plettac
Security UK Limited

Intelligent Video Processing

Sentio

Intelligent Video Management System v4.4

User Guide

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Preface

About this manual

This manual provides end users of the plettac Sentio- System with information to support the day to day tasks involved in running and managing the system. such as:

- configuring recording
- monitoring live camera views
- playing back recorded images

Who should read this book

This document is intended for Security personnel who use surveillance systems controlled by plettac servers and for System Administrators who configure their operations.

Assumed knowledge

Throughout this document it is assumed that the reader has a thorough knowledge of:

- basic Media Player controls
- cctv camera operation

Typographic conventions

The following conventions are used throughout this document to identify text that has special meaning:

Convention	Used to Identify
Italic text	Names of commands or parameters
Bold text	Names of interface buttons and selections
`Monotype text`	Code examples or commands entered at the prompt

Symbols

The following symbols are used in the documentation to highlight important information

Symbol	Type of Information
INFORMATION:	Important additional information that may be of use while performing a procedure.
WARNING:	Information that describes situation in which either dangers the effective operation of the system or the health and safety of end users could be at risk. Ignoring such warnings nullifies all support agreements relating to this plettac product.

Trademarks

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Related Documents

In conjunction with this document you may also need to read:

- *plettac Sentio Installation Guide*
- *plettac Sentio 4.4 Quick Start Guide*

CHAPTER 1: plettac - the complete solution for networked video

plettac Ltd offers a complete range of intelligent video management systems enabling the construction of extensive networked video solutions. Video and audio are acquired, recorded and served by plettac systems. Depending on your requirements, plettac provides scalable solutions to suit the size and video format of your network.

All plettac systems use the plettac GUI software to make and playback the recordings. So if you need to expand your system, you will always have a familiar interface. You can also monitor and review recordings using the NetManager, NetManager*Lite* and sPlayer software tools.

This chapter provides an overview of the plettac-FXL system. It contains the following sections:

- Overview of plettac FXL Server Functions
- plettac Network in Context
- The plettac Range of Systems
- Benefits of the plettac-FXL
- User Interfaces

1.1: Overview of plettac Sentio Server Functions

plettac's Sentio is a sophisticated system for the storage and management of digital video images captured by CCTV cameras.

plettac-Sentio systems can simultaneously record, playback and serve digital video data across a network. Its features, which are described in more detail subsequent chapters, include:

- Up to 16 simultaneous video and audio inputs
- Powerful video-compression technology
- Live display rate of up to 50 ips
- Video record rate of up to 25 ips per camera
- Capture full-frame (4CIF) to QCIF
- Video Motion Detection (VMD) and Super VMD (SVMD)
- External alarm inputs (Contacts or manual switches)
- Event recording (VMD and Alarms)
- Camera sabotage detection
- Network connectivity (PSTN, ISDN, TCP/IP) and Bandwidth "throttling"
- Remote system configuration and playback via NetManager software
- Advanced searching of recorded images for motion events
- Streaming of Live Images across a network
- Controls for Pan-Tilt-Zoom (PTZ) cameras
- Export of data and sPlayer to CD/DVD
- Archival of older data on disk
- Scalability of system (4, 8,12 or 16 channels)
- Extendable storage using NAS drives or RAID arrays
- Unlimited expansion over a network.

1.2: plettac Network in Context

Figure 1-1 shows how various products in the plettac range can be integrated into a sophisticated surveillance system.

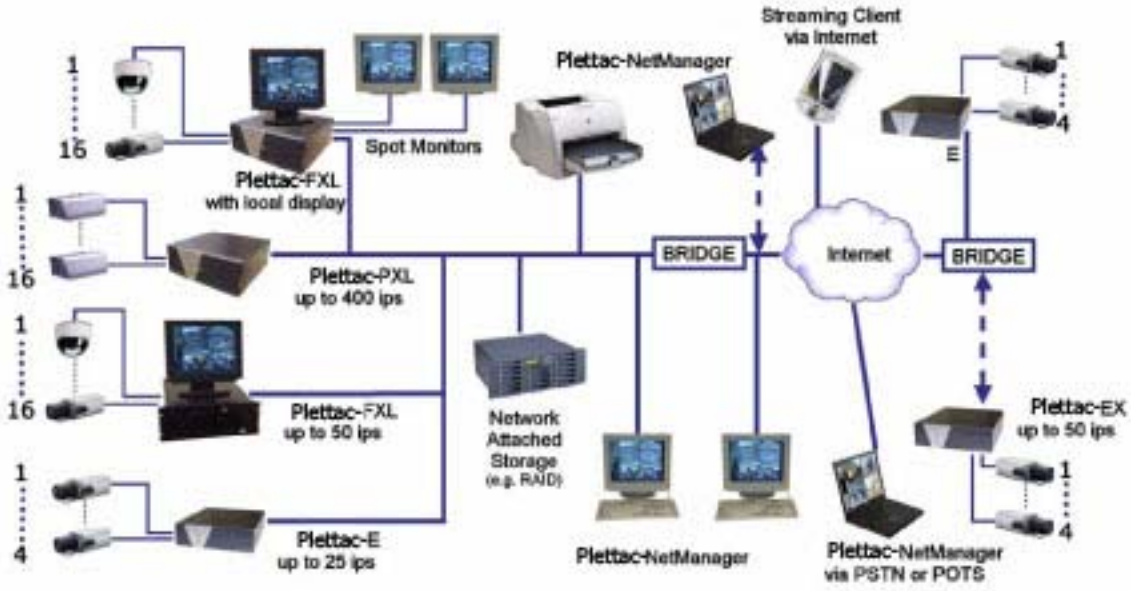


Figure 1-1: plettac Sentio servers as part of an integrated modern CCTV system

1.3: The plettac Range of Systems

Table 1.1 provides an overview of the display and recording capacities of each of the plettac Sentio servers for both the PAL and NTSC video standards.

Capacity	Sentio-E		Sentio-EX		Sentio-FX		Sentio-FXL		Sentio-PXL	
Video Standard	PAL	NTSC	PAL	NTSC	PAL	NTSC	PAL	NTSC	PAL	NTSC
Max. Video Inputs (Cameras)	4	4	4	4	16	16	16	16	16	16
Max. Audio Inputs	1	1	1	1	4	4	4	4	16	16
Max. Recording Rate per Camera (ips)	12†	15†	25	30	25	30	25	30	25	30
System Max. Recording Rate (ips)	12†	15†	50	60	50	60	50	60	400	480
System Max. Live Display (ips)	12†	15†	50	60	50	60	400	480	400	480
Alarm Inputs (max)	4	4	4	4	16	16	16	16	16	16
Alarm Outputs (max)	1	1	1	1	4	4	4	4	4	4
Disk Capacity GB (Standard)	120	120	250	250	250	250	250	250	500	500
Optional Extended Disk Capacity	250	250			750 ‡	750 ‡	750 ‡*	750 ‡*	1500 ‡	1500 ‡

Capacity	Sentio-E	Sentio-EX	Sentio-FX	Sentio-FXL	Sentio-PXL
† When only a single camera is connected to the Sentio-E, the maximum is 25 ips on PAL systems or 30 ips on NTSC systems. ‡ Can be extended to multiple TB with a raid array. * 1500 on 16 channel model.					

Table 1.1: Overview of capacities of various plettac Sentio servers

1.4: Benefits of the plettac Sentio

Many of the problems faced by managers of CCTV systems result from the often conflicting demands made of those systems, which are required to simultaneously:

- Record images of high quality
- Store images economically
- Retrieve significant images efficiently
- Retain images until they are no longer needed

Inevitably, some trade-off is required. However, the plettac system can help reduce the amount of compromise by addressing these requirements with the following features:

- High-quality video recording
- Powerful video compression
- Audio-visual recording
- Pre-defined Recording Schedules
- Playback while recording
- Improved Live display

1.4.1: High-quality video recording

The plettac implementation of wavelet compression allows you to configure the quality of images recorded by the Sentio-FXL server on a scale from 1 to 11, where 1 is the highest quality and 11 the lowest. (Quality 5 is the equivalent of SVHS quality.) The default setting for recording quality on a Sentio server is 4.

You can configure the rate at which the Sentio-FXL server records images from cameras on a scale from 1 image per second (ips) to 25 ips. You can also select to record at 4CIF (full-frame) down to QCIF. Refer to section 4.6.1: “Image capture format” on page 31 for explanation of CIF resolutions.

Depending on your particular system, it may not be possible to record from all cameras at the maximum rate. However, you can configure your system to make maximum use of its cameras within the limits of its maximum ips.

1.4.2: Powerful video compression

While capturing and recording video data, plettac systems use powerful wavelet technology to compress images with minimal loss in quality.

This enables you to store more video data on disk and enables the plettac Sentio-FXL server to scale images when serving them across a network with limited bandwidth.

1.4.3: Audio-visual recording

All plettac Sentio servers are capable of receiving at least 1 channel of audio input via the system’s sound card.

If you have purchased the Multi-Channel Audio (MCA) product option, together with appropriate microphones and audio/alarm cards, you can extend your system’s audio inputs to record an audio track for each CCTV

camera you have connected. This enables audio-visual recording with full lip-synchronization. A range of audio filters can be applied in playback to reduce hiss and so improve the evidential value of recordings.

For information about how to configure audio recording, see section 4.11: “Configuring Audio Recording” on page 33.

For more information refer to section 12.2: “Multi-Channel Audio” on page 123.

