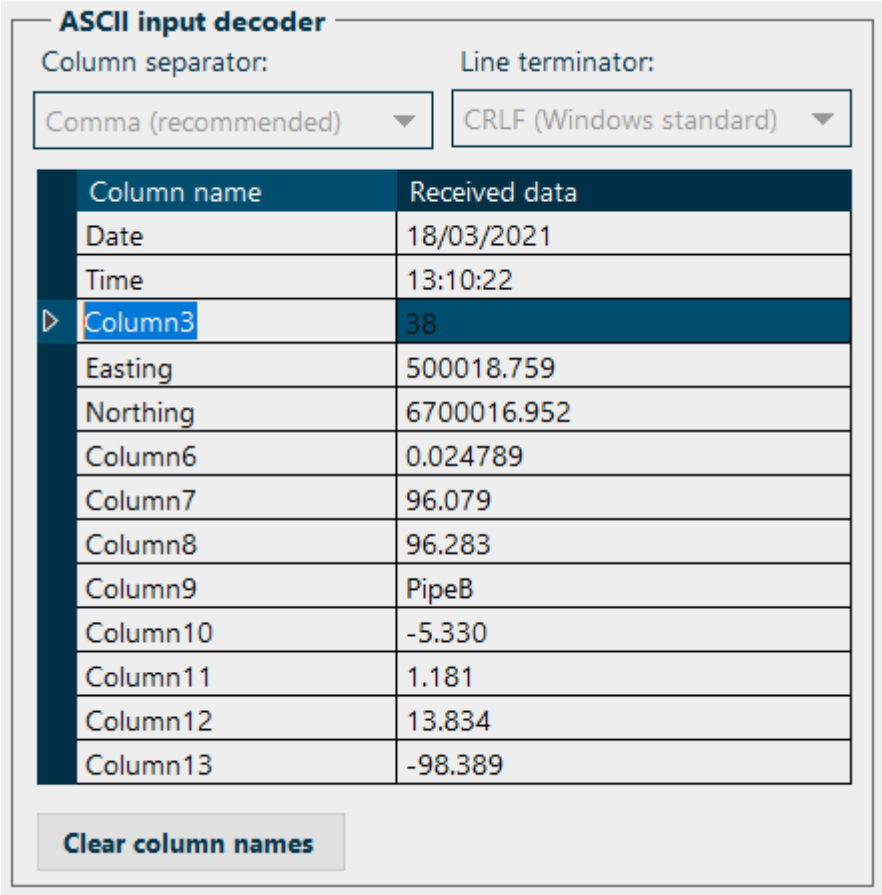
ASCII Decode

After you successfully open a Serial COM port or a Network port, the received data will be displayed on the right of the screen.

At the top of the box you can select the column separator and the line terminator. For most navigation systems the data will have commas as separators and will use Windows standard line terminators of Carriage Return and Line Feed (CRLF). Occasionally you may find semi-colons or other characters as separators, and if your navigation system runs on a Mac or on Linux/Unix you may see different line terminators. Modern Macs, and both Linux and Unix typically use only the Line Feed.

If you have the correct port, column separator and line terminator your data will be split up like in the example below. VisualDVR will try to identify some of the column names automatically. For example a column with two **/** characters is almost certainly a date, and one with two **:** characters is almost certainly a time. Easting and Northing are likely to be "very big numbers" - but **be sure to check** that they are identified the right way round. In most regions of the world Easting is given before Northing, but in some regions and countries they are reversed and Northing is first.

For any column that has not been named correctly just click on the name (as with Column3 in the example below) and type a new name over the top. Hit the Return key on your keyboard to move down the list to the next column name.



After making your configuration choices, click Apply, OK, Next or Prev to see your changes in VisualDVR.

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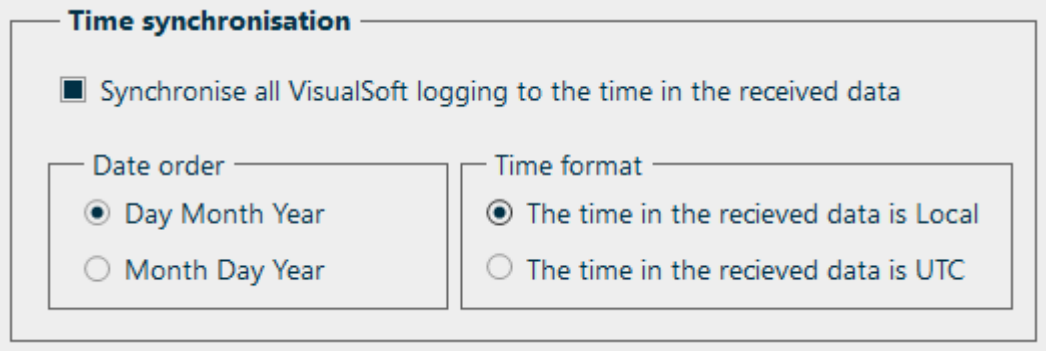
Time Synchronisation

If you want to use VisualDVR's received survey data as the source of all time synchronisation, you may do so. You must select the correct date format and time zone (Local time or UTC) to match what is actually being received by the VisualDVR in the data sent from your survey system.



See below for more information related to time and time synchronisation.

Timestamps and Synchronisation

Different data is logged by different computers. There may be one or more **VisualDVR** unit and one or more computers running **VisualDataLogger** or **VisualEventLogger**. All video and other data is recorded with a very precise timestamp that includes both date and time to a resolution of one millisecond. This timestamp is used to link different types of data, such as linking Cross-Profiles or Events to Position data and to the correct video image. It is therefore extremely important that the time source on each different logging computer is synchronised with the time source of all of the other logging computers. In the VisualSoft Suite, one data source or one clock can be selected as the VisualSoft Time Sync Source for all VisualSoft logging. This source might be a data feed from a navigation system into **VisualDVR**, a data feed into **VisualDataLogger**, or any of the other options listed below.

The user will select and configure the Time Sync Source when setting up the navigation feed or other system, and the selected VisualSoft application will then automatically pass this timing information around the network to all other VisualSoft applications.

The Admin Panel will display the selected Time Sync Source and show the UTC time that is being used by the logging applications. Any potential problems or conflicts will be highlighted in the Admin Panel and alarm messages will be published to alert all users.

Time Sync Sources

The Time Sync Source for the VisualSoft Suite may be any **one** of the following:

- A network time-server application, setting all of the internal computer clocks on the network. This is the **most accurate method**.
- A time signal from an online navigation system direct to all VisualSoft applications using the VisualSoft API.

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- Time and date in an ASCII "Survey Data" or "Position Data" string (via serial cable or network UDP) from an online navigation system to **VisualDVR**. This is the **most commonly used method** using data sent from applications such as HYPACK, QPS's QINSy, Eiva's NaviPac, Fugro's Starfix and others.

- Time and date in an ASCII data string (via serial cable or network UDP) from an online navigation system to **VisualDataLogger**.

- The internal clock on any one VisualSoft computer, selected via the **Admin Panel**. This method should be seen as a last resort, to be used only if none of the previous methods is possible. This method will not guarantee that the time is correct, but it will still allow all VisualSoft applications to use the same time, so even if the clock is wrong all relative timing will still be OK.

Time Zones and Daylight Saving

The VisualSoft Suite uses UTC time for all video file names and for other file names created by the online logging applications, **VisualDVR**, **VisualEventLogger** and **VisualDataLogger**. The advantage of this is that it does not vary as ships and computers move from one part of the world to another, and it does not jump forward and back by an hour at the start and end of daylight saving.

On the other hand, for many users of the video and other data it is more convenient and more natural to work with displays that show local time. Some companies even specify that they require local time to be displayed in video overlay text, but there are others who request the use of UTC time for everything.

Although the VisualSoft Suite will always use UTC for file names and internal timestamp data, users have the choice to display either UTC time or local time. This works by recording the Time Zone and daylight saving setting of the Windows clock at the time when the video or data was recorded. It is therefore very important that the Windows Time Zone is correctly configured for both location and daylight saving on all of the computers running applications in the VisualSoft Suite.

Understanding "Local Time"

Local Time has two components to it: First, a Time Zone based on **location** and second (in some locations) there is also a Daylight Saving component based on the **season**. Where you are determines a time zone as a fixed offset from UTC, and what time of year it is may add a further hour's offset for daylight saving. For example:

In Norway in the time zone is UTC plus one hour (known as Central European Time), and in summer there is an additional one hour offset for daylight saving, so the combined Local Time in Norway during the summer is UTC plus two hours, known as Central European Summer Time.

In Houston, Texas the location based Time Zone is UTC minus six hours (known as Central Standard Time in winter), and in the summer months there is a daylight saving offset of plus one hour resulting in a Local Time during summer of UTC minus five (i.e. UTC minus six, plus one), known as Central Daylight Time.

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Configuring VisualSoft PCs and Applications

1. Ensure that every PC has the correct location based Time Zone selected in the Windows clock settings.

2. Ensure that every PC has daylight saving enabled for places and seasons when it is relevant.

3. Double check that the two settings are the same on all PCs.

4. If sending date and time to VisualDVR or VisualData Logger as part of a survey data string, and if using that for time sync, make sure that you correctly indicate whether the data being sent has UTC date and time, or Local Data and Time. You can send either, but you must "tell" the DVR or Data Logger which it is.

5. If you want your video overlay to show local time, we recommend also sending local time (and date) in any data strings sent to a DVR. That means that when you view the data in VisualReview or VisualEdit everything will match.

If your software knows the Local Time and also has settings for the Time Zone and Daylight savings it can calculate UTC Time. So you can display and log Local Time and still have file timestamps in UTC.

If your software knows the UTC Time and also has settings for the Time Zone and Daylight savings it can calculate Local Time. So you can file timestamps in UTC and still display Local Time.

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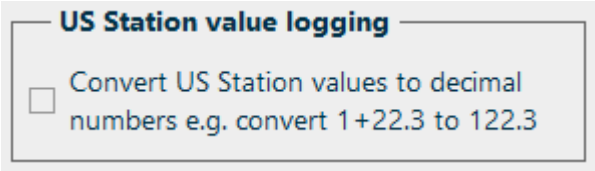
US Station Values

If your position data string includes US Station values using a + sign after the hundreds of feet, you will often need to remove this before logging the data. You can select this option at the lower left of the settings screen.



If you want to show Station values with the + sign in your video overlay, and you also want to log that Station data and have it displayed instead of "KP limits" in the VisualEdit, VisualReview and VisualArchive Project Trees then we recommend sending the Station value twice in your data string - one with the + and once without it.

Sync Viewer using KP

If you have video recordings and/or other data from previous surveys of the same route that you are surveying now, you can playback that old data with automatic synchronisation to the current ROV position. Your older data must be in a VisualSoft format so that you can load it in either VisualReview or VisualEdit. After loading your data in VisualEdit or VisualReview, on a different PC, return to VisualDVR and click the button to "Sync Viewer using online KP...".

This will open a small setup window where you can turn on and configure the synchronisation. This works by sending the decoded KP from your VisualDVR to a selected viewer PC where you are running VisualEdit or VisualReview.

Select the box at the top to turn this sync on, and then select the viewer PC. If you know its name you can type it, or you can click the button with the three dots to get a list where you can choose your remote PC.

Select which column of your decoded data yo want to sent to the remote viewer as the KP field. This is almost certainly called "KP", but it might be FP or Station, in some regions.

If necessary you can add an offset to the KP before sending it, or apply a scale factor.

At the bottom, select ascending or descending depending on which way your current ROV is moving.

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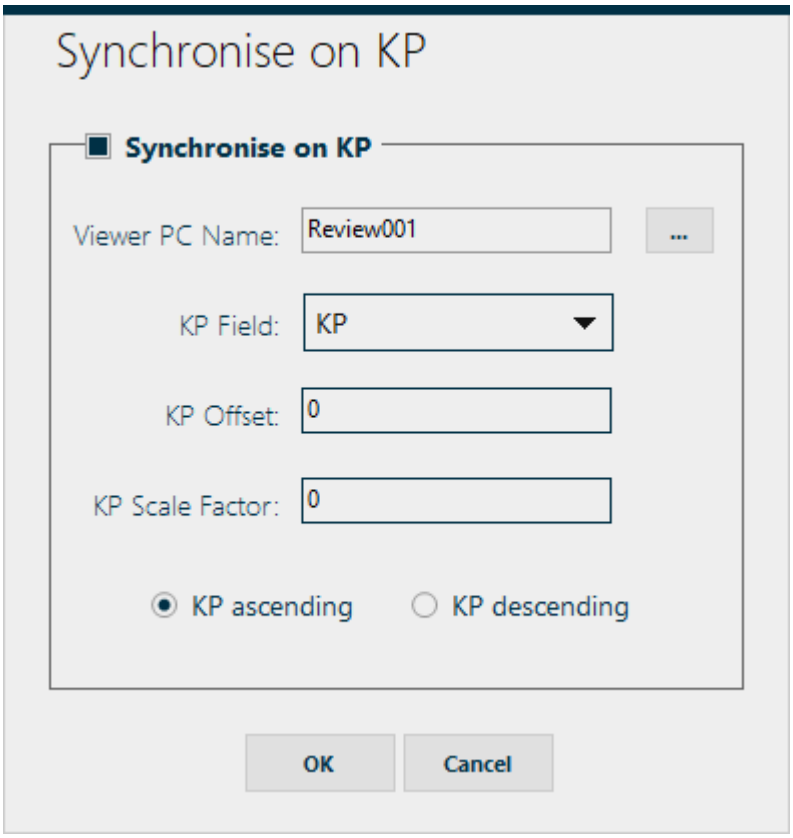

1.4.8 Event Logging

You can either log events using the VisualSoft Event Logger, with its toolbars, tablets and logging wizards, or you can use data sent from 3rd party applications via the VisualSoft API.

VisualEventLogger can be used to record inspection observations or incidents during a platform or pipeline survey, or to record features observed during construction work or other surveys.

VisualEventLogger records the time ***when*** something is seen and the position ***where*** it was seen, and then allows other information to be entered to describe ***what*** was seen. This can be done by selecting from pre-defined buttons, lists or other choices, or perhaps by typing in a description or the size of something.

Methods of entering data with the online **VisualEventLogger** include:

- A **Wizard**, which will guide you through the relevant data entry fields for a specific type of event or feature.

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- A **Toolbar**, where you can add buttons for the event types that you see most often. Clicking a button can either open the wizard for more detailed data entry or can use Quick Entry to log the event with no more questions.

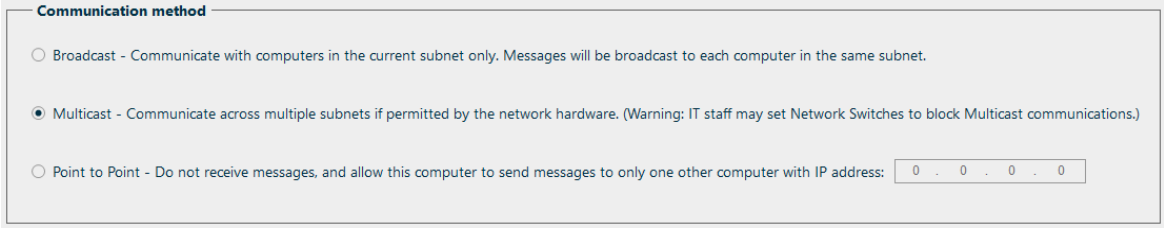
- A **Tablet**, which works the same as the Toolbar but gives you larger buttons that you can move and resize yourself.

- **Keyboard shortcuts** can be configured to associate individual keys or combinations of keys (such as F7, Ctrl+T or Alt+R) with selected event types.

For details see the help pages or User Manual for VisualEventLogger.

1.4.9 Network Settings

Communication method

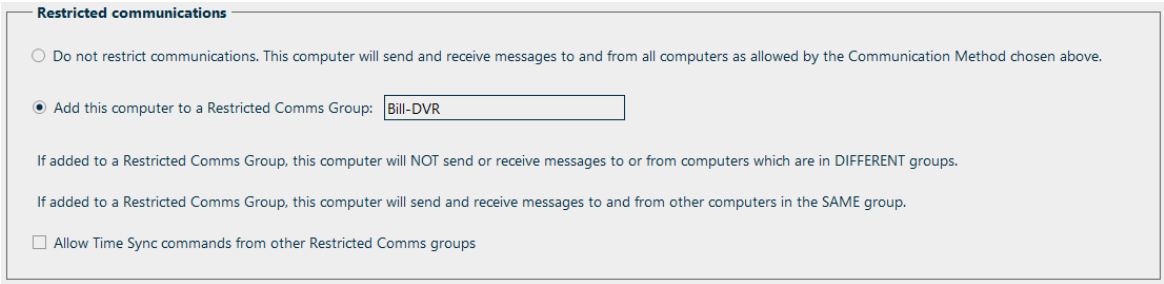


In general, the preferred communication method for VisualSoft applications is Multicast. This allows computers to communicate across multiple subnets, provided that is it permitted by the network hardware.

If Multicast is restricted by the network hardware or IT department you can change the method to Broadcast. This will limit the communication to only be between computers in the current subnet.

In very rare circumstances, you may want to limit communication so that messages can only be sent from this computer to one other. In this case you would require the Point to Point method, where you specify the IP address of the one other computer you want to send messages to.

Restricted communications



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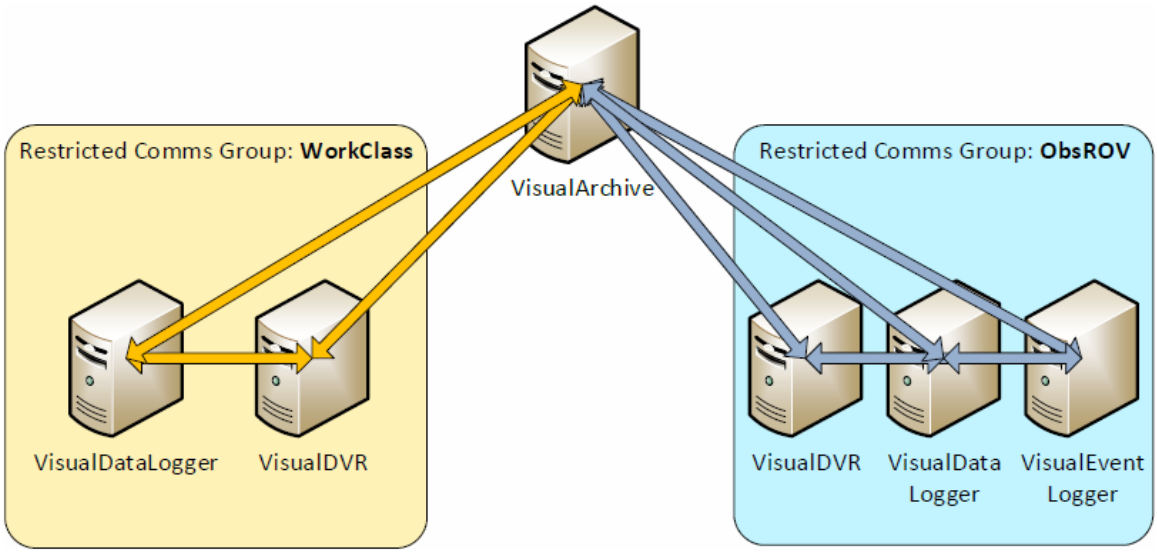
The purpose of restricting communications between certain groups is to ensure that messages are sent between the correct computers. This includes things like the start and stop commands.

For example, you may have two separate VisualDVRs recording video from different sources. In the case below, a Workclass ROV, and an Observation ROV. If you want to be able to start recording the Workclass ROV at a different time from the Observation ROV you would need to place each VisualDVR in a separate restricted communication group.



The two groups also need to include any VisualDataLogger and/or VisualEventLogger computers used for each ROV. The example above shows a VisualDataLogger assigned to the same group as the DVR in the WorkClass comms group, and both a VisualDataLogger and a VisualEventLogger in the ObsRov group. You can see how the gold and blue arrows show PCs communicating with each group, and also all communicating with the unrestricted VisualArchive.

If you want both of the VisualDVRs to start and stop recording at the same time, then you need to have them both in the same restricted communication group.

Note: You would not normally want to add a VisualArchive computer to a restricted communication group. The VisualArchive computer needs to be able to see ALL VisualSoft computers on the network to successfully copy and backup data.

NIC Metrics

If you have more than one active network on your PC you may need to set the "metrics" to prioritise one over the others, and so force the communication between VisualSoft applications to use that one. For more details see NIC Metrics and Network Priority in the VisualSoft Admin Panel User Manual.

