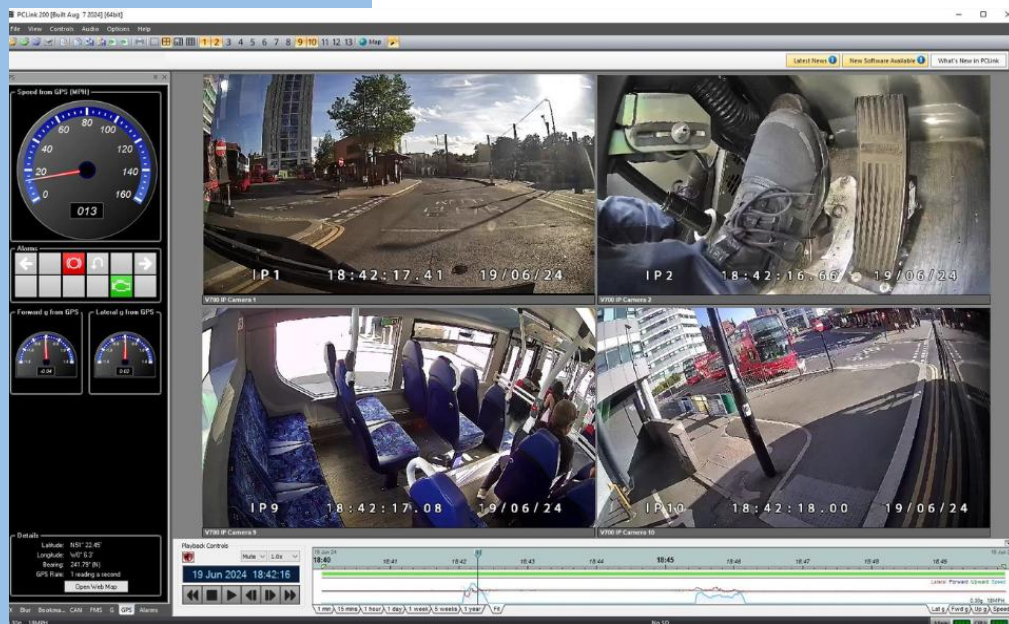




TIMESPACE

PCLink Suite

Instruction Manual



PCLink Version 8.4.4

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List of Abbreviations

Abbreviation	Meaning
3G/4G	Mobile phone network technology – third and fourth generation
AVI	A file extension for a multimedia video format file
BMP	Bitmap image file
CAN	Controller Area Network
CPU	Central Processing Unit (computer resource)
CD	Compact Disc
DTC	Diagnostic Trouble Code
DVR	Digital Video Recorder
DVD	Digital Video Disc
EDGE	Enhanced Data rates for GSM Evolution (type of router)
FMS	Fleet Management System
FTP	File Transfer Protocol
FX	Effects
GB	Gigabytes
GSM	Global system (or standard) for mobile
GPRS	General Packet Radio Service
GPS	Global positioning System
HTML	Hypertext mark-up language, system for tagging text files to show colour etc
IP	Internet Protocol
IPS	Images per second
JPEG	A format for compressing image files
KPH	Kilometres Per Hour
LAN	Local Area Network
MB	Megabyte
MKV	Matroska video file, a popular file format for High Definition video
MP4	A digital multimedia format commonly used to store video and audio.

MPG	An international standard for encoding and compressing video images
MPH	Miles Per Hour
NAT	Network Address Translation
NTSC	The television broadcasting system used in North America and Japan
NVR	Network Video Recorder
OBA	File type unique to the Timespace X100 digital video recorder
OSM	The Open Street Map website
PAL	Phase Alternating Line
PC	Personal Computer
PGN	Parameter Group Number (in vehicle CAN data)
PTZ	Pan Tilt Zoom (camera)
RAM	Random Access Memory
RMC	Recommended Minimum data in GPS containing position, course & speed
SIM	Subscriber identity module
TCP	Transmission Control Protocol
TFTP	Trivial File Transfer Protocol
UDP	User Datagram Protocol
UMTS	Universal Mobile Telecommunications Service
USB	Universal Series Bus (cable system)
V	Volts
VLC	Video LAN Client
VPN	Virtual Private Network
XBA	File type unique to Timespace digital video recorders

1 About This Manual

This manual contains the information required for the installation and use of Timespace Technology's PCLink Suite software.

PCLink Suite comprises a number of programmes:

- PCLink200
- PCPlayer
- RemoteLink
- XCommunicate

This manual is divided into the following sections:

- [Introduction to PCLink suite](#)
- [PCLink200 Quick Reference Guide](#)
- [PCLink 200 User Interface in Detail](#)
- [PCLink200 Features and Functions](#)
- [File Transfer](#)
- [Software Updates and News.](#)
- [Appendix – Manual Revision History](#)

Within the [User Interface](#) section of the Manual, links to other more detailed sections are given as hyperlinks.

2 Introduction

2.1 PCLink Suite

Timespace PCLink Suite consists of applications that allow Playback, Live View, Configuration and Download/export of recorded files from all Timespace digital video recorders (DVRs).

PCLink200 is a Windows based application that allows .xba files to be viewed on a PC. XBA files are created by Timespace DVRs on either an internal storage device or a removable disk cartridge. For X & V-series DVRs the cartridge can be connected to the PC via a USB cable to access the files. For K-series DVRs the DVR itself is connected to a PC via USB.

Playback options for video and audio include play, forward-wind, rewind, jog control, jump to markers, time line jumping and stop.

Video can be exported from Timespace XBA format to various standard video file formats (MP4, MKV, MPG and AVI). Camera images can be saved as still pictures to the Windows clipboard or saved directly to a JPG/BMP file.

PCLink's integrated mapping displays the location and real-time movement of a Timespace DVR when using a GPS aerial (added separately to a Timespace DVR).

PCLink also provides export of GPS mapping and speed data, GSensor data from the DVR's built-in accelerometer, and motion data from Timespace DVRs which have motion-detection functionality.

2.2 Software Requirements

PCLink200 runs on the following Microsoft Windows operating systems (32/64Bit):

- Windows 10 onwards
- Windows server platforms 2012 R2 onwards

Older operating systems are supported at the time of issue of this manual, but may be dropped in the future.

From PCLink V8.4.2 onwards, some features available in the 64-bit builds will not be available in the 32-bit builds. Please contact Timespace for further details.

PCLink runs using an elevated Windows permission state i.e. highest available however it does **require Administrator Rights to run correctly with all features**. This is because PCLink has the ability to write to the local PC hard drive for example when saving screenshots or exporting video files. Also PCLink has the ability to open network sockets on the PC to communicate with Timespace DVRs for example to view Live video remotely or download video files. Included with PCLink Suite is a standalone PCPlayer that can be run without installing and does not require Administrator Rights. PCPlayer does not include all the features that PCLink does.

2.3 Hardware Requirements

Operating System	64bit Windows 10 or later <i>Older systems are currently supported, but may be dropped in the future.</i>
CPU	2.5 Ghz, Intel i7 6 core (avoid i3s)
Memory	16GB
Disk Space	System: 500GB SSD
Network	Gigabit LAN

Playing footage from DVRs at 200IPS or with IP camera footage can be very demanding. Therefore we recommend using a PC with a multi-core 11th generation (or greater) Intel Core processor and a dedicated graphics card.

Some on-board graphics cards may need windows 'hardware acceleration' turning down for optimum playback speed.

PCLink will run on older, slower machines, but playback may pause, and sound become "choppy".

2.4 Installation

In most cases the installation program will run automatically. If this does not happen use Windows explorer to select the CD ROM drive and the installer will start. Installation may take several minutes if an update to .NET is required.

To start running PCLink200 click the Windows Start > Programs > PCLink Suite > PCLink shortcut.

2.5 License

The purchase of a Timespace USB interface kit or cartridge station includes the necessary licence for use of PCLink Suite software including free of charge updates on a single PC (reasonable use policy allows installation on a secondary portable PC; laptop). Timespace Technology does not authorise the unlicensed usage of PCLink Suite software.

3 PCLink200 Quick Reference Guide

The screenshot shows the PCLink Suite 8.4.2 interface. The top menu bar includes File, View, Controls, Audio, Options, and Help. Below the menu bar is a toolbar with icons for various functions. The main display area is divided into several sections:

- Speed from GPS (MPH):** A large circular speedometer showing 006 MPH.
- Alarms:** A panel with buttons for alarm settings.
- Forward g from GPS:** A small gauge showing forward acceleration.
- Lateral g from GPS:** A small gauge showing lateral acceleration.
- Details:** A panel showing GPS data including Latitude (N51° 28' 15"), Longitude (W07° 21' 17"), Bearing (205.77° (N)), and GPS Rate (1 reading a second). There is an "Open Web Map" button.
- Video Feeds:** Four camera feeds labeled V700 IP Camera 10, V700 IP Camera 14, V700 IP Camera 16, and V700 IP Camera 18.
- Map:** A map showing the vehicle's location with a red dot and a yellow line indicating the path.
- Playback Controls:** A panel with buttons for Play, Stop, Jog Forward/Back, FastForward, and Rewind. It also shows the current date and time: 23 Jan 2024 10:30:04.
- Timeline:** A horizontal timeline showing the duration of the footage from 10:31 to 10:40. It includes a green bar for available footage and a red bar for alarm events.
- Motion, GSensor & Speed graphs:** A panel showing three graphs: Lateral, Forward, and Speed.
- PC system resources indicator:** A panel showing system resources like Memory, CPU, and Disk.

Annotations and callouts provide additional information:

- Menu bar:** Points to the top menu bar.
- Shortcuts:** Points to the toolbar.
- GPS speed and motion data, displayed graphically:** Points to the speedometer and g-force gauges.
- Alarm Panel. Graphical display of alarms e.g. vehicle indicators, brake, lights, horn, siren etc.** Points to the Alarms panel.
- GPS position data. Static map link will open a web browser for location (useful when not using integrated Mapping).** Points to the Details panel and the "Open Web Map" button.
- Estimate framerates:** Points to the FPS counter in the top right corner.
- Export Video DVD or Export XBA DVD.** Points to the "Export" button in the top right corner.
- Camera number.** Points to the camera feed labels.
- Time and date Information.** Points to the date and time display in the playback controls.
- Map information, linked with GPS data.** Points to the map display.
- Yellow footage position markers can be used to mark the start and end of selected footage (useful for exporting clips).** Points to the yellow markers on the timeline.
- The playback position marker can be moved to a specific date and time.** Points to the playback position marker on the timeline.
- Motion, GSensor & Speed graphs.** Points to the graphs in the bottom right corner.
- PC system resources indicator.** Points to the system resources panel.

Information Side Panel

Switch between FX, Blur, Bookmarks, CAN, FMS, G-Force (G), and GPS and Alarms views.

FX View includes; Gamma, Brightness, Contrast, Greyscale and Negative adjustments.

G-Force includes; Lateral, Forward and Upwards measurements in terms of G.

Playback Controls

Playback speed and Volume. Note Volume does not appear unless enabled in the Audio Menu (default is off).

The date and time of the currently displayed footage.

Play, Stop, Jog Forward/Back, FastForward, Rewind.

Timeline Information

Shows areas of available footage in green. This can be scaled to show footage over appropriate periods of time.

Areas highlighted in red indicate Alarm events.

Motion and G-Force graphs drawn under the timeline when selecting right hand tabs.

3.1 Camera Zooming

Multiple cameras can be zoomed at different levels during playback by using the mouse scroll wheel. Once zoomed in, the image can be panned by clicking & dragging.

3.2 Keyboard Shortcuts

<u>Key(s)</u>	<u>Operation</u>	<u>Key(s)</u>	<u>Operation</u>
Space Bar	Play / Stop	Keypad +	Increase playback speed
;	FFWD	Keypad -	Decrease playback speed
H	REWIND	[Set left marker
J	JOG Backwards]	Set right marker
L	JOG Forwards	I	Jump to start marker
Ctrl + F	Load folder	O	Jump to end marker
Ctrl + R	Load remote unit	R	Confine markers to displayed footage
Ctrl + O	Load XBA	Alt + Enter	Displays properties window
Ctrl + P	Print Image	Scroll lock	Export cameras to folder
Ctrl + S	Save file	F11	Full screen
Ctrl + Shift + L	Loop Playback (between markers)	Esc	Exit full screen

Ctrl+Left mouse click on any of the ALARM PANEL icons will jump to the next occurrence of that alarm in the timeline (if any).

Ctrl + click on the camera number will show/hide that camera.

3.3 Installing Cartridge

To access recordings on the cartridge, connect to a PC using the USB Interface Kit from Timespace (cable or cartridge station).

If using an X100/X200 cartridge, switch the cartridge power switch to the on position.

Once the disk has been connected, the PC should take a few seconds to detect the disk and Windows should automatically assign a drive letter to it.

The drive should be viewable in Windows Explorer and .XBA files visible with their associated icon (assuming PCLink Suite is installed);



Recording files can now be viewed using PCLink200 by either double clicking on an individual file from Windows Explorer or loading file(s) or cartridge from within the PCLink application.

3.4 Removing Cartridge

Cartridges should be safely removed from Windows operating system environment prior to removing power/USB cable. Data loss or corruption may occur if this is not followed.

To safely remove the cartridge from a Windows PC; double click on the “Safely Remove Hardware” icon in your system tray, select the device (drive letter assigned) to be removed from service, select “Stop”, select “OK” then “Close”. Alternatively, single-click on the “Safely Remove Hardware” icon in your system tray and select the appropriate device from the pop-up dialogue. Wait for the drive activity light to stabilize. Power-off and/or disconnect the drive.

NB: For X200, cartridges > 160GB must be used with the T505 USB cable.

3.5 Loading .xba files

There are several ways to view XBA files in PCLink200;

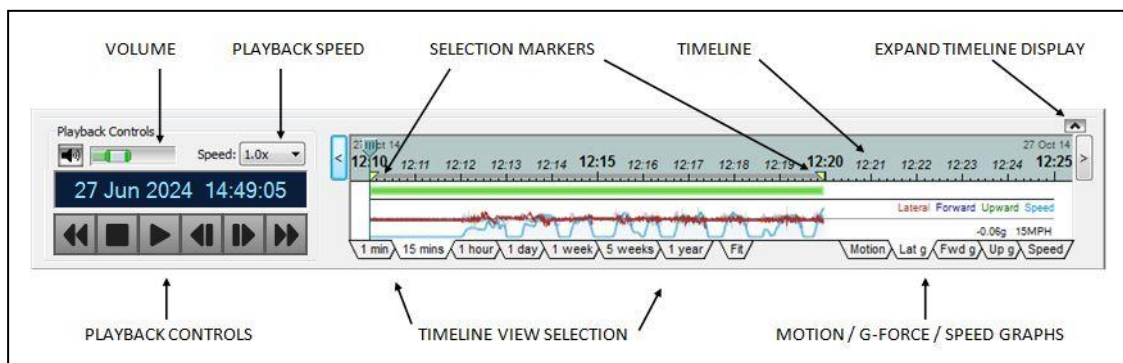
1. Individual files can be opened directly from Windows Explorer by double clicking.
2. Group selected files can be dragged from a Windows Explorer window and dropped onto the main area of the PCLink200 window.
3. Up to 15 files can be opened by selecting them and using RIGHT CLICK > OPEN WITH PCLINK200.
4. The entire cartridge can be loaded by opening PCLink200 and selecting the AUTOLOAD option.
5. A specific folder can be loaded from within PCLink200; FILE menu, LOAD FOLDER.
6. A specific file can be loaded from within PCLink200; FILE menu, LOAD FILE.
7. Files can be loaded from a remote DVR using an IP connection; FILE, LOAD REMOTE UNIT.

4 PC Link200 User Interface In Detail

4.1 Play Controls and Timeline

Once an XBA file is loaded (see section on [loading files](#)), PCLink can be used to play and review the footage on the file.

The play controls and timeline are at the bottom of the PCLink screen.



4.1.1 Play Controls

Control	Function	Keyboard shortcut
Play	Click once to play footage. If clicked whilst footage is playing the play button will stop the footage.	space bar
Stop	Click once to stop the footage at any time.	space bar
Rewind	Click once to rewind the footage by a few seconds whilst playing or stopped. Hold down to fast rewind the footage. The size and speed of this rewind is relative to the amount you are zoomed in.	H.
Jog back	Click once to rewind the footage by 1 second (to the nearest available keyframe) whilst playing or stopped	J.
Jog forwards	Click once to advance the footage by 2 images whilst stopped	L.
Fast forward	Click once to advance the footage whilst stopped. Hold down to fast forward the footage whilst playing or stopped.	;

4.1.2 Date/Time display

Time and Date - The current time and date of the footage shown on the screen is displayed directly above the play controls.

Double click on the date/time strip to open a Search dialog box. Right-click to copy the current playback date/time to the clipboard in the format "%H:%M:%S %d/%m/%y".

4.1.3 Playback Speed

Playback speed selector allows the footage to be played back from between 0.1 and 10 times its normal playback speed.

NB: playback speeds **x4** or higher are generally reserved for lower IPS recordings due to the host PC processing capability. **Max** speed plays video back as fast as possible.

4.1.4 Volume control

Slide to the right and left to increase and decrease playback volume respectively.

NB: When audio is disabled in the Audio Menu on the DVR, the volume control in PCLink will appear with a red line through it.

4.1.5 Timeline and section markers

The timeline can be used to select and view the footage at a particular point in time. Click once on this bar and the footage will jump to this time. The playback position indicator can also be dragged by holding down the left mouse button.

The two yellow triangles at the beginning and end of the timeline are the section start and end markers. By default these will appear at the start and end of the available footage when it is loaded, but they can be dragged by holding down the left mouse button to other points of the footage if desired. This is useful when using the Export video option or the Loop footage feature to repeatedly play a section of footage.

The timeline scale can be selected to cover from 15 minutes to 1 year; the 'Fit' option scales the timeline to cover all of the currently loaded footage from beginning to end.

GREEN areas on the timeline indicate normal recordings.

RED areas indicate an ALARM event, if configured within the DVR.

BLUE indicates that the footage has been opened remotely over an IP connection.

4.1.6 Motion Graph

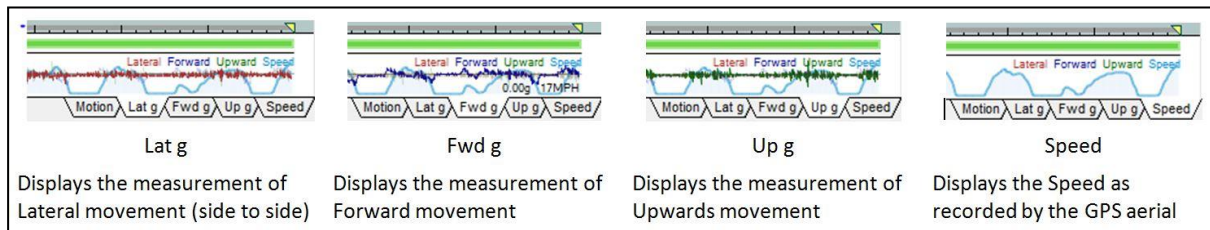
NB: *The motion graph/tab will only be displayed for DVR products which support this feature and is shown per camera. The X200, X300 and X500 DVRs have motion detection. V-series DVRs do not.*

The motion graph bar is shown below the timeline and indicates the relative level of motion (change) in the recording. The level of motion is indicated by the height and intensity of colour of the bar, higher and darker indicates higher motion and lower and lighter indicates lower motion.

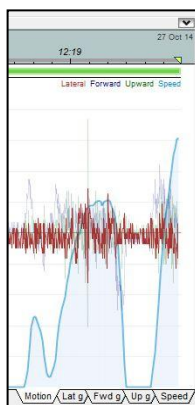
The motion graph bar will show the level of motion for the currently highlighted camera. If a number of cameras are highlighted then the graph will display the data for the camera which has the highest level of motion and not the average level across all cameras. If no cameras are highlighted then the graph will display the data for the camera which has the highest level of motion from all of the recorded cameras.