1.4.4: Video Motion Detection (VMD and SVMD)

Using the VMD feature you can configure the server to trigger a system event when there is motion in a camera view or in selected “Regions of Interest” (ROIs). VMD events are highlighted on screen in live mode and in playback. You can also configure the server to use VMD events as recording triggers, thereby recording from a camera only when motion is detected.

With the Super VMD (SVMD) option you can apply enhanced detection rules to a camera view enabling the server to raise VMD events only when an object:

- Moves in a specific direction or range of directions
- Fits in a defined size range
- Moves faster or slower than a defined range of speed
- Disappears from the view
- Is abandoned in the view

1.4.5: Alarm- and Event-Based Recording

When integrated with other Security or Building Management systems, the plettac server can accept alarm inputs from external contacts and switches. As with VMD events, these alarms can also be used to trigger recording or to increase the image frequency or quality of cameras that are already recording. This can reduce the amount of data you need to store on disk.

In Playback mode, recordings made during Alarm and VMD events are marked to assist easy retrieval. You can use the event locator buttons to skip from event to event and quickly judge the significance of the recordings.

1.4.6: Camera Sabotage Detection

Enabling the camera sabotage detection (CSD) feature allows you to configure your system to trigger a system event when a camera’s normal operation is interfered with, such as if it is moved or obscured. For more information refer to section 12.4: “Camera Sabotage Detection (CSD)” on page 125.

1.4.7: Pre-defined Recording Schedules

You can define and save preset recording schedules that enable the server to automatically modify the way it records from particular cameras over time.

For instance, the schedule for your interior cameras might define constant recording during normal business hours but switch to event-based recording outside business hours, thus saving disk space. A schedule for exterior cameras might continue to use constant recording throughout the day.

1.4.8: Playback while recording

The plettac Sentio server lets you play back up to 1 recorded video tracks simultaneously while still recording new data from cameras. Each video stream is decompressed and played back at the required speed with audio.

1.4.9: Improved Live display

The “L” series plettac Sentio servers have extra hardware to improve the image update rate in Live display mode, while non “L” servers, without the extra hardware, display images at the capture rate or a little less.

1.4.10: Extended Video Retention

Because plettac Sentio servers record to a circular file on disk, the more images you record and the higher the quality of those images, the sooner the recorded images will be overwritten.

Images that remain on the hard drive beyond the specified retention period are automatically overwritten unless you decide to archive or export them. You can use the plettac Sentio server's archival module, **Dynamic Re-Archive**, to intelligently compress the data further without significantly reducing video quality (patent pending). In this way, recordings of up to 30 days or more can be kept on the hard drive and therefore remain immediately accessible.

1.4.11: Networked Service

plettac Sentio servers are fully network enabled so any number of units can be networked over Ethernet serving a large number of camera groups in a flexible way. Private networks of plettac Sentio servers can also be constructed. Remote clients running NetManager, NetManager*Lite* or sPlayer can connect to a server and view live and recorded images. To preserve continuity of the video stream, the plettac Sentio server scales images according to the speed of the network connection.

The plettac Sentio-FXL is capable of serving images over Gigabit Ethernet LANs.

1.4.12: Remote Monitoring and Configuration

The NetManager application allows you to connect to and configure multiple cameras on multiple servers across your network. Tasks you can perform include:

- monitor Live camera views
- play back recorded data
- export recorded data
- configure the plettac Sentio server's operations

A free-to-use version of NetManager called NetManager*Lite* can also be used for all the above tasks except remote configuration.

NetManager has the same look and feel as the plettac Sentio server GUI and with a few minor differences provides the same functionality. NetManager enables hot configuration of any networked server; configuration changes take immediate effect without any interruption of service.

For detailed information, refer to the NetManager User Guide.

1.4.13: Camera Patrol

On the plettac Sentio server, you can configure a so-called "**camera patrol**", to run automatically at specified intervals on any Live-mode GUIs that are attached to the server. When a camera patrol becomes active, it cyclically displays a selection of camera views in full-screen format. The duration for which each camera view appears and the duration and frequency of the patrol are all separately configurable.

Scheduled camera patrols require no user intervention. Patrols have no effect on recording and playback. A user monitoring the server in Live mode can easily interrupt an automatic camera patrol, to concentrate on a particular camera view. Moving the mouse interrupts the camera patrol.

1.4.14: Bi-Directional Audio

With Bi-Directional Audio (sBDA), users of NetManager can transmit live audio data via the server to a single external speaker. The plettac Sentio server provides a single channel for audio output. If the associated camera also has audio input, a two-way conversation is possible, with people in the monitored location.

1.4.15: Sequencer

The sequencer is an extra hardware option that enables you to display a timed selection of cameras with text overlays on up to 4 spot monitors. With the sequencer option you can attach up to four sequence monitors on a single server either for continuous display of any one of the 16 cameras or for cyclical display of

any number of cameras with fully-programmable durations and text captions (up to 11 lines of 28 characters).

1.4.16: Pan-Tilt-Zoom Control

PTZ software for a number of leading camera manufacturers' equipment is available as an optional extra. If you have this software installed and enable the feature for the appropriate cameras, users of the NetManager or plettac Sentio server interfaces will be able to control these cameras' movement via the PTZ controls of the Live-mode GUI. For more information see section 9.5: "Pan-Tilt-Zoom Functionality" on page 79.

1.4.17: Integration with other Building Systems

Many industrial and intelligent building systems use OLE for Process Control (OPC) to exchange data.

- The plettac Sentio server includes an OPC Server, which provides an interface for integration with other OPC-compliant systems. For detailed information, refer to the plettac Sentio-OPC Server User Guide.
- The plettac Sentio server includes an Active-X control to enable single cameras to be viewed within a third-party application or web page. For further information refer to Appendix F, "plettac Sentio ActiveX Control," on page 155.

1.5: User Interfaces

The plettac Sentio application suite includes the following user interfaces to suit the needs of different types of users and scenarios:

Interface	Local System Configuration	Networked Configuration	Live	PTZ	Playback	Printing	Multi Server Access
plettac Sentio Server GUI	▯		▯	▯	▯	▯	
NetManager		▯	▯	▯	▯	▯	▯
NetManager*Lite*		▯	▯	▯	▯	▯	
sPlayer			▯		†▯	▯	
† Plays back only exported plettac Sentio data.							

Table 1.2: Summary of User Interfaces and their functionality

The functionality of these applications is described in greater detail in Table 1.3 on page 7 and in Chapter 2.

This functionality is provided by the following suite of applications:

Application	Description
FXL Server	This is the intelligent video management server (IVMS) that provides the core functionality of the system. It performs the following functions: • captures video and audio inputs from cameras • compresses video and audio data • display video images (live or playback) • records video and audio data • serves video and audio data to networked clients (live and playback) • export a camera's video and audio data to external media

Application	Description
NetManager	Licensed client software that can connect to multiple cameras on multiple plettac Sentio servers across a network and enable the user to: • remotely monitor all of a server's video and audio inputs • simultaneously display live images and play back the server's recorded data • configure a server's operations (with the exception of the Patrol function) • control any PTZ cameras connected to a server • export recorded data from a server to external media
sPlayer	A client that can connect to a sentio-FXL Server and enable the user to: • remotely monitor all of the server's video inputs • play back data that has been exported from the server to another storage medium (CD, DVD, Hard Drive) By exporting the sPlayer tool to the same media as your video data, you can play back video and audio data from a plettac Sentio server on any Windows operating system.

Table 1.3: plettac Sentio Application Interfaces

CHAPTER 2: The plettac User Interface

This chapter provides a general overview of the Graphical User Interfaces (GUIs) provided by the plettac software that comes installed on your system. It describes the structure and layout of the interfaces rather than the details of how to use them. End use tasks are described in subsequent chapters.

This chapter comprises the following sections:

- Overview of the Main Screen
- Display Area
- System Clock
- Mode Selection Buttons
- Screen Layout Buttons
- Camera List
- Master Audio Controls
- Message Area (in Live mode)
- Playback Console
- Configuration Console

2.1: Overview of the Main Screen

Figure 2-1 shows the Main screen of the plettac Sentio server application, which comprises the following default elements:

A. Display Area
B. System Clock
C. Mode Selection Buttons
D. Screen Layout Buttons
E. Camera List
F. Message Area (in Live mode) / Playback Console (in Playback mode)
G. On-Screen Keyboard and Master Audio Controls

These elements are described in detail in the subsequent sections of this chapter.

Figure 2-1: The plettac Sentio server GUI interface

If you have purchased any of the optional features for your plettac intelligent video management system and configured the appropriate command-line options, the following elements also appear on the main screen:

- PTZ Control Button for attached cameras with Pan-Tilt-Zoom functions

- Microphone Controls for Super Bi-directional Audio (sBDA)

2.2: Display Area

The Display Area is where the application displays the live video input it captures from cameras and the recorded video it plays back.

Using the screen layout buttons described in section 2.5:, you can choose from various screen mosaics to simultaneously display various numbers and sizes of camera views (live or recorded).

If at any point you wish to view only one camera view, double-click that view with the left mouse button to expand it to fill the display area. Repeating this action on the camera view reverts to the previous layout.

2.2.1: Camera Views

Figure 2-2 shows a single camera view including some of the information the plettac Sentio-FXL server displays in each camera view to show it's operations with that camera. plettac Sentio-FXL can display text and icons to indicate to users:

- the camera's identity
- the date and time of the video capture (current in Live Mode, historic in Playback)
- whether it is currently recording from the camera (Live Mode)
- whether an audio input channel is associated with the camera
- whether an alarm condition has occurred for the camera
- whether a VMD condition defined for the camera has been met

Figure 2-2: Text labels displayed in a Live Camera View

Table 2.1 describes the operational information plettac Sentio-FXL can provide in each camera view.