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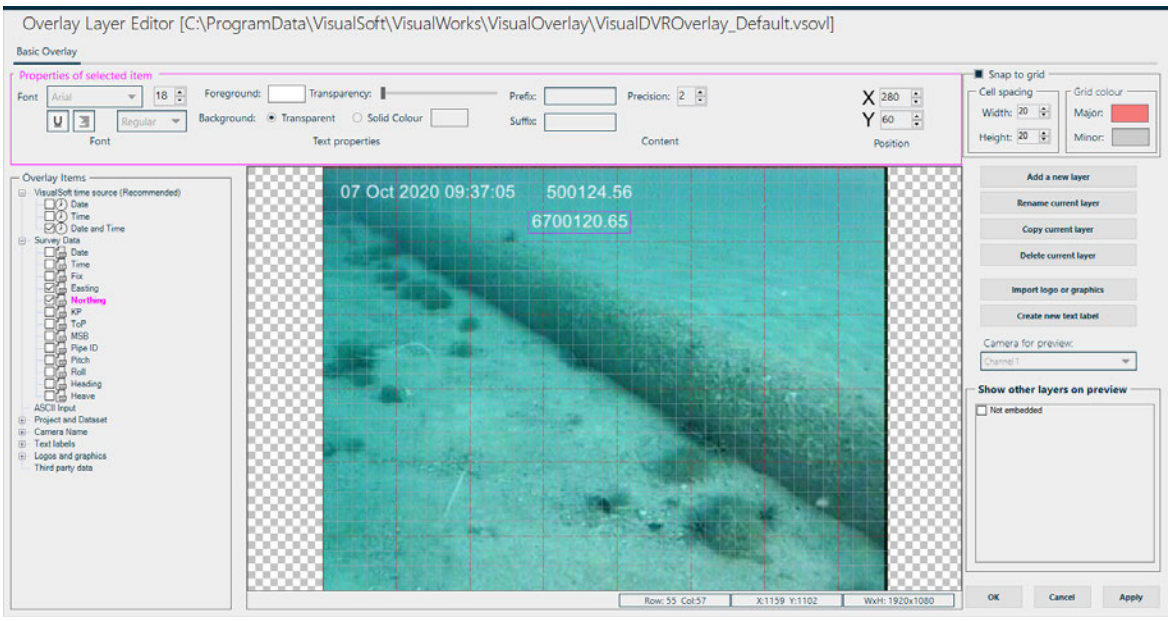
Advanced Network Interface Card Metrics

On a VisualDVR with more than one connected network, you may need to adjust the NIC Metrics so that communications between VisualSoft applications are sent on the correct network. See the Advanced Network Interface Card Metrics section on the Network Comms tab of the VisualSoft Admin Panel.

1.4.10 Video Overlay

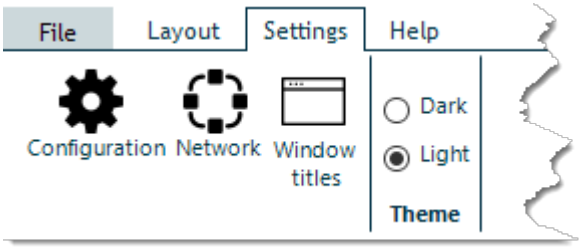
In VisualDVR (2023 Edition), the video overlay is more advanced than the Legacy Edition of VisualDVR. It keeps the basic concept of a list of data, text and graphics items on the left, and keeps the ability to drag and drop these items into a preview window, but it also has many extra features.



How do I create a Video Overlay?

VisualDVR uses overlay **layers** each of which can be configured to show different information. This can include things like: date, time, company logos, and survey position data. An overlay layer can be embedded into the recorded video, or it can be shown on screen without being recorded.

There are three different ways to open the overlay settings: Use the start-up configuration wizard, select Settings from the DVR ribbon toolbar and then select the Overlay tab, or simply press F6 on your keyboard to jump straight to the Overlay settings tab.



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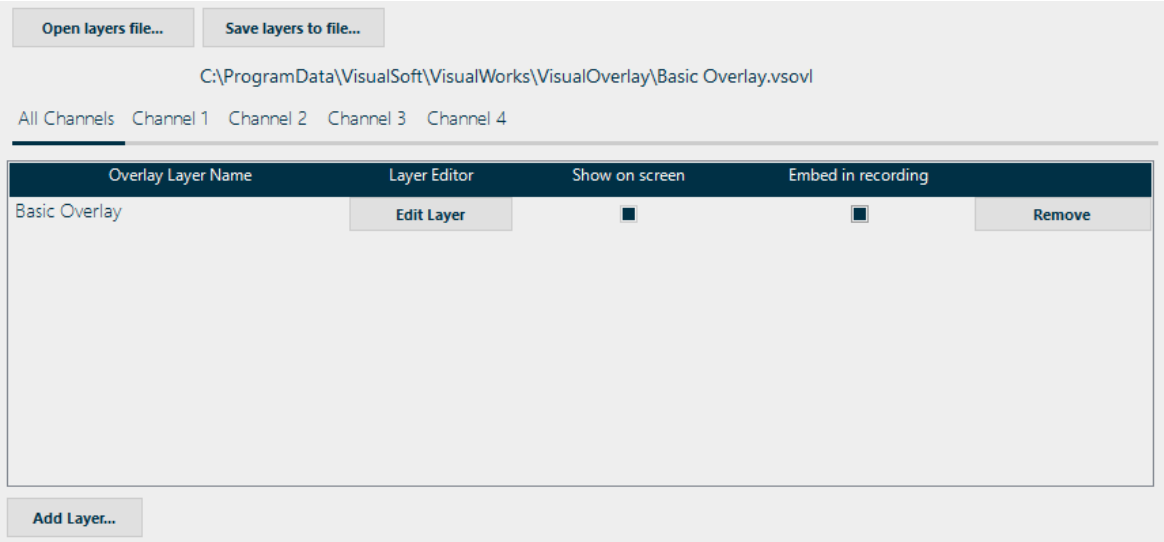

To create a new layer click Add Layer... at the bottom left of the Overlay settings. This will open a window with the layer name which you can change to something descriptive such as "Position Info" or "Logos". When you click OK in the name box, the editor screen will open with available data items on the left, a preview in the centre of the screen, and some settings to the right and above. (If you need to rename a layer later, there is a button on the right of the editor screen.)

If you have an overlay file (*.vsovl) from a previous job then you can click Open layers file..., and select the saved file location.

To edit and arrange the layout of data, text and logos in an existing layer click Edit Layer in the row with the layer that you want to edit.

Remember to save your overlay layers by clicking Save layers to file.... If you have multiple VisualDVR units, you can use this file to quickly set the same overlay on each of them.

Tips and Tricks: You may find it useful to create separate layers for certain groups of items. For example, you may have one layer for your logos, and another layer for your survey data. A layer can be shown on screen, but you can select not to embed it in the recording. So you can have one layer with items you only need to see on screen and another layer with items you need to both see on screen, and also embed in the recording. One example might be to have an extra large KP display shown on the preview screen that is not embedded into the recording. On another layer the same KP could be displayed and recorded using a smaller text size. Note that if a layer is to be embedded in the recording it will also be shown on screen; you are not allowed to record something that you cannot see on screen.

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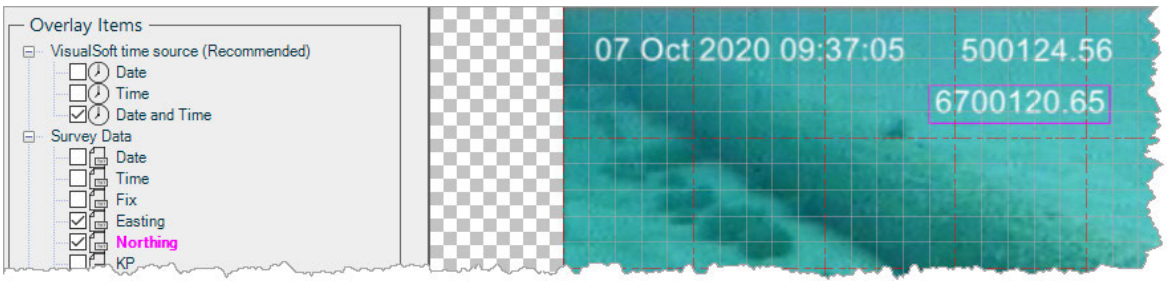
Adding Overlay Items

The items that can be added to an overlay layer are listed in the tree on the left-hand side, as shown below. You can either drag and drop items into the preview window, or toggle the check-box to turn items on and off. If you use the check boxes, the items that you add will appear in the middle of the preview and you can then drag an drop them in the correct place. It is probably quicker and easier to drag them from the list to the correct place in one go.



Overlay items can be one of the following types:

Date and/or time	We recommend using the "VisualSoft time sources" shown at the top of the list. These use the "time sync" source selected in VisualDVR or VisualDataLogger, and will therefore always match the logged data and the file names. You can have date and time as one item, or you can use two separate items if you want to position one above the other.
Survey Data	These are the data columns from the Survey Position Data 39 input sent from your navigation software to the VisualDVR.
Project and Dataset	You can show the name of the current online logging Project or Sub-Project
Camera name	This lets you show the channel number or its "friendly name". It will appear differently on each channel so the relevant name or number is used in each case.
Text labels	Create your own text labels by clicking Create new text label to the right of the preview screen. This allows you to enter a name for the label, making it easier to find in the Overlay Item tree, and also add the content of the label itself. A label might be used for the name of the client, the name of the inspection company, the name of your ship or the name of your ROV... or anything else you want to write on the video screen.
Logos and graphics	You can add logos for your own company or your client. To add a logo click Import logo or graphics on the right-hand side, and

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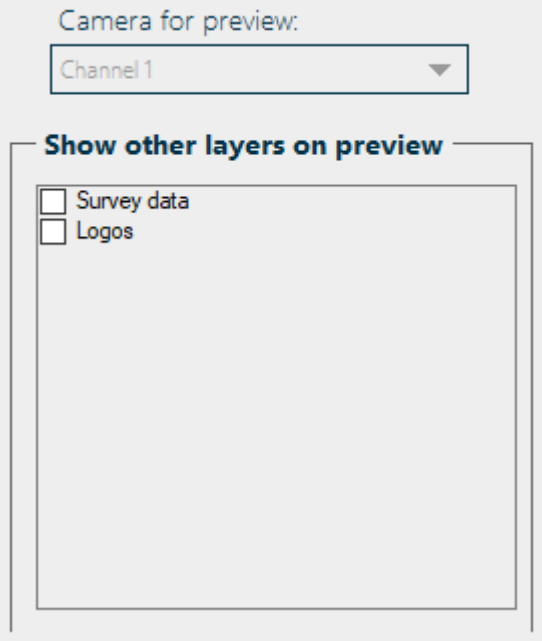
	navigate to the file location on the computer. Compatible image types include BMP, JPG, JPEG, GIF, TIF, TIFF and PNG.
Third party data	This will list any data sent from outside VisualDVR and may include VisualDataLogger or other applications from other companies, such as AiZe's Coabis, Wood's NEXUS and so on.

If you want to add a custom text label or logo, you will need to create or import them before they will be available in the item tree.

If you are creating multiple separate layers, it is useful to be able to show all of them on the preview screen at the same time to make sure items are not overlapping.



In the example above, you can see that Channel 1 is currently selected as the camera shown in the preview. You are able to select from any of the available channels to see how your overlay looks on all of them. Here we have created two layers, one for our survey data and another for our logos. These can be toggled using the check-box and allow us to see the position of our logo relative to our survey data.

Editing Overlay Items

You can change properties such as the font or size of an item using the section at the top of the overlay editor. When you select an item, you will see a magenta outline around the properties pane at the top, the item on the preview screen, and in the Overlay Items tree on the left.

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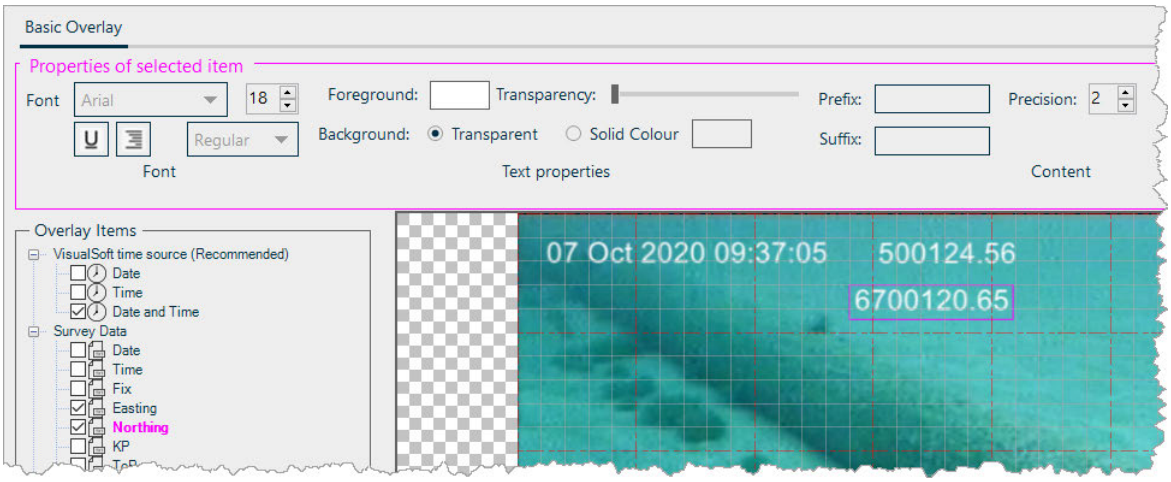
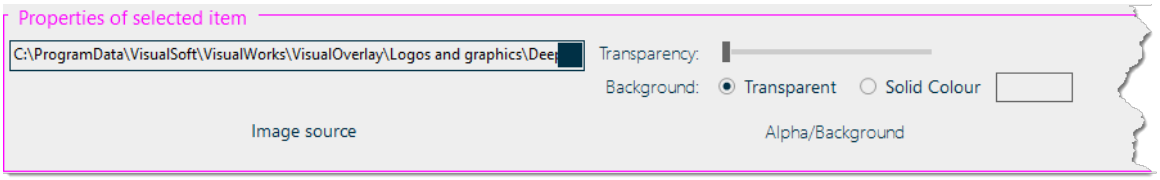


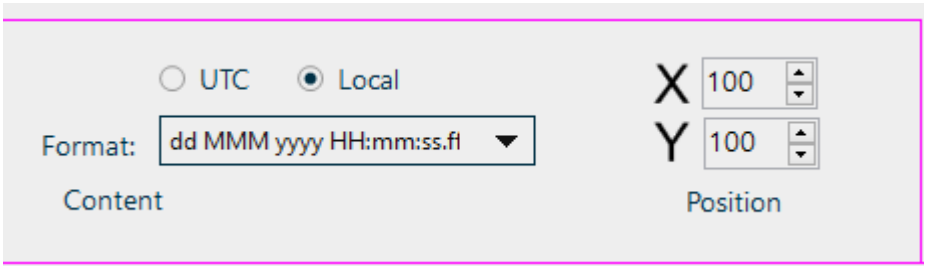
The basic properties of text items you can change are the font, size, colour and background.

Text can be underlined using this button U, or right justified using this button .

What you see in the properties area will depend on the type of item that you select; it will only show properties that are relevant to the selected item. Data or Text items let you change fonts and colours. Items like logos or graphics allow you to change the path to the location of the file, and the transparency or background settings.



Some items have additional properties, for example, you can change the display format of date and time items, and for all item types you can change the X,Y position of the item.



While the position of items is most easily changed by dragging and dropping on the screen, you can manually change the X and Y position values seen in the image above. The size and the display colours of the grid in the preview window can be adjusted using the settings in the top right corner. You can also turn off "Snap to grid" if you want to position everything yourself. We recommend leaving it on so that items can be aligned quickly and easily.

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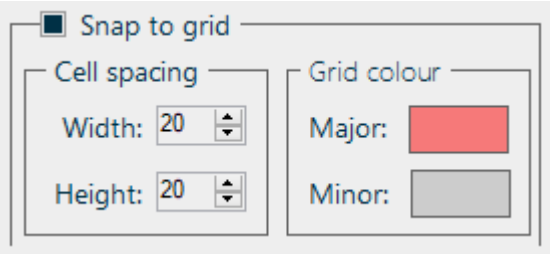

Removing Overlay Items

You can remove items from screen using the Overlay Items tree: just uncheck the box for the item.

You can also right-click on an item on screen and you will see the options for "Remove" or "Remove All".

"Remove" will only remove the item you clicked on, whereas "Remove All" will clear the screen of all overlay items.

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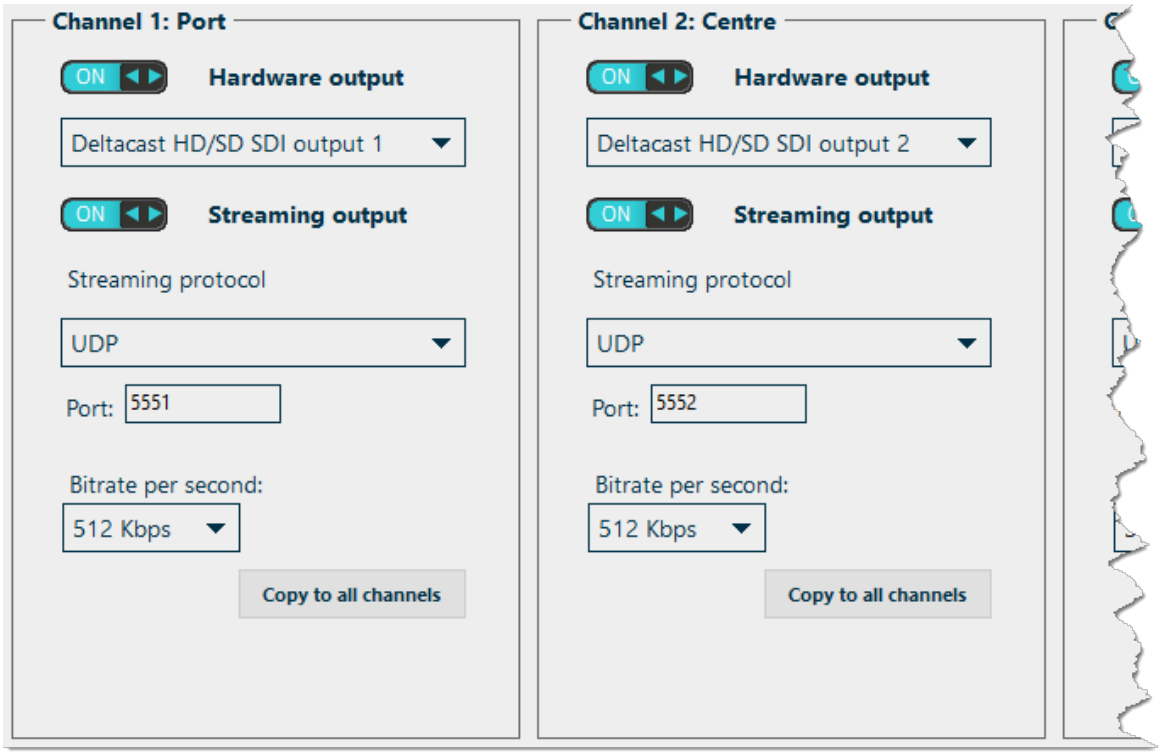
How do I output video and overlay?

Each channel of video can be sent as an output to other displays. This can be done using network UDP IP streaming, or SDI. The output will also include any overlay layers with the "Embed in recording" option selected.



The example above shows both UDP IP streaming output and SDI output

Note that each channel should use a different port number. We recommend 5551, 5552, 5553 and 5554 for the four video channels.

Tips and Tricks: If the stream output looks pixelated, try increasing the Bitrate of your output. This may affect the network performance if you are sending many channels to many screens. You should try to find a balance between picture quality and network bandwidth - do not set the bitrate higher than you need to get an acceptably good picture. Streaming as H.265 instead of H.264 will let you use a lower bitrate for the same picture quality.