4.1.7 GSensor / Speed Graphs

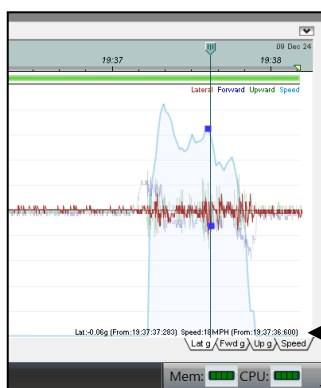
Timespace DVRs can record the G-Force movement and speed and playback in line with the video footage. All readings are displayed together but one reading will be more prominent depending on which tab is selected. Each reading is colour coded along with a key in the bottom right hand corner. The Speed tab displays only the speed reading.



HINT: use the expand button or click and drag the Timeline *area* to grow the graphs.



Motion graph status text – hovering the cursor over the graph display will reveal status text which lists the readings and the time the readings were taken. The status text is in the right-hand corner of the motion graph area, as shown below. The two small squares show the reading times. This is useful when zoomed in, ie to see how frequently GPS is being read.



Motion status text

4.2 Menus

4.2.1 File Menu

File > Load File – Opens a single .xba file from a user specified location. Select the file and press open. If an .oba (X100) file is selected then PCLink100 will automatically start in a new window and the file can be opened from there.

File > Load Folder – Opens a group of .xba files from a user specified folder. Select the file and press open. This can also be used to load all the files from a cartridge connected to the PC. To do this select the drive letter in My Computer assigned to the cartridge and press open. All of the available footage from the cartridge will then be loaded.


NB: files (and files in folders) may be password-protected or encrypted. For further details on opening this type of file, please see [File Password and Encryption Settings](#).


If a folder containing both .xba and .oba files is selected then PCLink200 will ask which type of files are to be viewed. If XBA is selected then PCLink200 will load all of the available .xba files. If OBA is selected then PCLink100 will automatically start in a new window and the .oba files can be opened from there. If a folder containing only .oba (X100) files is selected then PCLink100 will automatically start in a new window and the files can be opened from there.

File > Load Remote Unit – Opens a window which allows a remote connection to a Timespace DVR over an IP network to view live cameras, playback recorded footage, download footage and configure the DVR.

To access the DVR add the remote unit to the list by entering a name for the unit and its unique IP address (note that all Timespace DVRs have the default IP address of 10.0.0.200). The IP address must be unique and once the details have been entered click the 'Add' button to add the unit to the remote unit list. To delete a unit already on the list select it by clicking on the unit name and then click 'Delete'.

The 'Load List' feature allows the user to load the unit name and IP address for multiple units managed by a Timespace LANLink system, XML file format, contact Timespace support for details.

Units which show  next to them can be connected to.

Units which show  cannot be contacted and should be investigated at a network connectivity level; investigate DVR configuration, firewall/security product restrictions installed on the PC and any network security devices.

NB - See [REMOTE ACCESS: Load Remote Unit](#) page for more detailed options. In particular see the **Adaptor IP** setting in the advanced **Edit** dialog for a unit.

File > Close Files – Closes currently opened .xba files.

File > Print – Prints the currently selected camera view.

File > Copy Image – Copies the currently selected camera view to the clipboard in Windows Bitmap format.

File > Export Video Four sub menus exist for Exporting;

- > **Create XBA DVD** - Burn a DVD with XBA files and PCPlayer.

- > **Export XBA File** - Exports the section of footage between the start and end markers as an XBA file. A dialogue box will appear allowing the user to select which cameras, audio channels and data (GPS and motion) is included in the exported XBA.

- > **Create Video DVD** - Convert XBA to a DVD format and Burn a DVD (can be played in a standard DVD player e.g. in a courtroom).

- > **Export Video Grid** - export a single-stream MP4 file which contains multiple cameras arranged in a grade (similar to the DVD export option)

- > **Export Video File** - Export an XBA file to another format e.g. AVI, MPEG2, MPEG4.

A section of footage between the start and end markers can be exported. Selecting one of the above export methods will load a dialogue box allowing the user to select further options such as codec, start/end times, include audio etc.

NB: reference the [Exporting](#) section of this manual for further information. See [File Password and Encryption Settings](#) for details on password-protecting and/or encrypting files for export.

The maximum file size can be limited in order to fit the resultant parts to certain media e.g. CD/DVD. In this case if the total size of the exported footage exceeds the maximum file size selected then a number of files will be created all with the same name as entered in the 'File Name' box, but having a suffix to the file name -part2, -part3 etc. The user can select one of the standard maximum file size limits or alternatively select 'Custom' from the drop down menu. If custom is selected then the user inputs the required maximum file size in the 'Mb' window next to the drop down menu.

File > Export Image – Exports the currently selected camera view as a Windows Bitmap or JPEG to a location specified by the user. JPEG produces file sizes approximately 20 times smaller than bitmap with no discernible loss in image quality.

File > Export Audio - Exports the section of footage between the start and end markers as a WAV or MP3 file. Choose the output file name/destination and the period of footage required.

File > Export Cameras to Folder – At any time during play back it is possible to save all of the current camera views to a folder as separate JPEGs (one for each camera view) by pressing the Print Screen key on the PC keyboard.

There is an option to export only 1 camera by holding down the <CTRL> key while selecting 'Export Cameras to Folder'. The exported camera will be the first selected camera, or if no cameras are selected, the camera with the lowest number that is displayed.

The JPEGs will be saved to a folder as specified in the preferences dialog. The Preferences dialog is accessed by going to Options > [Preferences](#).

NB if the user does not specify a location for the exported images, then by default the images will be stored in the same place as the original XBA file was loaded from. This may cause problems if the XBA file was loaded directly from a Hard Disk Cartridge which may have limited free space available.

The format for the file names is of the form:

19th Nov 2010 14:10:00 [cam 01] .jpg

19th Nov 2010 14:10:00 [cam 02] .jpg

If multiple images exist for the same time (when using a record rate over 1IPS per camera) then PCLink200 will not overwrite previously exported images but will instead append the file names with a bracketed number so that the correct sequence of images can be determined. For example:

19th Nov 2010 14:10:00 [cam 01] (1) .jpg

19th Nov 2010 14:10:00 [cam 01] (2) .jpg

File > Check Watermarks –

> **Create Report for Loaded Files** – This feature checks the watermark for every image in the footage between the start and end timeline markers (these are set at the beginning and end of all the currently loaded footage by default).

> **Create Report for Cartridge/Folder** does the same as check loaded files, but on a cartridge or a folder containing XBA files.

When the check is complete an HTML log file is produced and automatically opened. This log file lists all of the checked files and has a summary section at the bottom. Each file has a '+' symbol next to it for further information about that file. This extra information will automatically be shown if there were problems with the watermark for this file. Information includes; Unit serial numbers, start/stop times, sequence numbers and also a file CRC and SHA1 checksums (which are also written to a separate file, with a link added to the html report).

File checks are categorised into three states:

- Passed check (green)

- Passed check with issues (blue)

- Failed check (red)

Files pass with issues if:

- File was not closed properly (power off during record)

- File was not closed properly (power off during record) and the last video/audio frame failed the watermark check

- Files are missing their sequence frame (in newly generated files) in non-properly closed files (power off during recording)

Files fail if:

- Any video/audio frame (other than the last in a non-closed file) had an invalid watermark

- Video frames were missing or out of sequence (in newly generated files)

- Files passed to the checker were not in sequence (in newly generated files)

- Files are missing their sequence frame (in newly generated files) in properly closed files.

File > Load Blur – loads previously saved blur file

Recent Files – Displays a drop-down list of recently opened .xba files, click on an item to load the file. Please note that this will not work if the file has been moved since it was last opened.

File > Properties – Brings up a summary of the current .xba file properties such as start/end times and file size. If connected remotely, pressing the Open Folder button will launch an FTP browser link to enable file downloads. NB: the file properties dialog can be enlarged to show all the details, eg file security settings, file size etc.

File > Exit – Exits the PCLink200 program.

4.2.1.1 Export data (GPS speed, GSensor and Motion)

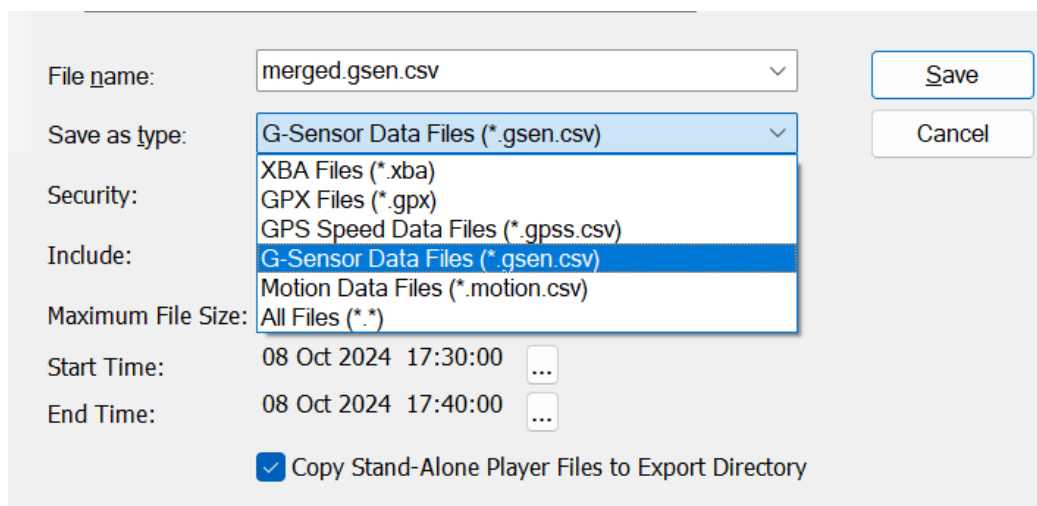
GPS mapping data can be exported in PCLink as a .gpx file, see dropdown below. From PCLink 8.4.4 onwards, PCLink also provides for export of raw GPS Speed, GSensor and Motion Data from the XBA files. The data is exported as a spreadsheet in .CSV format.

In **File > Export Video > Export XBA File** there are 3 new entries in the “Save as type” dropdown:

- GPS Speed Data files
- GSensor Data Files
- Motion Data Files

Motion data will only be available for Timespace X200 and X300 DVRs. Each line has a time and a value for all 16 possible cameras.

For footage from X200 DVRs, no GPS or GSensor data. only the option for a Motion Data File will be shown –



The three new CSV files will contain relevant information on the loaded files between the start/end time range.

GPS Speed Data files contain the time, and a MPH (or KMH if set in **Options > Preferences > Dials > Units**) value derived from the GPS data:

```
Time,MS,Speed (MPH)
17:30:00, 400, 14
17:30:01, 400, 15
17:30:02, 400, 17
...
```

NB the OSD speed units can also be set on the DVR itself in the GPS settings page. Therefore there may be occasions when the units (eg MPH/KMPH) showing on the video do not match those showing on the speed dials.

G-Sensor Data files contain the time, and then values for all 3 axis:

```
time,ms,lateral,forward,upward
17:30:00, 0, 0.02, 0.03, 0.00
17:30:00, 100, 0.02, 0.03, 0.00
17:30:00, 200, 0.01, 0.03, 0.00
17:30:00, 300, 0.02, 0.03, 0.00
```

...

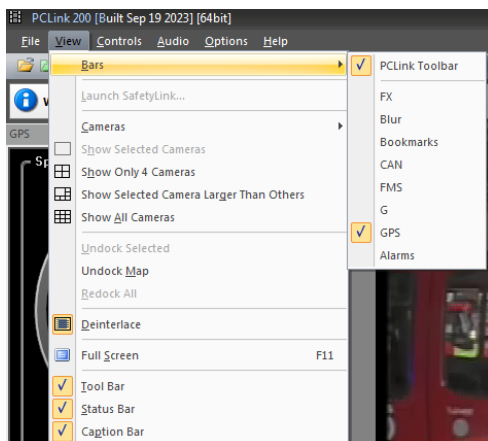
NB: Technically the upward value should be -1 (due to gravity), but 1 is added to centre the graphs around 0.

4.2.2 View Menu

View > Bars

Bars allows the user to toggle on/off the main PCLink toolbar, as well as the side information bars for FX / Blur / Bookmarks / CAN / FMS / G (G-Force) / GPS.

NB: the default is to show the GPS bar when PCLink is started. PCLink will reset the default to this every time a new version of PCLink is installed.



From PCLink Version 8.3.0 onwards, individual side information bars can be detached, moved, resized, docked and undocked. See [Information Side Panels](#) for more details.

View > Cameras – This will display a drop-down list of cameras. Either check or un-check each camera to have it displayed or not displayed in the PCLink200 window. Cameras with available footage will have their number displayed in black, all others will be displayed in grey and are not accessible.

NB: The cameras listed cover all Timespace recording products, and therefore will not all be applicable to every DVR/piece of footage. The cameras available for the currently shown footage will be shown across the top of the [Toolbar](#).

HINT: Double clicking on any displayed camera window in a multiple camera view will display it full screen. Left-clicking any part of the surrounding grey area will revert back to a multiple camera view.

Multiple camera views can be selected by holding down the **Ctrl** key whilst left clicking on the desired camera windows.

If multiple camera windows are selected then double left clicking whilst holding down the Ctrl key will display only the selected cameras. Left clicking any part of the grey area of the window will revert to all camera windows being displayed.

View > Show Selected Cameras – This will display all of the currently checked cameras in the Camera list.

View > Show only 4 cameras – this option limits PCLink to displaying up to 4 cameras. Cameras can be turned on and off on the toolbar. This option is intended primarily for use with older PCs when requiring playback from the Timespace V700 DVR (full-HD DVR so recorded files are large).

View > Show Selected Camera Larger Than Others – This will display the selected camera as a large image, with other camera tiles as smaller thumbnail images.

View > Show All Cameras – This will display all cameras for which there is available footage.

View > Undock Selected – Undocks the currently selected Camera/Map tile from the main PCLink Windows, allowing it to be moved/resized as required.

View > Undock Map - Undocks the Map tile from the main PCLink Windows, allowing it to be moved/resized as required.

View > Redock All – Redocks any undocked camera/map tiles.

View > Deinterlace - This controls PCLink's deinterlacing functionality for interlaced D1 footage recorded by an X300 connected to a multi-field camera. NB only the X300 DVR supports interlaced video. If ticked, PCLink will combine both the odd and even video fields and perform a deinterlacing algorithm to provide a higher resolution frame.

If not ticked, PCLink will simply show the even field only resulting in a lower resolution frame. Deinterlacing can be quite demanding on the CPU. Turning it off will provide faster playback.

View > Full Screen – This will display the selected camera window full screen without the PCLink200

menu bar or playback controls. Press Esc to return to normal viewing mode. Full screen view can also be toggled by pressing the F11 key on the keyboard.

View > Tool Bar – toggles on/off the PCLink tool bar at the top of the screen

View > Status Bar – toggles on/off the status bar at the bottom of the screen. Right-clicking on the status bar itself gives the option to turn on/off various pieces of information, eg PCLink date and version number, CPU load etc.

4.2.3 Controls Menu

Controls > Play / Stop – This will toggle the footage from playing to stopped and vice-versa. Also controlled directly by the Space Bar on the keyboard.

Controls > Looped playback – Will continuously loop the footage between the start and end markers. Also directly controlled by using Ctrl + Shift + L.

Skip Low Motion Playback - During playback will skip over any *low motion* footage +/- *n* seconds pre/post as configured in Options>Preferences. This is very useful to reviewing footage and masking out areas with no activity.

Controls > Jog Forwards – Causes the footage to jog forwards. Also controlled directly by the **L** key on the keyboard.

Controls > Jog Backwards – Causes the footage to jog backwards. Also controlled directly by the **J** key on the keyboard.

Controls > Jump to Start Marker – Causes the footage to jump to the start marker. Also directly controlled by the **I** key on the keyboard.

Controls > Jump to End Marker – Causes the footage to jump to the end marker. Also directly controlled by the **O** key on the keyboard.

Controls > Jump to – Brings up a dialogue box allowing the user to input a time and date to jump to. If no footage is present at the selected time and date then the nearest footage will be selected.

Controls > Confine Markers to Displayed Footage – Sets the start and end markers to the beginning and end of the currently displayed Timeline. This is useful if only a portion of the total footage Timeline is currently being displayed. Also directly controlled by the **R** key on the keyboard.

Controls > Set Left Marker To Play Position – Sets the left (start) marker to the current play position on the Timeline. Also directly controlled by the **[** key on the keyboard.

Controls > Set Right Marker To Play Position – Sets the right (end) marker to the current play position on the Timeline. Also directly controlled by the **]** key on the keyboard.

4.2.4 Audio Menu

Audio > Audio Enabled – Enables audio playback on both channels.

Audio > Left Channel Only – Enables audio playback on the left channel (channel 1) only.

Audio > Right Channel Only – Enables audio playback on the right channel (channel 2) only.

Audio > Audio Disabled – Disables audio playback (Mute).

Audio controls are also located in the Playback Controls section at the bottom of the screen:

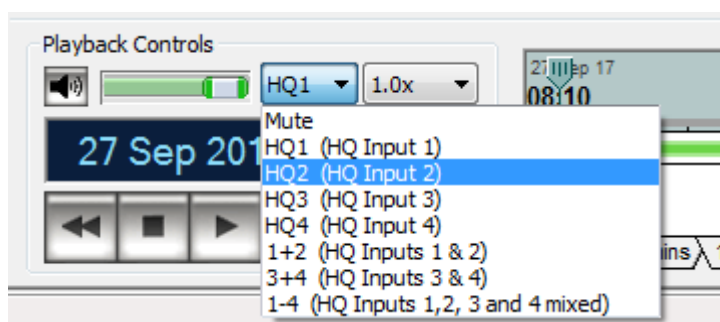


Clicking the loudspeaker icon completely turns off the audio sub-system in PCLink, whereas selecting Mute in the dropdown keeps the audio system active, but doesn't queue any new audio. By keeping the audio system active, the switch to an audio stream is much smoother.

4.2.4.1 X500 High Quality Audio

PCLink from software version 8.0.2 onwards supports the High Quality Audio feature on the X500 DVR.

To select the audio stream playing back, a new drop-down has been added to the Playback Control bar. The selected text in the control shows the currently playing audio. You can change this by clicking it and selecting a different audio stream.



The content of the dropdown changes depending on the current file.

The new X500 channels are referred to as HQ1, HQ2, HQ3 and HQ4.

The “1+2” and “3+4” options allow the HQ channels to be played as a stereo pair.

The “1-4” option allows all the HQ channels to be mixed into 1 mono channel.



For non-X500 files, or X500 files which utilise the extra input channel we refer to the audio as the standard inputs. “L+R” here means play both channels as stereo audio.

NB: The “Mute” option in the dropdown will be selected if there is no audio in the file.

4.2.4.2 Camera-based Audio Selection

A feature from PCLink 8.0.2 onwards is the ability to give a camera a preferred audio channel. When the camera is selected, PCLink will try and switch to this audio channel.

This is currently set up in the Options > [Camera Grid Setup](#).

Further settings for HQ Audio can be found in the Options > Preferences > [HQ Audio](#) dialog.

4.2.5 Options Menu

Options > Cartridge Autoload – Check this option to autoload all footage from a Hard Disk Cartridge which is attached to the PC before or after PCLink200 is started.

If a Cartridge containing both .xba (X200) and .oba (X100) files is connected then PCLink200 will ask which type of files are to be viewed. If XBA is selected then PCLink200 will load all of the available XBA files. IF OBA is selected then PCLink100 will automatically start in a new window and the OBA files can be opened from there. If a Cartridge containing only .oba (X100) files is connected then PCLink100 will automatically start in a new window and the files can be opened from there.