Indicator	Meaning
Camera ID	The plettac Sentio server displays the camera's name at the bottom left corner of each camera view. This can either be in the default form (Camera 01) or a user-defined name. If there is no input from the camera or if no camera is connected at this slot on the card, the message **No Input** is displayed in grey.
Video Capture Date and Time	If you configure the application to start with the `/DT` command line option, the plettac Sentio displays the date and time of video capture at the bottom of each camera view in both Live and Playback modes.
REC	plettac Sentio displays the abbreviation **REC** in red in the top left-hand corner of the camera view when it is recording that camera's input.
Frame	Normally the frame of each camera view is black. When an alarm associated with a camera is activated, the frame changes to red. When a VMD alert occurs, the frame changes to yellow.
VMD Ack	When the plettac Sentio server detects a configured VMD event in a particular camera's view, it displays the message **VMD Ack** (in yellow) in the bottom right-hand corner of the camera view.
 	A speaker icon appears in the top right hand corner of the camera view if audio input has been associated with the camera. The speaker appears in mauve when audio input is active. The speaker appears crossed out and in dark grey when audio input has been explicitly muted for this camera view.

Indicator	Meaning
	In Playback mode, the speaker appears in dark grey but unobscured when the video recording associated with the audio is accelerated, paused or played in reverse.
PTZ	This abbreviation appears in green in the top right hand corner only while you are adjusting the PTZ controls for the camera. (The Pan-Tilt-Zoom control feature must be enabled on the server.)

Table 2.1: Text and graphic indicators in Camera Views

2.2.1.1 Full-Screen Display Area

By clicking anywhere on the Display Area with the right mouse button, you can hide the menu area on the left of the main screen and expand the display area to fill the entire screen. Clicking a second time with the right mouse button, restores the menu area and reverts to the previous window layout.

2.3: System Clock

The system clock always shows the current date and time setting of your system in Live mode and Playback mode. In Playback mode, the time at which images and sounds were captured is displayed by another clock at the bottom of the screen.

Refer also to Appendix H, “Recordings during Summer/Winter Daylight Saving Changes,” on page 163.

2.4: Mode Selection Buttons

Use these buttons to select the operations mode of the GUI. Currently active modes are displayed in mauve text. Live mode is the initial mode when you start up the application.

The mode the application is in before you activate Supervisor mode, remains active while you are using the configuration interface. Live mode and Playback mode cannot be active at the same time.

2.4.1: The Live Button

Click this button to select the **Live** mode of operation for monitoring CCTV cameras in real time. The plettac server captures video and audio input from up to 16 cameras and 1 microphones and displays it in the main screen.

If you have Pan-Tilt-Zoom cameras connected, you can use the PTZ controls in Live mode.

Camera Patrols can be configured to automatically cycle through a series of camera views on the main screen while the system is in Live mode. See Chapter 9 “Live Mode Operations” on page 77 for more details.

2.4.2: The Playback Button

Click this button to select the **Playback** mode of operation to review previously recorded video and audio data from the plettac server’s hard drives. See Chapter 10 “Playback Mode Operations” on page 89 for more details.

2.4.3: The Supervisor Button

Click this button to select the **Supervisor** mode of operation. This presents you with a login dialog (if password protection is enabled), which, when completed successfully, starts up the Configuration interface of the plettac server. See Chapter 4 “Analogue Camera Configuration” on page 27 for more details.

2.5: Screen Layout Buttons

plettac-Sentio provides you with 6 different screen layouts from which to choose in either Live or Playback modes. The available options are as follows:

- 16-tile mosaic. (4x4 camera views of equal size)
- 9-tile mosaic. (3x3 camera views of equal size)
- 4-tile quadrant mosaic. (2x2 camera views of equal size)
- Single camera view. (This can also be selected by double-clicking the desired camera view)
- Mixed Layout 1. (2 quadrant-size tiles on the right of the display area and 8 small tiles on the left)
- Mixed Layout 2. (1 quadrant-size tile in the centre of the display area surrounded by 12 small tiles)

NOTE: You can drag and drop camera views into different tiles in any of the tiled layouts.

If you select screen layout that has more camera view tiles than the number of connected cameras, **No Input** is displayed in the unused tiles.

2.6: Camera List

Shows the cameras that are connected to the system and displays their names. You can drag and drop camera names from this list into any of the tiles in the display area.
The colour of the bullet opposite the camera name indicates the status of the camera as follows:

Bullet	Camera Status
Green	Active
Red	Active but with an Alarm condition
Grey	Inactive (No Input)

NOTE: To change the names of any cameras in this list, you must use the Configuration interface.

2.7: Master Audio Controls

In the bottom right-hand corner of the main screen are the Master Audio Controls. You can use these to adjust the audio settings (Volume and Mute) for all audio output in Live or Playback mode.

Drag the vertical slide up and down to adjust the volume of audio output.

The speaker and slider are mauve when audio output is enabled.

Click on the Speaker icon to mute all audio output from the display. The speaker icon turns dark grey. The speaker icon is a toggle key so clicking again re-enables audio output.

The Master Audio Controls override any audio settings made in individual camera views but the system remembers these settings and restores them when system-wide audio is re-enabled.

NOTE: The audio settings of remote clients are unaffected by the server's master audio controls.
Do not make any adjustment to the Windows audio settings. These are configured when the plettac server is manufactured.

2.8: On-Screen Keyboard

In the bottom right-hand corner of the main screen, adjacent to the Master Audio Controls, is the On-Screen Keyboard (OSK) icon. plettac Sentio servers are designed to operate as stand-alone units once installed and configured, but occasionally you may need to make minor adjustments to the settings of controls.

When you have attached a mouse to your Sentio unit, access the control you need to adjust and then click on the OSK icon to display a virtual keyboard. Use the mouse to select the required text.

Figure 2-3: On-screen keyboard

2.9: Message Area (in Live mode)

In Live mode, the area of the main screen below the Display Area is used to display transient messages and the menu options of separately licensed product options. The following types of information may be displayed in this area:

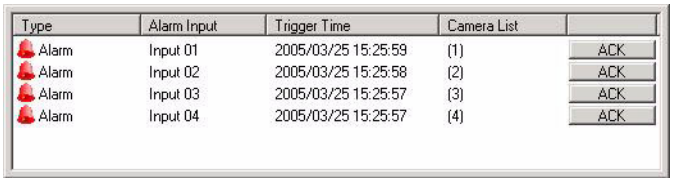
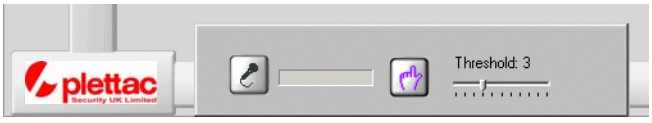
GUI Element	Description
Network Connections Counter	On the GUI of the plettac Sentio server, a panel on the bar at the bottom of the screen displays the number of network client connections open to the server. This represents the number of **NetManager, NetManager*Lite*** and **sPlayer** clients currently connected to the server.
Alarm Ack Popup	If you have defined Alarm conditions for any of the cameras connected to the plettac Sentio server, the Alarm-acknowledgement pop-up dialog appears in the message area. This shows which alarm has occurred and prompts you to acknowledge the Alarm (and stop any associated recording) by clicking the button labelled **ACK**. 
sBDA Controls	If you have the Bi-directional Audio (sBDA) product option installed, the sBDA controls are also displayed in the message area of both the server and NetManager GUIs. 

Table 2.2: Interface elements displayed in Message Area in Live mode

NOTE: This area is used to display the Playback controls console in Playback mode.

2.10: Playback Console

When you change to playback mode, the Playback console occupies the area of the main screen below the Display Area. Figure 2-4 shows the Playback console, which enables you to play recorded video and audio data that is stored on the plettac sentio server's hard drives.

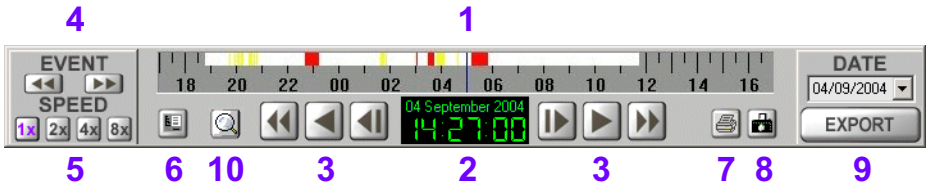


Figure 2-4: The Playback console

The Playback Console comprises the following elements:

	Element	Reference
1	Playback Time Line	See section 2.10.1: "Playback Time Line" on page 15.
2	Capture Time Display	See section 2.10.2: "Capture Time Display" on page 16.
3	Playback Buttons	See section 2.10.3: "Playback Buttons" on page 16.
4	Event Locator Buttons	See section 2.10.4: "Event Locator Buttons" on page 16.
5	Playback Speed Buttons	See section 2.10.5: "Playback Speed Buttons" on page 16.
6	Event Review Button	See section 2.10.6: "Event Review Button" on page 17.
7	Image Print Button	See section 2.10.7: "Playback Print Button" on page 17.
8	Image Capture Button	See section 2.10.8: "Image Capture Button" on page 17.
9	Export Button	See section 2.10.9: "Export Button" on page 17.
10	SearchExpert Button	See section 2.10.10: "SearchExpert Button" on page 18

2.10.1: Playback Time Line

The colour-coded Playback Time Line provides a visual way to quickly select recorded data to view, using either the capture time or the presence of Events in the data.