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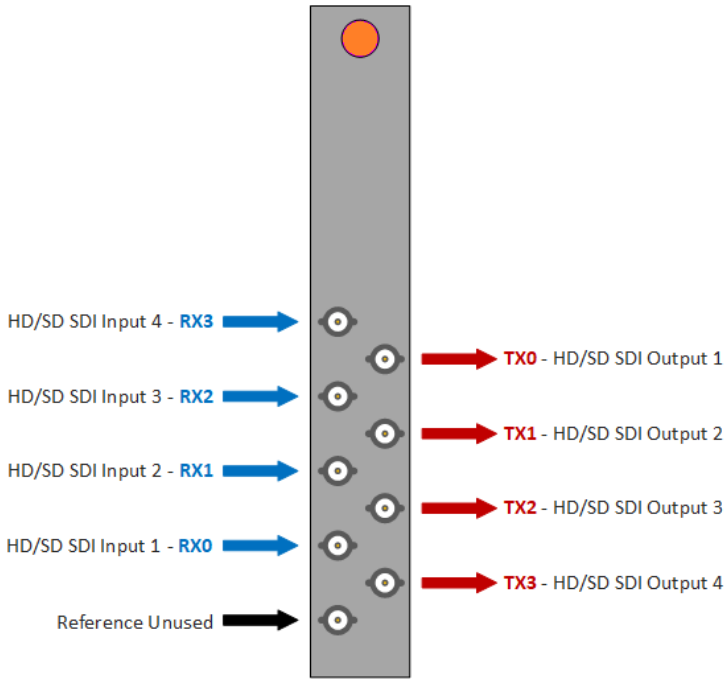
1.4.11 Hardware connections for video+overlay output

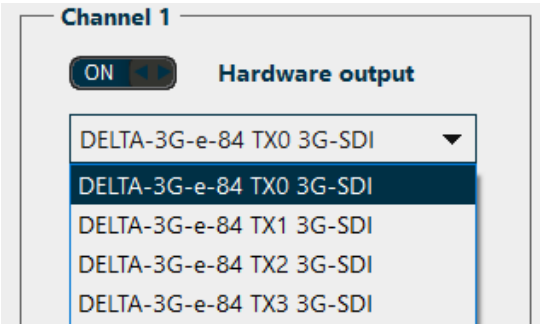
To output video with overlay from the Deltacast DELTA-3G-elp-d-8c/84, first connect the supplied mini SDI to SDI cables to the TX0 to TX3 output ports as shown by the red arrows below.



Outputs for each active channel can be configured from **Video Configuration > Video Outputs**.

Each of the hardware outputs can be configured to send the video plus overlay from the selected channel.

Turn the hardware output on and choose the physical connection from the drop down menu, as shown below.



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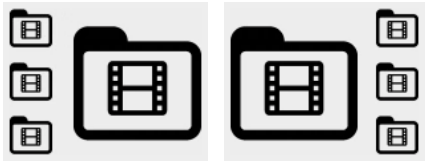
1.4.12 How do I change the video preview layout?

Depending on the number of channels or cameras you have connected, you may want to change their position on the screen.

If VisualDVR is already open, the video layout settings are found in the Configuration menu from the Settings ribbon at the top of the screen.

Video Panel Layout

The video panel layout options include:

Horizontal	
Vertical	
Gridded	
Main preview with thumbnails left or right (Legacy VisualDVR layout)	

Using the legacy VisualDVR layout with one main preview, plus small thumbnails to the side, you can click on one of the small thumbnail views to swap it with the camera in the main, larger view. You can also drag and drop using the window title bars.

Recording Status

You can display text on each preview window to show whether that channel is recording or not. This can be shown at any of the four corners of the video window, or at the middle of any of the four edges of the window. It can be partially transparent if you don't want it to be too distracting. This text will NOT appear in the recording.

You can also show audio level indicator bars on the video windows, and/or in the channel status displays.

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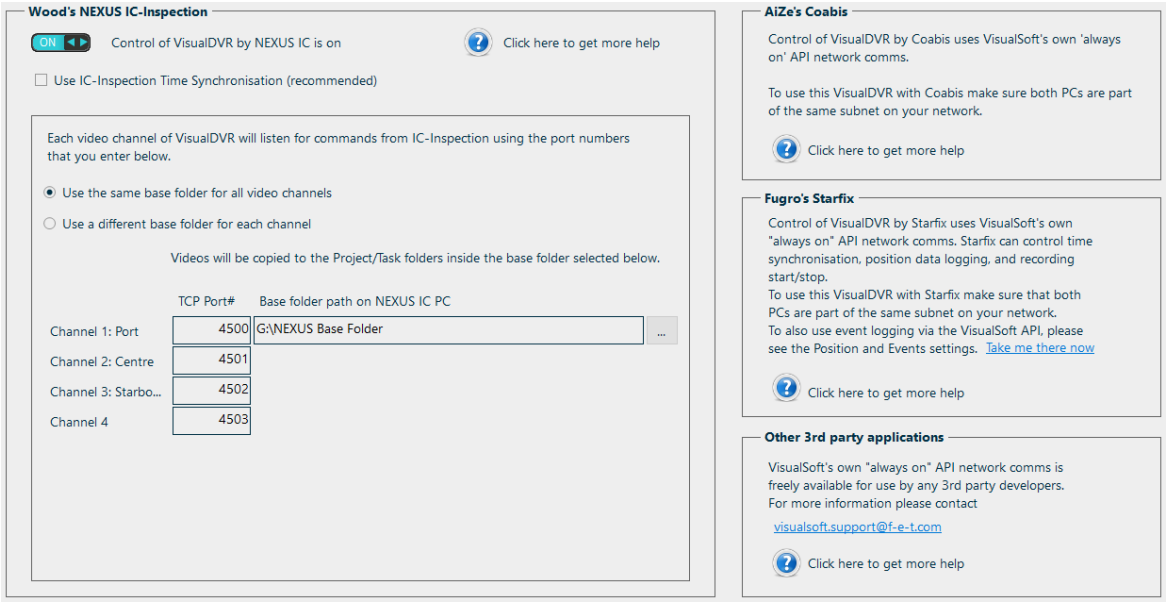
1.4.13 3rd Party Links (Aize, Fugro, Wood, etc.)

Most interaction with 3rd party applications is done using VisualSoft's own API controls, and does not need to be turned on or off inside VisualDVR. These API controls are "always on" and always listening for commands such as "Start recording" or "Log an event". Each 3rd party applications requires its own setup to make the connection to VisualDVR and that is generally covered in the 3rd party documentation.

Wood Group's NEXUS IC-Inspection is different from most and uses Wood's own commands and controls instead of VisualSoft's built in API. To use VisualDVR with NEXUS you must turn on NEXUS control in the VisualDVR Configuration Wizard or settings as shown below.

The next few pages provide information on the use of various commonly used 3rd party applications.



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Working with AiZe's Coabis

From version 12.1 onwards of Coabis you can control VisualDVR from inside Coabis. The following sections describe how to configure this in both the Coabis and VisualSoft applications. You need to setup a few things in Coabis to get a successful connection between Coabis and VisualDVR.

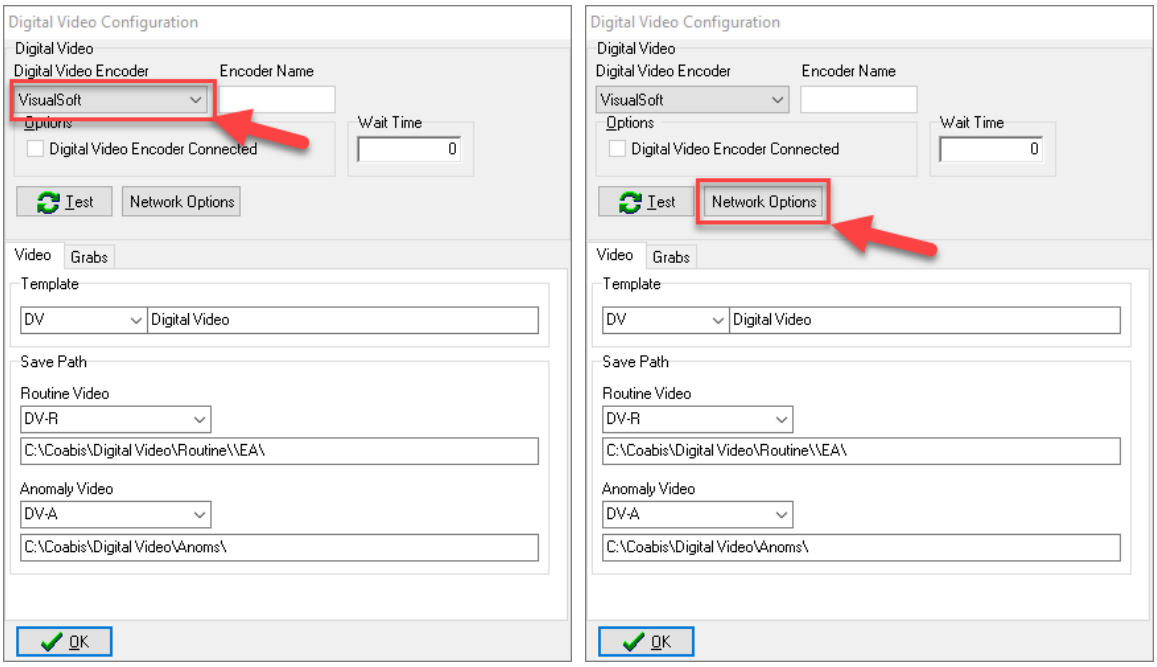
A. Installation

First make sure that you have installed the VS Control add-on, by running VisualSoft's installer "InstallVSControlV10.4.2.exe" (or a later version number of InstallVSControl).

B. Coabis Settings - Start the VisualSoft add-on

In Coabis go to **Site**, then **Tools**, and then **Digital Video Configuration**.

Set the **Digital Video Encoder** type as VisualSoft, and then click the **Network Options** button.



This opens a VisualSoft Network tool in the Windows System Tray notification area at the bottom right of your screen . You may need to click "Show hidden icons" in Windows before you can see it.

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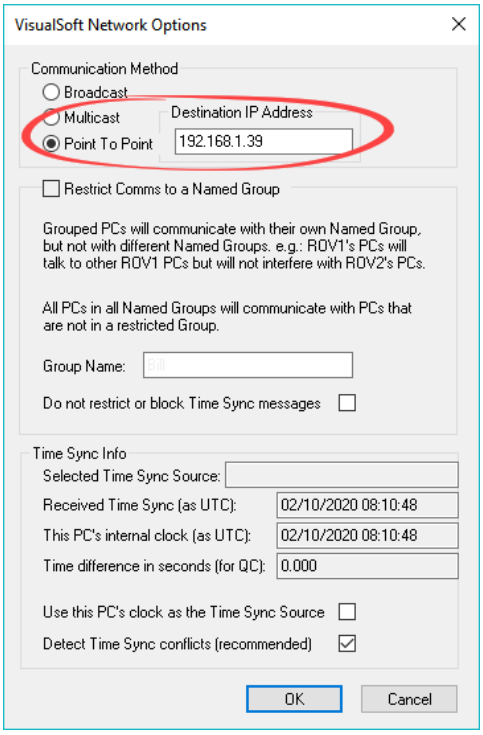
Configure the VisualSoft Network

Click on the VisualWorks Network icon to open the settings window.

Select the Point to Point method so that you only control **one** VisualDVR and do not accidentally interfere with other DVRs or logging application that you or a survey contractor may have on the same network. Enter the IP address of the VisualDVR PC. If the DVR PC has more than one network connection and/or more than one IP address, make sure that you select the one that is in the same subnet range as the IP address of the Coabis PC.

In a typical setup of VisualDVR the time sync will be coming from a navigation data output derived in turn from a GPS or other GNSS time source. In that scenario, do NOT select Use this PC's clock as the Time Sync Source. Only if you want all logging to be synchronised to the internal clock of the Coabis PC should you select "Use this PC's clock". If you do that, you must also ensure that all other logging PCs for survey data sensors are also synchronised to that same source.



Click OK to close the VisualSoft Network options window.

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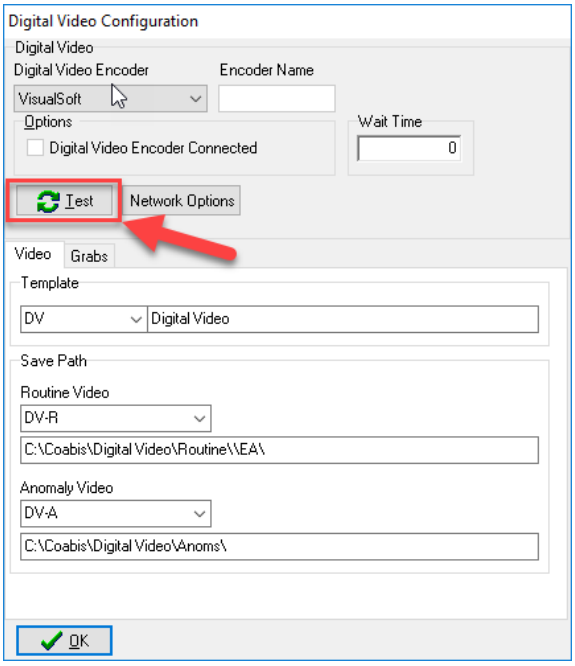
Test the VisualSoft Network

Click the Test button in the Coabis Digital Video Configuration window. If the test is successful the Encoder Name will be filled in with the name of the VisualDVR PC, and a message will pop-up confirming a successful test.



After a successful test, configure other options in the lower part of the window (search for "Digital Video Interface" in Coabis's built-in help for more information), then click OK to close the Video Configuration window.

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Working with AiZe's Coabis and overlay

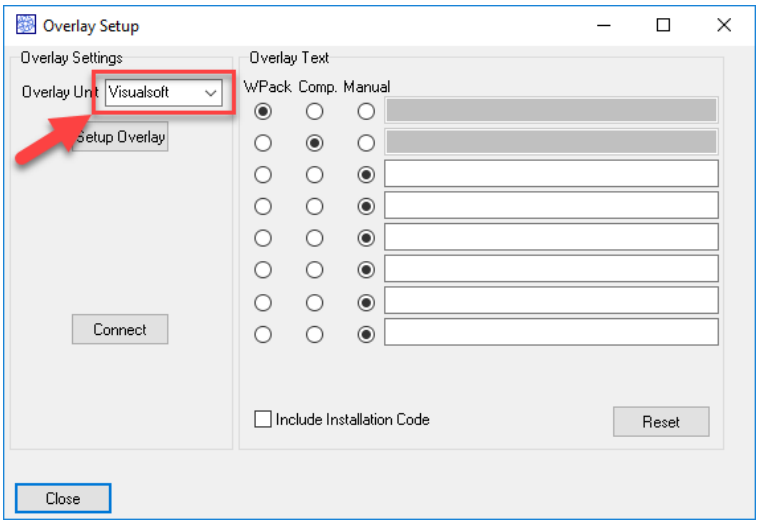
From version 12.1 onwards of AiZe's Coabis you can control VisualDVR's overlay from inside Coabis.

Before setting up the overlay, be sure to setup the configuration for Working with Coabis 59

A. Coabis Settings - Overlay Setup

In Coabis go to **Site**, then **Tools**, and then **Video Overlay**.

In Overlay Settings, select the **Overlay Unit** type as VisualSoft, and then click the **Setup Overlay** button. This will prompt you to complete the setup in VisualDVR.



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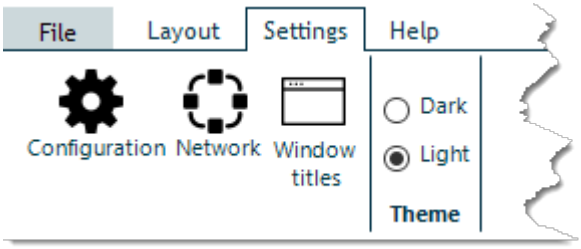
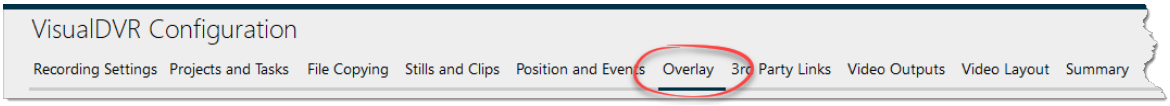
VisualDVR Overlay Settings

Open VisualDVR's overlay setup using F6 on the VisualDVR keyboard, or with the VisualDVR menus via left click in the main video window. If you use the menus instead of F6, click on Configuration on the Settings ribbon, and then select the Overlay tab.

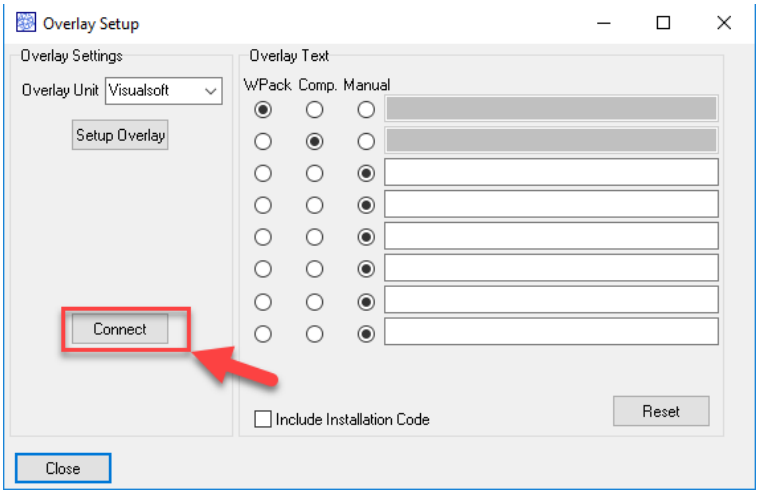




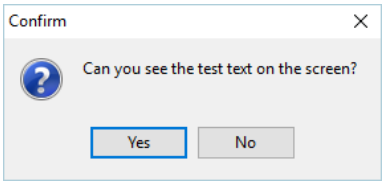
In the overlay window, click on **Add Layer**, and create a new layer with a new name, for example "**Coabis**". This will open the layer editor window with your new overlay layer. In the data tree on the left, expand the "Third party data" section to show the overlay fields being sent from Coabis. Select what you need and add it to the overlay by dragging and dropping into the preview window. You can change font, text size or colour as described in Editing Overlay Items 52

C. Test Video Overlay

In Coabis, make sure that VisualSoft is still selected as the **Overlay Unit** type in Overlay Settings, then click **Connect**.



You should see text appear in the overlay preview and in VisualDVR's video window. Click Yes in Coabis to confirm you can see the overlay in VisualDVR, and close Coabis Overlay Setup.



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Working with NEXUS IC-Inspection

Enable NEXUS IC-Inspection DVR control: If you are doing an inspection job using Wood Group's NEXUS IC-Inspection software (version 6.4 or above) you must turn on NEXUS IC-Inspection DVR Control on this page. In NEXUS add the VisualDVR as a "Generic DVR" device using its IP address.

IC-Inspection Time Synchronisation: NEXUS IC-Inspection can send a time synchronisation message to VisualDVR. If you turn on this option in IC-Inspection you must also turn it on here so that VisualDVR receives the time sync messages. (As with all VisualSoft time synchronisation options, you must use only one time sync source, so if you turn on NEXUS IC Time Sync, make sure that you turn off time sync in the VisualDVR Survey Data set up and other places such as VisualDataLogger.

IC-Inspection **Base Folder path:** VisualDVR will receive commands from IC-Inspection telling it to start or stop recording, create image grabs and so on. VisualDVR will still record video in the usual way, using the standard file names that are expected by VisualArchive and other VisualSoft applications. It will also make a copy of the video files and image grabs using names and locations requested by IC-Inspection. IC-Inspection will send either a full folder path, or a partial folder path. If IC-Inspection sends a partial file path this is usually based on the component selected for inspection in IC-Inspection. If VisualDVR receives a **partial folder path** it will be added to the "IC-Inspection Folder **base path**" that you specify here. You can use the same base path for all cameras, or have different paths for different cameras. There is a short-cut button to quickly copy the path set for Channel 1 to all other channels. In the example below the base path is "\\My NAS\Shell NS 2019", so if IC-Inspection sends partial folder path "\Pipelines\PL1234", the video files will be sent to the combined path "\\My NAS\Shell NS 2019\Pipelines\PL1234".

Port Numbers: IC-Inspection sends commands to VisualDVR via the network using TCP ports. These port numbers are selected in IC-Inspection for each camera and the same port numbers must be set for each camera here.

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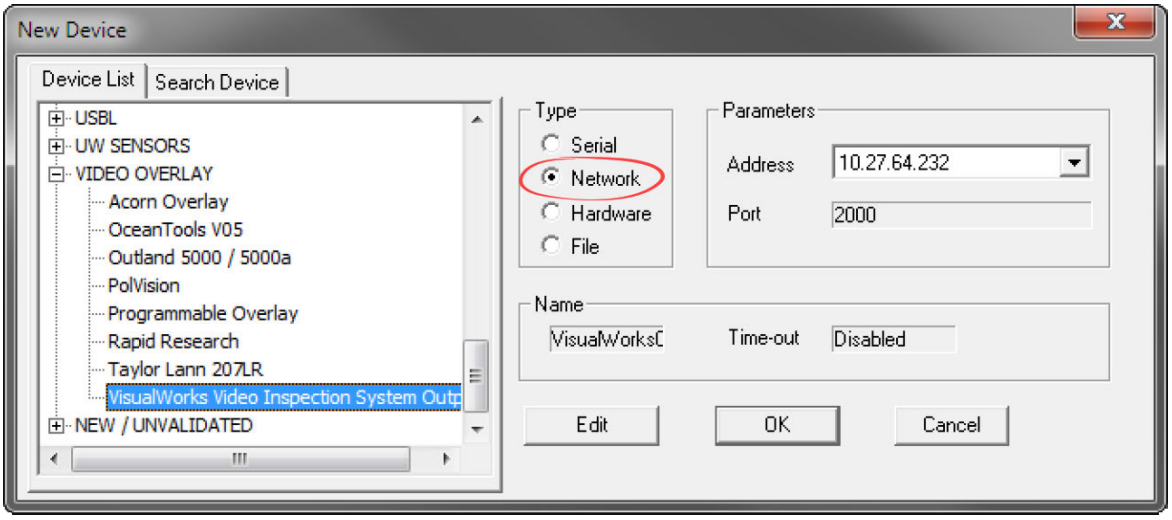
Fugro's Starfix

Starfix.IOWIN can send time and position data to VisualDVR, using the VisualWorks **Video Inspection System Output** in the Video Overlay section of IOWIN.