4.2.5.1 Passwords for use of PCLink

Options > Passwords > Set PCLink Password – sets a password to prevent unauthorised use of PCLink software.

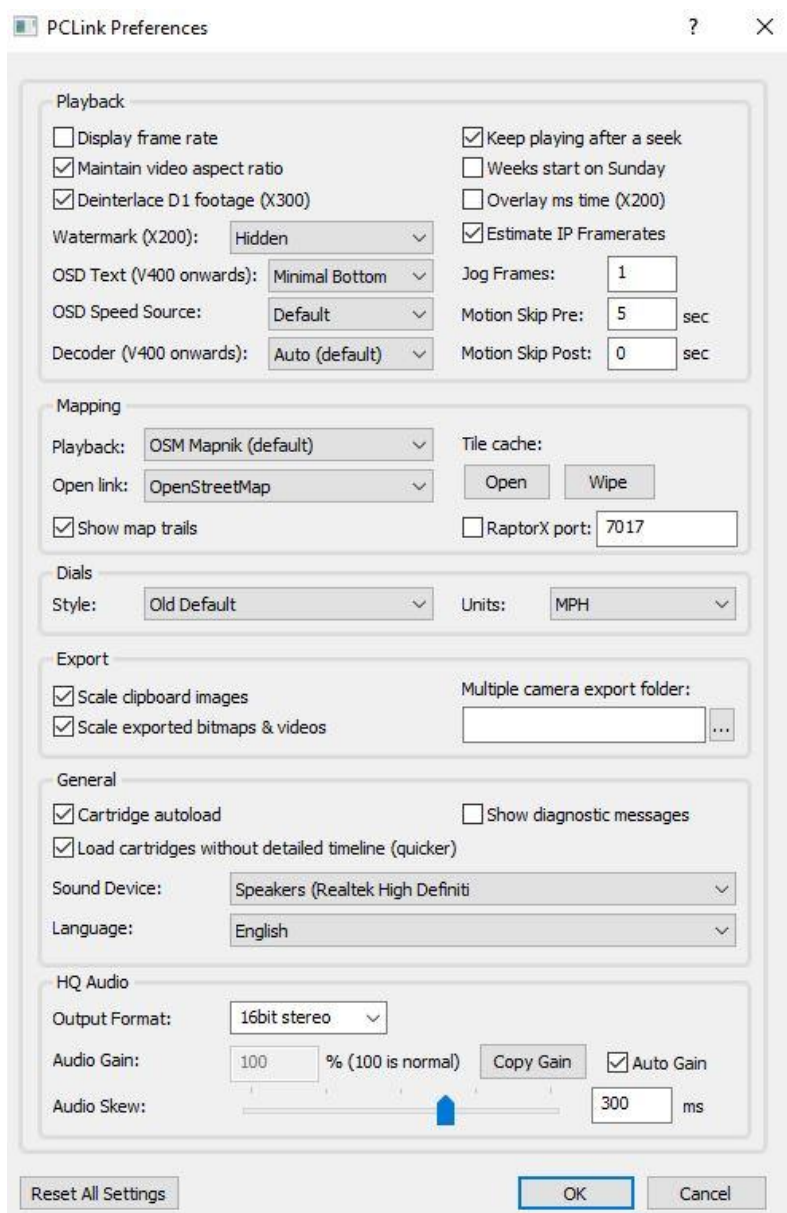
Options > Passwords > Set Export Password – sets a password to prevent unauthorised export of files from PCLink.

NB: The default password is blank spaces. Setting it back to this will remove any password protection.

Options > Passwords > Enter Playback Password - If an XBA file has been recorded with a password, enter it in this menu in order to playback the file(s). If a password hasn't been entered and PCLink detects a file that requires one, a popup will be presented to the user in order to enter a password.

4.2.5.2 Preferences

Options > Preferences – This brings up a menu allowing the user to specify a number of display and export preferences.



Playback

Display frame rate (and Video Channel Text) - This option displays the frame rate, camera type (PAL/720P/1080P) and audio rate (if audio is present) for each channel in the information bar underneath each video window. Default: disabled.



When enabled, the IPS Video Rate will always be present (except in live), other details will be added in the following order if screen space is available (depending on Window size):

1. Video Rate (non-live playback only) eg 4IPS, 10IPS etc.

2. Audio Rate (non-remote playback, and only if audio exists): eg:

" , 44.1kHz (l)"

" , 44.1kHz (r)"

" , 44.1kHz (lr)" (lr for stereo)

3. Frame Size: eg PAL; or for AHD cameras (1280 x 720) or (1280 x 1080P); or for IP cameras the relevant size.

4. Video Quality (if known):

" (Super Q)"

" (VVHigh Q)"

" (VHigh Q)"

" (High Q)"

" (Medium Q)"

" (Low Q)"

5. Finally, one or none of:

" [Live]" (liveview mode)

" [Remote]" (remote file playback)

" [X300]" (local x300 playback)

" [h264]" (local h264 format playback. Letters U, M or F may also be shown to indicate which decoder is in use.)

Maintain Video Aspect Ratio – When enabled, PCLink will keep the video source aspect ratio. When disabled, all camera tiles will be sized the same. This option will be particularly used when playing back a mixture of analogue and IP cameras.

Deinterlace D1 footage (X300) – When enabled, PCLink combines the two fields of interlaced footage into a single higher-resolution frame. When disabled, PCLink only displays the first field of interlaced footage. On a less powerful PC, playback will be much quicker with this option disabled. The X300 is currently the only recorder which supports multi-field recording (D1 Resolution).

Keep playing on seek - If the user drags the play head cursor or clicks in the timeline window during video playback, the system will seek to the new time thus selected. This option determines how the system behaves after this seek. If enabled, the playback will resume from the new time. If disabled, playback will not resume and the system will wait for either another seek or a click on the Play Button – this may give the user a better sense of control over the system. Default: enabled

Weeks start on Sunday - By default weeks are assumed to start on Monday. If the user considers weeks to start on Sunday they should enable this option. Default: disabled

Overlay ms time (X200) - This option turns on the millisecond timing, per image, for X200 footage. The ms timestamp is shown as an offset from the timestamp of the first image in that particular XBA file.

Watermark (X200) - Each image is watermarked as it is recorded, providing a guarantee of authenticity. As PCLink200 plays back the image, it checks the watermark to ensure that the image has not been tampered or altered. The water mark is then displayed in the corner of the image as a green W logo. A broken watermark is shown with a red line through it. The user may specify which corner of the image to show the watermark and also disable it being shown at all. Default: disabled

Jog Frames – When concentrating on a single camera, the jogging system will by default jog forwards or backwards by a single frame. This can be altered here. A value of 5 for instance would cause the jog button, or 'L' key to jog forwards by five frames when displaying a single camera.

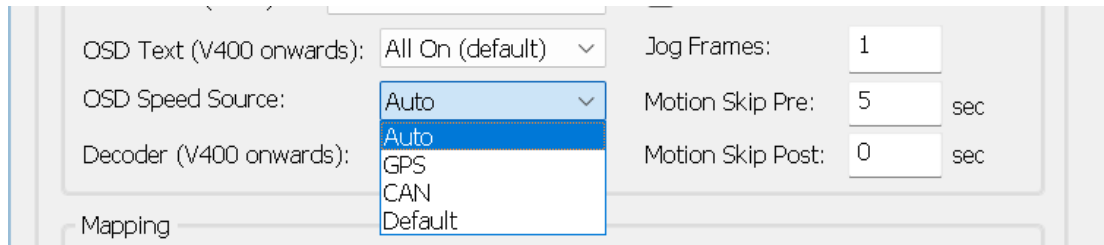
OSD Text (V400/V500 and X500/R500) - When enabled (on by default) the video in PCLink has the time, camera number, GPS information, user defined camera text and any alarm information overlaid on screen. This is known as the On-Screen Display (OSD). When disabled only the date, time, camera number and user defined text is displayed. By selecting an individual camera, all information is display on that camera only and only date, time, camera number and user defined text is displayed on the remaining cameras. Two options exist for Minimal display of information. These will only display the camera number and date/time and either at the top or bottom of the camera tile.

OSD Speed Source – a dropdown in **Options > Preferences > Speed Source** gives options to use GPS speed or CAN speed (when available) on the OSD when playing back XBA files. CAN speed is much more accurate, and can have up to 10 readings per second. GPS tends to have just one.

CAN speeds under 10MPH are displayed with 1 decimal place, eg 4.423 would become “4.4 MPH”. With speeds above 10, a leading 0 is added to identify it as a CAN speed, eg 56.2 would become “056 MPH”.

GPS speeds are always rounded down, eg 15.7 becomes “15 MPH”. CAN is rounded accurately, eg 15.7 would become “016 MPH”.

The “Auto” selection uses CAN if available, but reverts back to GPS if CAN is not available. The leading 0 is therefore useful in making the distinction between whether CAN or GPS speed is being displayed.



CAN speed can also be included in an MP4 export. In MP4 exports the speed text is underneath the video, rather than as OSD. As with playback, you can tell if it's CAN or GPS speed from the number format. (leading 0 and decimal point for CAN speeds).

Decoder (V400/V500 and X500/R500) – Determines the hardware acceleration to be used for playback. Auto is the default setting and most suitable for newer PCs/graphics cards/operating systems however a Legacy option may be selected if playback is not running smoothly / expected.

Motion Skip Pre/Post - Sets the number of second PCLink will play before/after a high motion event is played. These settings are used with the Controls menu option Skip Low Motion Playback.

Estimate framerates – NB this option should be used selectively, please read the following:

The XBA file format does not store the framerates of IP cameras, so it is left to PCLink to work out these framerates. Often the cameras' own video stream contains framerate information, so recent PCLink builds have used this by default.

However, some older IP cameras write incorrect framerates into their video streams, and this can cause PCLink playback to judder and skip frames, go backwards, or generally not work well.

The fix is to use the “Estimate Framerates” option, available in **Menu > Options > Preferences** or via the new toolbar button (see Section 3, PCLink Quick Reference Guide). This fix doesn't use the framerate information from the cameras' stream. Instead, PCLink estimates framerates. However, this has downsides, and can result in jerky playback and/or less accurate timestamps for the first few seconds of a file.

Mapping

If the footage you are reviewing contains GPS, PCLink can provide **real-time** map information. This live mapping relies on either an internet connection or having Microsoft Mappoint installed.

By default PCLink will connect to the internet and use OSM Mapnik to provide on screen maps. There are several different map display options that can be chosen in PCLink Preferences depending on the type of map view is required. Any mapping data that PCLink receives is cached on the local PC hard disk and can be reused without re-downloading. Heavy users of this mapping feature are advised to delete the map cache regularly if it is using up too much disk space. The amount of local hard disk space used by the mapping data is calculated and displayed in MB. A shortcut to the mapping cache local folder is also provided. To delete the map cache, go to the Options > Preferences menu in PCLink and click on the Wipe button next to the Mapping Tile Cache.

PCLink can also display a **Static map** by connecting to the internet. PCLink provides a single point on the map at the instant you press the "Open Web Map" button. To update the location, you have to repeat this. There are several web map providers to choose from such as Google maps, Bing, Yahoo, Multimap.

Show Map Trails – Enables / disables the map trails. A history of the GPS route/locations can be toggled on/off. Note that loading large amounts of footage with this feature enabled can cause playback to stutter.

RaptorX mapping is also supported, refer to your RaptorX installation for the specific port connector number, this will be configured in the RaptorX client. See mapping section for further details.

Dials

You may choose the style of the dials and the units in which they are displayed (MPH / KPH).

Export

Scale clipboard image & Scale exported bitmaps – To provide high quality video from single field sources, it is recorded at a resolution of 720 x 288. This means that the image pixels are effectively rectangular. During playback these are displayed perfectly on the screen. However, when the image is copied to the clipboard, it can be left in the original format or optionally scaled to the proper aspect ratio. The user may have a better algorithm available to stretch these images, in which case they should disable this option. Default: enabled

Multiple camera export folder – Choose the default location for exporting. Pressing the **Print Screen** button on the keyboard will automatically export all active/in view camera images to the output folder. Images are named by *image timing, date/time, camera number* and *input xba filename*. Additionally, in the image meta data, PCLink will write the camera number to the *Title* tag. This is useful for sorting columns in Windows Explorer (the Title column will need turning on in Windows by right clicking the column headings).

General

Cartridge autoload - When enabled, Cartridge Autoload monitors your PC's hardware so that when a cartridge is attached, PCLink200 will automatically prompt you whether you want to load the files on it. Default: enabled

Show diagnostic messages - Displays detailed information about errors encountered while loading files. Many of these are minor errors that prove confusing or unhelpful during normal use of PCLink200. If the user is encountering problems with recordings from a suspect unit, then it may be advantageous to enable this option, especially when asked to do so by the technical support team. Default: disabled

Load cartridges without detailed timeline (quicker) - Enables faster loading of cartridges at the expense of motion data. The green bar representing available video will appear in the timeline much faster if this option is enabled, but the motion data will not be read until that part of the video is played.

Sound Device – Select the PC playback device (some pc's / laptops may have multiple output devices).

Language – Default English. Other languages are supported with an additional translation file. Contact Timespace Support for further details.

HQ Audio

Controls the playback of the HQ Audio channels.

Output format – can be either 16bit stereo, or 24bit mono. Timespace recommends in general this should be set at 16bit stereo. The new HQ audio is stored as 24bit, but PCLink will down-sample it as it plays back.

Audio Gain – Due to the increased dynamic range of the new HQ Audio, the sound level can be quite quiet. If increased playback gain is required, amend here either with a fixed value, or by using the **Auto Gain** option.

A fixed value is preferable since the Auto Gain option can introduce quite a bit of noise during quiet periods. NB this fixed value is non-linear, so it may be necessary to use a value as high as 80,000 to get a good result with some microphones. When **Auto Gain** is enabled, pressing **Copy Gain** will copy the current gain level to the fixed gain control. This helps the user find a suitable fixed gain value.

Audio Skew – with so much variety in video sources and playback hardware, keeping audio and video in sync can sometimes require additional user input. The Audio Skew setting allows the user to fine-tune PCLink to match their hardware.

Reset All Settings

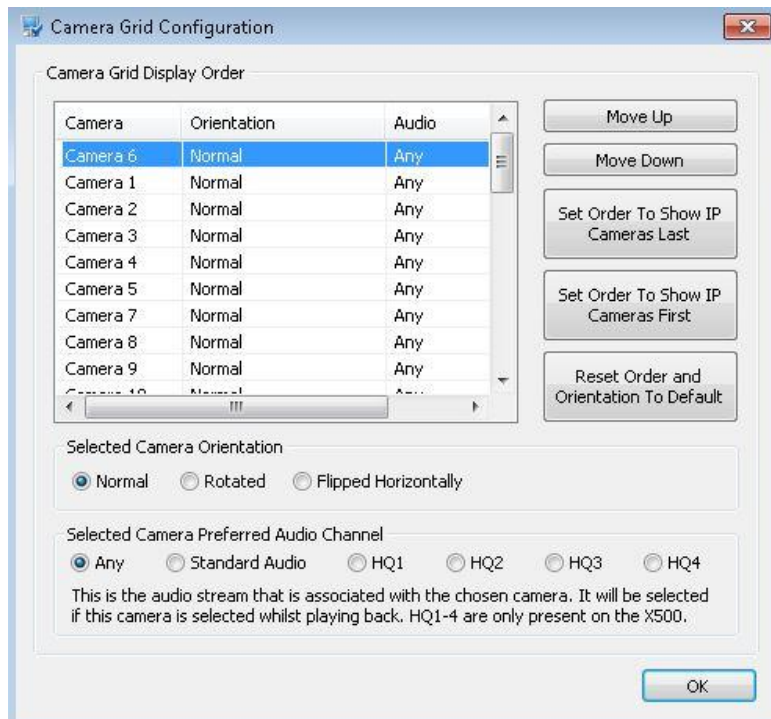
Resets all PCLink settings to their default values. It is recommended to restart PCLink after clicking this.

4.2.5.3 Camera Grid Setup

Options > Camera Grid Setup – allows the user to select the order in which cameras area displayed.

Cameras can be set to start in a specific order, rather than the default of 1,2,3 etc. For example a user may always want camera 6 to be in the first camera tile position when PCLink starts – shown below.

Use the Move Up/Move Down buttons to move cameras into the desired position in the list.



The default is for analogue cameras to be displayed before IP cameras, but this can be changed if required - select the relevant button from the right hand side.

NB: The cameras listed cover all Timespace recording products, and therefore will not all be applicable to every DVR/piece of footage. The cameras available for the currently shown footage will be shown across the top of the [Toolbar](#).

For more details on camera setup and naming, please contact Timespace.

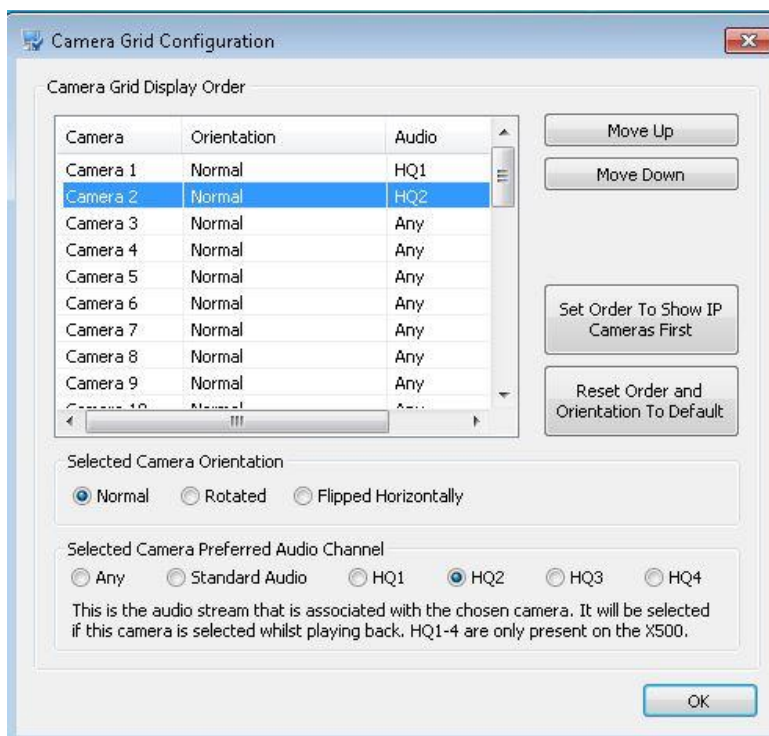
Individual cameras can be setup to be **Rotated** (image flipped top-bottom) or **Flipped Horizontally** (image reversed left-right).

Camera order and orientation can be reset to defaults using the Reset Order button.

4.2.5.4 Camera audio selection

Cameras can be given a camera a preferred audio channel.

When the camera is selected, PCLink will try and switch to this audio channel.



In the above example, cameras 1 and 2 have been assigned HQ1, and HQ2 audio channels respectively. With this setting any time you select Camera 2, PCLink will attempt to select the audio channel to HQ2. If the file has no HQ2 audio, the audio channel will remain unchanged.

Cameras set to 'Any' will not change the playing audio when selected.

4.2.6 Help Menu

Help menu – contains shortcuts to **Open the PCLink manual**, **Show all manuals** (display the folder in which all the Timespace manuals are located) and show the **What's New** dialog which displays the latest PCLink features.

Help > Updates > Automatically Check For Updates – If ticked, on start-up PCLink will connect to the internet and check for updated versions of PCLink, Timespace manuals and Timespace DVR software.


















To check for updates when PCLink200 is already running, untick and then tick **Automatically Check for Updates**.

Help > Updates > Show Downloaded Updates – This option allows you to open the folder that PCLink downloads updated Timespace DVR software into. If LANLink is running on your local PC as well, it will use this folder to allow updates to be uploaded to units.

Help > About PCLink - This shows the installed/registered components of PCLink.