The time line displays a 24-hour period of recorded data stored on the plettac Sentio server. The vertical blue line in the centre of the time line marks the time stamp of images currently being played. You can also use the Capture Time Display to adjust the period shown.

By clicking on any point on the time line, you move that point to the blue line and play its associated images in the display area.

WARNING: Selecting recordings for playback that are too close to the current time, diminishes the quality of video- and audio reproduction. To guarantee proper video reproduction, start playback at least 5 seconds after the current time. To guarantee proper audio and video reproduction, allow a 10-second lag before starting Playback.

The grey areas to either side of the time line represent capture times, that have been overwritten on disk and those that have not yet been recorded. Recorded data is shown in white, yellow and red.

White areas represent time stamps that are recorded on disk.

If you have configured event-based recording on your system, you can quickly identify times when events occurred by selecting Yellow areas for VMD events or Red areas for alarms. This helps you to quickly locate significant recordings on your system.

2.10.2: Capture Time Display

The digital time display at the centre of the console shows the time at which the images currently being played back were captured from camera. You can click on this display and type in a new time (to the nearest second) and skip to that time in Playback.

2.10.3: Playback Buttons

The Playback buttons use the standard conventions of most modern media playing devices. Buttons marked with arrows pointing to the right play video forwards and those with arrows pointing left play in reverse.

The currently active Playback button is displayed in mauve. Inactive buttons are displayed in dark grey.

In each play direction, you can play at normal speed, at fast speed or one frame at a time.

Table 2.3 shows the forward and reverse play buttons of the Playback console.

Component	Description
	Click these buttons to commence playback at normal speed. Audio is available only when playing in the forward direction.
	Click and hold down these buttons to fast forward or review the recorded video. Images are displayed at 8 times the playback speed (set by the Speed buttons on the left). Once you release the button, the Playback speed reverts to the speed set by the speed buttons. While you are using these buttons, the audio track associated with the video data is not played.
	Click this button to advance or reverse the display one frame at a time. Once the next frame is displayed Playback is paused. While you are using this button, the audio track associated with the video data is not played.

Table 2.3: The Playback buttons

2.10.4: Event Locator Buttons

The buttons labelled **Events** to the left of the time line display enable you to skip forwards or backwards through your recordings from event to event. Click once to skip to the next event. Alternatively, use the Event Review Utility to navigate to events in Playback using specific event types or their associated cameras. See section 2.10.6:.

2.10.5: Playback Speed Buttons

The buttons labelled **Speed** (below the **Event** buttons) enable you to accelerate the Playback speed to 2,4 or 8 times normal speed. To set the speed back to the normal speed click the **x1** button. If you are using an accelerated Playback speed and then use the FastForward or Rewind buttons, the speed is further accelerated by 8. For example, when playing with the speed set to **x4**, holding the FastForward button will play the images at 32 times the normal speed.

NOTE: The audio track associated with any video data will only be played at normal speed (**x1**).

2.10.6: Event Review Button

	Using the **Event Review** button, which depicts the Event Review Interface, you can open the Event Review utility to search through the recordings on your system and identify video sequences associated with specific types of events or with specific cameras. You can then use the utility to display, export and delete recordings associated with events.

The Event Reviewer's filter enables you to include or exclude the following event types in the display:

- VMD events
- Contact Alarms
- Suspicious Alarms
- Camera sabotage events
- Video-Loss Alarms

For more information about using the Event Review utility, see section 10.2: "Locating Alarm and VMD Events" on page 89.

2.10.7: Playback Print Button

Using the **Image Print** button, which depicts a printer, you can print a single still image from one or more video sequences that are paused in Playback. The utility prints each camera view currently displayed in Playback. If 16 tiles are displayed, then all 16 camera views are printed. If you want to print only one of the camera views, you must first double-click that tile to switch to single-camera view.

	• The icon appears grey when not in use.
	• When selected, the printer icon changes to a mauve colour.

For more information, see section 10.4: "Printing Images in Playback Mode" on page 95.

NOTE: For Print to function you must have a default printer installed. If you are unsure about how to install a printer under Windows XP, contact your system administrator or supplier.

2.10.8: Image Capture Button

Using the **Image Capture** button, which depicts a camera, you can capture a single still image from one or more video sequences that are paused in Playback.

	• When not in use the **Image Capture** button appears as a monochrome depiction of a camera.
	• When clicked the button changes to a mauve colour.
	• When one or more images are captured the camera on the button appears to flash.

For more information about using the Image Capture utility, see section 10.5: "Capturing Images in Playback Mode" on page 95.

2.10.9: Export Button

Click on this button to open the export utility, which enables you to save a portion of your recorded video data, in a variety of standard file formats, to external storage media. External storage is any device that is not written to directly by the plettac sentio server. It can be a hard drive of another machine in your network or a CD, DVD or USB "flash memory". Export is described in detail in section 10.3: "Exporting Recordings" on page 90.

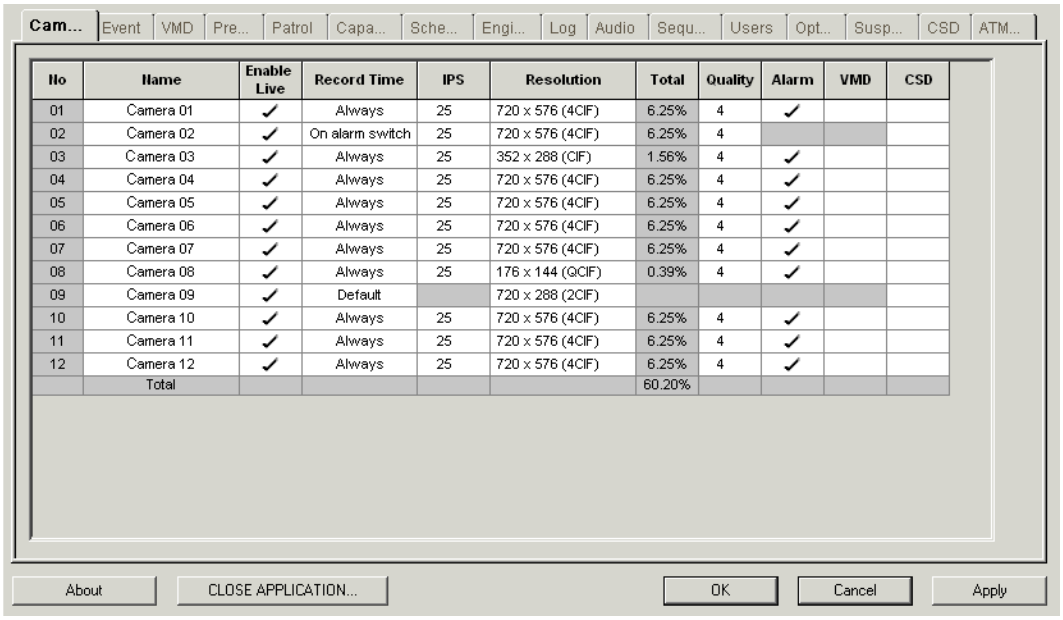
2.10.10: SearchExpert Button

This button opens the SearchExpert control panel which allows you to search all recorded images for particular motion events. For more detailed information, see Chapter 11 “Searching Recorded Images” on page 131.

2.11: Configuration Console

The Configuration interface of the plettac Sentio server consists of a series of tabbed menus that you can use to configure the operations of the plettac Sentio server. Use the **Supervisor** button in the menu area of the main screen to access the Configuration Console.

When you click on the **Supervisor** button, a Login dialog opens (if password protection is enabled). When you successfully enter your Username and Password, the Configuration Console opens as shown in Figure 2-5..



No	Name	Enable Live	Record Time	IPS	Resolution	Total	Quality	Alarm	VMD	CSD
01	Camera 01	✓	Always	25	720 x 576 (4CIF)	6.25%	4	✓		
02	Camera 02	✓	On alarm switch	25	720 x 576 (4CIF)	6.25%	4			
03	Camera 03	✓	Always	25	352 x 288 (CIF)	1.56%	4	✓		
04	Camera 04	✓	Always	25	720 x 576 (4CIF)	6.25%	4	✓		
05	Camera 05	✓	Always	25	720 x 576 (4CIF)	6.25%	4	✓		
06	Camera 06	✓	Always	25	720 x 576 (4CIF)	6.25%	4	✓		
07	Camera 07	✓	Always	25	720 x 576 (4CIF)	6.25%	4	✓		
08	Camera 08	✓	Always	25	176 x 144 (QCIF)	0.39%	4	✓		
09	Camera 09	✓	Default		720 x 288 (2CIF)					
10	Camera 10	✓	Always	25	720 x 576 (4CIF)	6.25%	4	✓		
11	Camera 11	✓	Always	25	720 x 576 (4CIF)	6.25%	4	✓		
12	Camera 12	✓	Always	25	720 x 576 (4CIF)	6.25%	4	✓		
	Total					60.20%				

Figure 2-5: The plettac Sentio server’s Configuration Console

You can also access the Configuration Console using the NetManager application although not using NetManager*Lite*.

2.11.1: Layout of the Configuration Console

The Configuration Console consists of a series of tabbed menus that you can use to modify the operations of the plettac Sentio server. The number of menus varies depending on the production options that you have installed. At a minimum, the Configuration Console includes the following menus:

- Cameras
- Event
- VMD
- Preview
- Patrol
- Capacity
- Schedules
- Engineering
- Log
- Sequencer (if installed)
- Audio
- PTZ (only if enabled)
- Users
- Options
- Suspicious (Alarms)
- CSD (Camera Sabotage Detection) (only if enabled)

2.11.2: Buttons of the Configuration Console

The buttons at the bottom of the Configuration Console are displayed for all menu selections.