Set the communication type to Network, as shown above. There is no need to edit the network communication parameters because the actual communications are done through the VisualWorks network comms, (which is similar to Starfix.Message Manager), so although the user can select a port to use, no data is sent to that specific port by this driver. Instead VisualSoft's standard port number will be used automatically.

When the user enters the driver configuration menu they can select which survey information to send to the VisualSoft system. The driver will also send start and stop logging commands from Starfix to the VisualSoft system on receipt of a suitable command via Message Manager. In othert words, Starfix.Logging will provide the driver with these commands via Message Manager so that when Starfix.Logging starts or stops, VisualSoft's VisualDVR will do the same. In effect the IOWIN dll translates Starfix logging commands to VisualSoft logging commands.

Please note – when first started the IOWIN driver will send a default pre-defined configuration to the VisualSoft system. Starting Starfix.Logging will then force the driver to output the correct user configured configuration when you start logging. You may therefore want to start the logging as a brief test to force your configuration through to the VisualSoft system and see the correct column headers in VisualDVR's survey data window.

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1.5 Using VisualDVR

The next few sections will give you more information about how to use the VisualDVR application to complete common tasks.

1.5.1 Projects and VisualArchive

All video and other data in VisualSoft applications can be grouped using "Projects" or "Project Tasks". A Project might be one pipeline or one oil field, or one platform, template or manifold structure, or perhaps one wind farm site. A Project can have Sub-Projects, so an oil field Project might have Sub-Projects for different pipelines or platforms, and a wind farm Project might have Sub-Projects for each different turbine. A Project that represents an annual inspection campaign might have Sub-Projects for each entity being inspected, and perhaps further Sub-Projects drilling down into components of those entities.

Projects can be created in VisualArchive, and can then be sent to for use in VisualDVR when the Projects window is open. To get the list of Projects from VisualArchive, right-click in VisualDVR's Project list to open the menu, or press **F5**. Projects can also be created in VisualDVR itself as described in " How do I create a new Project?" 66 but if VisualArchive is available we recommend always creating your Projects there instead.

If video in VisualDVR is recorded into a specific Online Project 68, it will later be copied into that Project in VisualArchive, VisualEdit and VisualReview.

1.5.2 How do I create a new Project?

The Project Tree now works in a similar way for all of VisualArchive, VisualEdit and VisualDVR applications.

If you have access to VisualArchive we recommend creating your new Projects there, and then using the option to read them into VisualDVR, as shown in the menu below and as described in " Projects and VisualArchive" 66.

To create a Project in VisualDVR you will first need to open the Project window by clicking on "Projects" on the left side of the screen. If "Projects" is not shown on the left, make sure that it is turned on in the Layout Ribbon at the top. Right-clicking in the opened Projects window opens the menu shown below.

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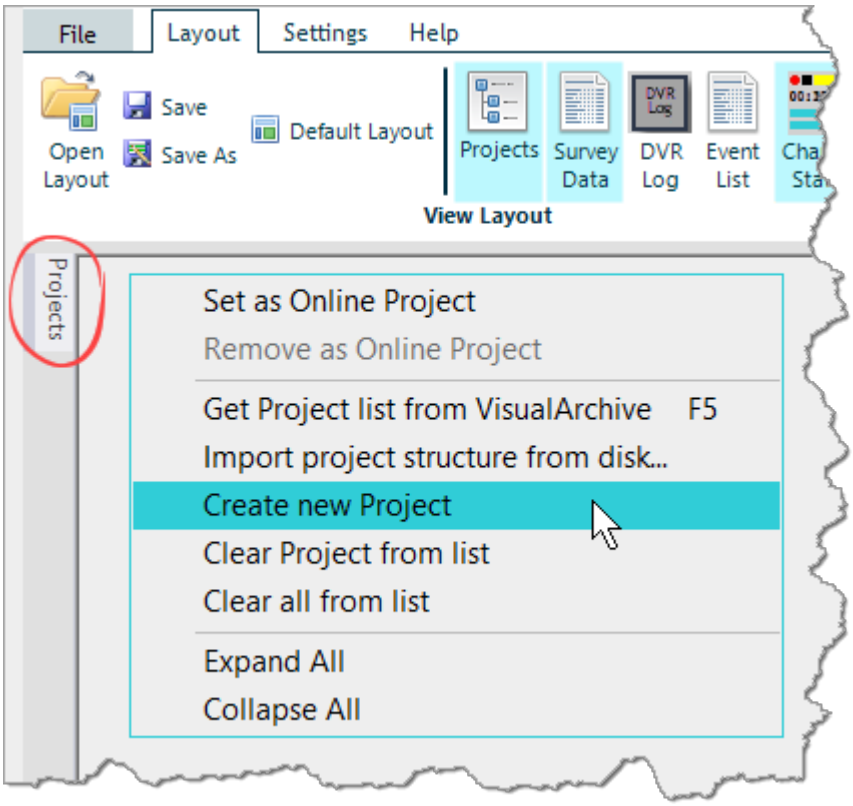
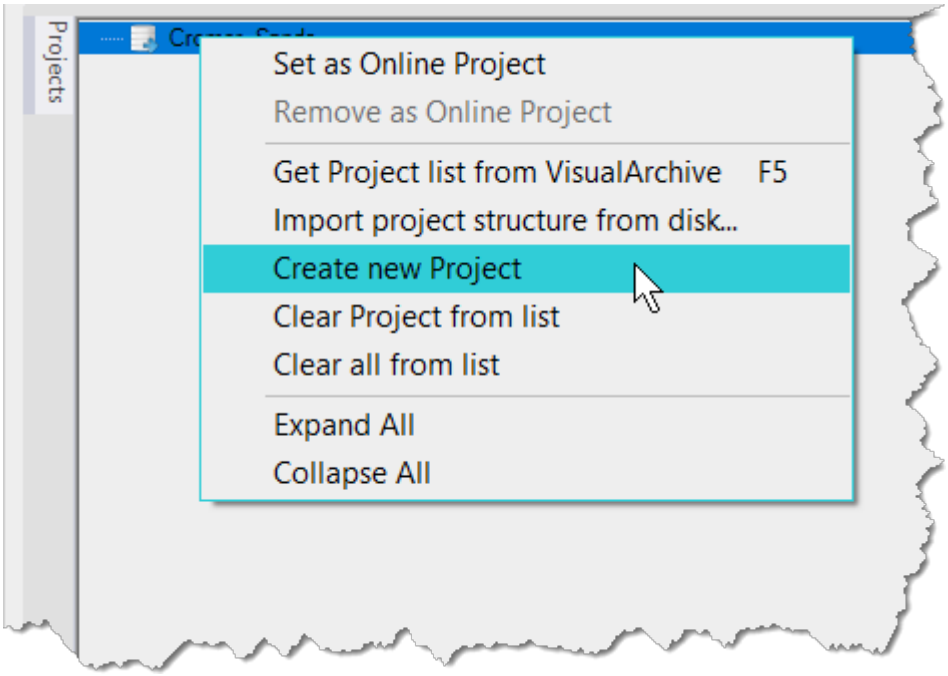


Selecting "Create New Project" will create a new top-level Project.

If you wish to add a Sub-Project inside an existing Project (or even inside an existing Sub-Project), you should right-click on the chosen "Parent" level and then select "Create New Project". In example below, we have right-clicked on an existing Project (highlighted in dark blue) and we are selecting "Create New Project" to create a new Sub-Project.



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You will also see the option "Get Project list from VisualArchive". If you have an existing or newly created Project tree in VisualArchive, you can use this to update VisualDVR to share the same Project tree. You can also press F5 while the Project Tree is open to do the same thing.

1.5.3 How do I choose a Project for recording?

After you have created a Project Tree structure, you will need to choose which Project to use "online". In other words, which Project or Sub-Project the video is going to be recorded into.

To set the status of a Project to **Online** right-click on it in the Project Tree, and select "Set as online Project".

Depending on the settings you selected in Projects and Tasks 33 you may or may not be prompted to make this choice each time that you start recording.

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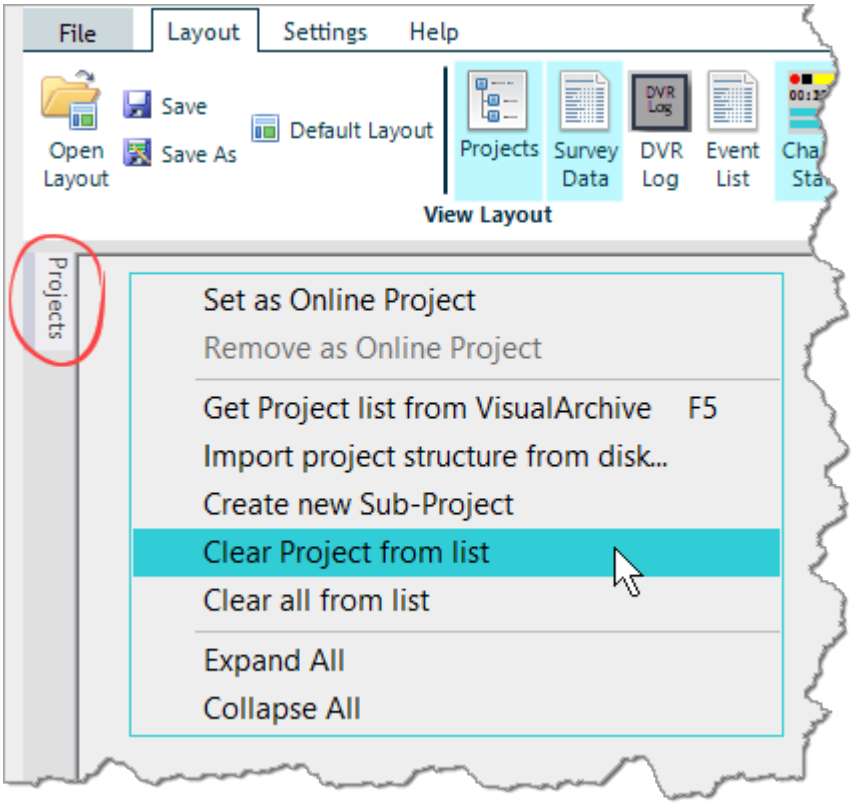
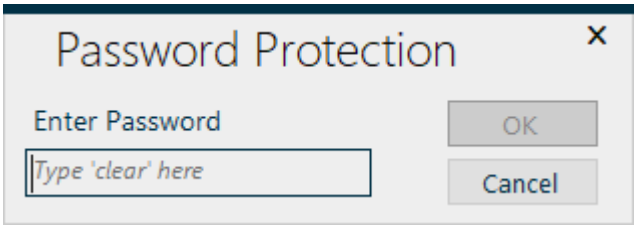
1.5.4 How do I remove a Project from the list?

If you want to remove, delete or clear a Project from the list in VisualDVR, open the Project list and right click on the Project that you want to clear from the list. Select the option to "Clear Project from list".



Note that this does not remove or delete any data that has already been recorded. Those files will still exist and will still be associated with the same Project. The only thing that will change is that this Project will no longer appear in this list - if video has already been recorded to the Project, it will still appear in the DVR Storage Manager, in the DVR Player and in VisualArchive, VisualEdit and VisualReview.

To avoid accidentally clearing a Project, we ask you to type the word "clear" in a password box. That box tells you what to type:



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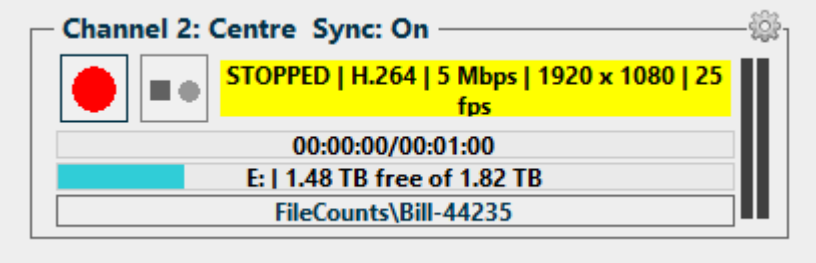
1.5.5 How do I start and stop recording?

The channel status contains useful information of the settings at a glance.



Starting

Each channel has its own status box with useful information about how that channel is currently configured. This is where you will find the red button to start recording. When you hover over the start button, any channels which are in the same recording and logging group will be highlighted. This indicates that starting the recording from any channel within the group will start it for all channels highlighted.

Depending on the settings you selected in Projects and Tasks 33 you might be prompted to confirm the online Project when you start recording.

Stopping

After you started recording, the start button changes to a stop button. If you stop recording on one channel, all channels in the same recording and logging group will also stop – in the same way that they start together, they also stop together.

You will see a prompt asking you to confirm that you want to stop recording.

Stopping the recording is not permitted within the first 5 seconds after starting. A warning will appear on screen indicating this.

Stop/Start (to quickly change to a new recording file)

You also have the option while recording to stop the current recording and immediately begin a new one. The start/stop button contains the symbols for both operations, and is located directly to the right of the record, or stop record button. This can be useful if you want to get immediate access to what you just recorded; by changing to a new file the previous one will quickly become available for offline playback.

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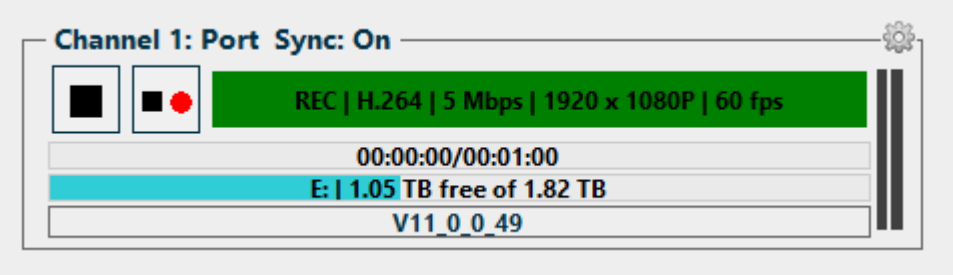
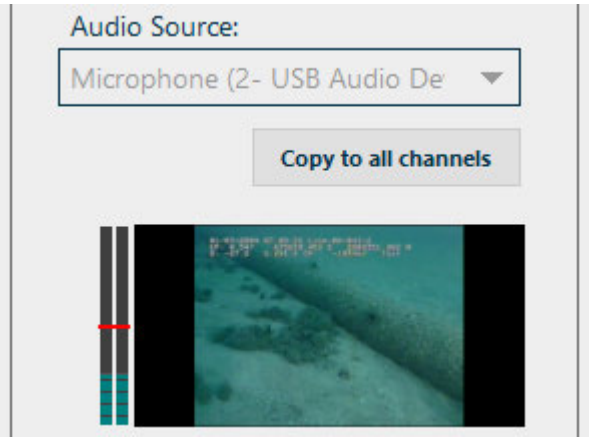
Note*:* During normal recording operation, DVR will automatically use the stop/start function when the file duration reaches 30 minutes (or a different user selected duration). See Recording Duration 32 for more information.

1.5.6 How do I change the recording volume level?

To change the volume at which your microphone is being recorded, open the settings by clicking the cog icon at the top right of the channel status box.



Then drag the red bar — on the volume level indicator up or down to adjust the recording volume level.



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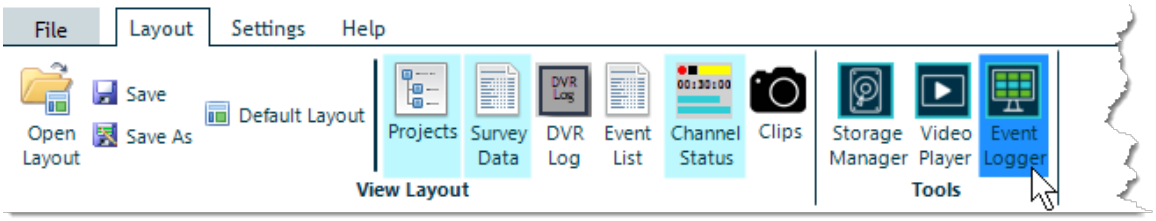
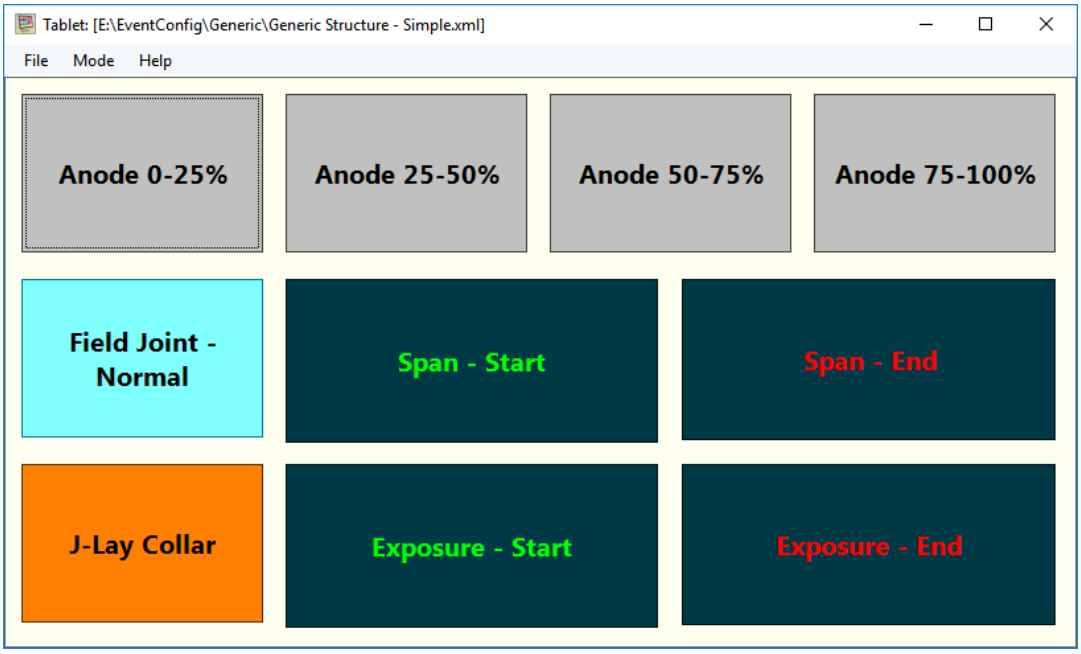
1.5.7 How do I log events?

VisualEventLogger

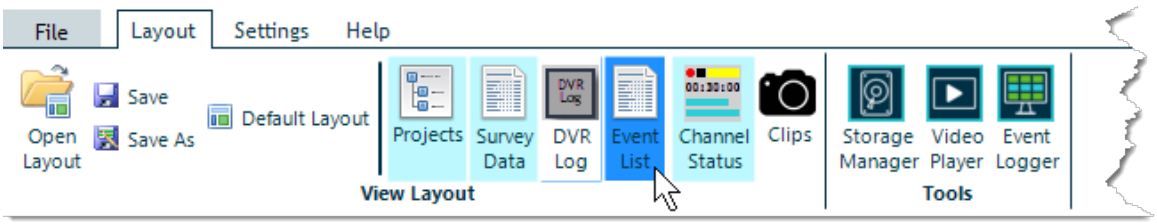
Logging of "events" for inspection of survey is best done using VisualEventLogger. With VisualEventLogger you can click a button when you see a feature of interest – if you see an Anode on a pipeline click a matching Anode status button; see a Freespan, click the Span Start button. Details of how to use the event logging can be found in the VisualEventLogger section.

To open VisualEventLogger, use the Windows start menu or click the Event Logger button on the Layout ribbon 77:





A list of newly logged events can be shown in VisualDVR by clicking the Event List button on the Layout ribbon 77:



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DVR Log

An alternative, basic method is to use the "DVR Log" but this will require far more offline processing. The DVR Log should not be used for normal pipeline or structure inspection where data will have to be sent to a client in a pre-defined format. Instead the DVR Log is intended for basic information about ROV operations such as opening or closing valves or removing debris from a site.

Pressing the space-bar on your keyboard will open the DVR Log. You can add comments, mark as an anomaly, and choose to take an image or video clip. DVR must be recording to take still images or video clips. You can centre a video clip around the log entry, and change the duration of the clip. Normally the clips will be 10 seconds long, and will be centred around the space-bar press – so typically 5 seconds before the button press until 5 seconds after. You can also use the log entry (Press of the space-bar) as the start or end time of a clip. Remember that if you start a clip via log entry, then you will need another log entry to stop the clip.