The Tidy Registry button removes 'self-healing' information from the registry for PCLink's various COM components. Normally this is not something a user should do, but in certain situations, Timespace Support may ask you to click it in order to help diagnose problems, or before applying a patch.

4.3 Toolbar

	Load XBA file (Ctrl + O).
	Open Load folder (Ctrl + F).
	Load Blur – loads previously saved blur file.
	Load Remote Unit (Ctrl + R).
	File properties (Alt + Enter) – Displays properties for all the currently loaded .xba files. It also highlights the file currently playing and allows the user to double-click files to jump to their start times.
	Copy frame – copy a frame from the selected camera to the clipboard.
	Export frame – export the selected frame as a bitmap file.
	Export video (Shift + F12) – Export the selected region as a video file playable in other applications.
	Print frames(s) (Ctrl + P) – print the selected frame(s).
	These four buttons toggle between Zoom to selected cameras, Priority Camera Mode (show selected camera larger than the others), Quad Camera Mode and Show All Cameras.
	Individual Camera Buttons – clicking on the numbered buttons displays that individual camera view. Hold down CTRL to select multiple camera buttons. Analogue cameras are indicated by black numbers, IP cameras are indicated by a green numbers.
	Show/Hide map – toggles on/off the map window within PCLink.
	Export the selected region as a DVD .
	Export the selected region as a DVD full of XBA files playable on PCs.
	About PCLink = provides PCLink details, date of issue, version number etc.
	Check watermarks – checks the watermark in all the loaded files.
	Estimate framerates – may help fix playback from older IP cameras. See Options > Preferences for more information.

4.4 Information Side Panels

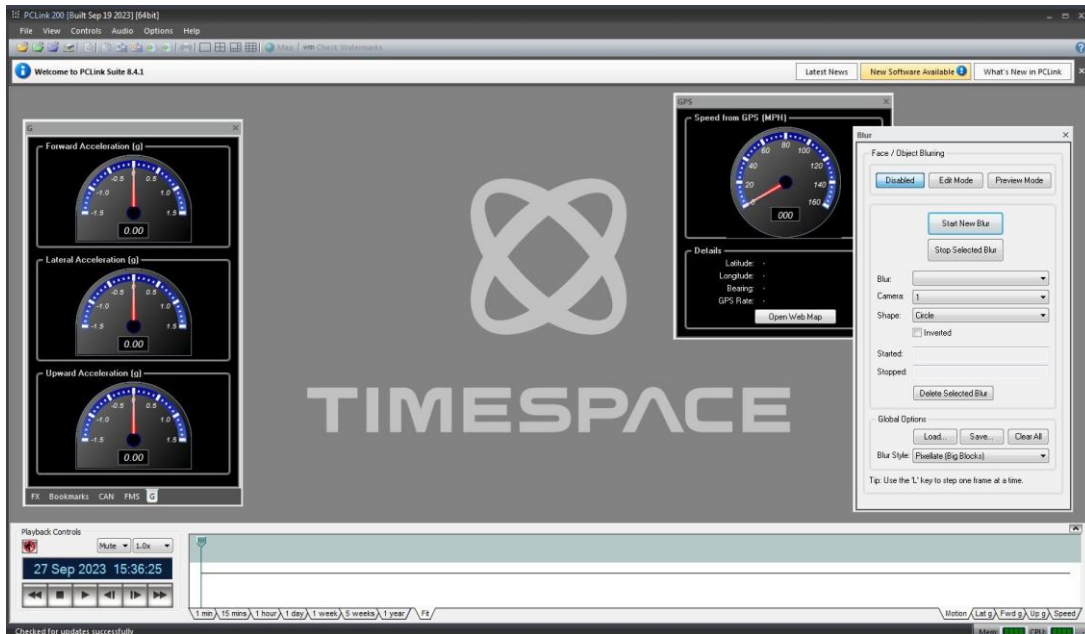


The default is to show the GPS tool on the Information Side Panels. Switch between the bottom tabs for the [FX](#) (effects), [Blur](#) tool, [Bookmarks](#), [CAN](#), [FMS](#), G ([G-Force](#)), [Alarms](#) and [GPS](#) views.

The default position for the information side panels is at the left of the screen.

The bar positions are saved when PCLink closes.

The information side panels/ bars in PCLink can be resized, and the controls stretch and move accordingly. They can be undocked from the main page, or can be closed completely.



Click and drag the tab of the bar to detach it. It can then be moved or merged with other bars by dragging and dropping into position. Alternatively, right-click on the pane title, and select “floating”.

Bars can also be resized individually.

To show/hide the information side panels again, go to [View > Bars](#) and select as required. Alternatively, right-click in the grey area behind the video windows.

To reinstate the information side panels to their default position, double click on the grey area at the top of the panel.

5 PCLink 200 Features and Functions

5.1 File Password and Encryption Settings

PCLink/PCPlayer have supported XBA file password protection for some time. From PCLink 8.0.3 onwards, additional password and encryption features are included.

The information below clarifies which versions of PCLink support which file security/password features:

Password-protected XBA files

- PCLink Suite 7.4 (August 2012) and earlier – does not load password-protected XBA files (and gives no warning)
- PCLink Suite 7.5 (March 2014) – loads password protected XBA files and requests password

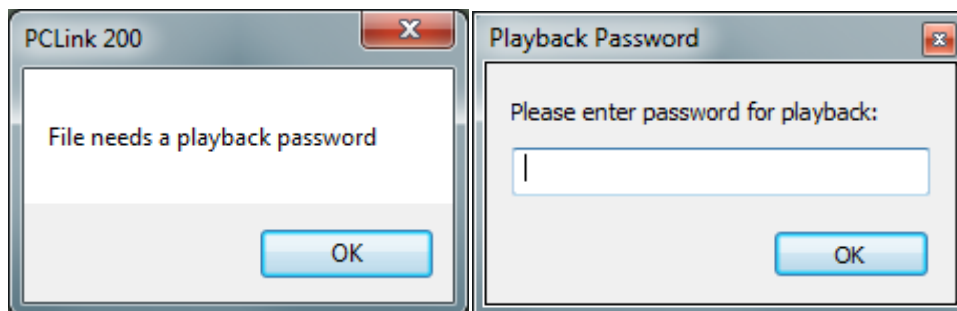
Encrypted XBA files

- PCLink Suite 8.0.2 (February 2018) and earlier – does not load encrypted XBA files (and gives no warning)
- PCLink Suite 8.0.3 (May 2018) – loads encrypted XBA files and requests password

From Version 8.0.3 onwards, PCLink now also has new options to apply, change and remove passwords from XBA files.

5.1.1.1 Playing back a password-protected file

If PCLink/PCPlayer is started, and an attempt made to load a password-protected file, a password will be requested.



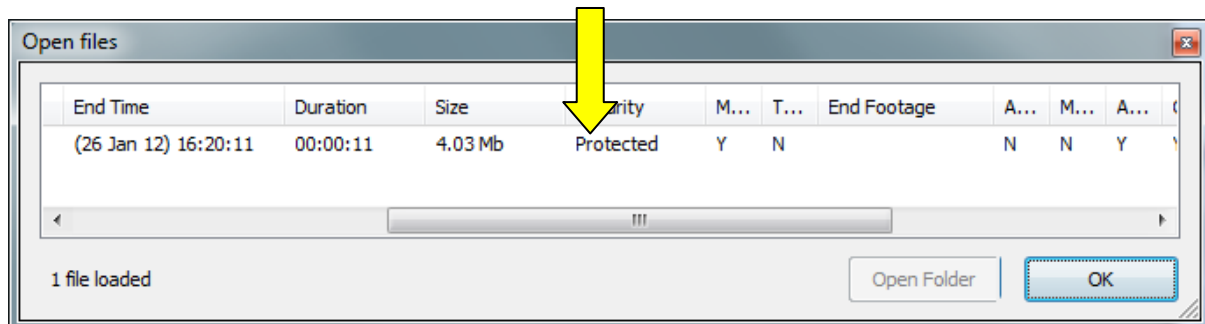
If the correct password is not entered, PCLink/PCPlayer will refuse to play the file.

Once the correct password is entered, this will be remembered by PCLink/PCPlayer, and will be used for all files opened in that session until PCLink/PCPlayer closes.

NB: In an XBA file, only the audio and video data are encrypted. If an incorrect password is entered for a password-protected file, PCLink will still open the file and show the GPS and accelerometer meta-data. This is by design.

5.1.1.2 Viewing a file's security level

Once a file has been loaded into PCLink/PCPlayer, that file's security level is shown in the File properties dialog (**File->Properties**) in a new Security column:

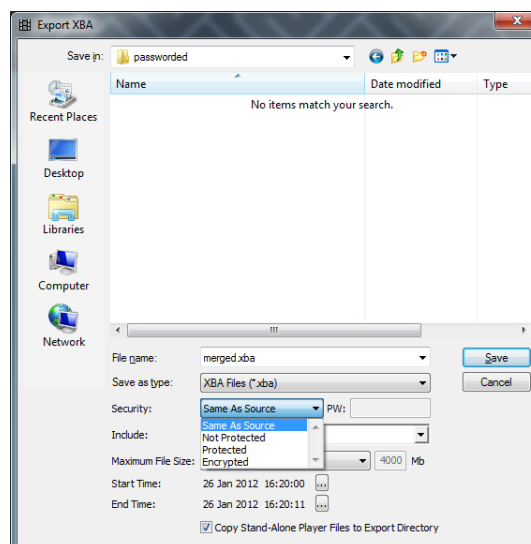


Possible values are None, Protected, Encrypted.

5.1.1.3 Setting security levels when exporting files from PCLink

From version 8.0.3 onwards, PCLink also supports adding, changing and removing passwords from XBA files when exporting from PCLink.

Towards the bottom of the **File > Export Video > Export XBA** file dialog is a Security dropdown.



There are 4 options in the export security settings dropdown:

Same As Source	The exported file will use the same file security as the original file. This is the default.
Not Protected	The exported file will not require a password to playback. This can be used to remove a password from an XBA file.
Protected	The exported file will require a password to playback, but the data in the file won't be encrypted. Use the field to the right of the dropdown to enter a new password. If you lose the password in this mode, Timespace Technology may be able to help you recover it.
Encrypted	The exported file will require a password to playback, and the audio and video data in the file will be encrypted. Use the field to the right of the dropdown to enter a new password. In this mode, if you lose the password, there is no way of recovering the footage.

The "PW" edit field to the right of the drop-down is used by the Protected and Encrypted modes to specify a password. If the user does not enter a password and this field is left empty in those modes, PCLink will show a message, asking the user to enter a password.

For any export to work, you must have entered the correct password into PCLink when opening the file. If an incorrect password has been entered, the attempted export will cause an error, and PCLink will display an error message.

5.1.2 Password Management

It is essential that users create a system for remembering passwords and the dates they were created and changed.

The following should also be noted:

- ❖ Timespace recommends a password of 5 or more characters.
- ❖ PCLink does not store any passwords.
- ❖ LANLink stores the last 3 passwords and will try each of these when attempting to download snapshots.
- ❖ Files on the same disk may have different passwords, if the password has been changed during/between recordings. When attempting to playback files in PCLink it may therefore be necessary to use more than one password to access multiple or older files.
- ❖ Swapping cartridges between DVR units is not recommended, as this will present problems if different units have been given different passwords.
- ❖ Adding new units to LANLink – LANLink will not automatically add passwords to new units – this needs to be done manually for each new unit. Until this is done, the files on that DVR will not be protected.

5.2 Blur feature

PCLink allows the user to obscure, or blur faces or objects when exporting footage to a standard file-format such as MP4 or AVI.

PCLink supports many styles of blurring including various levels of Pixellation and Gaussian blurring.

In PCLink blurring terminology, a blur object is defined as a single shape (ellipse or rectangle) that moves around, or resizes, as requested by the user. The blurring system allows multiple blur objects for each camera.

Each camera also has an Inverted option, which allows everything apart from the blur objects to be blurred. This can be useful for highlighting an object/part of the image, and works particularly well with the 'Darken' blur style.

5.2.1 Preparing to use the blur tool

Load the required footage (see section on [loading XBA files](#)).

HINT: for best results, display and edit one camera at a time. Select the relevant camera number on the PCLink [toolbar](#), or double-click on the required camera image.

Camera images should be static, i.e. footage not playing back, while blurring/editing is being undertaken.

Select the Blur tab of the information side panel.

5.2.2 Blur modes

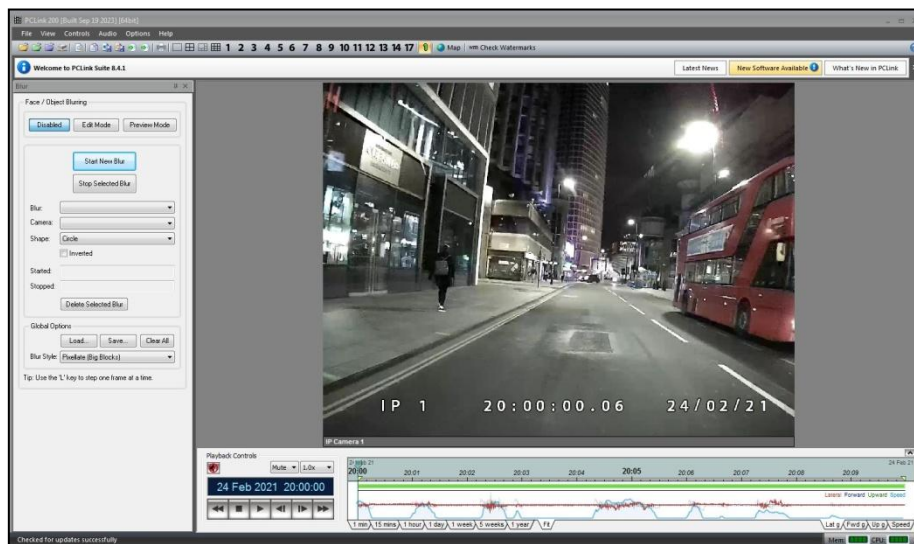
The blur system has 3 modes, which are selectable at the top of the blur panel:

Mode	Purpose
Disabled	Disables the blur system, hiding any current blurs.
Edit Mode	Used when adding or changing blur objects. All the current blur objects are drawn over the top of the displayed video, along with bounding rectangles. In this mode the blur objects can be dragged or resized directly in the video windows. This mode also has no buffer lag – what you see is what you’ll get.
Preview Mode	Preview mode is for previewing what the actual blur will look like in the exported video file. Blurring is achieved when decoding video data into displayable images. Since PCLink buffers decoded video to maintain playback smoothness, a few frames need to be played back before the preview becomes ‘live’. Similarly when turning off preview mode, some frames may still show the blur effect.

5.2.3 Adding a new blur

Once you have the required camera displayed, click 'Start New Blur'. This will add an elliptical blur object to the camera image at the current playback time. This will also set the blur system to Edit Mode and select the newly added blur object.

Your PCLink screen should now appear similar to the screenshot below:



You can now move and resize the blur object to where you want it to first appear. The two tooltips on the new blur object describe how to do this:

- “Drag shape to move blur”
- “Drag handle to resize blur”

Dragging the object moves the object, dragging the small handle at the bottom right of the bounding rectangle resizes the blur object about its centre.

HINT: The default shape for the blur object is an ellipse (“Circle”) within a bounding rectangle. You may use the “Shape” dropdown tab to select “Rectangle” as an alternative.

5.2.4 Moving a blur object to follow an object during footage playback

For blur objects to move about you need to manually move them as the footage plays. You can do this in [real-time](#), [at a slower frame-rate](#), or by [stepping forward frames](#). If you change the size or position of a blur, PCLink will remember the changed size and position and use it when it plays back.

To keep the blur object movement smooth during playback, PCLink automatically interpolates size/position changes.

As an extreme example, if you added a blur object to the left of the video at 14:50:



Then at 14:51 you moved the blur object to the far right of the video:

Between 14:50 and 14:51 the blur object would slowly move across the video:



Any alterations to the blur object between these two times would obviously change the behaviour.

When editing a blur object it's a good idea to play the end result back in PCLink's Edit or Preview modes to make sure the blur object has not moved away from your intended object.

5.2.4.1 In real time

Press ► to play the footage. As the footage plays, use the mouse to select and drag the blur object to follow the required object on the camera images. If necessary, stop the footage and resize or reposition the blur object.

5.2.4.2 At a slower frame rate

Reduce the playback **Speed**, eg to x0.2. Then follow the steps above as for real-time.

5.2.4.3 Stepping forward, frame-by-frame

Frame by frame adjustment may be required, eg to fine-tune coverage of a blur object.

Use the “L” key to step one frame at a time, re-sizing and moving the blur object as necessary to follow the object on the image.

5.2.5 Completing a blur object

Once you are finished with a blur object, click ‘Stop Selected Blur’ and the blur object will hide itself. To show the blur object again after a period of time, just create a new blur object at the relevant time.

In the blur panel there are two fields which display the start and stop times for the selected blur.

Below these two fields is a Delete Selected Blur button. This removes the selected blur object from the footage, and from PCLink.

5.2.6 Blurring multiple objects

Using the Start New Blur button you can add multiple blur objects to a camera. You can also add blur objects, or multiple blur objects, to multiple cameras. PCLink currently has no limit on the numbers of blur objects.

Here you can see 5 blur objects, trying to hide all the cars:



The currently selected blur is always shown with a white rectangle and text, whilst the other blurs have a grey rectangle and text. To select a different blur object, simply click anywhere within the bounding rectangle. You can only edit the size and position of the selected blur object.

In preview mode, the previous example now looks like this:



5.2.7 Inverted blur area

Below the Shape drop-down is the Inverted option. This inverts the area to be blurred. So for the above example, selecting this will blur everything apart from the cars:



5.2.8 On-screen time display







Note that the On-Screen time display above is still readable even when blurring is present. For most Timespace DVRs, the text is rendered on top of the video after the blurring, and is still visible when viewing blurred images. However for footage from the X200 DVR, the text display is part of the video image, so the blurring system will blur out the time if it's blurring that part of the image.







5.2.9 Blur Styles

Towards the bottom of the blur panel is a dropdown for Blur Styles. The blurring system has a number of different effects which can be selected.

NB: blur style is a global setting, so multiple blur objects on one camera, or blur objects on multiple cameras, will all use the same style.

The table on the following pages gives examples of each of the blur styles.

Style	Description	
Blank	Renders the blur objects in black.	
Average Colour	Renders the blur objects in the average colour of the video frame.	
Pixellate (Big Blocks)	Pixellates the blur objects using 50 blocks across and 50 blocks down.	
Pixellate (Medium Blocks)	Pixellates the blur objects using 90 blocks across and 90 blocks down.	
Pixellate (Small Blocks)	Pixellates the blur objects using 150 blocks across and 150 blocks down.	
Blur	A simple gaussian blur.	

Style	Description	
Artistic Blur (Slow)	This applies an almost cartoon effect to the blur objects. This is useful if you want to blur something but make it less obvious that it has been blurred. Be warned though, it is a complex operation and is thus quite slow.	
Noise	This blends pseudo-random values to the blur object.	
Darken	This darkens the blur objects. This is a useful effect when the Inverted blur option is turned on.	
Lighten	This lightens the blur objects.	
Edge Detection (Sobel)	This applies a Sobel filter to the blur objects, which has the effect of highlighting edges.	
Edge Detection (Laplace)	This applies a Laplacian edge detection filter to the blur objects.	

5.2.10 Loading and Saving blur files

In the **Global Options** section of the blur panel, the **Load** and **Save** buttons allow the data associated with blur objects to be saved and loaded back in to PCLink later on.

To save blur data, select **Save**, choose your preferred file location, and name the blur file.

To load previously-saved blur data, open the required video footage file, and open the saved blur file separately using the **Load** button. Alternatively, use the blue “Load Blur” button on the [Toolbar](#).