Button	Function
About	Shows the Version information of the client application(s) in use and of the server to which they are connected.
CLOSE APPLICATION	Shuts down the Application. Shuts down the server and stops recording. On a remote client this shuts down the NetManager application only.
OK	Commits any changes you have made to the configuration menus and closes the Configuration Console.
Cancel	Cancels any changes you have made to the configuration menus and closes the Configuration Console.
Apply	Commits any changes you have made to the configuration tabs but leaves the Configuration Console open to allow you to make further changes if required.

Table 2.4: Function of the plettac Sentio Configuration Console buttons

NOTE: Avoid making changes via the primary GUI and a NetManager connection to the same server's Configuration console at the same time.

CHAPTER 3: Devising a Recording Strategy

When your plettac Sentio is first installed, it has a default configuration that records images on all the available video input channels at all times. This includes standard settings for the frequency and quality of images recorded. Using the Configuration Console you can customise the system's recording behaviour to best suit your security needs and you system's storage capacity.

This chapter describes the factors you may need to consider when deciding how to configure the plettac Sentio-FXL system's recording. It contains the following sections:

- Planning Your Recordings
- Estimating Recording Capacity
- Setting a Maximum Retention Period for Recordings
- Allocating Storage for Recordings

3.1: Planning Your Recordings

The major problem facing managers of CCTV recording systems is managing the large amounts of video data generated. Having a finite amount of storage means that you cannot record everything your cameras see and even if you could, you wouldn't be able to store it for very long. Finding significant events amongst attributes of recorded video data presents more problems.

The plettac Sentio-FXL system enables you to be more discriminating in what you record and in the quality at which you record it. It also applies powerful compression algorithms to the video data it captures and records. In this way helps you to reduce the amount of data you need to record and makes it easier to identify significant events.

Your specific recording needs will have been discussed prior to ordering your plettac Sentio-FXL system. Your requirements will have determined the appropriate hardware profile for your system.

Before you configure the plettac Sentio system's software you need to develop a recording strategy that takes into account the following factors:

- the number of cameras connected to the system
- the amount of disk storage available for recording
- the quality of video recording
- the image capture format
- the quality of audio recording
- the size of the protective stacks for alarm-related recordings
- the circumstances of the area(s) under surveillance (public, private, static, moving)
- the minimum and maximum period for which you need to retain recorded data
- whether or not you will be archiving the recordings of particular cameras
- any alarm signals that you can use to trigger recording

3.2: Estimating Recording Capacity

Your system's disk storage is a finite resource, which acts as a constraint, if not on the recording itself, on the length of time you can store recordings. The amount of disk storage you have available and the duration for which you need to retain recordings are crucial to your system configuration.

Using the **Capacity** tab of the Configuration Console, you can perform the following tasks:

- calculate how your plettac Sentio server configuration would use its disk storage
- test how changes to camera configurations will change disk usage
- predict when recorded data will begin to be overwritten
- specify the size of the protective stacks for alarm-related recordings
- specify a maximum retention-period for recorded data on disk

Figure 3-1 shows the **Capacity** menu of a system in which some of the 12 cameras are associated with alarms and suspicious alarms.

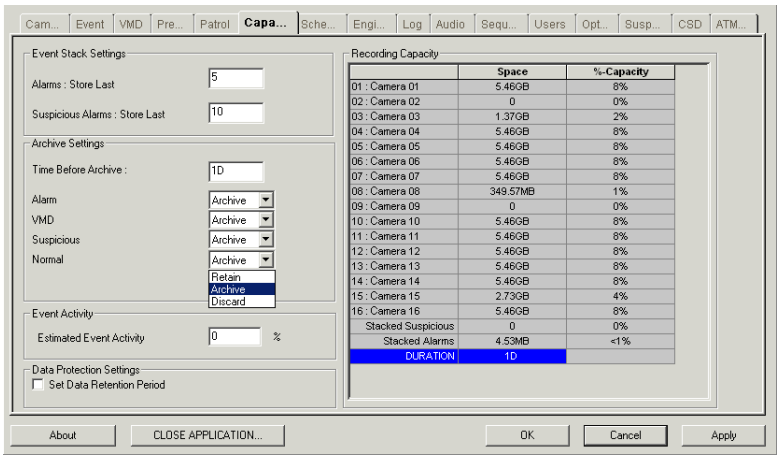


Figure 3-1: The Capacity tab of the Configuration Console

If you have cameras configured to record only when Alarms or VMD events occur, or to record more intensively (with higher ips rates and better quality) when such events occur, this will increase the total number of days that can be stored on the system. This benefit is most pronounced when the events are not likely to occur very often but if they occur very often, event-based cameras naturally must record more often. The Capacity table dynamically adjusts the storage estimate as you modify your system's configuration. Where alarms and/or VMD are used, for estimation purposes the assumption is made that the active time for these types of events is 25 percent of the total.

NOTE: The **Super Archive** product option allows you to estimate the impact of archiving configuration on your disk usage. See section 12.8: "Dynamic Re-Archiving" on page 133 and Appendix A, "Compression and Archival Ratios," on page 139 for more information.

3.2.1: Protecting Event-related recordings

As the plettac Sentio server records from cameras and fills the disk space allocated to it, it eventually overwrites previous recordings. To avoid overwriting data that may be significant the system provides event stacks, which protect event-related recordings from being overwritten. These stacks represent an amount of disk space reserved for the most recent event-related recordings. As shown in Figure 3-2 a new event added to the stack of size ***n*** emerges after ***n+1*** subsequent events occur. A separate stack is provided for recordings triggered by the following event types:

- contact alarms
- suspicion alarms

Using the **Capacity** menu you can configure the stack size for each type of event. The size you specify has implications for the recording capacity of the system. For more information, see section 3.2.2: “Calculating recording capacity” on page 23.

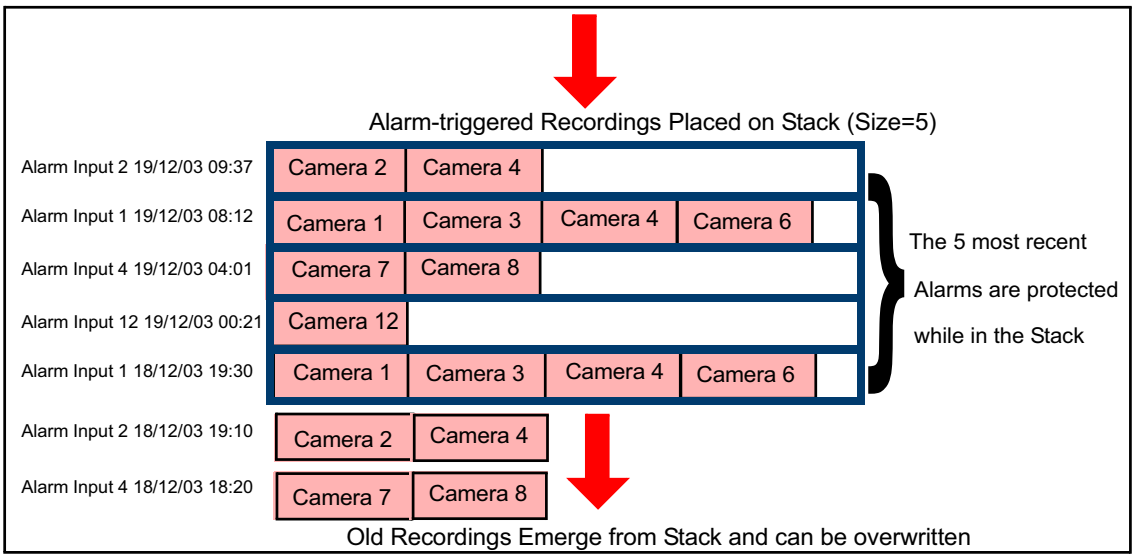


Figure 3-2: Alarms protected from overwrite while on the Alarm Stack

Using the Event Review utility, you can remove recordings from the protective stack. For more information see section 10.6.7: “Deleting Events from the plettac Sentio database” on page 102.

NOTE: If you configure a maximum retention period for recordings on your system, this takes precedence over the protection of the stack for any event-based recordings that exceed the retention period. For more information, see section 3.3: “Setting a Maximum Retention Period for Recordings” on page 25.

3.2.2: Calculating recording capacity

The Recording Capacity table of the **Capacity** menu serves more as a predictive indicator of disk usage rather than a snapshot of what is actually on disk at the moment.

When you open the **Capacity** menu initially, the Recording Capacity table shows each camera’s prospective disk usage (assuming its current configuration remains constant) under the following columns:.

Column	Description
Camera/Totals	Shows the number and name of each camera connected to the plettac Sentio server. At the bottom of this column are headings for the following totals: • subtotal of all cameras recordings • the contact alarms stack • the suspicious alarms stack • the total capacity of the system
Duration	The minimum recording time available to the camera. This represents the time it would take to replay all of the cameras recordings using playback. This is a very conservative estimate based on the constant occurrence of trigger events for all cameras configured for event-based recording. The actual amount of recording from this camera held on disk will most likely be greater, as in reality recording triggers do not occur 100% of the time. If a camera is configured to record **Never**, this cell of the table is left blank.
Space	The amount of disk space that the that the recording in the **Duration** column would consume. (The units adjust themselves automatically to the order of magnitude.)
% - Capacity	The percentage of the plettac Sentio server’s total allocation of disk space that the recording in the **Duration** column would consume.