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1.5.8 How do I take a screen grab?

Using a keyboard short-cut

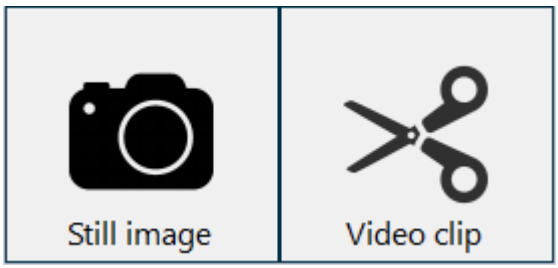
You can use the F2 button on the keyboard to take a still image grab. You will see a camera icon in the preview window(s) to confirm that an image has being taken.

Image grabs will be taken from the channels you have selected in the Still Image Grabs 35 settings.

You can also use the DVR Log to take screen grabs, as explained in the previous section – How do I log events? 72

Using a button

On the main ribbon, click the camera icon to open the Stills and Clips tools. Click on the Still image button to grab a still image, just like clicking F2 as described above.



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1.5.9 How do I take a video clip?

Using keyboard short-cuts

You can use the F3 button to start a video clip, and the F4 button to end a video clip. You will see a small scissors icon in the video windows to indicate that clip cutting is active - i.e. started using F3 but not yet finished using F4.

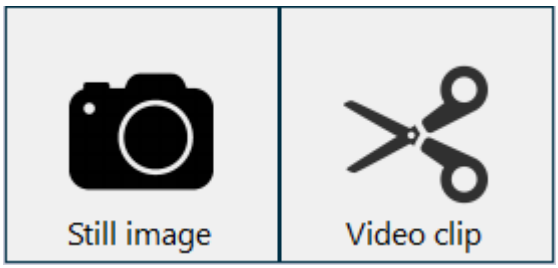
In case you forget to press F4 and end the clip, all video clips will end automatically after one hour.

The clip will be taken from the channels you have selected in the Video Clip settings 37.

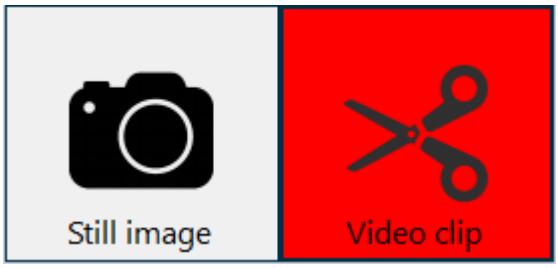
You can also use the DVR Log to take clips, as explained in previous section – How do I log events? 72

Using a button

On the main ribbon, click the camera icon to open the Stills and Clips tools. Click on the Video clip button to begin a clip, just like clicking F3 as described above.



While a clip is active, started but not yet ended, the Video clip button will turn red.



Click the red button to end the clip just like using using F4.

In case you forget to end the clip, all video clips will end automatically after one hour.

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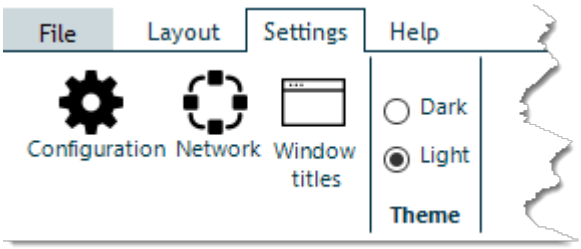
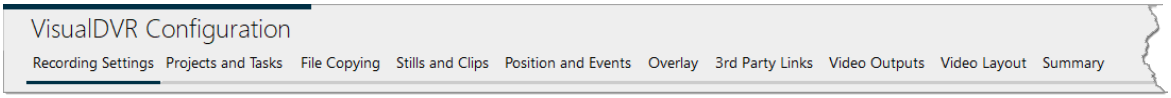
1.6 Changing the Settings and Configuration

You can change the program settings and configuration using the Settings ribbon.



Click the **Configuration** button to open the main program settings such as video inputs, overlay, file copying and video outputs. The Configuration window has multiple tabs which are the same as the different pages in the Configuration Wizard.



- Recording Settings 25
- Projects and Tasks 33
- File Copying 34
- Stills 35 and Clips 37
- Position 39 and Events 46
- Overlay 49
- 3rd Party Links 58 for Coabis, NEXUS, Starfix etc.
- Video outputs 55
- Video Layout

Click the **Network** button to open the VisualSoft Admin Panel's Network Settings 47 where you can select Broadcast or Multicast communications and setup Restricted Communication Groups 47 if working with multiple ROVs.

Click **Window Titles** to toggle on or off the display of the title bars on the windows that make up VisualDVR's display. You will need Window titles turned on if you want to use drag and drop to move the various windows around the screen.

Use the **Theme and Style** settings to change the colours of the windows and buttons in VisualDVR.

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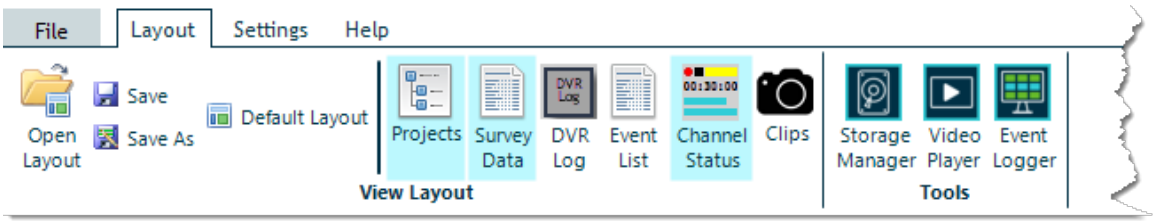
1.7 Changing the Window Layout

The Layout ribbon lets you open and close the various different display windows and tools in VisualDVR. You can save and re-load the chosen layout using the buttons to the left. You can open and close windows using the buttons in the middle section, and you can open the Storage Manager or the Video Player using the buttons on the right.



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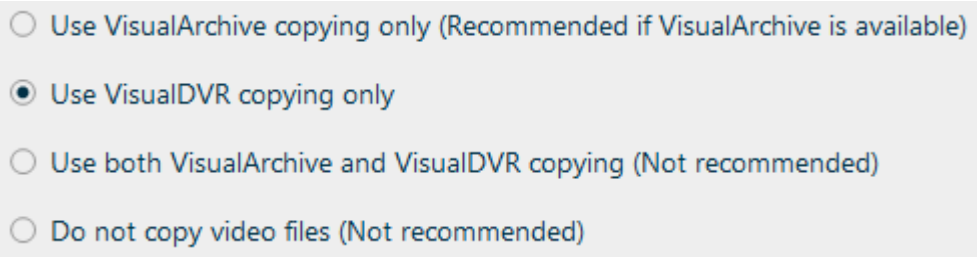
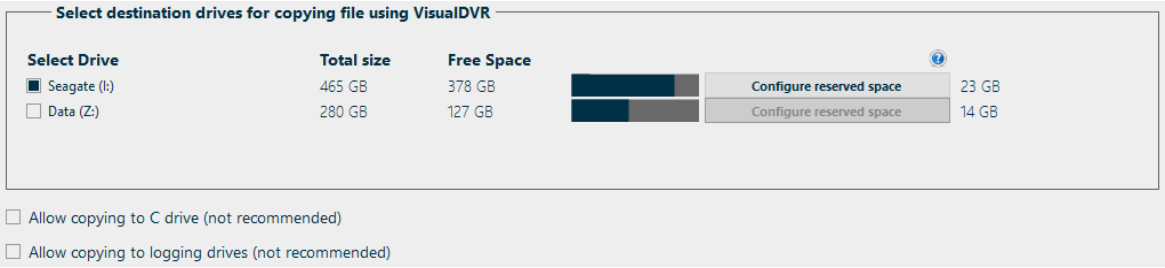
1.8 Using DVR File Copying

VisualDVR can automatically copy your video recordings to another disk drive, or even to multiple disk drives, grouping them into Projects and Datasets when it does so. You can select and configure file copying in the File Copying settings 34 which are in the Startup Configuration Wizard 23 and also in the Configuration Settings 76.

There are two ways to copy video files automatically. You can use VisualArchive (a separate data management and backup application), or you can use a more limited file copying in VisualDVR itself. (In older versions of VisualDVR the copying by VisualDVR was called "Auto-Copy", but we have changed this to "VisualDVR File Copying" because copying by VisualArchive is also "auto".)





If you have selected to use VisualDVR's File Copying, you can check the status and progress of file copying using the VisualDVR Storage Manager 79.

If you also have a VisualArchive PC and licence we recommend that you use VisualArchive for all copying and turn off VisualDVR's File Copying.

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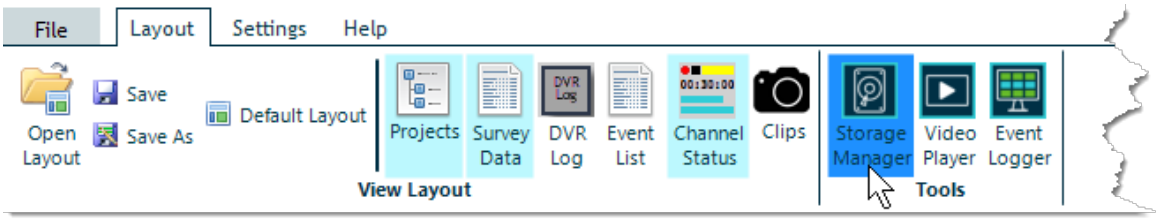
1.9 Using VisualDVR Storage Manager

Open the Storage Manager by pressing the Storage Manager button in the Tools section of the Layout ribbon.



You can use the Storage Manager for the following tasks:

- Monitor the status of automatic file copying by VisualDVR 80
- Monitor the status of automatic file copying by VisualArchive 80
- Make extra copies 81 of video files.
- Convert Black-Box recordings 81 to Normal recordings
- Manually copy Video files 81 or Datasets (Video and data files) to a disk drive.
- View the status of Clips and Stills 84
- Check disk space on the logging drives 86
- Clean-up the logging drives 87 to remove old recordings

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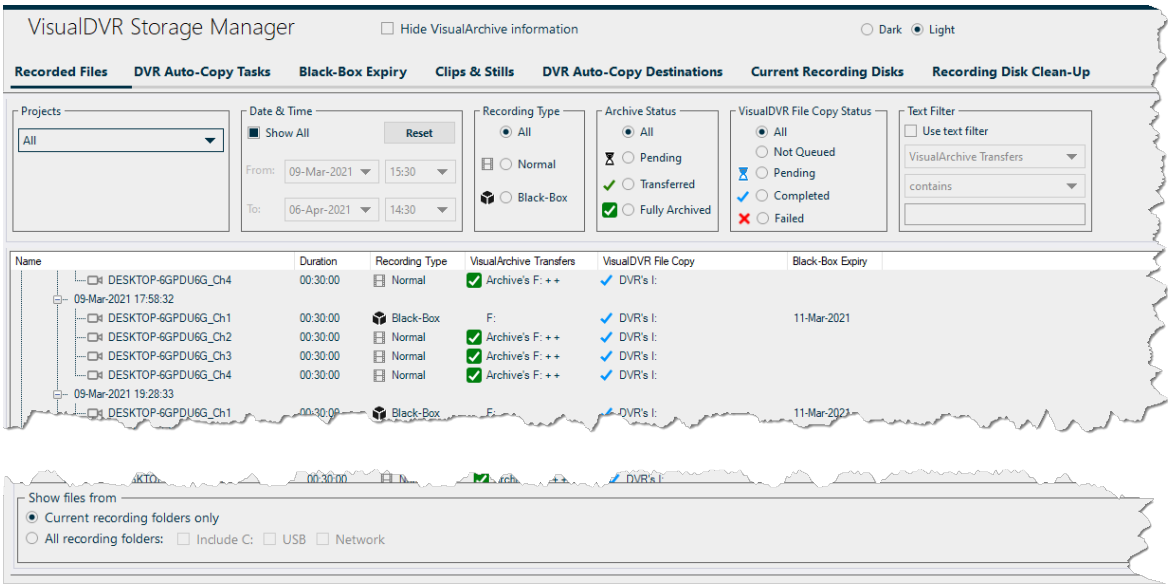
1.9.1 Recorded Files

The **Recorded Files** tab shows a list of recordings on the VisualDVR PC. This is normally limited to recorded files in the **Current recording folders** on the current Recording Drives, but there is an option at the bottom of the screen to show recordings from **All recording folders** including older folders in case a PC has been renamed or in case the selection of Recording Drives and/or the number of Channels has been changed. At the top you can filter the list of recordings by Project, time range, recording type, or the status of any previous or pending copy operations.



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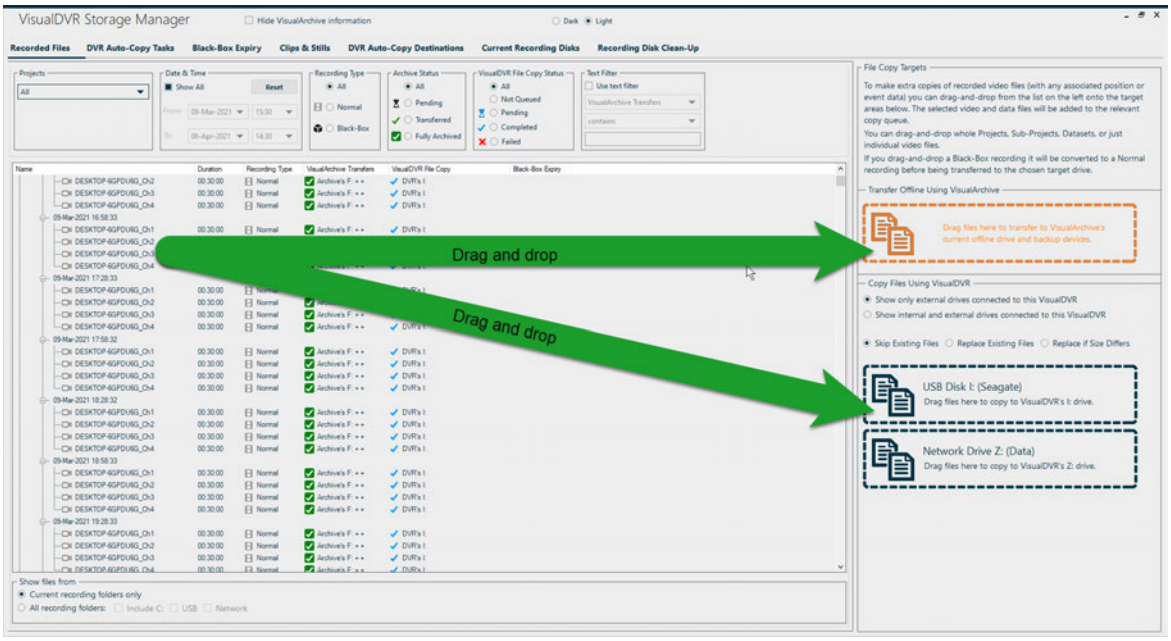
Make Extra Copies of Recordings

To make extra backup copies of the recordings shown in the list, simply drag and drop from the file list to the various targets on the right. To have VisualArchive make a new copy of the files, drop them on the orange target at the top. To have VisualDVR make copies onto USB disks or Network disks use the blue-green targets at the bottom.



Convert Black-Box to Normal Recording

Sometimes you may decide that you now need to keep a recording that was originally made in Black-Box mode. You can convert these to Normal recordings and copy them to offline disks simply by dragging and dropping the Black-Box files from the list on the left to the targets on the right - just like making extra copies 81 as described above. Any Black-Box files that you drag onto a copy target (for VisualArchive or for VisualDVR's Auto-Copy) will be quickly converted from Black-Box recordings to Normal recordings before they are copied. You can drag individual files for one camera at a time, or drag a whole dataset group of all recordings made at the same time.

Alternatively you may just want to keep the Black-Box recording on the VisualDVR for a bit longer, and stop it expiring and being deleted. To do this, see Black-Box Expiry 83.

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1.9.2 DVR Auto-Copy Tasks

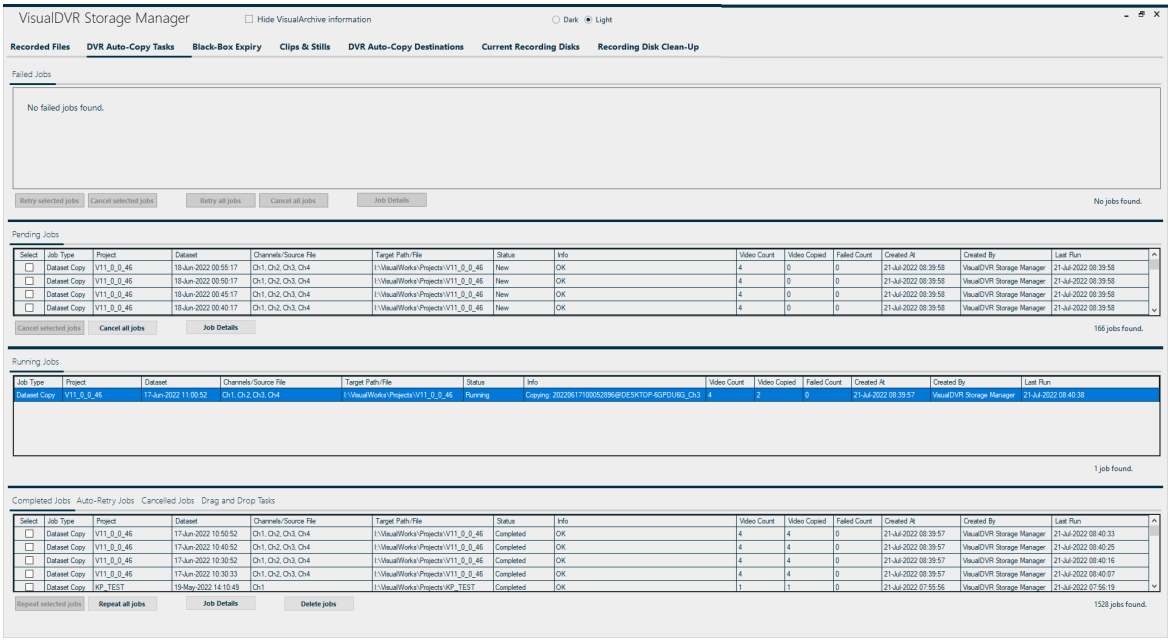
On the **DVR Auto-Copy Tasks** tab you can view and manage a list of tasks for VisualDVR's own file copying method.

There are separate lists for:

- Failed Jobs
- Pending Jobs
- Running Jobs
- Completed Jobs (including Auto-Retry Jobs, Cancelled Jobs, and Drag and Drop Tasks)

In each list you can select items to view more details, and there are options to select jobs and then cancel, retry, delete etc.

At the top of the window you can choose to show or hide information about file copying that was done by VisualArchive.



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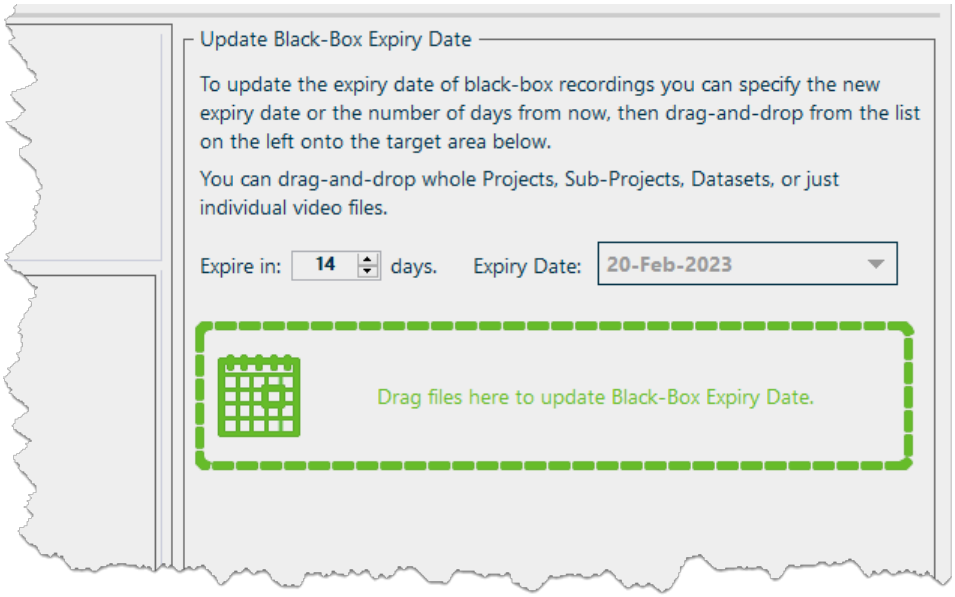
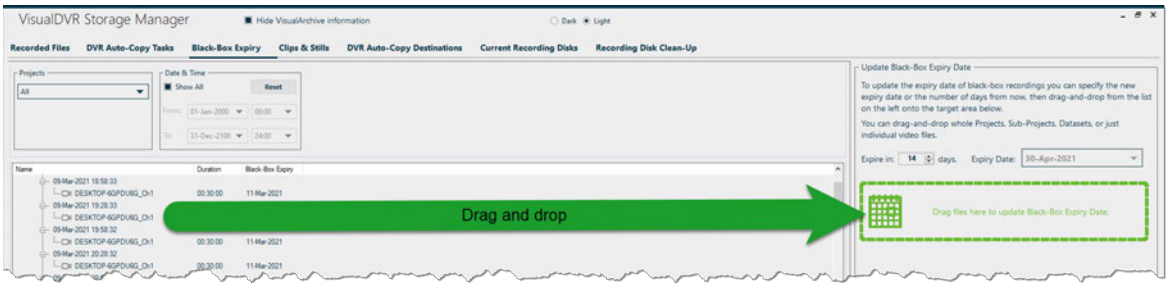
1.9.3 Black-Box Expiry

When you configure the main recording settings, you specify an Expiry time period for Black-Box recordings. After you have recorded a Black-Box recording, sometimes you might want to extend or reduce this expiry time so that files get deleted later or sooner than the default setting. To change the expiry date of Black-Box recordings select the **Black-Box Expiry** tab and set a new expiry date or duration on the right. Then just drag and drop the files onto the target box.