The **Clear All** button completely deletes all blur objects across all cameras and resets the blurring system.

NB: the Load and Save buttons do not render blurs into video files. See Exporting blur files for information on how to export a rendered video version of the blur.

5.2.11 Exporting blur files

Once you are happy with your blur objects you can export a rendered version of the blur using any of the below menu options:

File->Export Video->Create Video DVD
File->Export Video->Export Video File
File->Export Image
File->Copy Image

NB: it is important to use one of the above options rather than **Export XBA file**. Exporting an XBA file will not export the blur, or blur data. Blurs can only currently be rendered into non-XBA files such as .AVI and .MP4.

To export the blur file as an image or video, select the camera on which the blur has been created.

To export a section of video, ensure the [section markers](#) are marking the required start and end points of the required piece of blur footage.

Select File > Export Video > Export Video File

Choose a file name and location to save the exported video and select **Save**.

5.3 FX (Effects)

FX View includes; Gamma, Brightness, Contrast, Greyscale and Negative adjustments.

Enable effects – Turns on/off the whole effects system. Use of the effects system slows playback down slightly therefore should remain turned off unless the effects are required.

NB: the effects are intended for use within PCLink, and not rendered to video when exported via AVI, MP4, etc.

Reset to defaults – Resets all the sliders and options to their default state.

Gamma – Adjusts the gamma level of the video.

Brightness – Adjusts the brightness level of the video.

Contrast – Adjusts the contrast of the video.

Negative – Inverts the colours in the video.

Greyscale – Removes all colour from the video.

5.4 GPS and Alarms

These tabs shows the speed based on GPS information, and the alarm indicators.















PCLink has a graphical alarm panel that highlights alarms as they are played back in DVR footage (NB not supported in X200 footage). The alarm panel is displayed on the information side panel by selecting the GPS tab option.








NB If no alarms are present in the footage being played, the alarm panel will not be displayed.

The alarm data is taken from the recorded footage using specific triggers e.g. a vehicle's LEFT / RIGHT indicator.

The triggers can be setup in the DVR using either the ALARM INPUTS configuration menu or by using ALARM TEXT. If the alarm type doesn't have an icon set, the alarm text will be used to match an icon. The alarm types / text need to be carefully setup in the DVR to avoid being incorrectly displayed in PCLink during playback. The following alarms can be configured / displayed:

ALARM PANEL ICON	DESCRIPTION	ALARM TEXT
on off		
	Ignition	IGN or IGX
	Accelerator	ACCEL, ACC or ACCELERATOR
	Indicator Left	IND<L, INL, INDL, LH or LEFT
	Indicator Right	IND>R, INR, INDR, RH or RIGHT
	Side Lights	SL
	Head Lights	HL
	Fog lights	FL
	Siren	SIREN or SIR
	Blue lights	BLUES, REDS or BLU
	Bullhorn	BULLHORN, BULL or HN2
	Hazard lights	HAZARD, HAZ or HZRD
	Reverse	REVERSE or REV
	Hand brake	HANDBRK, HBK or HANDBRAKE
	Bridge Alert	BRG or BRIDGE

	Door (any or all)	DOOR, EXIT, DR0 or DOOR0
	Bus Door 1	DR1, DOOR1, D01 or DO1
	Bus Door 2	DR2, DOOR2, D02 or DO2
	Bus Door 3	DR3, DOOR3, D03 or DO3
	Disabled Ramp	RAMP or RMP

Ctrl+Left mouse click on any of the ALARM PANEL icons will jump to the next occurrence of that alarm in the timeline (if any).

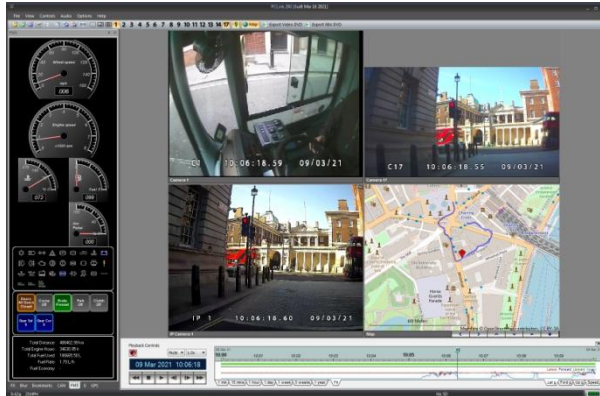
5.5 G-force

The G-Force tabs shows Forward, Lateral, and Upwards acceleration in terms of G.

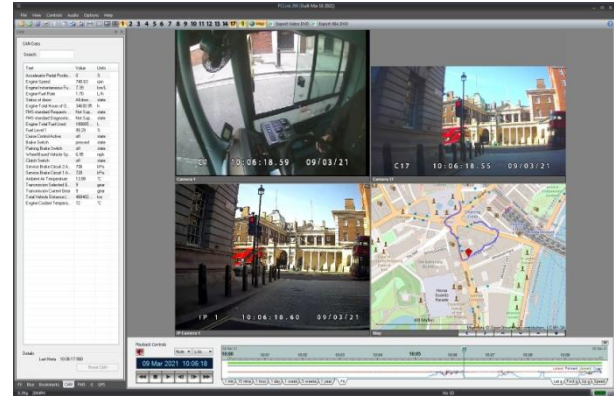
NB: the style of the dials and the units in which they are displayed (MPH / KPH) can be chosen in the Options > Preferences menu on the top line.

G-force data can be exported in a .csv format, details are at [Export Data](#).

5.6 CAN and FMS



FMS side panel



CAN side panel

Using the Timespace CANLink product (http://www.tspace.co.uk/timespace_canlink.asp) it is possible to record Engine Management (J1939 / CAN) data into XBA files.

Timespace CANLink is available as a stand-alone unit, or a version to be used in connection with a Timespace DVR (the stand-alone CANLink does not produce any XBA files, so the information from stand-alone CANLink is not viewable in PCLink).

PCLink has 2 sidebars which display the CAN and FMS information.

The CAN sidebar displays all the available data in tabular form. It allows keyword searching, and highlights any item which matches the text in purple. CAN data itself is grouped into defined groups called PGNs (Parameter Group Numbers). Clicking an item in the list will highlight all other values from the same PGN in blue.

Speed from CAN can be shown on the on-screen display text when playing video. Details are [here](#).

CAN speed can also be included in MP4 file exports.

NB: CAN data is only displayed when seen at the current playback time. When seeking via the timeline, the displayed CAN data is cleared so out-of-date data isn't left in the table. Some CAN values may only appear once a minute, so as you play through a file, more values may appear in the list.

The FMS sidebar displays a subset of the CAN data in graphical form. The default dials for display are:

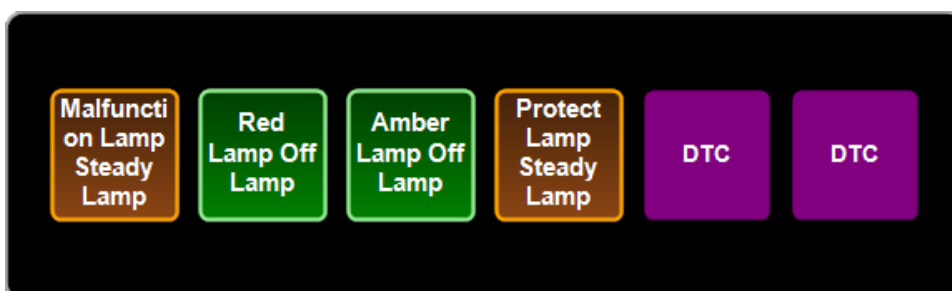
- vehicle speed
- engine speed
- engine temperature
- fuel level
- engine load
- accelerator pedal position.

NB: vehicles may not supply all of the data potentially available on the CAN-bus. Therefore in any given case, some of the dials shown above may be absent. e.g. in the screenshot on the previous page, the engine load dial is missing.

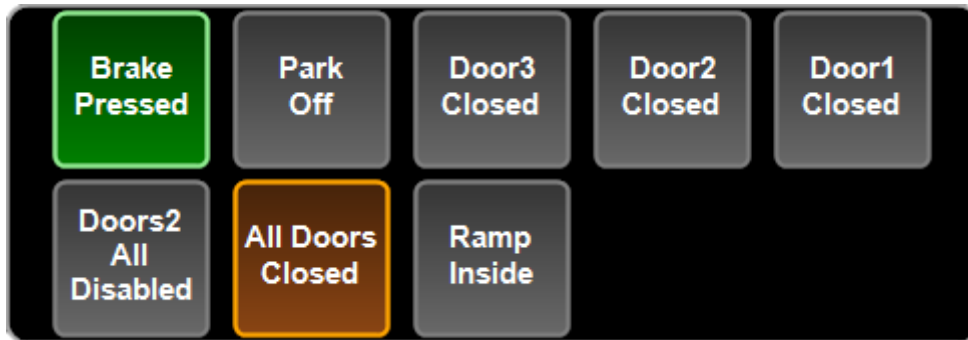
Below the dials are two groups of icons. The screenshot below shows what are known as TellTale icons.



If the vehicle doesn't supply TellTale icon information, this area is used to display engine warning lights and their various causes via the Diagnostic Trouble Code (DTC) system. Both systems support tooltip help.



With both TellTale and DTC icons, a blue icon indicates ‘information’, an amber icon indicates a warning, and a red icon indicates something serious. In the screenshot on the previous page, two amber warnings are shown for lamps. Below the TellTale/DTC icons are more general icons which come from CAN’s flag data. Included here are things like door status, current gear, and brake status.



Finally at the bottom is a section containing textual numeric data for things such as total distance, fuel used, fuel economy, etc.

Total Distance:	2903.71 kmkm
Total Engine Hours:	144.25 h
Total Fuel Used:	1131 L
Fuel Rate:	21.55 L/h
Fuel Economy:	-

Blank items in the FMS tab indicate that the CAN data didn’t contain any information about them.

5.7 PTZ controls

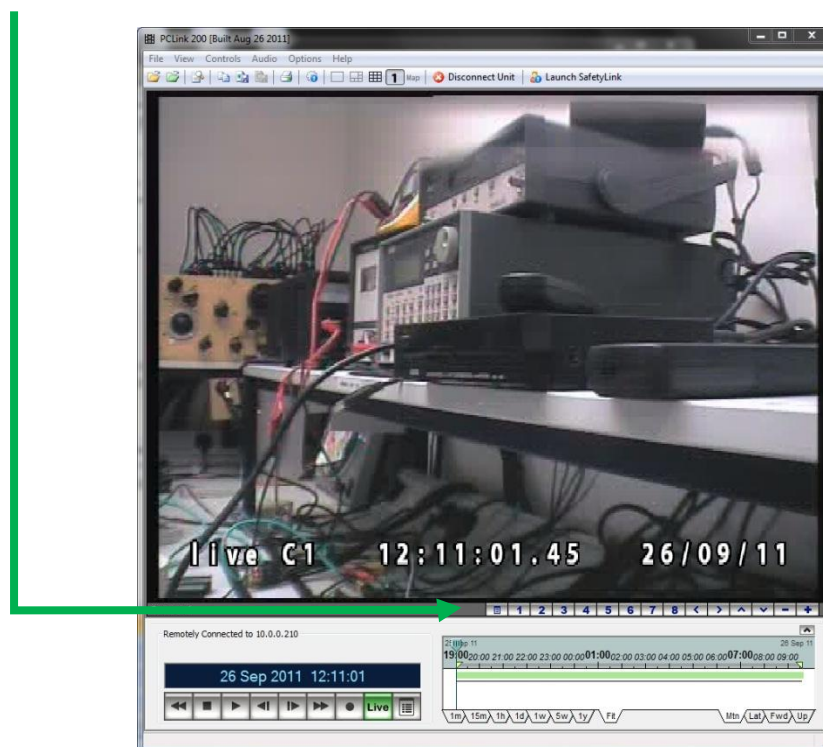
PCLink Suite V7.2 onwards includes the ability to control any PTZ cameras that are configured and connect to the Timespace X300 Digital Video Recorder (see X300 Product Manual for X300 PTZ configuration).

The main PTZ functions are to move the camera **Left, Right, Up, Down, Zoom in and Zoom out**.

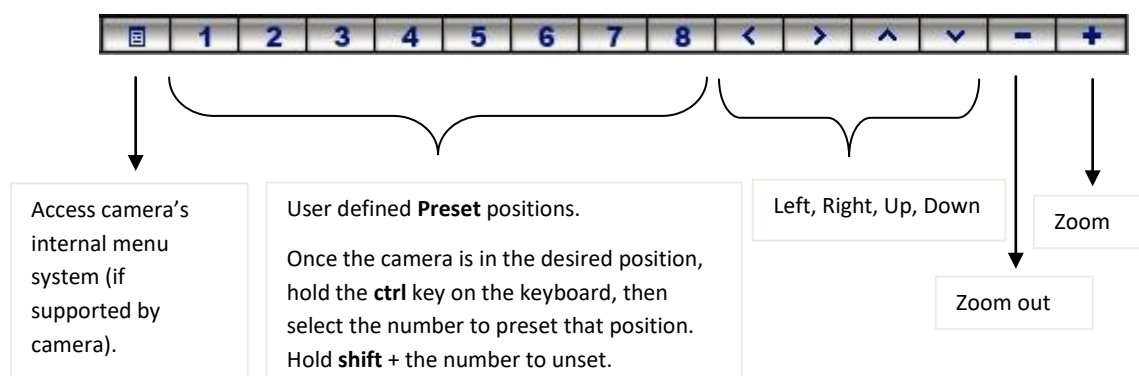
Advanced features include setting up focus behaviour and accessing the cameras internal menus (if the camera supports it - see cameras manufacturer user guide for details).

8 user defined camera positions (**Presets**) can be setup. For example preset position 1 could be a scene view overlooking a car park, preset position 2 could be zoomed in close to the entrance, preset position 3 could be pointed at the exit. The presets can be quickly accessed by pressing the number keys on the PCLink PTZ control bar. It may be necessary to *click and hold* for some camera types.

Once a PTZ camera has been configured and connected to the X300, a remote IP connection can be used to connect via PCLink and view/control the camera. Any configured PTZ cameras will show up in PCLink with an additional control bar under the camera window.



5.7.1 PTZ control bar



PTZ control bar - button functions - In addition to the above button controls, there are some advanced PTZ features that can be accessed by holding the CTRL or SHIFT button on the keyboard, then pressing the buttons. Below is a table of all the button functions.

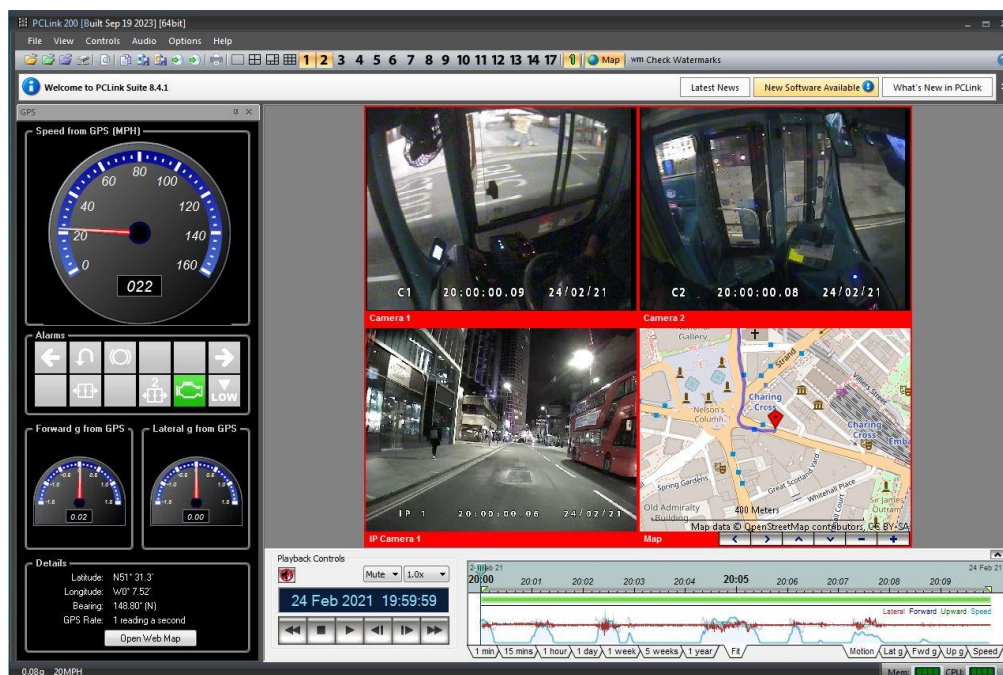
Button	Normal Left click	CTRL + Left mouse click	Shift + Left mouse click
1	GOTO PRESET 1	SET PRESET 1	CLEAR PRESET 1
2	GOTO PRESET 2	SET PRESET 2	CLEAR PRESET 2
3	GOTO PRESET 3	SET PRESET 3	CLEAR PRESET 3
4	GOTO PRESET 4	SET PRESET 4	CLEAR PRESET 4
5	GOTO PRESET 5	SET PRESET 5	CLEAR PRESET 5
6	GOTO PRESET 6	SET PRESET 6	CLEAR PRESET 6
7	GOTO PRESET 7	SET PRESET 7	CLEAR PRESET 7
8	GOTO PRESET 8	SET PRESET 8	CLEAR PRESET 8
<	PTZ LEFT	IRIS RESET	IRIS RESET
>	PTZ RIGHT	PTZ FOCUS AUTO	PTZ FOCUS MANUAL
^	PTZ UP		
v	PTZ DOWN		
-	PTZ OUT	PTZ FOCUS FAR	PTZ IRIS CLOSE
+	PTZ IN	PTZ FOCUS NEAR	PTZ IRIS OPEN

NB – not all PTZ cameras will support all of the above advanced features. See camera manufacturer's documentation for further details.

5.8 Mapping

PCLink supports two methods of mapping; real-time and static. Both methods are reliant upon GPS data within the Timespace XBA file format. GPS data is embedded into the XBA file during recording. PCLink will read this GPS data and can either display a real-time map or a link to a static map on the internet.

NB: GPS location data can be exported as standard GPX files. See [Export Data](#) for further details.



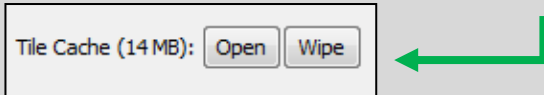
5.8.1 Real-time mapping

PCLink V7.3 onwards has a built in, real-time mapping feature based on OSM Mapnik. PCLink will read the GPS data in a loaded XBA file and display a real-time map in line with the GPS data.

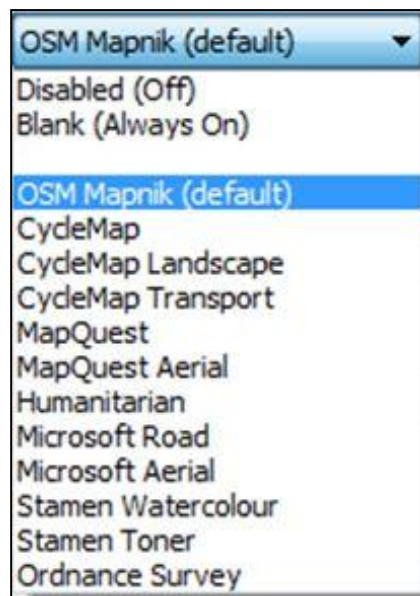
Real-time mapping is also supported when connecting remotely via IP to an X300, X500, R500, V400 or V500 DVR. If the DVR has a GPS feed, PCLink will load the map location along with the Live video data stream.

An internet connection is required in order for the maps to update in real-time. Any mapping data that PCLink receives is cached on the local PC hard disk and can be reused without re-downloading, if the same footage or footage with the same location is played back. Heavy users of this mapping feature are advised to delete the map cache regularly if it is using up too much disk space. Within the PCLink options, the tile (map) cache size in MB is calculated and displayed.