Table 3.1: Columns of the Recording Capacity table

If you modify any aspects of camera configuration that would impact hard-disk usage (on the **Camera**, **Event**, **Schedule** or **Suspicious Alarm** menus), you can see these changes reflected in the columns of the Recording Capacity table before you press **OK** to commit them. In this way you can test how a changing a camera's ips rate or capture quality or switching to event-based recording can affect the number of days you have available to record.

3.2.2.1 Storage allocation for Event Stacks

The size you specify for each event stack is pre-allocated from the plettac Sentio server's total storage. The more storage allocated to event stacks, the less is available for all other recordings on the system. Figure 3-3 shows the effect increasing the event stacks has on available storage.

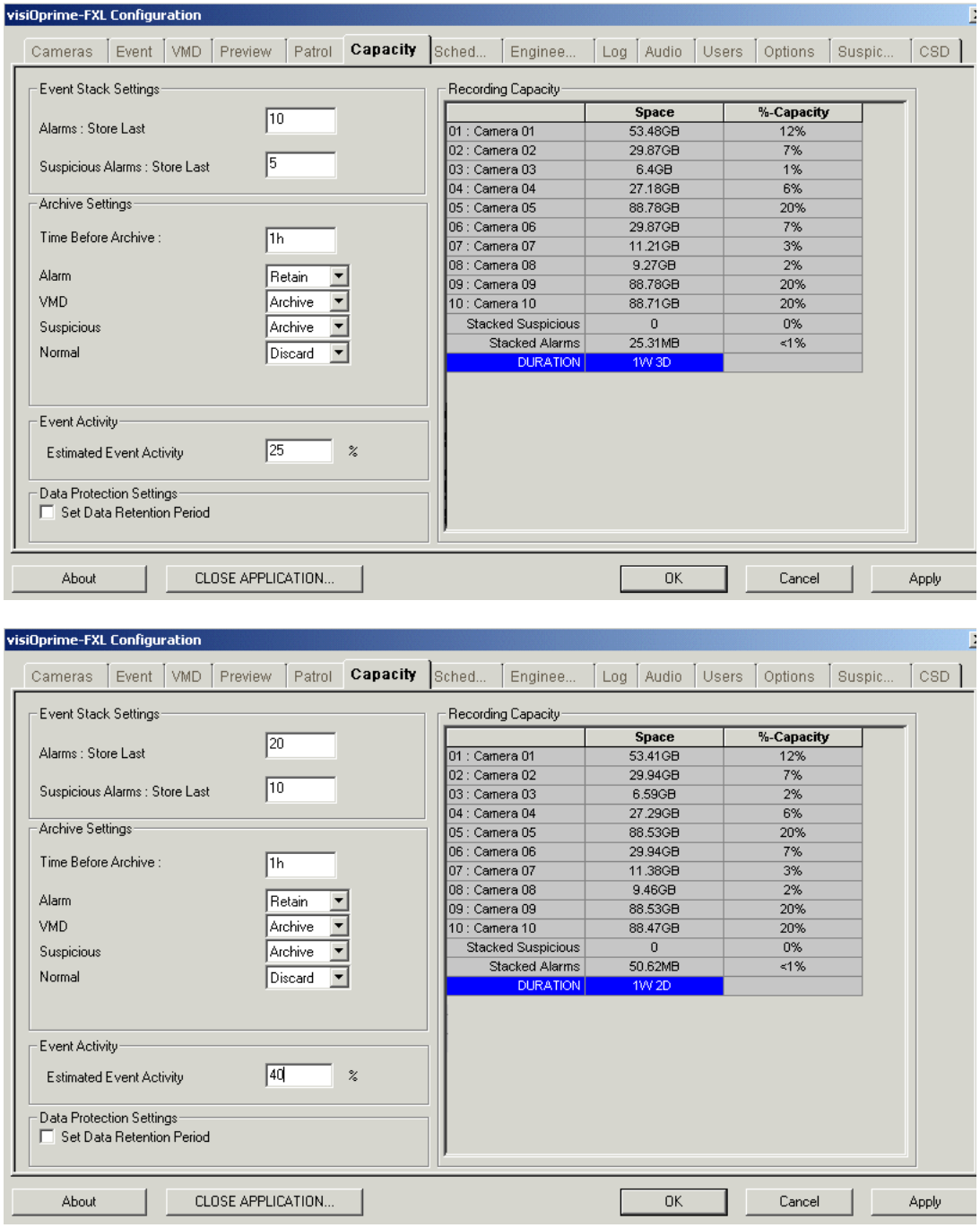


Figure 3-3: Effects of enlarging event stacks on system capacity

3.3: Setting a Maximum Retention Period for Recordings

In some countries, the length of time CCTV recordings can be stored on disk is limited by law. You can ensure that your system remains within the legal limits by imposing a maximum retention period. To set a maximum retention period, click the check box labelled **Set Data Retention Period**.

This enables a text-entry box in which you can specify the maximum period for which you can legally store recordings on your system. This period differs from country to country. After this period, recordings are automatically deleted.

If you specify a retention period of four days, all recordings are automatically deleted when they are older than four days, whether the server needs to overwrite them or not.

INFORMATION: This configuration overrides stack protection. Event-based recordings that are still in their protective stacks when they exceed the retention period are also deleted.

3.4: Allocating Storage for Recordings

Figure 3-4 shows the **Engineering** menu of the Configuration Console, which you can use to add or remove hard-disk storage for your system's recordings.

WARNING: Exercise great caution using the **Engineering** menu. Removing storage locations can make it impossible to playback previously recorded images.

The plettac Sentio server detects all of the machines local hard disks and lists them in the **Available Hard Disks** box. It lists the hard drives that are already allocated for recording in the **Hard Disks to Record** box.

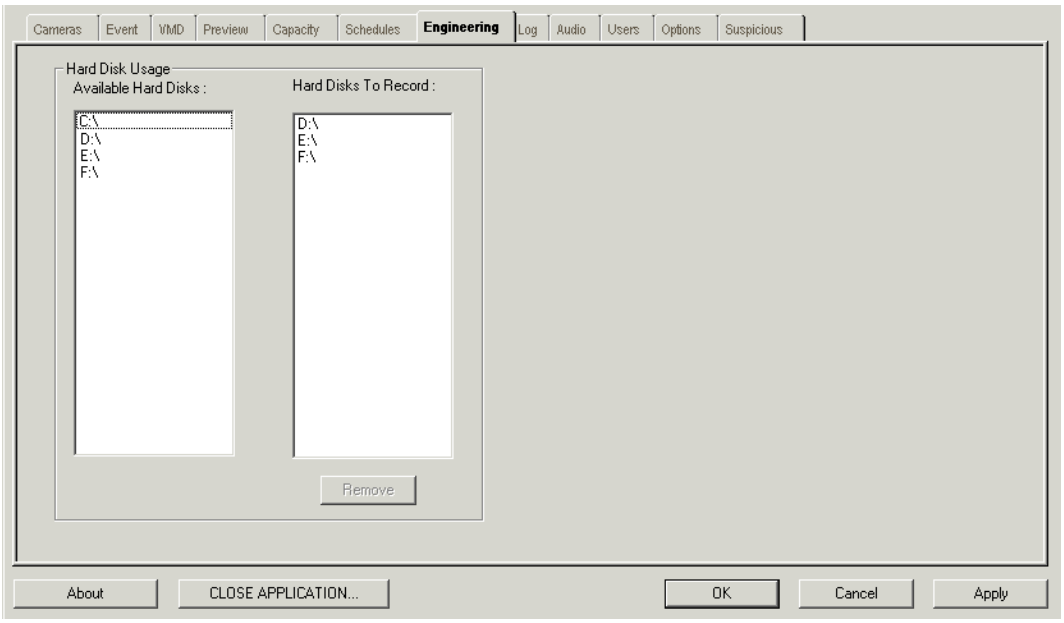


Figure 3-4: Adding and removing hard disks for storing recordings

You can monitor the effects of the disks you add and remove using the **Capacity** menu as described in *"Calculating recording capacity"* on page 23.

3.4.1: Allocating a hard disk for recording

To allocate a hard disk for storage of recordings, double click one or more entries in the **Available Hard Disks** box. This moves its entry to the **Disks to Record** box

WARNING: It is not advisable to allocate the C: drive for storage of video recording. Storing video data to the C: drive would adversely affect the system's performance.

3.4.2: Allocating a network drive for recording

In addition to the local disks on your system, you can allocate storage on networked devices for plettac Sentio recordings. To enable this, some configuration is required on both the plettac Sentio server and on the networked machine.

1. On a machine running Microsoft Windows in the same network as the plettac Sentio server, enable file sharing on a drive.
2. Exit the plettac Sentio Server application.
3. Map the shared drive on the remote machine to a drive name on the plettac Sentio server.
4. Add the **/NAS** run-time parameter to the properties of the plettac Sentio server. For additional information refer to Appendix G, "Run-Time Configuration," on page 159.
5. Restart the plettac Sentio Server application.
6. In the Configuration Console open the **Engineering** menu. The newly mapped drive is displayed in the **Available Hard Disks** box. You can now allocate the drive for recording as described in section 3.4.1:.

3.4.3: Removing a hard disk from allocated storage

To de-allocate a hard disk that has been allocated for recording, use the following steps:

1. Select the disk's entry in the **Disks to Record** box. The **Remove** button becomes active.
2. Click the **Remove** button. The following confirmation dialog is displayed

.