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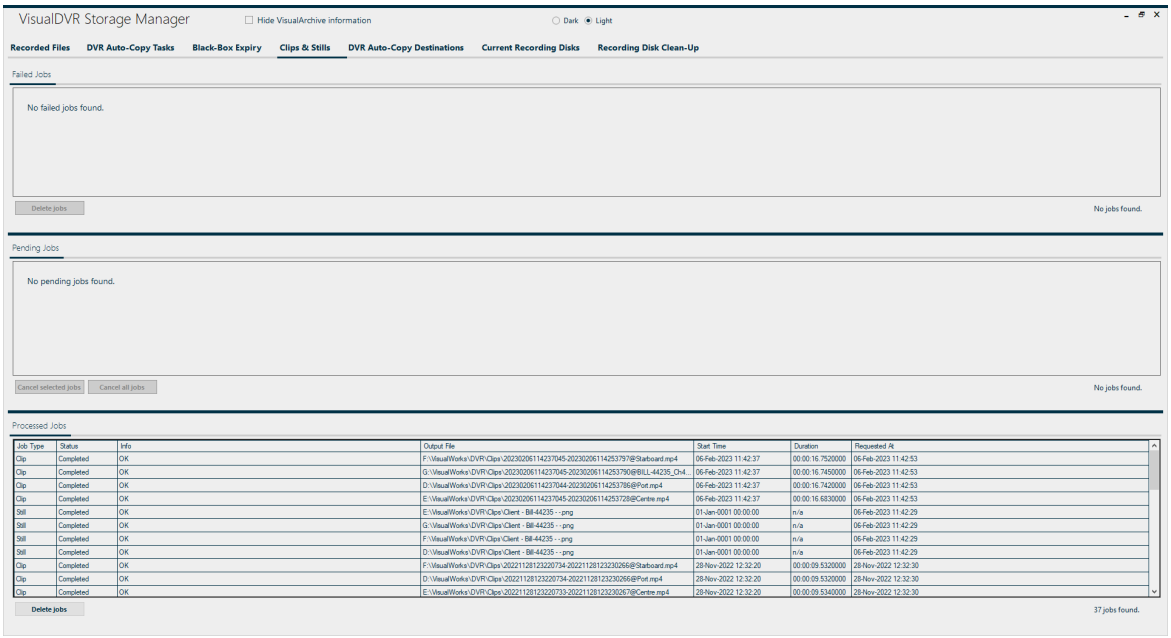
1.9.4 Clips and Stills

The **Clips and Stills** tab shows a list of pending copy tasks relating to short video clips 75 and still image grabs 74.

You can also see the destination and status of files that have already been copied.



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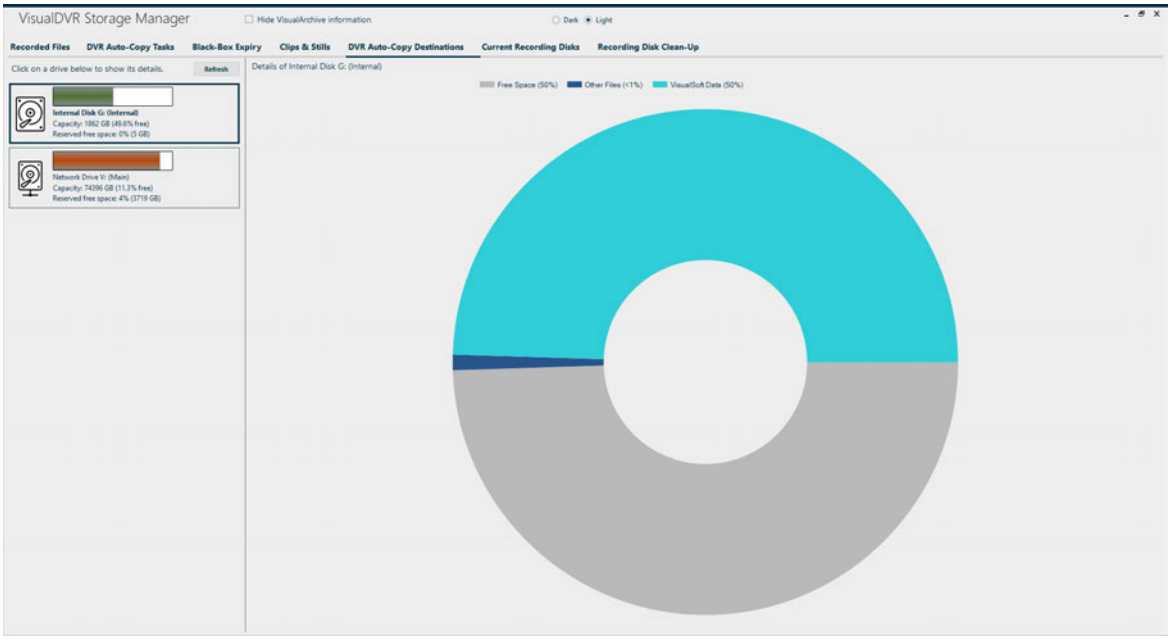
1.9.5 DVR Auto-Copy Destinations

The **DVR Auto-Copy Destinations** tab shows how full each of the disk drives selected for copying in VisualDVR currently is. Click on a disk on the left to see how full it is and what type of files is using the space - is it full of VisualSoft data or something else?

Note that these disks are only relevant if you are using VisualDVR's own file copying 78. If you are using VisualArchive for your fie copying this tab is not relevant.

The selection of copy destinations can be configured in the settings of VisualDVR.

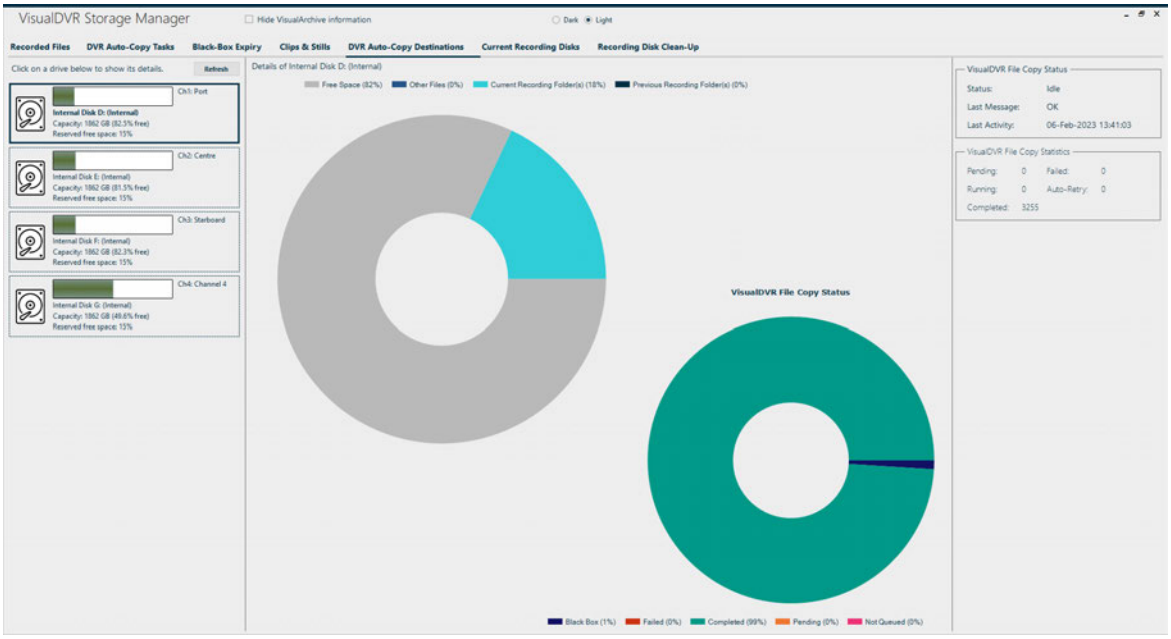


1.9.6 Current Recording Disks

The **Current Recording Disks** tab shows how full each of the recording disk drives currently is. By default the view shows only the normal logging drives - i.e. the internal drives except for the C drive. If you need to see the C drive you can turn it on, and if you need to see USB drives and network drives you can also turn those on.

On the left you see the list of disk drives. Click on one of them to see its details on the right, where you can see how much of the disk is free, how much is used by the current recording folder, and how much is used by other files on the disk. In normal operations the disk should have very little in the "Other Files" category and should not have any "Previous Recording Folders", but you may sometimes see a situation like the one below where "Previous Recording Folders" are using some of the disk. What has happened in this case is that the DVR PC name was changed between projects but the old logging folder (which includes the PC name) was not removed. You can fix this using the Recording Disk Clean-Up 87 tab.

The smaller circle shows the breakdown of the file types inside the current Recording Folder, showing what has or has not been copied and archived. For even more detail about the files in the Recording Folder look at the Recorded Files 80 tab.



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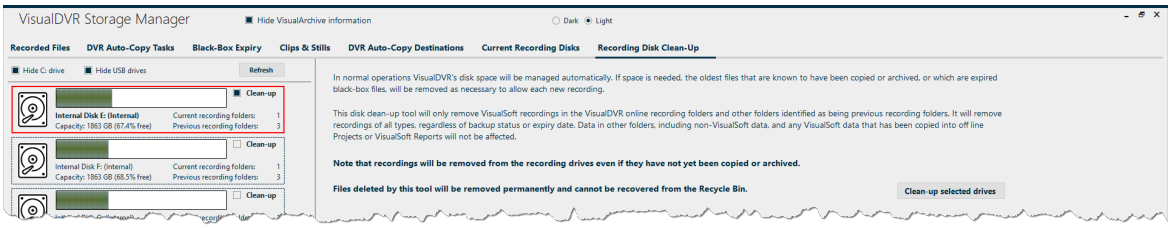
1.9.7 Recording Disk Clean-Up

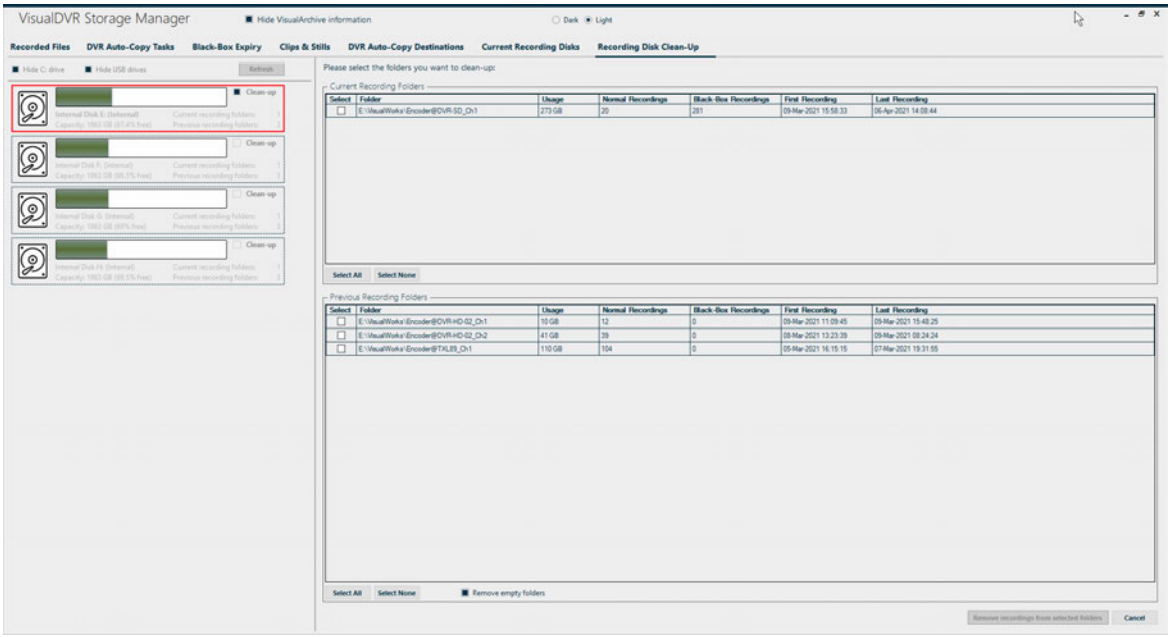
The **Recording Disk Clean-Up** tab shows the internal logging drives on the left. Other drives like C:, and any USB or network drives are usually hidden.

To clean-up the disk by deleting old data, select the drive or drives on the left by clicking in the Clean-up box for that drive, and then click "Clean-Up selected drives" on the right.



After a few moments you will see a display like the one below with the current Recording Folders at the top, and any older Recording Folders (that either have old PC names, or that have been manually renamed) shown below.

To delete the contents of the listed folders, select them on the right, and then click the button at the bottom to "Remove recordings from selected folders".



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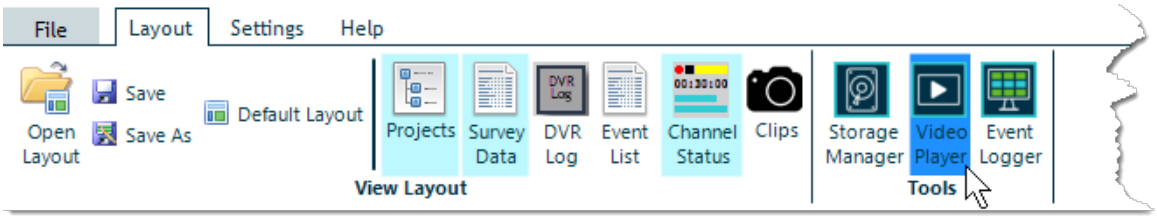
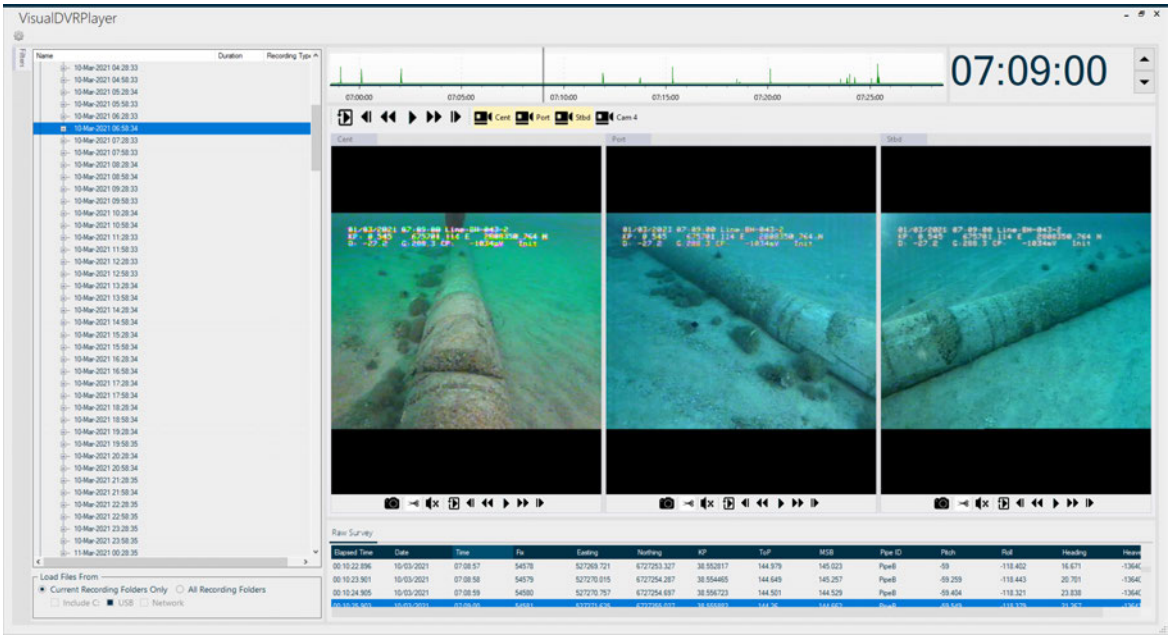
1.10 Using the VisualDVR Video Player

Open the VisualDVR Video Player by pressing the Video Player button in the Tools section of the Layout ribbon.



The VisualDVR Video Player shows you all recordings on the DVR PC, and lets you play multiple channels in sync. Users who are familiar with VisualReview or VisualEdit will find the layout of the VisualDVR player similar and familiar with a Project Tree listing the available data on the left, and one to four video windows with playback controls to the left. Below the video is a space where Raw Survey data, Events or DVR Log entries may be displayed.



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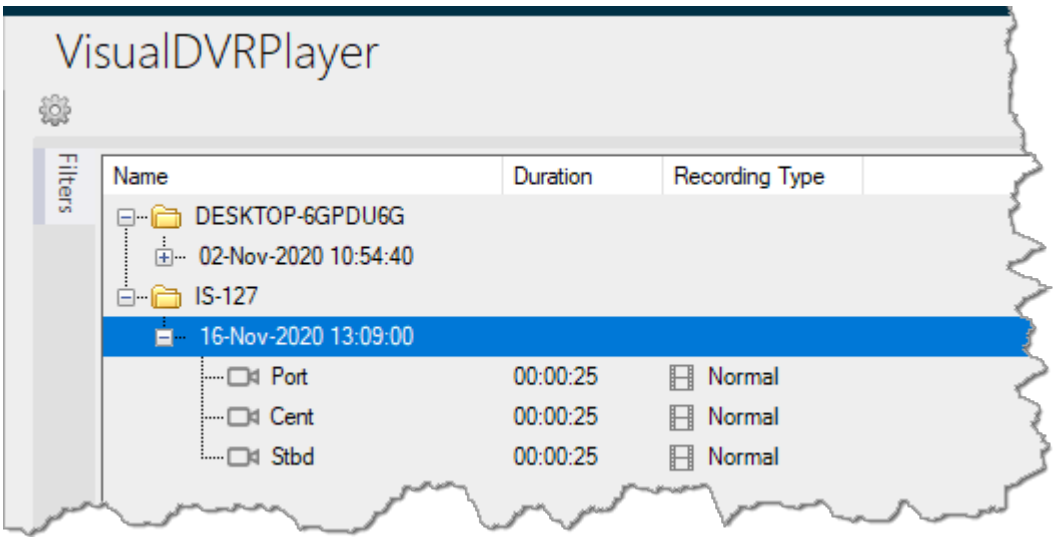
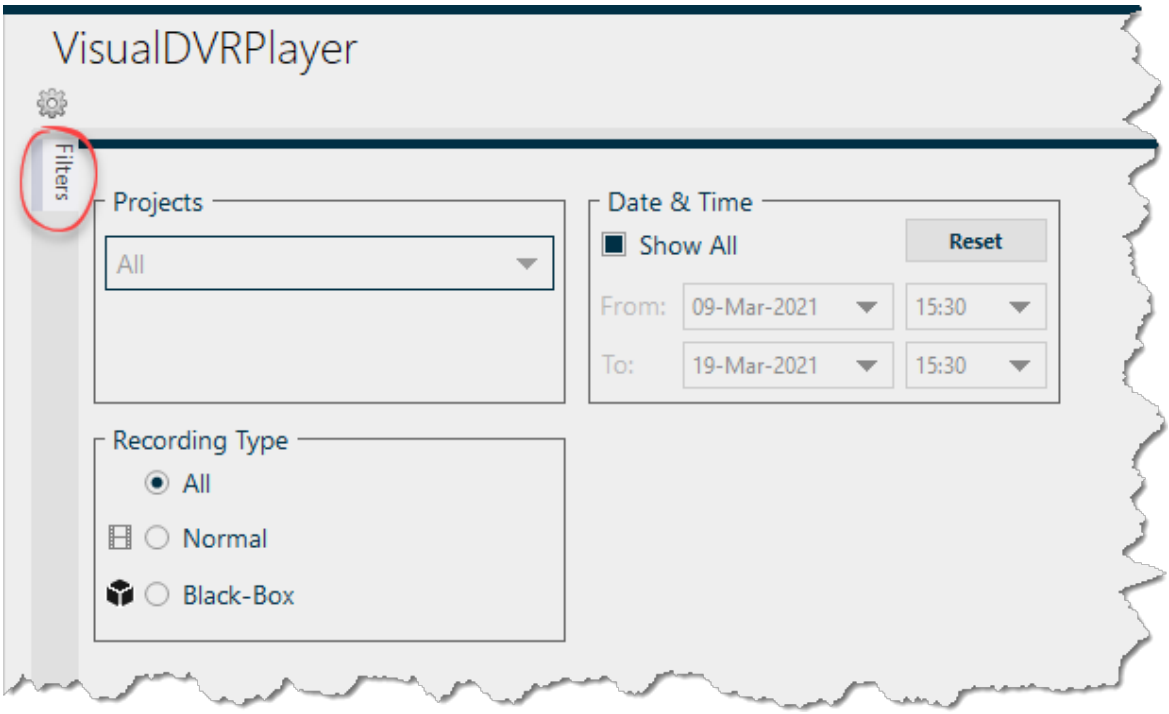
1.10.1 Select Videos for Viewing

Video can be loaded and displayed by clicking on a time and date group (a "Dataset") in the Project Tree, or by clicking on a single file for a single camera. The example here shows three cameras shown as a single selected dataset - with three cameras showing with their "Friendly Names", Port, Cent, and Stbd.