NB: To delete the map cache, go to the Options > Preferences menu in PCLink and click on the Wipe button next to the Mapping Tile Cache;



There are several real-time mapping feeds and display types that can be selected depending on the users preference. These can be selected using the Mapping Playback pulldown menu within [PCLink preferences](#);



PCLink can also use Microsoft Mappoint (if installed) for real-time mapping. Current supported versions are 2006 Europe and 2006 North America (later versions should work also). These are separate applications that must be licensed and sourced aside of PCLink Suite.

RaptorX mapping is also supported and PCLink serves GPS data to a RaptorX client. RaptorX is a 3rd party mapping application used by the American military. Textual GPS RMC lines are sent via a configurable software socket (default is 7017) which the RaptorX client will receive.

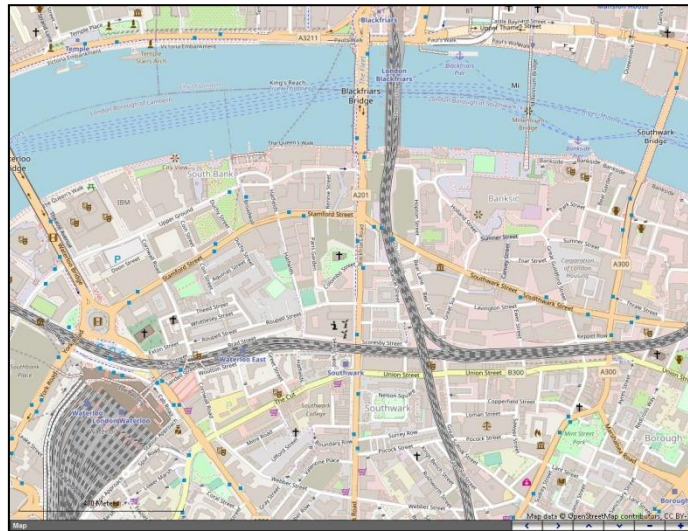
5.8.2 Static mapping

An **Open Web Map** button is provided on the GPS dial side panel. If the footage you are reviewing contains GPS data, PCLink will connect to the internet and provide you a single point on the map at the instant you press the button. To update the location, you have to repeat this step.

Within the **Options > Preferences** dialog, there are several web map providers to choose from. You may also choose the style of the dials and the units in which they are displayed (MPH / KPH) and after which camera the map tile will appear.

5.8.3 Map trail

PCLink will display a route history based on GPS data loaded with XBA file(s). The arrows below the map image can be used to re-centre and zoom the map in or out.



NB: loading large amounts of footage with the map trail feature enabled can cause playback to stutter. See [Real-time Mapping](#) section for how to delete the map cache.

5.8.4 Bookmarks

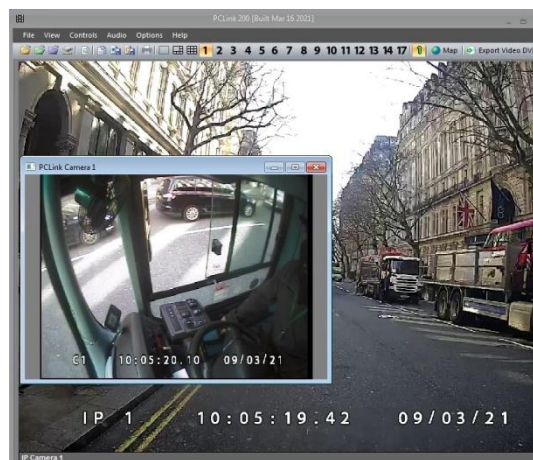
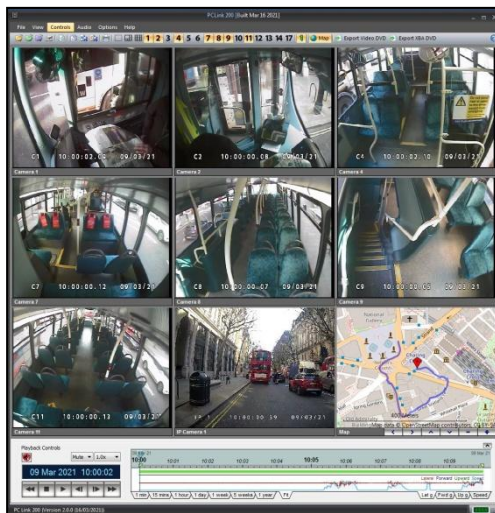
PCLink has a “bookmarks” feature in mapping, where users can mark points for later reference. Enabling this feature requires telnet command set-up by the user; contact Timespace for further details on 01480 414147 or support@tspace.co.uk).

5.9 Undock camera / map tiles

PCLink can *undock* any of the camera or map tiles from the main PCLink windows into its own window. The undocked window can then be move and resized according to the users preference.

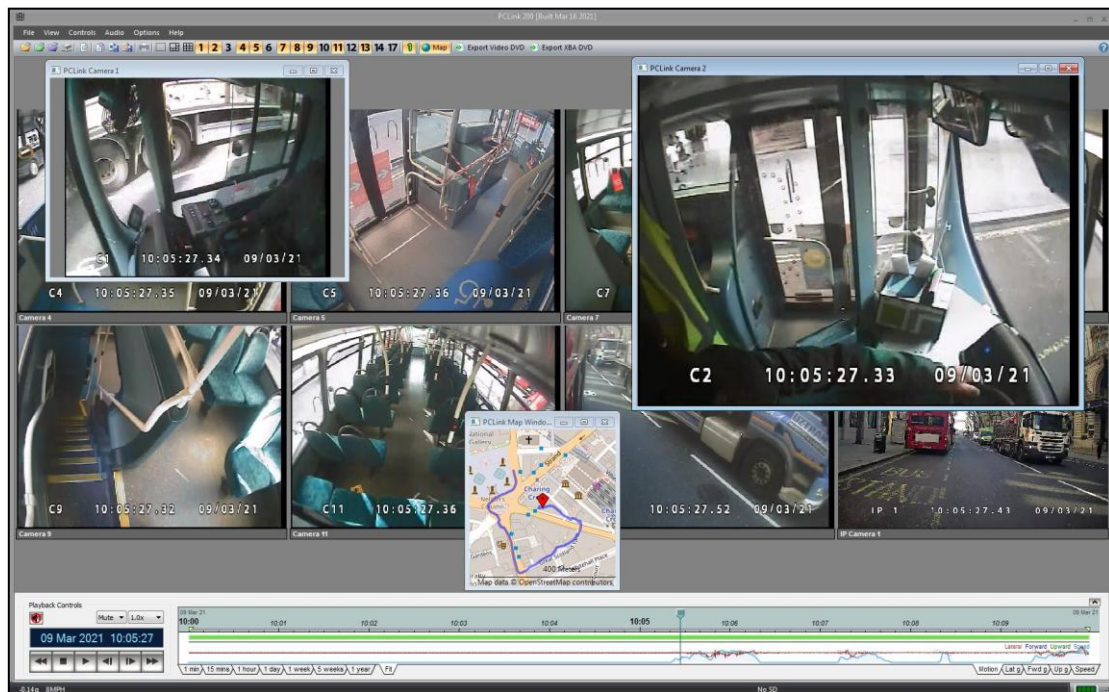
A tile can be undocked by selecting it (tile border highlights red) then clicking the **View** menu and selecting **Undock Selected**. The map can also be undocked this way or by using its own **Undock Map** menu link.

This feature is particularly useful when playing back footage on dual screens e.g. a camera tile could be placed on a second screen and run in full screen next to the other video footage;



Each undocked window has its own controls for Minimise, Maximise and Close. If the Close control is clicked, the tile will re-dock into PCLink. To re-dock all undocked tiles, use the menu link **View > Redock All**.

Screenshot of multiple undocked tiles;



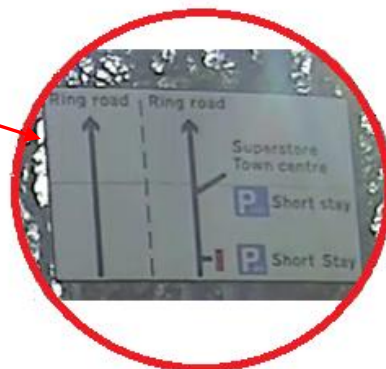
5.10 Camera Zooming

Multiple cameras can be zoomed at different levels during playback by using the mouse scroll wheel. Once zoomed in, the image can be panned by clicking & dragging.

Original image:



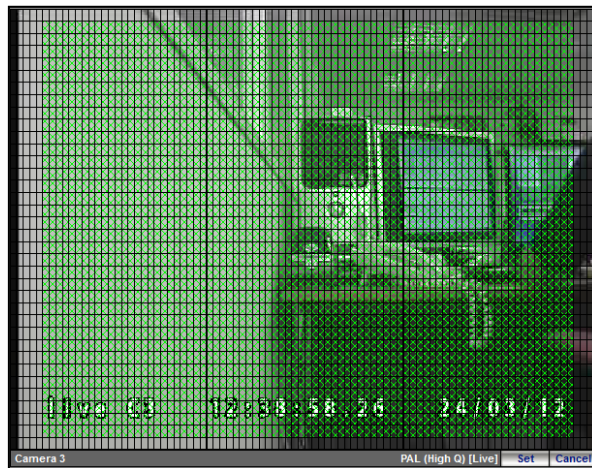
Zoomed section:



5.11 Motion Detection – X300/X500 Remote setup

The X300 motion detection *mask* can be setup whilst remotely connected in PCLink;

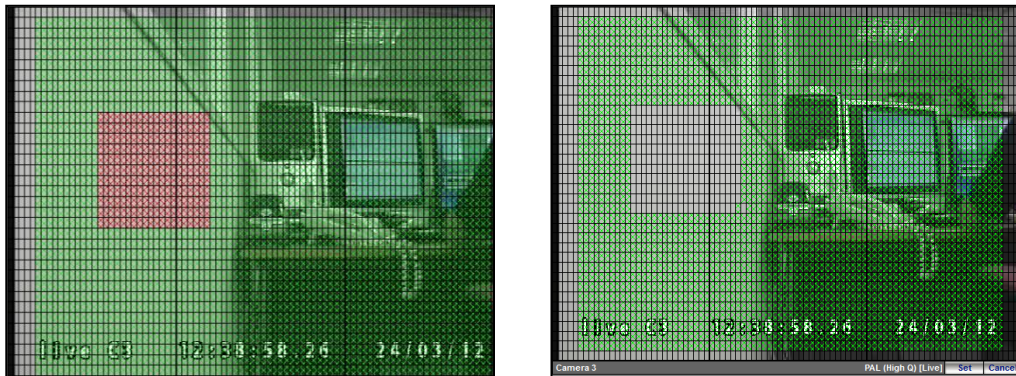
1. Select the camera you wish to setup.
2. Click the MASK button in the bottom right hand corner of the camera tile.
3. A grid will overlay the camera view and by default display a large **GREEN** area. Any areas shown in **GREEN** are areas that will be monitored for motion.



4. If you are happy with the default area, **click the SET button***. This sends the grid include/exclude area information to the X300 (similar to if it was set locally using the Reviewer).
5. Next click the MENU button and navigate through the menu system to MOTION DETECTION and setup the sensitivity and which mode of recording motion detection should trigger.



* If you do not want to use the default **GREEN** area, you can edit the mask by clicking and dragging with the mouse. If an area is **GREEN**, clicking and dragging on it will highlight the area **RED** and EXCLUDE it from being monitored for motion. Once the mouse button is released, the red area will disappear. Click the SET button to send the grid to the X300.



If an area is **GREEN**, clicking and dragging it will turn it **RED** whilst dragging, then no colour.

If an area is **RED**, clicking and dragging it will turn it **YELLOW** whilst dragging, then turn **GREEN**.

If an area has no colour, clicking and dragging it will turn it **YELLOW** whilst dragging, then turn **GREEN**.

Multiple areas of any size can be setup.

NB Remember to click the **SET** button once you are happy with your selection(s)!

5.12 Exporting

There are several methods for gathering footage of an incident or for providing footage to another party.

1. With the DVR Cartridge plugged into a PC via the USB cable, simply select the files you require from the Drive letter assigned to the cartridge, using Windows Explorer. Copy them to a local folder / network drive and then burn to CD/DVD as required.
2. Export footage in Timespace XBA format (**File > Export Video > Export XBA File**). This is more precise than method 1 as it allows you to export an exact clip from a start/end date & time.
3. Export footage/audio to a standard file using a codec installed on the PC (**File > Export Video > Export Video File / Export Audio File**).

PCLink can export video / audio to the following formats;

- | | | |
|-------|---|----------------------|
| ▪ AVI | – All Timespace DVRs | |
| ▪ WAV | – All Timespace DVRs | |
| ▪ MP3 | – All Timespace DVRs other than X100 and X200 | |
| ▪ MKV | – All Timespace DVRs | |
| ▪ MPG | – All Timespace DVRs | |
| ▪ MP4 | – All Timespace DVRs | ← Recommended |

NB: MP3 / WAV are audio-only files and will not contain any video images.

4. Export directly to DVD - two options exist for this method;
 - (a) convert XBA data to a DVD Player compatible format and burn
 - (b) **burn XBA as a data DVD and include PCPlayer** ← **Recommended**

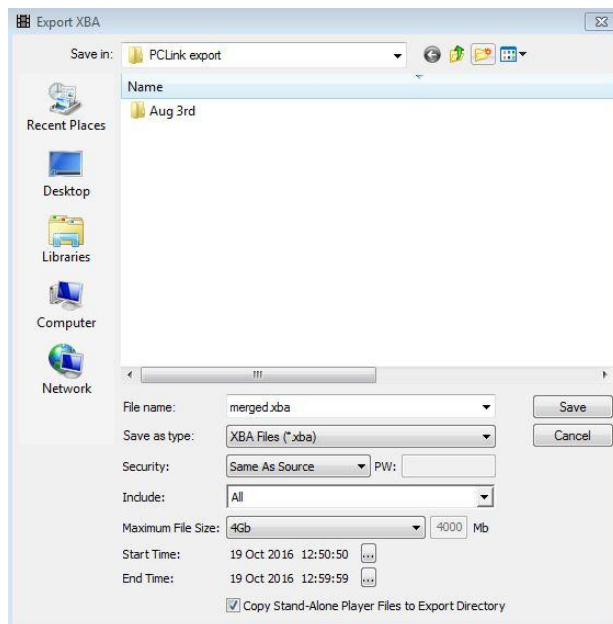
NB Method 2 or 4 (b) are recommended as it maintains all the original file data including multi cameras, audio, watermarks and additional data such as GPS, GSensor.

5.12.1 Export Video

PCLink provides a number of options for video export via **File > Export Video**.

5.12.1.1 Export XBA file

File > Export XBA – Exports the section of footage between the start and end markers as an XBA file. A dialogue box will appear allowing the user to select which cameras, audio channels and data (GPS and motion) is included in the exported XBA.



The maximum file size can be limited in order to fit the resultant parts to certain media e.g. CD/DVD. In this case if the total size of the exported footage exceeds the maximum file size selected then a number of files will be created all with the same name as entered in the 'File Name' box, but having a suffix to the file name -part2, -part3 etc. The user can select one of the standard maximum file size limits or alternatively select 'Custom' from the drop down menu. If custom is selected then the user inputs the required maximum file size in the 'Mb' window next to the drop down menu.

Exporting GPS – GPS tracks can be exported as standard GPX files. A GPX file is a GPS data file saved in the GPS Exchange format, which is an open standard that can be freely used by GPS programs. It contains lists of longitude and latitude location data that make up the tracks PCLink displays on the map. Information such as speed and bearing is also included, but the files contain no video data, so are quite small.

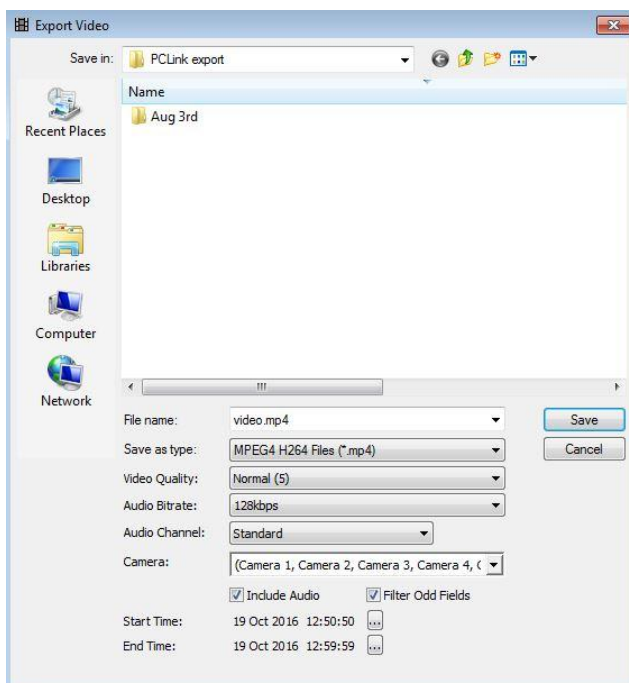
Export to GPX is done by changing the 'Save as type' in the dialogue box in the **File > Export Video > Export XBA file** dropdown.

5.12.1.2 Export video file

There are several options for exporting video files:

- export individual cameras
- export all cameras at once as separate (multiple) files
- export all cameras at once as streams in the same file
- grid export – export a single-stream MP4 file which contains multiple cameras arranged in a grid (similar to the DVD export option).

These options are accessed via **File > Export Video > Export Video Grid** or **Export Video File**. Users can select to save video as *.mp4, *.mkv, *.mpg or *.avi files. .



VLC Media Player – VLC has a long-standing issue when playing video with very slow frame rates. PCLink therefore offers a frame-doubling option for low IPS cameras to increase compatibility with VLC.

NB: the default is that all available cameras are selected, along with “Multiple Files” and “VLC Playback Compatibility”.

For Export Video File and Export Grid, users have the option of selecting the video quality (and framerate for Export Video Grid).

Timespace recommends that the original image quality and framerate are maintained if possible. However, if a reduced file size is required, the image quality and framerate can be reduced.

Include Audio – the default setting is to include Audio in the export. Users can select the Audio bitrate and which audio channels to include. The default setting is Standard audio channels. This is generally suitable in most cases, however if reduced file sizes are required, the bitrate can be reduced.

NB: the HQ (high-quality) audio channels refer only to the High-Quality audio from Timespace X500 DVRs.

Audio can also be exported separately via **File > Export Audio**

Filter Odd Fields - For interlaced D1 footage recorded by the X300 connected to a multi-field camera the video stream will contain both odd and even fields. When exporting an AVI, depending on the codec used, it may be preferable to just export one of the two fields.

NB: Although MPG / MP4 / MKV can export all cameras into files as separate streams, many video players will not play back these extra streams, so this is not recommended.

Multiple cameras can be output to separate files using the “Multiple Files” option, which is ticked by default.

Alternatively, **Grid Export** is the recommended means of sharing footage with multiple cameras on view (**File > Export Video > Export Video Grid**).

Note: Exporting to AVI – If exporting to AVI, bear in mind that the maximum supported file size for is 2GB, if this is reached the AVI export will abort with an error message shown. It is therefore advised that a compression codec is used. The XviD codec gives the best quality/file size for .AVI output.