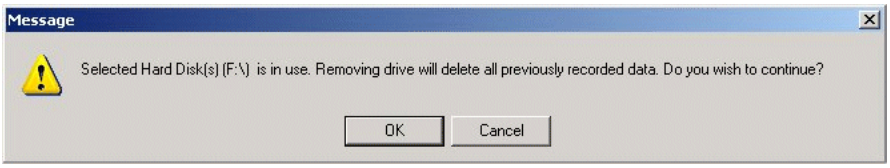


Figure 3-5: Storage disk removal confirmation

1. If you are sure you do not need any of the data on the disk, press **OK**.

NOTE: It is not possible to use the NetManager to remove hard disks from the server's allocated recording space.

Removing and re-allocating a hard disk provides a quick mechanism for clearing all recorded data from a disk.

CHAPTER 4: Analogue Camera Configuration

When your plettac Sentio is first installed, it has a default configuration that records images on all the available video input channels at all times. This includes standard settings for the frequency and quality of images recorded.

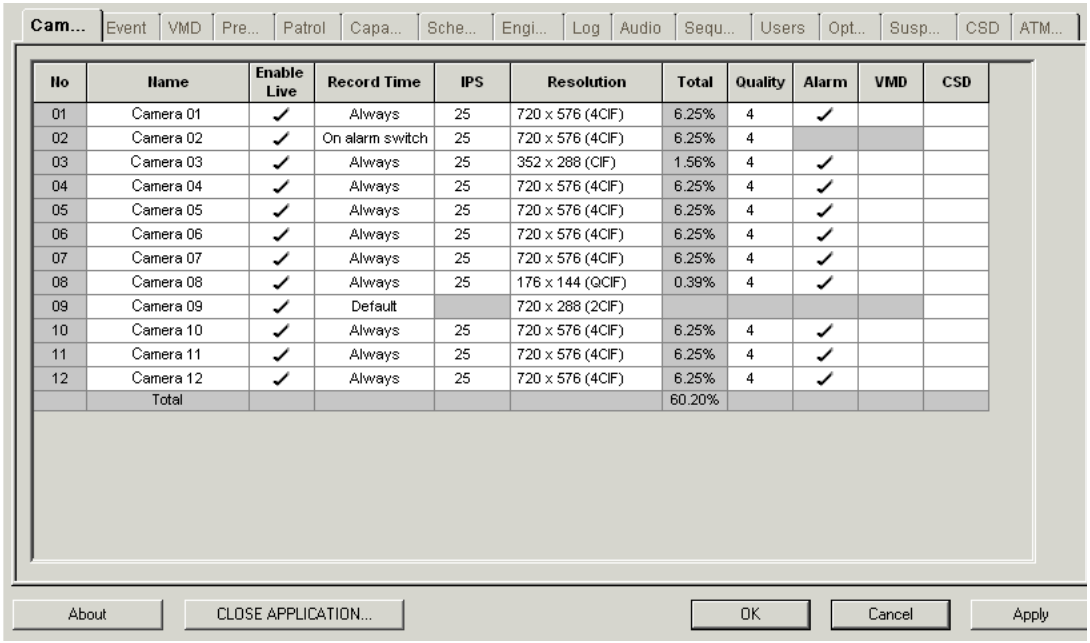
This chapter describes how to configure the basic camera recording functions of the plettac Sentio. It contains the following sections:

- The Cameras Tab
- Customising Camera Names
- Enabling or Disabling Live Mode Display
- Specifying when a Camera should Record
- Setting the Video Recording Rate
- Setting the Video Recording Quality
- Enabling Alarm Detection
- Enabling Video Motion Detection (VMD)
- Enabling Camera Sabotage Detection (CSD)
- Previewing Video Quality
- Configuring Audio Recording
- Enabling Alarm Switch Recording

4.1: The Cameras Tab

Using the **Cameras** tab of the Configuration Console, you can perform the following tasks for any of the cameras connected to your system:

- Customising Camera Names
- Enabling or Disabling Live Mode Display
- Specifying when a Camera should Record
  For example, you may want the camera(s) covering the lobby of your building to record constantly during normal business hours. However, outside business hours, you may want them to automatically switch to event-based recording.
- Setting the Video Recording Quality
- Enabling Alarm Detection
- Enabling Video Motion Detection (VMD)

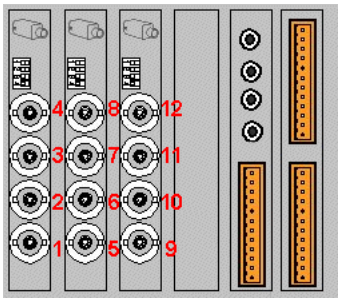


No	Name	Enable Live	Record Time	IPS	Resolution	Total	Quality	Alarm	VMD	CSD
01	Camera 01	✓	Always	25	720 x 576 (4CIF)	6.25%	4	✓		
02	Camera 02	✓	On alarm switch	25	720 x 576 (4CIF)	6.25%	4			
03	Camera 03	✓	Always	25	352 x 288 (CIF)	1.56%	4	✓		
04	Camera 04	✓	Always	25	720 x 576 (4CIF)	6.25%	4	✓		
05	Camera 05	✓	Always	25	720 x 576 (4CIF)	6.25%	4	✓		
06	Camera 06	✓	Always	25	720 x 576 (4CIF)	6.25%	4	✓		
07	Camera 07	✓	Always	25	720 x 576 (4CIF)	6.25%	4	✓		
08	Camera 08	✓	Always	25	176 x 144 (QCIF)	0.39%	4	✓		
09	Camera 09	✓	Default		720 x 288 (2CIF)					
10	Camera 10	✓	Always	25	720 x 576 (4CIF)	6.25%	4	✓		
11	Camera 11	✓	Always	25	720 x 576 (4CIF)	6.25%	4	✓		
12	Camera 12	✓	Always	25	720 x 576 (4CIF)	6.25%	4	✓		
	Total					60.20%				

Figure 4-1: Configuring camera operations

4.2: Customising Camera Names

In the plettac Sentio-FXL system, each video input to your server is numbered according to the BNC connector it occupies and the video-capture card to which it is connected. (Video-capture cards are numbered from left to right, and BNC connections from bottom to top, as you look at the rear of the unit.)



By default all the video inputs to your system are named in the format Camera <CameraNum>, where <CameraNum> corresponds with the input slot number. For example, in a system with 16 cameras installed, cameras are named Camera 01 through Camera 16 by default.

To customise these names for your own purposes (for example, to give cameras the names of areas under their surveillance) use the following steps:

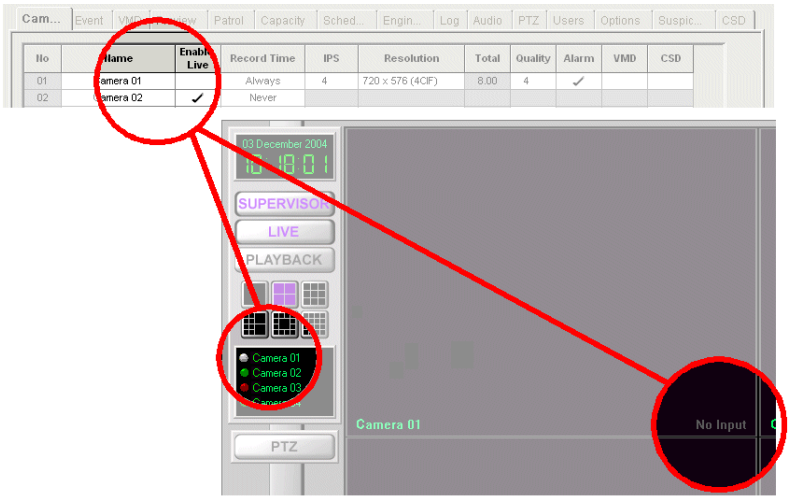
1. In the **Name** column of the **Cameras** tab, click on a camera name until a blinking cursor appears in the text.
2. Select the camera name and overtype it with a new name.
3. Use the mouse button, tab key or arrow key to move to another field (and make more changes)
1. Click the **OK** button at the bottom of the Configuration Console to commit all your changes
   The new names you have defined for the camera(s) appear in the camera list and camera views.

NOTE: Try to make your camera names distinguishable using the first 10 characters because some menus of the Configuration Console truncate them when the names are displayed.

4.3: Enabling or Disabling Live Mode Display

By default all the cameras connected to your system are enabled for automatic display in Live mode.

If you want to remove a camera view from Live mode, click on the **Enable Live** toggle field until the check symbol (✓) disappears. When you next commit your changes, the message **No Input** appears in the camera view of the disabled camera in Live mode.



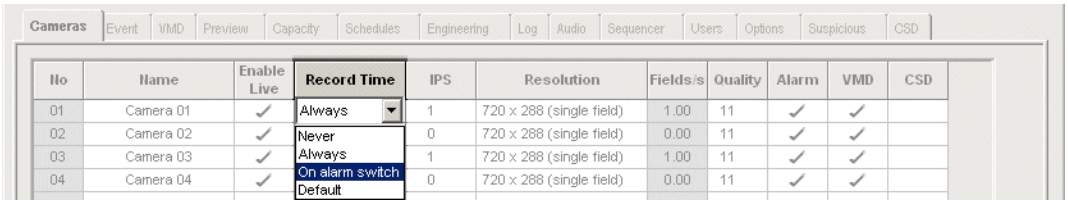
NOTE: Disabling Live-mode display has no effect on recordings from the same camera.