Click on **Filters** on the left to change what videos are shown in the tree. You can select all Projects, or just one, all dates and times or a specified range, and you can select All videos, Normal recordings only, or Black-Box recordings only.



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1.10.2 Playback Controls

In the video windows, the playback buttons are as follows:

Button	Function
	Grab a still image
	Start and end a video clip
	Audio is currently on or off. Click the button to toggle on or off.
	Return to the start of the current video and Play.
	Step Back by a fixed time. (Configured in Video Settings.)
	Rewind. (Speed configured in Video Settings.)
	Play (at currently selected speed).
	Pause. Displayed only when video is playing.
	Fast Forward. (Speed configured in Video Settings.)
	Step Forward by a fixed time. (Configured in Video Settings.)

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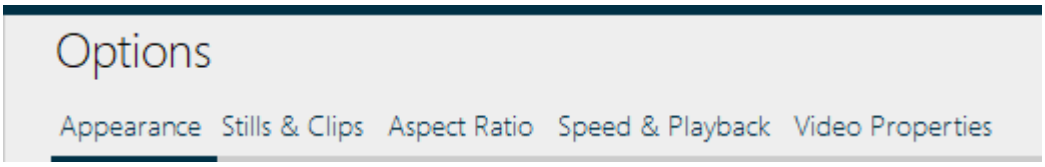
1.10.3 Configuration Options

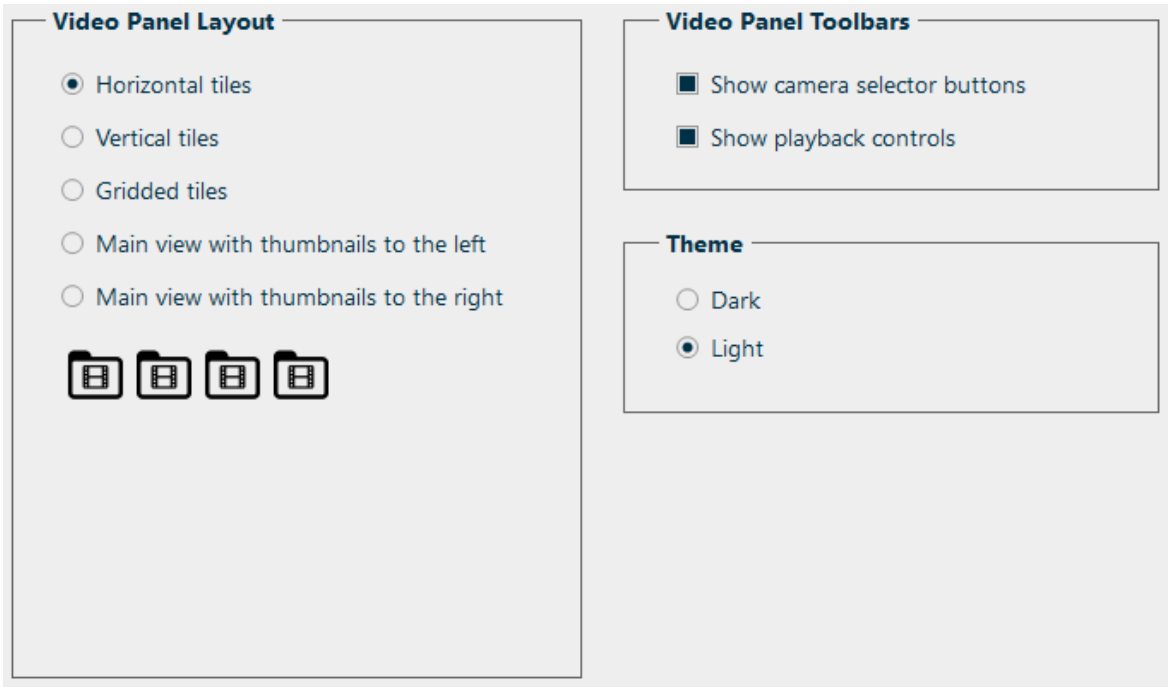
Click the **Options** button to change:



- The way in which video windows are arranged or to change other aspects of the application's theme and appearance 91.
- The settings for image grabs made using the still image button 92
- The settings for video clips made using the clip cutter button 92
- Aspect ratio 92 of the video displays
- Playback, fast forward and rewind speeds 93
- Mouse wheel playback control 93
- Display the properties 94 of the current video

Appearance

Use these settings to arrange the video windows on screen, decide what toolbars to show or hide, and to switch between the dark and light themes.



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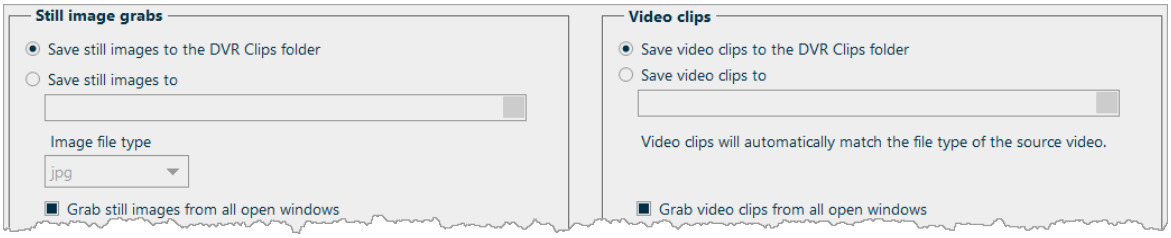
Stills & Clips

Here you can select where to save your still images and short video clips, that you create using the toolbar buttons. They can be placed in a default folder, which is VisualWorks\DVR\Clips on each recording disk, or in any other folder that you select.

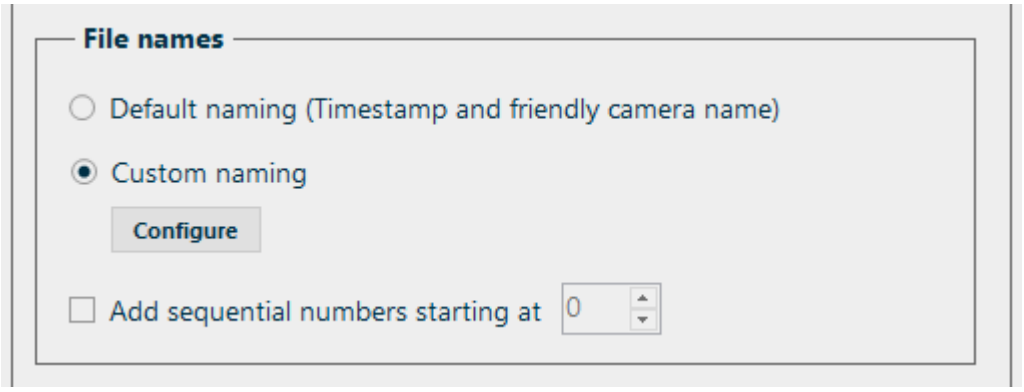
Still images are normally saved in a PNG image file format, but you can change this to any of BMP, PNG, JPG, TIFF or TGA.

You can choose whether you want to grab still images from all open video windows, or only the one where you click the camera button.



Still image or video clip file names normally use the date and time (in UTC) and the camera's friendly name.

If you want to create your own file name format, choose "Custom naming", and click the Configure button just below that to open the file name builder.



Aspect Ratio

In most cases the aspect ratio (Width:Height) will be read from the video file of each Video Window and it will be displayed here. If you want to override the setting inside the video file, you can do so here by selecting either 4:3 or 16:9.

Sometimes a video will have 5:4 in the properties, but should display as 4:3. You can override the saved 5:4 setting if you want.

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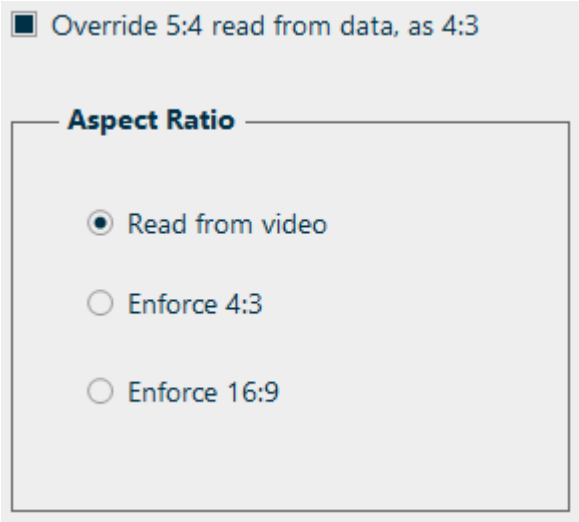
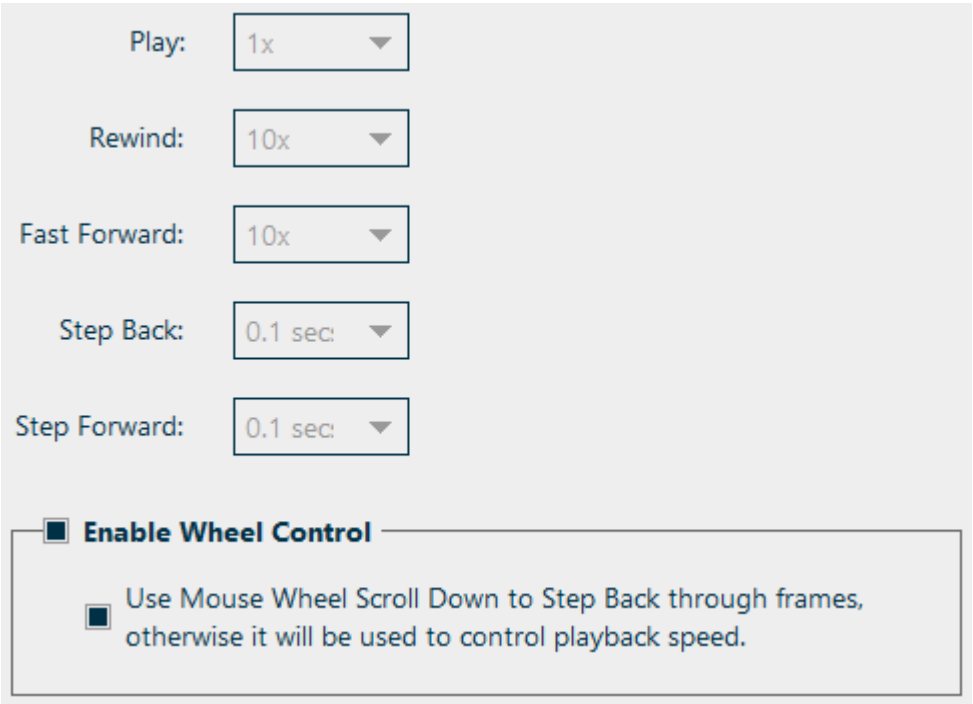


Speed & Playback

Select how fast the video should Play, Rewind or Fast Forward (relative to normal playback speed), and select how many seconds the Video Widow should move forward or back using the Step Back and Step Forward buttons.

Switch "Wheel Control" on or off. When Wheel Control is on, the playback speed can be increased or decreased by rotating the mouse wheel. Rotate the wheel away from you to increase speed, or towards you to reduce speed. If you do not want the wheel to reduce playback speed, it can instead be set to step backwards through a paused video when rotated towards you.



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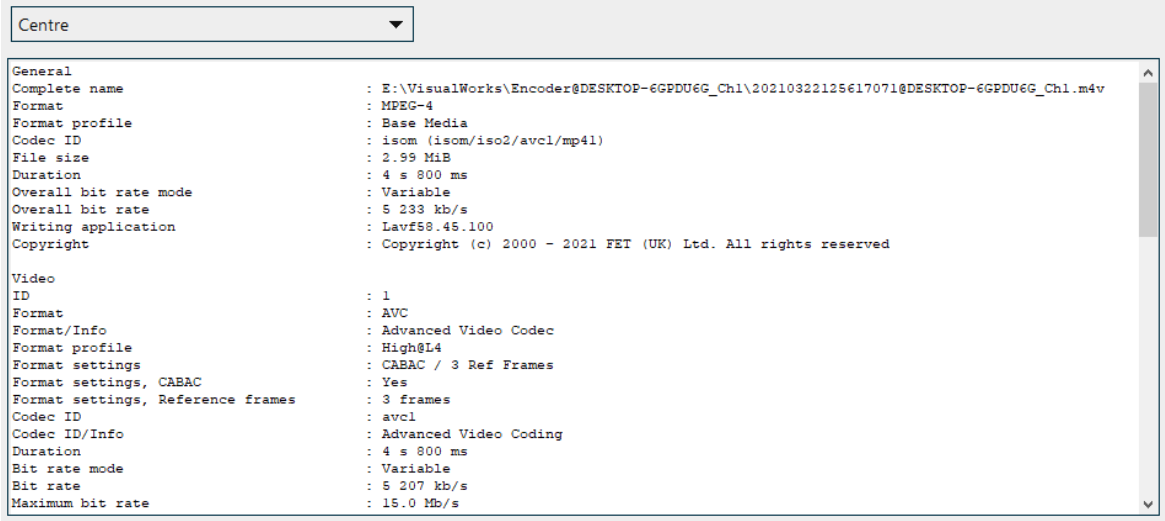
Video Properties

Display the full properties of the selected video file.



1.11 Tips and Tricks

Overlay

Tips and Tricks: You may find it useful to create separate layers for certain groups of items. For example, you may have one layer for your logos, and another layer for your survey data. A layer can be shown on screen, but you can select not to embed it in the recording. So you can have one layer with items you only need to see on screen and another layer with items you need to both see on screen, and also embed in the recording. One example might be to have an extra large KP display shown on the preview screen that is not embedded into the recording. On another layer the same KP could be displayed and recorded using a smaller text size. Note that if a layer is to be embedded in the recording it will also be shown on screen; you are not allowed to record something that you cannot see on screen.

Video Outputs

Tips and Tricks: If the stream output looks pixelated, try increasing the Bitrate of your output. This may affect the network performance if you are sending many channels to many screens. You should try to find a balance between picture quality and network bandwidth - do not set the bitrate higher than you need to get an acceptably good picture. Streaming as H.265 instead of H.264 will let you use a lower bitrate for the same picture quality.

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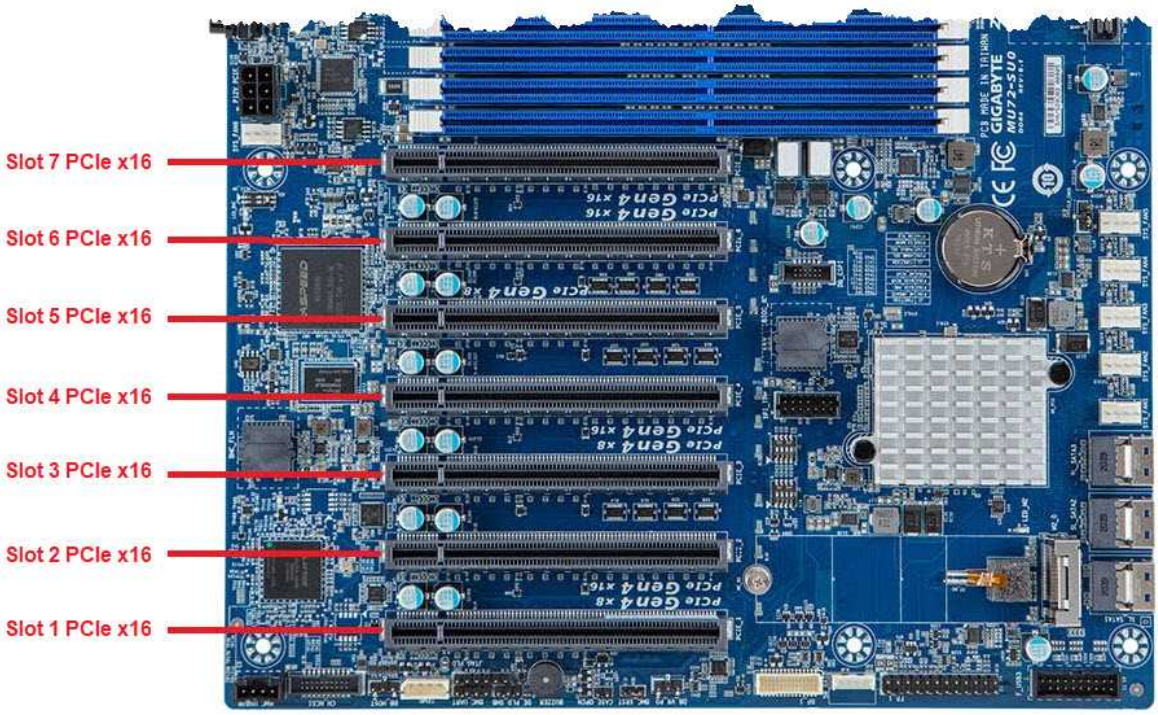
1.12 Troubleshooting

1.12.1 Correct motherboard slots for card installation (Gigabyte)

VisualDVR PCs come with cards already installed. If you have to replace a card, or move one from another DVR chassis, it is important that the correct expansion slots are used. Information below is for the **Gigabyte MU72-SU0** motherboard used in DVRs sold from 2023 and shipped with VisualDVR 2023 Edition. For information regarding older hardware, please contact visualsoft.support@f-e-t.com.

Gigabyte MU72-SU0 Motherboard

The Gigabyte MU72-SU0 Server Motherboard has multiple PCI-Express slots, all of which are PCIe x16. The correct placement of cards in those slots is as below.



The NVIDIA graphics card (GPU) should always be placed in **slot 7** as shown in the table below. Slot 7 is the furthest to the left when you look at the back of the VisualDVR unit.

Encoder or Capture Card	Slot 1	Slot 2	Slot 3	Slot 4	Slot 5	Slot 6	Slot 7
Deltacast DELTA 3G-ELP-D 8C / 84		NVME PCIe SSD card			DELTA 3G		GPU

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Vitec VMC-7440		VMC-7440	VMC-7440	VMC-7440	VMC-7440		GPU

1.12.2 Identifying the Cards in a VisualDVR

A VisualDVR may have one or more different types of card, including video capture, video encoding, video overlay, PC graphics, serial port expansion, audio port expansion, etc. Most of the cards will have a small coloured dot on them. These dots are about 5mm across and can be used to help identify the card. Select from the list below, to work out which card is which:

Cards without coloured dots

Yellow Dot: PC Graphics Cards

Orange Dot: Deltacast DELTA-3G-elp-d 8c/84 Video In and Out Cards

White Dot: Vitec VMC-7440 HD H.264 Encoder Cards 97

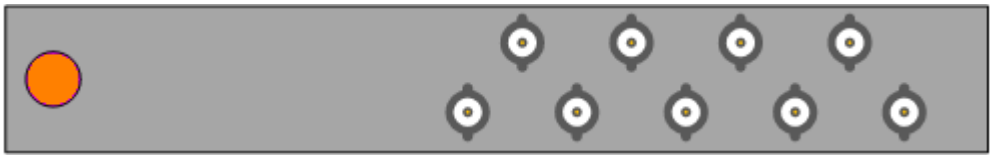
Yellow Dot: PC Graphics Cards

Every VisualDVR unit has a **PC Graphics Card** installed identified in a VisualDVR unit by a yellow dot attached to the card. The cables for connecting to this card also have matching yellow dots on either end.