For XBA files recorded using the Timespace X200, PCLink supports exporting the Watermark with AVI. The AVI export dialog has an “Include Watermark” checkbox. When ticked, the frames in the exported AVI file will have the PCLink Watermarking symbol burned into them:

If a frame passes the watermark test, it gets a green ‘W’ symbol

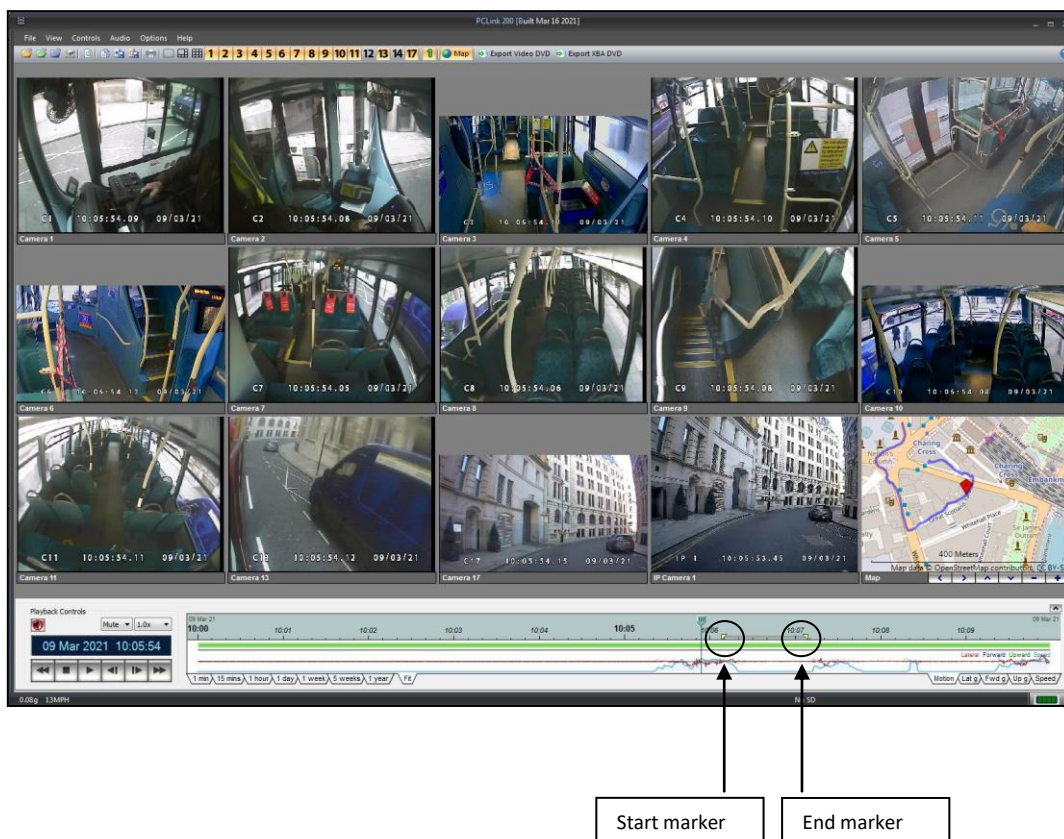
If a frame fails the watermark test, it gets a green ‘W’ symbol with a red line through it.

The symbol’s position is the same as in PCLink, and can be changed via the options. The checkbox is only visible for X200 footage on the export dialog above, in place of the Filter Odd Fields.

5.12.1.3 Create XBA DVD

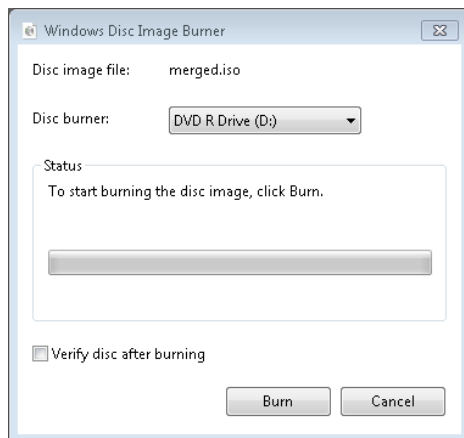
The following steps describe how to export a clip of footage from an xba file(s) and create a DVD. This is the recommended method of archiving and providing footage to a third party. It is also the quickest method with the best quality and maintains the original recorded files.

STEP 1 - Move the yellow markers in the timeline to the start & end points of the footage required.



STEP 2 - Click the **Export XBA DVD** button on the toolbar (choose the filename and location of the output file), then click **Save**.

continue overleaf

STEP 3 - Click Burn;

NB - The .iso file created in step 2 could be burned again if multiple copies are required. This output file required manual deletion once the user has finished burning DVDs.

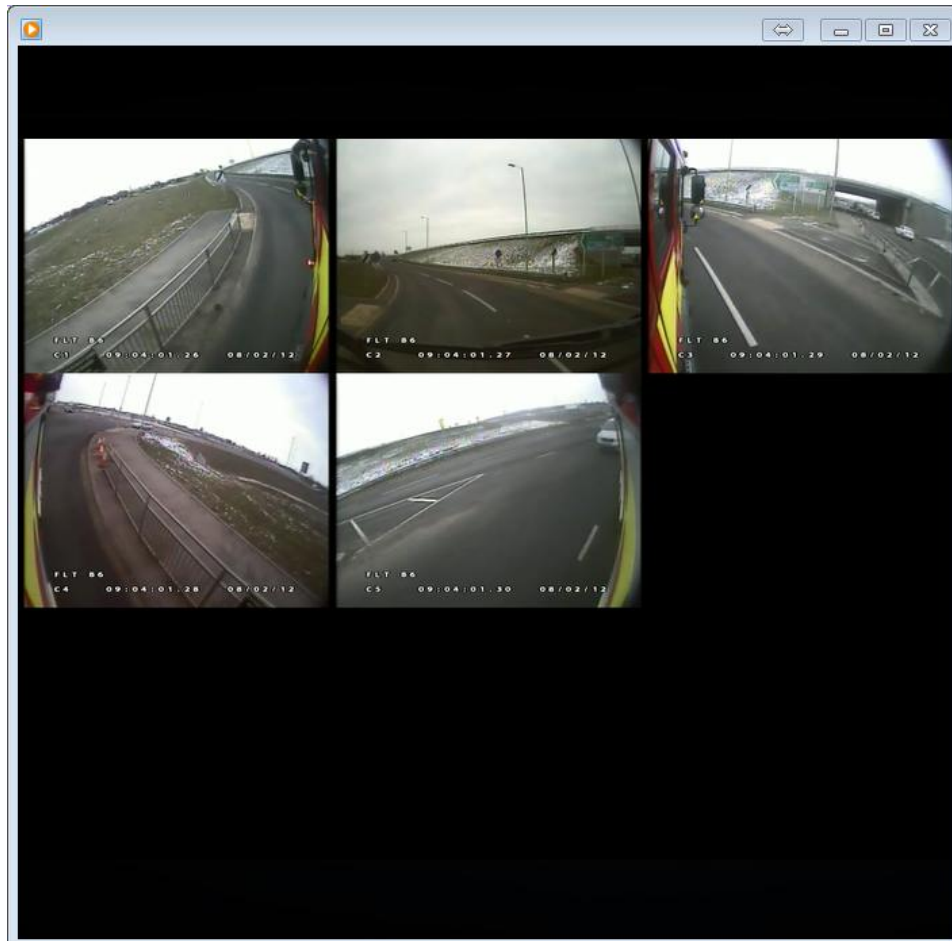
5.12.1.4 Create Video DVD

Similar to the Export XBA DVD method, video data can be exported from PCLink directly to a DVD, converting at the same time to a format that can be played on a standard DVD player. Converting XBA to DVD does take some time however it can be useful for playing back footage where a PC isn't available.

For best results it is recommended to only export continuous clips of footage, less than 30 minutes in length. Exporting mixed camera rate footage may produce unstable results. If this is experienced it is recommended to Export Video as MPG4 then produce a DVD using a third party program. Multi-camera and/or X200 exports will be quite slow. All export times are dependent on the PC processor speed, newer multi-core or i3/i5/i7 processors are recommended.

Video and audio data can be exported to DVD however mapping information is not included. The export folder may leave behind a temporary folder and/or some files. Temporary files/folders should be removed automatically by PCLink else they should be manually by the user after the DVD has been burned. As with Exporting XBA to DVD the .iso output file could be used to burn multiple copies. Again the user should remove this manually afterwards.

During the export, each selected camera channel is converted then all cameras are combined in to a DVD format for playing back in Windows Media Player (or equivalent player) OR on a DVD player;

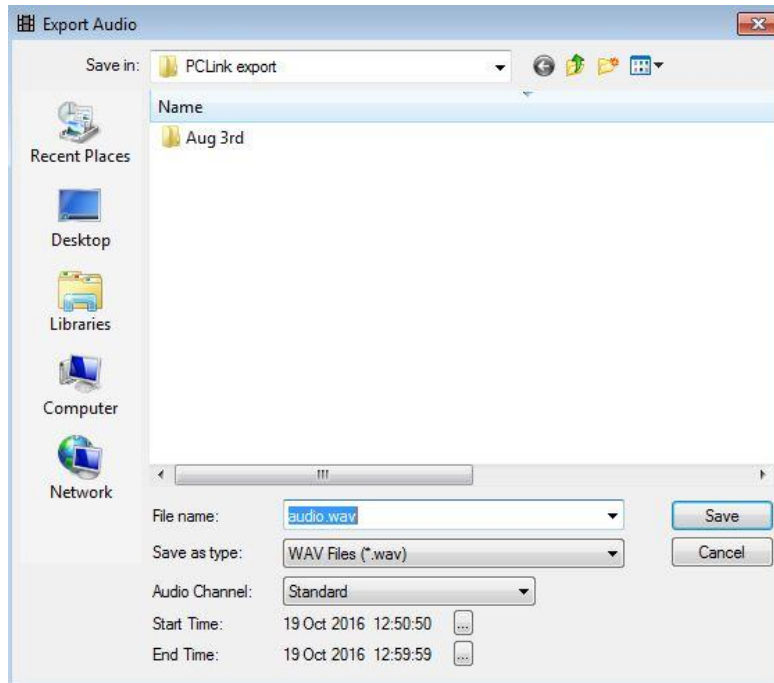


5.12.2 Export image

Exports the currently selected camera view as a Windows Bitmap or JPEG to a location specified by the user. JPEG produces file sizes approximately 20 times smaller than bitmap with no discernible loss in image quality.

5.12.3 Export Audio

Exports the section of footage between the start and end markers as a WAV or MP3 file.



Choose the output file name/destination and the period of footage required.

The default setting is Standard audio channels. This is generally suitable in most cases, however if reduced file sizes are required, the bitrate can be reduced.

NB: the HQ (high-quality) audio channels refer only to the High-Quality audio from Timespace X500 DVRs.

5.12.4 Export Data

PCLink can export mapping, GPS speed, GSensor and Motion Data. See [Export Data](#) for details.

5.13 V700 support

PCLink V8.4.2 is the first version which will connect to Timespace V700 network video recorders.

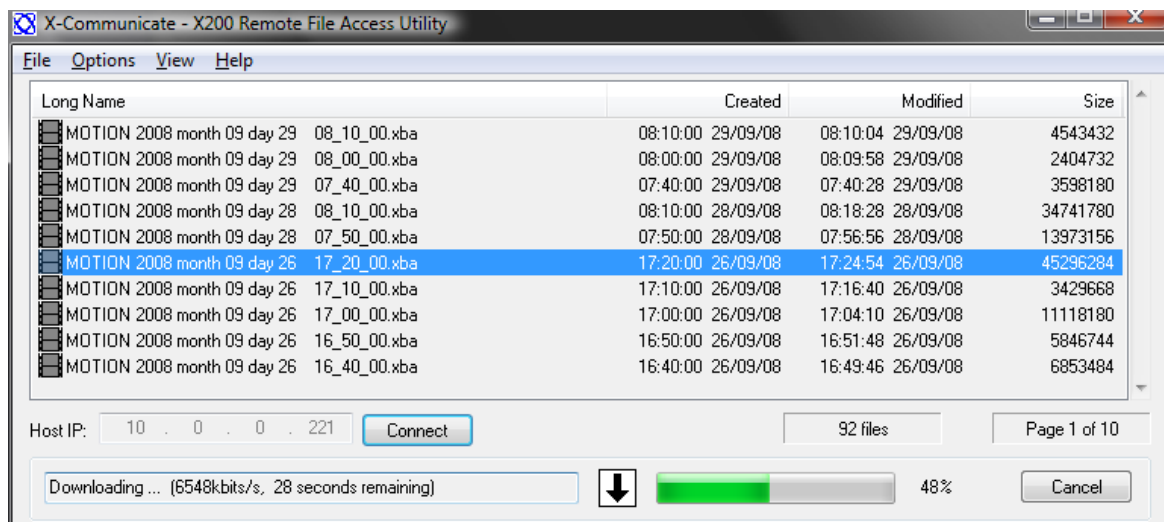
When connecting to a V700, wait for the unit to have been pinged in the Load Remote Unit dialog box before opening the unit. This is because the ping reply tells PCLink which cameras are available.

6 File Transfer

6.1 X200 File Transfer: X-Communicate

The X200 Digital Video Recorder incorporates a TFTP (trivial file transfer protocol) server which allows the stored video files to be downloaded using either a hard-wired, or wireless, network connection. The files can be accessed and downloaded using any TFTP client application.

X-Communicate is a simple TFTP client application which allows the listing and transfer of files from the X200. The screenshot below shows how the application appears during file download.



6.1.1 Download

To download a file from an X200 follow the steps below:

1. Start the X-Communicate application.
2. Enter the X200 IP address in the host IP address field.
3. Click Connect; wait until communication has been established (files displayed).
4. Select the required file, scroll through the pages if necessary.
5. From the menu, select File and then Download or double click the file.
6. Select a local name for the transferred file.
7. As the file is transferred the flashing down arrow indicates transfer activity, there is also a progress bar and a percentage complete figure.

6.1.2 Menus

The menus allow the user to configure and control the X-Communicate application.

File > Download - This menu selection is enabled when a file has been highlighted in the File Listing Area. When selected, a dialogue is displayed which prompts the user to select the name of the file to be used locally. By default, the same filename as on the X200 is displayed.

File > Exit - Selecting this option closes the X-Communicate application.

Options > Multiple Acknowledgments - File download from the X200 using TFTP is accomplished by the transfer of a number of blocks, each of which is acknowledged before the next is sent. To speed up transfer, the protocol permits a number of blocks to be in transit which have not been explicitly acknowledged. This approach can improve transfer rates.

Options > 1024byte Blocks - The X200 implementation of the file transfer protocol supports different size blocks. If this option is selected then blocks of 1024 bytes will be transferred; if it is deselected then the files will be transferred in blocks of 512 bytes. In general, the larger block size will incur less overhead if the transfer of data is reliable and so will give better transfer rates; hence, this is the default.

View > Small Icons - Selecting this option displays the files on the X200 as small icons.

View > Icons - Selecting this option displays the files on the X200 as large icons.

View > List - Selecting this option displays the files on the X200 as a list.

View > Details - Changes the display of the list listing as per user preference.

View > Refresh - Update file listing or re-establish connection with an X200.

Help > About - Displays a dialogue with the software version number.

6.1.3 X-Communicate Window

File Listing Area - The file listing area displays the files stored on the remote X200 that are available for download. Where more files are available than can be displayed in the file listing area, the vertical scrollbar to the right can be used to move between pages.

File Indicator - This field shows the number of files available for download on the remote X200 specified by the entered IP address.

Page Indicator - This field shows the current and total page numbers. Use the vertical scrollbar to the right of the File Listing Area to move between pages.

Host IP Address - Each device connected to a network must be configured with a unique IP address. Enter the IP address of the X200 you wish to connect to in order to download video files.

Status Line - Displays any status messages should the X-Communicate application be unable to connect to the specified X200 and also the transfer rate and time remaining during file download.

Transfer Progress - A progress bar and a percentage indicator update as a file is downloaded.

Cancel Button - During file transfer, the download can be aborted at any point by selecting the cancel button.

6.1.4 Remote Access: RemoteLink

RemoteLink is a PC facsimile of the hand-held X201 Reviewer which allows the user to connect to a remote X200 unit via serial (RS232), LAN and GSM modem interfaces (including UMTS, EDGE, 3G, GPRS and GSM wireless routers), and control it as if using an X201 Reviewer.

All features of the X201 Reviewer are supported except Motion Detection edit/view Mask. Menus can be accessed and modified, live video and recorded footage viewed. Note that via GSM the X200 video switcher dwell times will be multiplied by 10 in order to take into account the inherent time delay in the GSM connection.

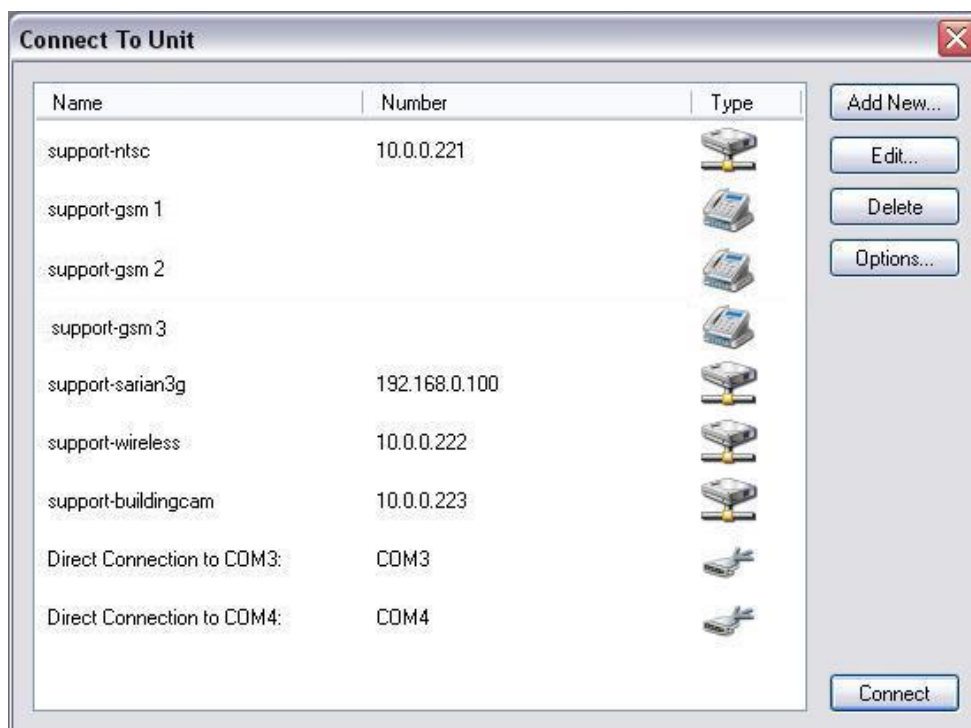
The user can connect to any number of X200s in turn allowing checks and menu changes to be done when recorders are in operation and not currently accessible to an operator equipped with a Reviewer. The X200 can be contacted whenever it is powered and wherever a connection is available.



6.1.4.1 Connecting

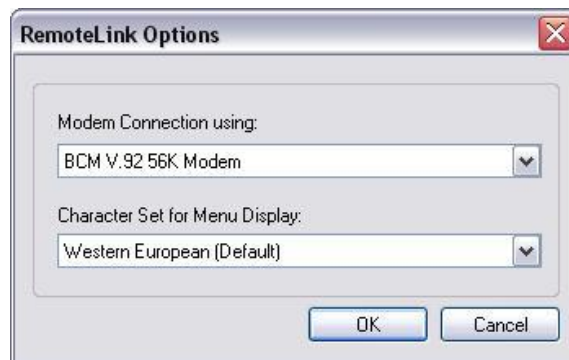
1. Go to the **File** menu and select **Connect To Unit**
2. Add a new unit using an **IP Address, Phone number** or **Com port**.
3. Highlight the unit you wish to connect to and click the **Connect** button (alternatively you can double click the unit).

NB RemoteLink V1.7.8 (PCLink Suite V7.2) onwards supports IP **ports** as part of the IP address e.g. 10.0.0.200:**1234**. This is particularly useful where multiple DVRs are behind a router/firewall.



The units can be ordered by each of the column headings, Name, Number or Type. The last unit connected to will be highlighted.

The **Options** button will open a dialog for you to select which modem you wish to use (if connecting via dial-up/GSM). This list is populated from the operating system, Windows. You can add new modems through Windows control panel.



A character set option is included for switching between eastern and western European character sets (used in conjunction with an X200 language file).

6.1.4.2 Controls

If the user is familiar with setting up the X200 using an X201 Reviewer there is little further to learn - you have the same functionality but remotely. The software allows the PC to remotely connect to an X200 unit and once the connection is made the control is as the Reviewer.

- Arrow keys can be used to navigate the menu system.
- Esc key mimics the Exit button on the review/RemoteLink.
- Number keys 0-9 can be used to select cameras and input data.
- F1 is used for displaying help and switching to cameras 9-16 (T516 only).
- R = record
- K = play
- J = reverse play
- L = fast forward
- H = rewind
- Space = Stop/Jog
- F5 = refresh

It is important to bear in mind that when using GSM the data rate is 920 bytes per second (a typical full image is 50,000 bytes) so playing back images, or displaying a live view takes time.

For a direct serial connection the X200 serial connector on the rear of the recorder will need to be connected to an available serial port on the PC.

Please note that as the GSM modem and GPS receiver (if used) require the use of the serial port on the rear of the X200, neither of these devices can be used whilst a direct serial connection is made to a PC.

RemoteLink uses UDP port 5465. Any installed network or local PC firewalls may have to be instructed to allow the use of this port to prevent communication problems between the PC and the X200.

6.2 File Transfer

6.2.1 FTP

All Timespace DVRs/NVRs except the X100 and X200 support FTP over TCP/IP using the Ethernet (LAN) socket. The DVRs' FTP servers allow video files to be downloaded using either a hard-wired, wireless or 3/4G IP connection. When using FTP over 3/4G or in a strict network environment, **ACTIVE** mode FTP must be set in your FTP client. A web browser can be used to FTP onto the DVR by typing the following in the address bar;

<ftp://user01@10.0.0.200/> (default IP). This will prompt for the password.


<ftp://user01:PASS01@10.0.0.200/> (default IP). This will log straight in.











Supported browsers are: Microsoft **Internet Explorer** & Mozilla **FireFox**. A third party FTP client can also be used, for example **FileZilla**. Once connected, files can be downloaded, viewed and deleted (client dependent). If prompted, the FTP authentication details are;

Username: user01

Password: PASS01

Index of ftp://10.0.0.221/

 Up to higher level directory

Name	Size	Last Modified
 current_system.xos	4096 KB	30/11/2010 11:00:00
 101216 18-11-2010 102503 log.txt	13 KB	18/11/2010 10:25:00
 101216 18-11-2010 102655 log.txt	14 KB	18/11/2010 10:26:00
 100109 19-11-2010 113528 log.txt	12 KB	19/11/2010 11:35:00
 2010 month 11 day 19 11_36_30_493.xba	1243 KB	19/11/2010 11:36:00
 100109 19-11-2010 113629 log.txt	13 KB	19/11/2010 11:36:00
 2010 month 11 day 19 11_43_13_175.xba	3218 KB	19/11/2010 11:43:00
 100109 19-11-2010 132001 log.txt	15 KB	19/11/2010 13:20:00
 2010 month 11 day 19 13_20_02_314.xba	240408 KB	19/11/2010 13:30:00
 2010 month 11 day 19 13_30_00_000.xba	241339 KB	19/11/2010 13:40:00
 2010 month 11 day 19 13_40_00_000.xba	241324 KB	19/11/2010 13:50:00

If connected to a DVR remotely using the Live, Playback, Configuration features, selecting **File > Properties (Alt+Enter)** will open a file listing to the X300 cartridge. Clicking the **Open Folder** button will automatically log in to the DVR, opening a browser FTP window.

6.2.2 Remote Control: TELNET

The X300, X500, R500, V400 V500 and V600 have a comprehensive set of RS232 control commands that run over the Serial port. This open architecture allows integration with third party hardware/software. In addition to the RS232 support, the X300/X500/R500/V400 provide a **Telnet** interface over TCP/IP. The same command set detailed in the RS232 section can be used over Ethernet using the Telnet protocol. Please refer to the DVR manuals available here; www.tspace.co.uk.

Here is a simple connectivity test between PC and a DVR using a Telnet client (e.g. Putty, Termite);

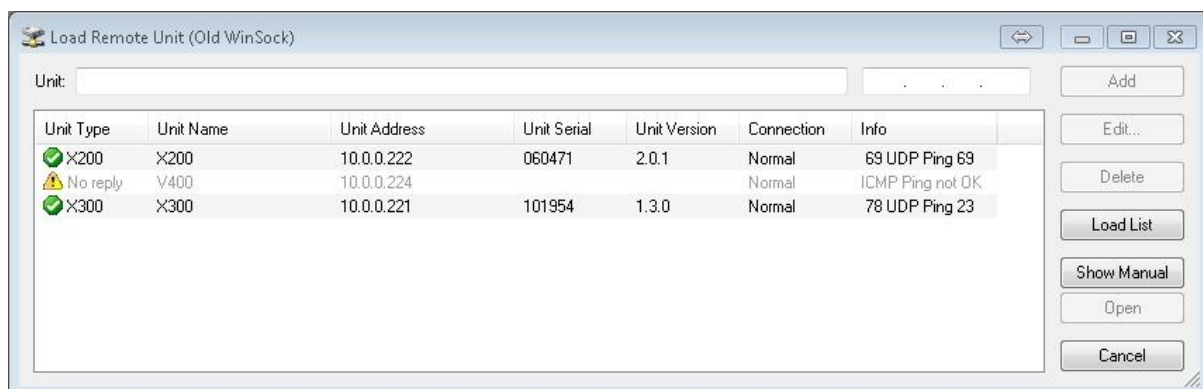
- Telnet (port 23) to 10.0.0.200 (default X300 IP)
- Enter the username & password (as above)
- Type **#HANDSHAKE**; you should receive **OK**.
- An example of some other commands are; **#RECSTART** & **#RECSTOP**
- Type **quit** to exit.

```
220 X300 TELNET server, service ready
X300> user user01
331 User name okay, need password
X300> pass PASS01
230 User logged in, proceed
X300> #HANDSHAKE
OK
X300> 
```

6.2.3 Remote Access: Load Remote Unit

With higher connection speeds over IP, Timespace DVRs support live view of cameras, playback of recorded files and menu configuration through the PCLink application. All functions can be performed whilst the DVR is recording. Note that passwords set on the DVR are not currently supported remotely. Remote access is currently for single user access only.

From the **File** menu, select **Load Remote Unit**. In the dialog box, enter the IP address and a friendly name for the DVR you wish to connect to, then click the **Add** button. The unit will appear in the saved list and PCLink will try and test connectivity using *ping*. If basic connectivity is established, PCLink will display the remote Unit Type, unit serial number and software version.



After adding a unit, advanced options can be changed by highlighting the unit and clicking the **Edit** button:

When Connected Show – select from options of either Live view (all cameras or a single camera), Playback, or displaying the DVR Menu. NB This is currently the only way of connecting to V700 menus remotely.

Bandwidth Options

Dynamic Live quality allows adjustment of the quality of the live video. This is useful when connecting to units on slow mobile connections. NB: not all DVRs support the dynamic quality..

Reduced Live framerate reduces the framerate of the live video to 2IPS.

If both Reduced Live quality and Reduced Live framerate are selected, the quality drops still further.

Request Live Meta toggles the sending of live meta packets – this is required in order to use live GPS or alarms features. The overhead having this on is not very high. Not all DVR builds support this, so it may still send the packets even if being told not to.

Selecting **Request Playback Meta** will instruct PCLink to request all the meta data from a remote file when it starts playing it. The overhead for this is quite high, so it's worth turning off if you don't mind not seeing alarms or GPS for the file.

Request File List should be turned on if playback from remote files on the DVR unit is required. If only Live View is required, it is sensible to turn off Request File List in order to save time when connecting.

Telnet and FTP connection username/passwords can be edited here to align with those set on the DVR (relevant DVRs only).

Adaptor IP – Select which network adaptor to connect with. It may be necessary to specify this when multiple adaptors exist on the PC.

Remote Ports - PCLink uses UDP port 7 and TCP port 2055 for connections.

6.2.4 Live view

To connect, either double click the unit in the list or highlight it and select **Open**. By default, once the connection is established, **Live View** will be displayed for all cameras. The Live button on the control bar will be highlighted;



6.2.5 Multi channel live view

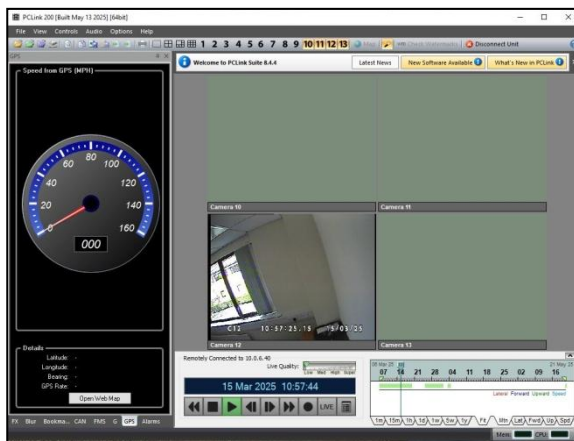
All connected cameras can be viewed Live, simultaneously. As with Playback, cameras can be displayed in *Show All Cameras*, *Zoom to Selected Camera* or *Priority Camera Mode*.

6.2.6 Remote Playback

The DVR supports playback of recorded video files remotely; note that audio playback is not currently supported. Selecting the **Play** control button will by default set the play position to the first file on the DVR. Move the play head position along the timeline to the required date/time.



When in playback mode, only a single camera can be viewed at once and the currently recording file cannot be accessed. By default all cameras will be displayed but only one will show video footage. Select the camera channel you wish to view by double clicking it;



NB playing back footage remotely is not the same as viewing locally on a cartridge connected via USB. The play controls can be used as normal although greater than 1x speed is not possible due to bandwidth limitations. The footage is streamed directly from the recorder and is not stored locally on the host PC.

6.2.7 Remote Configuration

The DVRs (later than X200) support menu configuration changes Remotely. Selecting the **Menu** control button will display the DVR menu system.



The menu system can be configured in the same way as if using the Timespace Reviewer (X201 or X301) locally.

NB the only way to connect to V700 menus remotely is to set this as the option in the [Unit Connection Settings](#).



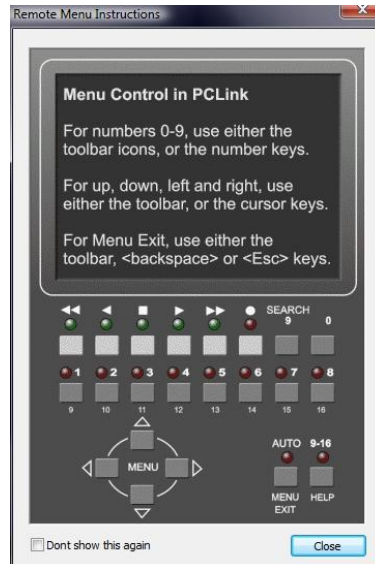
To navigate the menu system use the arrow keys on your PC's keyboard. This will move the on screen arrow cursor between menu items.

- △ Move arrow cursor to the previous item.
- ▽ Move arrow cursor to the next item.
- ◀ If the arrow cursor is currently at a menu selection pressing the left button will cycle the value backwards
- ▶ If the arrow cursor is currently at a menu selection pressing the right button will cycle the value forwards

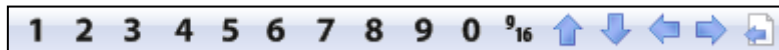
If the arrow cursor is currently at a sub-menu title pressing the right button will enter this sub-menu.

The **MENU EXIT** (escape/backspace) will exit the current menu and move back up one level in the menu system when. If already at the top level of the menu pressing this key will exit the menu system completely and return to Live View.

A navigation dialog is shown each time the Menu control button is pressed, with the option to turn off future displays.



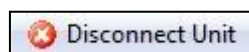
Menu navigation can also be performed using the PCLink tool bar icons. Use the PC keyboard number keys to select cameras or use the toolbar icons. The 9/16 icon mimics the Timespace Reviewer's 9/16/**HELP** button. This will provide X300 on screen help for the current menu item feature.



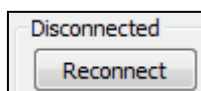
The record status is shown on the Control button section and can be toggled on/off remotely. Recording can continue during all Remote features; *Live View, Playback, Configuration*.



To disconnect from a DVR, use the **Disconnect Unit** button on the toolbar or select disconnect unit from the **File** menu.



If the remote unit is disconnected, a **Reconnect** button will appear in the bottom left to re-establish the connection to the last connected unit.



The quality of the Live images can be adjusted to cater for available bandwidth / preference. Use the Live Quality slider to select between Low, Med, High and Super quality. The slider only appears when remotely connected to a DVR. The slider position is saved as a user preference, based on its last position.



6.2.8 Network Ports / Port Forwarding

In order to communicate with the DVR network interface where a router or firewall is in place, certain network ports must be opened up to establish the connection and transfer data.

Port	Protocol	Function	Used By	DVR/NVR	Description
7	UDP	Echo	LANLink / PCLink	All	Unit discovery
21	TCP	FTP	LANLink	All except X200	File download
23	TCP	Telnet	PCLink	All	Unit commands
69	UDP	TFTP	LANLink / PCLink	X200 only	File download
554	TCP/UDP	RTSP	LANLink / PCLink / ONVIF clients	V700 only	Video streaming
2055-2058	TCP	Custom	PCLink	All except X200	Live video and menu
3702	TCP	SOAP	ONVIF clients	V700 only	ONVIF discovery
5465-5468	UDP	Custom	PCLink/RemoteLink	X200 only	Live video and menu
8000	TCP	ONVIF	PCLink/ONVIF clients	V700 only	ONVIF

ICMP pings must be forwarded through the router to the DVR.

In addition, PCLink likes access to:
www.tspace.co.uk (port 80) to get XOS/news/manual updates.

Consult the manufacturer's documentation for the router / firewall in order to configure the device to allow the above ports through to the internal IP address of the DVR. PCLink and the DVR support a single level of Network Address Translation (NAT) only.

In some instances Microsoft Windows firewall may also need to be configured to allow the above ports through. This may also be the case with other third party security applications.

Load Remote Unit Port Support

Multiple DVRs can be used behind one router/firewall by editing the connection from the Load Remote Unit dialog box;



The image shows a dialog box titled "Remote Ports". It contains two input fields: "Echo Port:" with the value "7" and "Live Port:" with the value "2055".

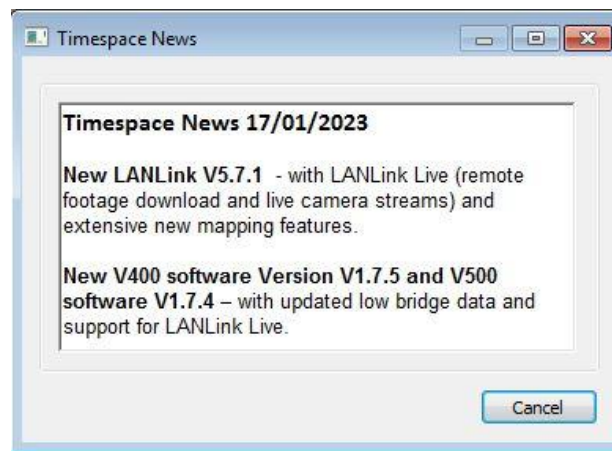
Custom ports can be entered instead of the defaults shown above. These must then be port forwarded in whichever firewall/router controls the network to the desired DVR.

7 Software Updates And News

PCLink now has a Caption Bar which houses 3 buttons. The buttons go yellow when there is new information for the user.



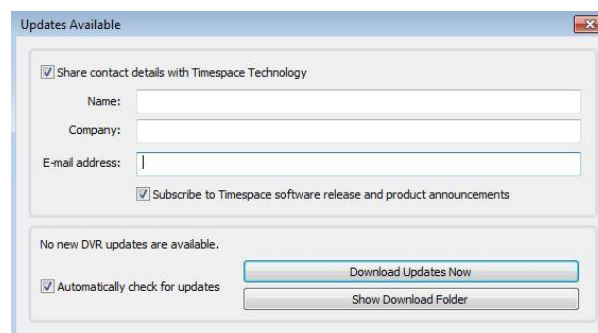
Latest News – Occasionally Timespace will share some news regarding software or product releases, displayed by clicking on the Latest News link in the caption bar.



Software updates – If new software (XOS files for Timespace DVRs or PCLink updates) or manuals (in PDF form) are available, the **New Software Available** button is highlighted in yellow, and shows an exclamation badge.

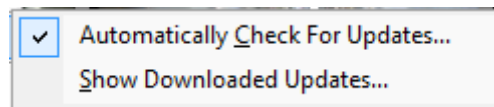
Clicking it shows the Updates Available dialog, which also allows the user to register a name, company and email address.

Updated DVR Instruction Manuals will also be shown if available.



Some basic user information will be collected and the option to be included in future software and product notifications.

Help > Updates – users can ask PCLink to **Automatically Check for Updates** and to **Show Downloaded Updates**. PCLink will automatically connect to the internet and check for updates for PCLink and Timespace DVR software periodically. If this is being run for the first time, updates will be found and downloaded. Subsequent checks where no new version are available, the download will be skipped.



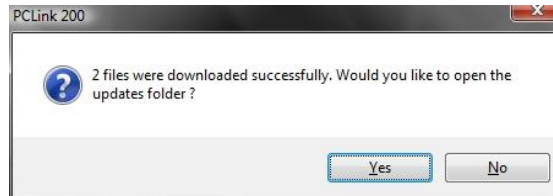
NB: from PCLink V8.4.2 onwards, old XOS files, PDFs and PCLink versions will be removed when new latest versions are downloaded.

This “cleaning” only happens when a new file is downloaded. Only files of the same type, and for the same DVR, are cleaned.

What’s New in PCLink – this displays information about PCLink software updates and new/improved features.

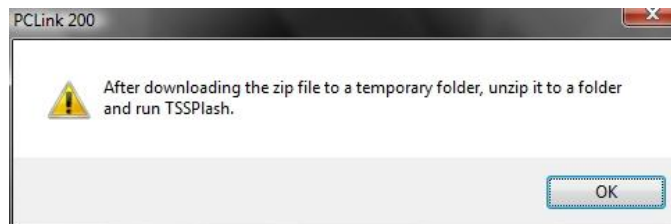


Show Downloaded Updates... PCLink will open the local folder that the updates were downloaded to.



If updates are available for Timespace DVRs, the downloaded **.xos** files will be stored in the DVR sub folder e.g. *Update\X200\X200 V2.0.1.xos*. See DVR product manual for instructions on loading a **.xos** file to the DVR.

If a PCLink Suite update is available it will be downloaded as a **.zip** file using the PC's Internet browser, giving the user the opportunity to **Save** the file to their preferred folder. Once complete, the file must be unzipped to a temporary folder and **TSSplash.exe** run (double clicked). This will initiate the PCLink installer.



Appendix – Manual revision history

Issue 9, 29th May 2025

Issue 9	29.5.25	Front cover	Image, issue number, software version and date updated.
		Throughout	Images of play controls plus some screenshots updated to new design.
		2.1	Software requirements updated to Windows 10 onwards.
		4.1.6	Motion graph - explanatory text added.
		4.1.7	New motion graph status text - image and explanatory text added.
		4.2.1.1	Images and explanatory text added for new Export Data feature.
		4.2.5.2	Preferences image updated. New explanatory text on OSD speed source added (option to use CAN speed)
		5.6	Added link to new Export Data section.
		5.8	Added link to new Export Data section.
		5.12.4	Added link to new Export Data section.
		5.13	Amended text to reflect that PCLink now contains more V700 support.
		6.2.3	Remote access - added explanatory text about remote menu configuration on V700s.