Orange Dot: Deltacast DELTA-3G-elp-d 8c/84 HD/SD Video In/Out Cards

The **Deltacast DELTA-3G-elp-d** 8c/84 Video in/Video Out card can capture up to four channels of HD/SD video and distribute them with overlay.

Audio for the Deltacast card is captured using a USB microphone.



Driver Installation 100

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White Dot: Vitec VMC-7440 HD/SD H.264 Encoder Cards

The **Vitec VMC-7440 capture card** is capable of encoding HD or SD H.264 video. The card can also be used in VisualDVR (Legacy Edition) to distribute video plus overlay to external displays.

Vitec VMC-7440 Capture/Overlay Card

Driver Installation 101

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Green Dot: Winnov Videum Capture Cards

Winnov Videum Duo and Quattro cards capture analogue SD video, and audio. The cards convert the analogue signals to a digital format which is then used by a software encoder in VisualDVR to record to file.

The cables for connecting to this card also have green dots at each end.

The **Videum Duo** can capture up to two channels of video, and has one DVI-I connector .

The **Videum Quattro** can capture up to four channels of video and has two DVI-I connectors .

Each DVI-I connector can be used with either a Breakout Box or a Breakout Cable for connecting your video and audio sources. The Breakout Boxes have been modified to have an in-built pre-amp to allow the use of either microphone level audio or line level audio (by using different ports on the box). The Breakout Cables cannot be modified and so they accept only line level audio. A microphone signal must be amplified before input to a Breakout Cable.

Winnov Videum Duo: 2 Channel Video Capture card

Winnov Videum Quatro: 4 Channel Video Capture card

Driver Installation

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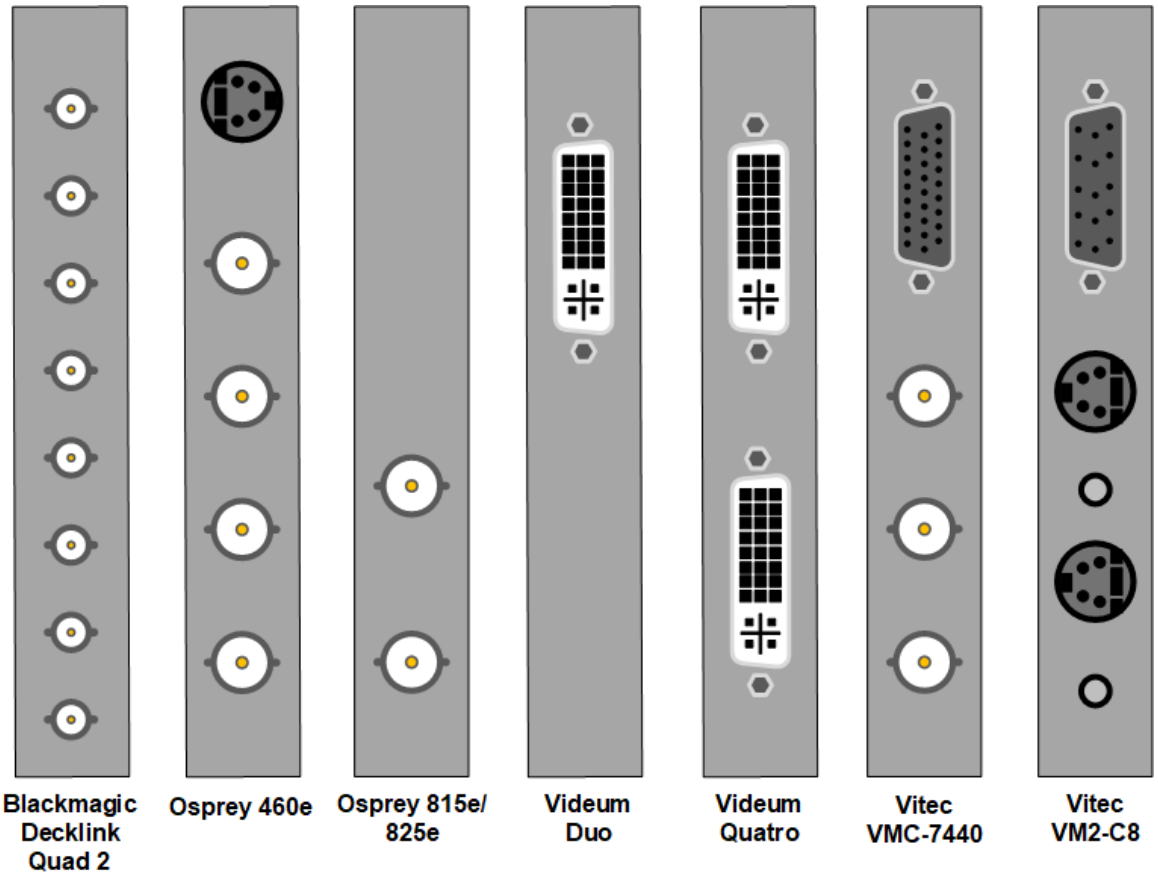
Cards without coloured dots

Some cards are rarely used, and are present in only a small number of VisualDVRs. These cards may not have a coloured dot.

You should also be aware that the dots may have been lost from some cards over time, or on a very old VisualDVR they may never have been attached.

If the card has a VGA connector and also either DVI or HDMI connectors, or if it has only HDMI connectors it will be a graphics card, rather than a capture or overlay card used by the VisualSoft Suite.



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1.12.3 Reinstalling Hardware Drivers

First identify which cards are installed in your VisualDVR, then follow the relevant installation instructions:

Drivers: Deltacast DELTA-3G-elp-d 8c/84 HD/SD Video In and Out Cards 100

Drivers: Vitec VMC-7440 HD Encoder and Overlay Cards 101

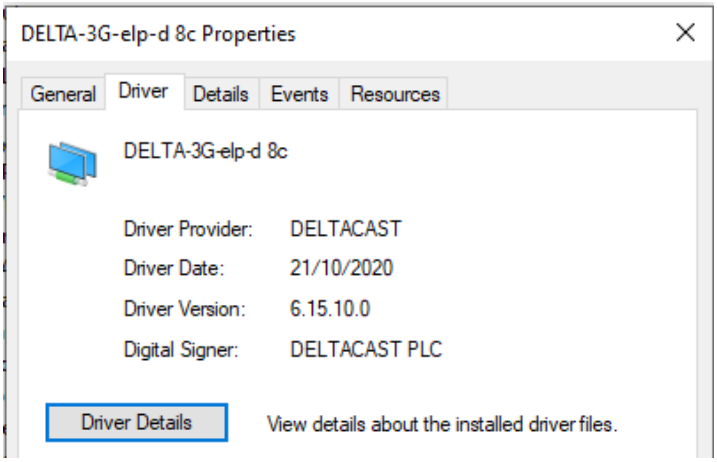
Drivers: Deltacast DELTA-3G-elp-d 8c/84 HD/SD Video In and Out Cards

The driver for the Deltacast DELTA-3G-elp-d 8c/84 capture and overlay card can be found at: C:\VisualSoft Utilities\Drivers\Capture Cards\Deltacast.

If you cannot find the driver, or do not have a VisualSoft Utilities folder, please contact our support team at visualsoft.support@f-e-t.com.

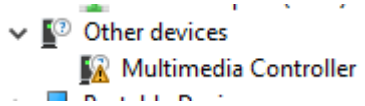
If you already have the Deltacast driver installed, the current version can be checked by right-clicking the card in Windows Device Manager and selecting Properties > Driver.

To open Device Manager, press the Windows key and type 'device manager'.



To uninstall the current driver, go to Settings > Apps and Features and click the Uninstall option. The PC must be rebooted after uninstalling.

If you have no driver installed, the Deltacast card will appear as below in Windows Device Manager.



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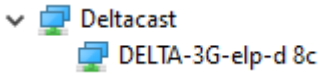
To install the driver, Right-Click the device where it appears in Device Manager > Other Devices > Multimedia Controller, then choose the Update Driver Software option.

On the following screen, choose the 'Browse my computer for driver software' option, then click the Browse button and browse to the folder shown at the top of this page. Click Next to install the drivers for the Deltacast card.



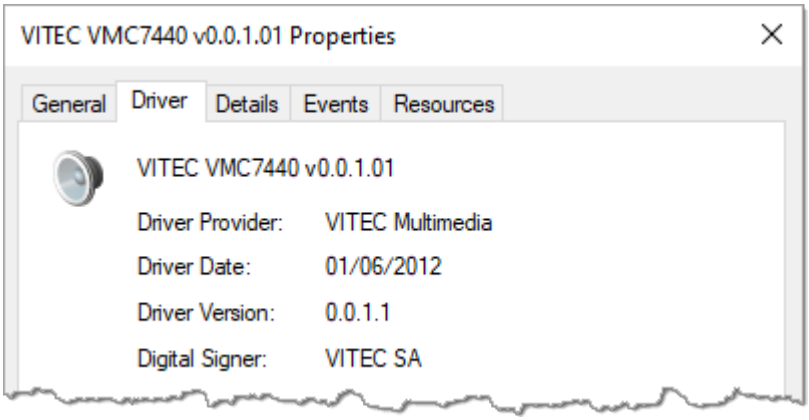
Drivers: Vitec VMC-7440 HD/SD Encoder and Overlay Cards

The driver for Vitec VMC-7440 cards can be found in C:\Visualsoft Utilities\Drivers\Capture Cards\Vitec\VMC-7440\Win7

If you cannot find your driver, or do not have a VisualSoft Utilities folder, please contact our support team at visualsoft.support@f-e-t.com.

If you already have a Vitec VMC-7440 driver installed, the current driver version can be checked by right-clicking the card in Windows Device Manager and selecting Properties > Driver.

To open Device Manager, press the Windows key and type 'device manager'.



To install the driver, first open the Device Manager by pressing the Windows logo key and typing 'device manager'.

You should have a new Multimedia Controller entry for each card under Other Devices.

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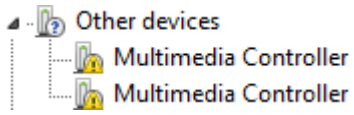
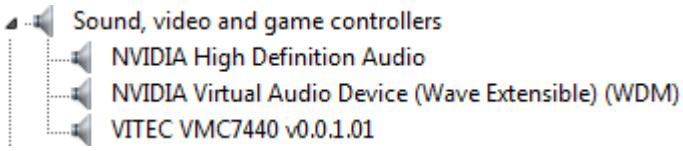


Right-Click an entry and choose the Update Driver Software option.

On the following screen, choose the Browse my computer for driver software option, then click the Browse button and browse to the folder shown at the top of this page and click Next install the drivers for the first VMC-7440 card. If you have more 7440 cards to install, you can now now choose the option to Search automatically for updated drivers. The drivers will be found and installed automatically and the VMC-7440 cards will appear in device manager as below; one entry per card.



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1.12.4 What to do if your recording disk is full

In normal use the recording drives of the VisualDVR will never exceed 85% full because by default each recording disk has 15% "Reserved Free Space". This percentage can be adjusted in the Recording Drive 31 settings - but we strongly advise leaving it at 15% so that if you run into problems with file copying you still have some space to use while fixing the problem before the system has to stop recording.

In normal operation, as each recording starts the system checks the amount of free space on each recording drive. If it has less free space than the configured Reserved Free Space the system will look for the oldest video file that is known to have already been safely copied to the offline system and perhaps even backed up to tape. It will delete one or more of these oldest and safely backed up files until the free space again falls within the configured limit.

If for some reason your files are not being copied to an offline system and so there are no "safely backed up" files that can be deleted automatically you will get a warning and will need to do something to fix the problem. Don't worry - you still have that 15% of the disk that you can use for new recordings while you do this.

If you are using VisualArchive go to the VisualArchive PC and open the Online Setup. Makes sure that each of the recording drives of your VisualDVR is turned on. If necessary, click on Auto Detect to find the recording drives, and click on Test Access to make sure that they VisualArchive can read and write on the recording drives. For more details see the VisualArchive section of this help.

If you are not using VisualArchive, you can turn on File Copying 34 in VisualDVR itself, but only do this if you are NOT using VisualArchive.

If copying is working as expected the disk space should soon increase. If it still does not come below the Reserved Space limit it may be that your logging drives have files using up space that are not part of the standard recording folder. You can check this using the Disk Clean-Up 87 tool in the VisualDVR Storage Manager.

1.12.5 VisualDVR PC will not boot

Screen Freezes with Gigabyte Logo

If the PC boot sequence freezes with the Gigabyte logo on screen, check that the monitor is connected to the correct port. The VGA port is disabled and should not be used. Connect your monitor to one of the Display Ports on the NVIDIA Graphics Card.

See How do I connect the PC Monitor? 19

1.13 Glossary

Further information on various terms used in this document.

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1.13.1 Bitrate

Bitrate measures the amount of data used by a video stream or file per second. In general terms it can be used to describe the quality of a video file because the more data that you can use to store or transmit the image, the better the picture quality. The quality achieved for a given bitrate will vary depending on the encoding format used; by using a better compression algorithm you can achieve the same quality with a lower bitrate. For example, using H.264 in an MP4 container as opposed to using Windows Media Video in an ASF container, you can create video files which are far smaller in file size by utilising a much lower bitrate while still retaining the same level of quality.

Within VisualDVR you are able to select the encoding format, quality and bitrate. There are recommended suggestions for the bitrate depending on your other settings. These recommended settings will help to ensure you create video files of good quality at a reasonable file size.

1.13.2 Black-Box Recording

Black-Box Recording mode allows VisualDVR to record continuously without copying the recorded files to your offline disks. Black-Box recordings are intended for use when you do not expect to need the files later but are recording them just in case something happens that you may then decide to keep. Black-Box recordings can be converted to Normal recordings 83 using the VisualDVR Storage Manager 79.

While Black-Box mode is turned on you can still start and stop Normal recordings in the usual way. When you start a Normal recording, the current Black-Box file will be closed and a new Normal recording file will be opened. When you stop a Normal recording, the Normal file will be closed and copied by VisualArchive or by VisualDVR's Auto-Copy, and a new Black-Box file will be opened.

See also Normal Recording 105.

1.13.3 Frame Rate

A video image is made up of many horizontal lines on screen, each line having many pixels across it. One frame is made up of all of these lines of pixels, and each frame is updated many times per second to give the appearance of smooth motion. The faster the frame (update) rate, the smoother the motion.

The frame rate that you set or that is detected by VisualDVR will depend on the camera you have. The number of individual frames that your camera captures per second is the frame rate. You can often adjust the settings on the camera but it is important that both the camera and the VisualDVR software use the same value.

A higher frame rate typically leads to a smoother picture. VisualDVR will let you use 25, 29.97, 30, 50 or 60 frames per second.

Be careful of the fact that some spec sheets and 3rd party documentation may confuse frames and fields when referring to camera refresh rates. With interlaced 105 video, each frame is made up of two fields.

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1.13.4 Interlaced

A video image is made up of many horizontal lines on screen, each line having many pixels across it. In an interlaced video the lines are not all updated at the same time. To update a frame of video, there are two "field" updates, one updating the odd numbered lines and the next updating the even numbered lines. These field updates alternate; odd, even, odd, even with two field updates creating a singe full frame update.

All PAL and NTSC **analogue** video is traditionally interlaced. Some digital video at these same SD resolutions may be progressive. Notations like **1080i** indicate a full HD resolution (1920 x 1080) and an **interlaced (i)** format. 1080i60 indicates Full HD video with 60 interlaced fields. It may also be shown as 1080i/30 where /30 indicates 30 interlaced frames (i.e. 60 fields). Be careful of the fact that some spec sheets and 3rd party documentation may confuse frames and fields when referring to camera refresh rates and may not always follow the convention of *i/nn* indicating a framerate and *inn* indicating a field rate.

See also Progressive 106.

1.13.5 Line Level

A Line Level signal is typically a thousand times more powerful than a Mic Level 105 signal obtained directly from a microphone - one volt rather than one millivolt. A Line Level signal may often be a microphone signal that has already been amplified.

See also Mic Level 105.

1.13.6 Mic Level

A Microphone (Mic) Level signal is low voltage and low power. Systems for recording audio may have separate Mic Level and Line level 105 inputs, or they may require that a microphone signal is amplified to Line Level before connection to the recording system. When connecting a microphone to an audio input it is important to know whether that input expects Mic Level or Line Level.

Some hardware used by VisualDVR requires a Line Level signal and other hardware that we use accepts Mic Level. The pages describing various capture and encoder cards explain what you need in each case.

See also Line level 105.

1.13.7 Normal Recording

Normal Recordings are initially started and are stopped by the user, and can be automatically copied to an offline disk using either VisualArchive or VisualDVR's own File Copying 34. Between the user starting and stopping recording there may be many automatic file changes, as the system starts a new file at a regular interval. That interval is usually 30 minutes, but you can change it.

See also Black-Box Recording 104.

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1.13.8 Progressive

A video image is made up of many horizontal lines on screen, each line having many pixels across it. In a progressive video all of the lines are updated at the same time for each frame.

Notations like **720p** or **1080p** indicate an HD (1280 x 720) resolution or a full HD resolution (1920 x 1080) and a **progressive (p)** format.

See also Interlaced 105.

1.13.9 Resolution

A video image is made up of many horizontal lines on screen, each line having many pixels across it. Video resolution is usually described as Width x Height, but sometimes only the Height is specified because the Width can be inferred from it. In some cases, including within VisualDVR you may also see an i or a p after the width.

Examples:

640 x 486	Picture width 640 pixels, with 486 lines (i.e. NTSC SD). 640 x 486 is typically an analogue format.
720 x 486	Picture width 720 pixels, with 486 lines (i.e. NTSC SD). 720 x 486 is typically a digital format.
720 x 486i	Picture width 720 pixels, with 486 lines in interlaced format (i.e. NTSC SD).
720 x 486p	Picture width 720 pixels, with 486 lines in progressive format (i.e. NTSC SD).
720 x 576	Picture width 720 pixels, with 576 lines (i.e. PAL SD).
720 x 576i	Picture width 720 pixels, with 576 lines in interlaced format (i.e. PAL SD).
720 x 576p	Picture width 720 pixels, with 576 lines in progressive format (i.e. PAL SD).
576i	Picture (width 720 pixels implied), with 576 lines in interlaced format (i.e. PAL SD).
1280 x 720p	Picture width 1280 pixels, with 720 lines in progressive format (i.e. HD).

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720p	Picture (width 1280 pixels implied), with 720 lines in progressive format (i.e. HD).
1920 x 1080i	Picture width 1920 pixels, with 1080 lines in interlaced format (i.e. Full HD).
1080p	Picture (width 1920 pixels implied), with 1080 lines in progressive format (i.e. Full HD).

See also Interlaced 105 and Progressive 106.

2 Contact Details

Forum Subsea Technologies has offices in many parts of the world. The VisualSoft team is mostly based in Aberdeen in the UK, but we also have regional sales staff and some support services in other parts of the world.

The following pages have details of how to contact either our sales team or our support team, by telephone, email or by post.

2.1 Contact Details – Support

Website: f-e-t.com/visualsoft

Most support questions are most easily answered by email:

Using email gives our support team time to think about your problem before they reply, and time to test the software if necessary. If your question is urgent, do not hesitate to telephone us, but even then it may be best to send an email before you call, even if only a few minutes before you call. Sending us an email will allow you to include screen captures, data files and other things that may make it easier for us to quickly and accurately understand your problems.

Support Email (recommended)	visualsoft.support@f-e-t.com
Phone: UK & Global, during UK office hours	+44 (0) 1224 744 000
Phone: UK & Global, outside UK office hours Available for clients with a valid support contract.	+44 (0) 1224 363 999

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Operates from 17:00 until 08:30 UK time each night Monday to Thursday, and all through the weekend from 17:00 Friday evening until 08:30 Monday morning.	
Phone: USA, 24/7 During Houston office hours this will connect you to our US team. At other times, or if the US team is busy, it diverts to the UK team.	+1 713 454 7091

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2.2 Contact Details – Sales

Website: f-e-t.com/visualsoft

For address and telephone/fax details, please select the appropriate office for your region:

Aberdeen, UK	FET – VisualSoft Cumberland House Endeavour Drive Arnhall Business Park Westhill Aberdeenshire AB32 6UF UK
Sales and rental enquiries:	visualsoft.sales@f-e-t.com
Telephone:	+44 (0) 1224 744 000

Houston, USA	FET – VisualSoft 10344 Sam Houston Park Drive, Suite 300 Houston TX 77064 USA
Telephone:	+1 713 329 8273

Singapore	FET – VisualSoft Asia Pacific Rental Service
Email	visualsoft.sales@f-e-t.com
Telephone:	+65 9643 7433 / +65 9230 8138

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