4.3.1: Why disable Live Mode video display?

On plettac Sentio systems without Live-mode enhancement hardware, live display update is managed exclusively by the system's software. This can affect the update rate of live displays and the overall performance of the system. This is especially true when remote connections are made and on plettac Sentio-E or plettac Sentio-EX systems in general. Disabling Live display can, therefore, enhance system performance by not displaying any unnecessary live images.

4.4: Specifying when a Camera should Record

Click in the **Record Time** column of the **Cameras** tab, to specify when a camera should record. Select one of the following options from the drop-down list:



Option	Effect
Always	Specifies that the input from the camera should be recorded constantly. This is the initial setting for all cameras. All the other columns to the right of **Record Time** are active when **Always** is selected.
Never	Specifies that the input from the camera should never be recorded. All the columns to the right of **Record Time** are disabled when **Never** is selected. If you specify this value on the plettac Sentio system, it also disables live display from that camera.
On alarm switch	Specifies that the plettac Sentio server should record from the camera only when it receives a signal from a special button connected to the systems alarm input ports. The Alarm and VMD columns are disabled when **On alarm switch** is selected. For more information, see section 4.12: "Enabling Alarm Switch Recording" on page 34.

Option	Effect
Default or <Schedule>	Specifies that input from the camera should be recorded according to the selected schedule. A schedule is set of recording characteristics that you can apply to cameras to vary their recording characteristics at different times of the day or days of the week. An empty schedule called Default is provided with the plettac Sentio installation. You can customise Default or create other Schedules using the **Schedules** tab of the Configuration Console. See section 7.1: "Defining Recording Schedules" on page 61 for more information. When a **Schedule** is selected, all the columns to the right of **Record Time** are disabled.

Table 4.1: Options of the Record Time drop-down list

4.5: Setting the Video Recording Rate

If you have specified either **Always** or **On alarm switch** in the **Record Time** column of the **Cameras** tab, the **IPS** field becomes active. IPS stands for Images Per Second, and specifies the rate at which images captured from each camera are recorded to disk.

To modify the recording rate, click in the camera's **ips** field and use the spinner arrows on the right hand side to either increase or decrease the recording rate.

With the plettac Sentio-FXL system you can record up to 50 ips across all cameras attached to your system. You can record at up to 25 ips from an individual camera but you must configure your recordings from other cameras within the system maximum.

The Total column shows the percentage of the capture rate that the settings of each camera utilise. The sum at the bottom of the column may show a value greater than 100 percent, but if you click OK or Apply, a warning message, similar to that shown in Figure 4-2, is displayed.

If the warning message includes the text "Reduce in interval on Monday at 00:01", it indicates that you do not have any schedules defined and that you need only adjust the settings on the Camera tab or Event tab. If you have defined any Schedules, the warning message will indicate the interval where the maximum is first exceeded. (For further information about schedules, refer to Chapter 7 on page 61.)

NOTE: The figures in the Total column are calculated using the values on the Cameras tab only. If the sum displays a value less than 100 percent, you may still receive a warning message because when OK or Apply is clicked, the system checks to see if any Event IPS rate might make the total exceed the maximum.

To minimise disk space usage, set a low or zero ips rate for constant recording (Always) and use event-based recording to trigger a higher ips rate when an event occurs. However, the system calculates the maximum potential ips that the combined event-based settings require and if they exceed the system's maximum, displays the same warning. See Appendix A, "Compression and Archival Ratios," on page 139 for more information.

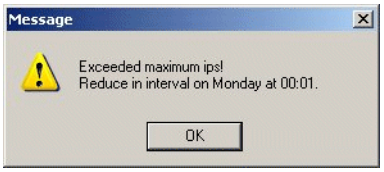


Figure 4-2: ips exceeded warning message

If the message in Figure 4-2 appears, press OK and review the last configuration change you made (in the Camera, Event or Schedules tabs). If the increased recording rate for that camera is essential, you must reduce the ips used by other cameras to keep within the system's maximum recording rate.

4.6: Setting the Video Recording Quality

If you have specified **Always** or **On alarm switch** in the **Record Time** column of the **Cameras** tab, the **Quality** field also becomes active.

To set the quality at which you wish to record from a camera, click in the **Quality** field and use the spinner arrows on the right hand side to select a quality setting from 1 to 11 (where 1 represents the highest quality and 11 the lowest.)

Quality 5 is approximately equivalent to SVHS quality. The default quality setting for each camera is 4.

The lower the value you specify, the higher the quality of the images recorded by the camera and the more disk space they require. You can save on disk space by setting a high value (lower quality) for the quality of constant recording and use event-based recording to record at a higher quality when an event occurs. See section 6.5: “Configuring Event Based-Recording” on page 54 for more information.

NOTE: If you want to compare different settings of recording quality, use the **Preview** feature described in section 4.10: “Previewing Video Quality” on page 32.

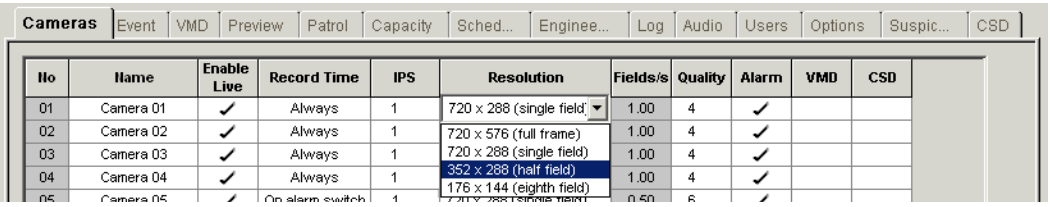
4.6.1: Image capture format

The plettac Sentio server software can capture images at the common intermediate format (CIF) resolutions shown in Table 4.2. The resolution refers to the dimensions of the retained image in pixels and indicates the amount of information stored for a particular CIF.

Format	Field	Resolution (PAL)	Resolution (NTSC)
4CIte	Full frame (interlaced)	720 x 576	720 x 480
2CIF	Single field	720 x 288	720 x 240
CIF	Half field	352 x 288	352 x 240
QCIF	Eighth field	176 x 144	176 x 120

Table 4.2: Standard CIF resolutions

To change the CIF setting for a camera, click on the **Resolution** column of the Cameras tab and select the required setting from the drop-down menu.



NOTE: The CIF resolution selected during camera configuration will automatically adjust the estimated storage capacity requirements displayed on the **Capacity** tab. The higher the resolution, the greater the storage requirements and the fewer number of days that can be recorded on any given hard disk drive.

4.6.2: Performance adjustments

Depending on the video capture cards installed in your plettac Sentio server, there are some performance adjustments that are made when combining certain **IPS**, **Quality** and **Resolution** values.

For plettac Sentio-FX and -FXL systems, the alterations differ depending on the video capture card installed.

For plettac Sentio systems with MR-XXXX video capture cards, the maximum IPS is restricted to the equivalent of 50 2CIF fields.

For plettac Sentio systems with PRO4000 video capture cards, the maximum IPS for remaining cameras is reduced by the number of IPS multiplied by the number of cameras set to 4CIF. This is illustrated in the table below..

Cameras set to 4CIF	IPS Rate	Maximum IPS Rate for Remaining Cameras
1	1	24

Cameras set to 4CIF	IPS Rate	Maximum IPS Rate for Remaining Cameras
2	2	21
2	3	19

4.7: Enabling Alarm Detection

The plettac Sentio server can accept input from external alarm systems via ports at the rear of the unit. You can associate an alarm event with a particular camera so that the frame of its camera view turns red whenever the alarm occurs. Examples of alarm events could be the opening of a door, the raising of a car-park barrier or the operation of a turnstile.

To enable Alarm detection for a camera click the **Alarm** field, until a check symbol appears. This enables the system to receive alarm signals that are associated with the camera view. Further configuration is required on the **Event** tab of the Configuration Console.

To reduce the amount of data recorded on disk, you can configure the plettac Sentio server to record from certain cameras only when alarm events occur. See section 6.4: “Associating Alarms with Cameras” on page 49 for more information.

4.8: Enabling Video Motion Detection (VMD)

To enable Video Motion Detection (VMD) for a camera click the **VMD** field, until a check symbol appears. This enables the system to detect movement in the objects within a camera view.

Further configuration is required on the **VMD** tab of the Configuration Console. See section 6.3: “Configuring VMD for a Camera” on page 45 for more information.

To reduce the amount of data recorded on disk, you can configure the plettac Sentio server to record from certain cameras only when VMD events occur. See section 6.2: “Basic VMD Configuration” on page 44 for more information.

4.9: Enabling Camera Sabotage Detection (CSD)

To enable Camera Sabotage Detection (CSD) for a camera, click the CSD field until a check symbol (☐) appears. This enables the system to detect whether a camera has been moved, defocussed or obscured. For further information, see section 12.4: “Camera Sabotage Detection (CSD)” on page 125.

4.10: Previewing Video Quality

To familiarise yourself with the various video-quality settings available on the plettac Sentio server, use the **Preview** tab of the Configuration Console. Use the following procedure:

1. On the **Preview** tab, select the button for the camera name you wish to preview.
2. In the **Compression Quality** field, use the spinner arrows to select the video quality you want to preview.
3. Use the **Image Adjustment** controls to modify the brightness, contrast and saturation of the displayed image.

4. Click the **Preview Recording** button. This opens a new window in which you see live images from the selected camera view displayed at the selected quality as shown in Figure 4-3.

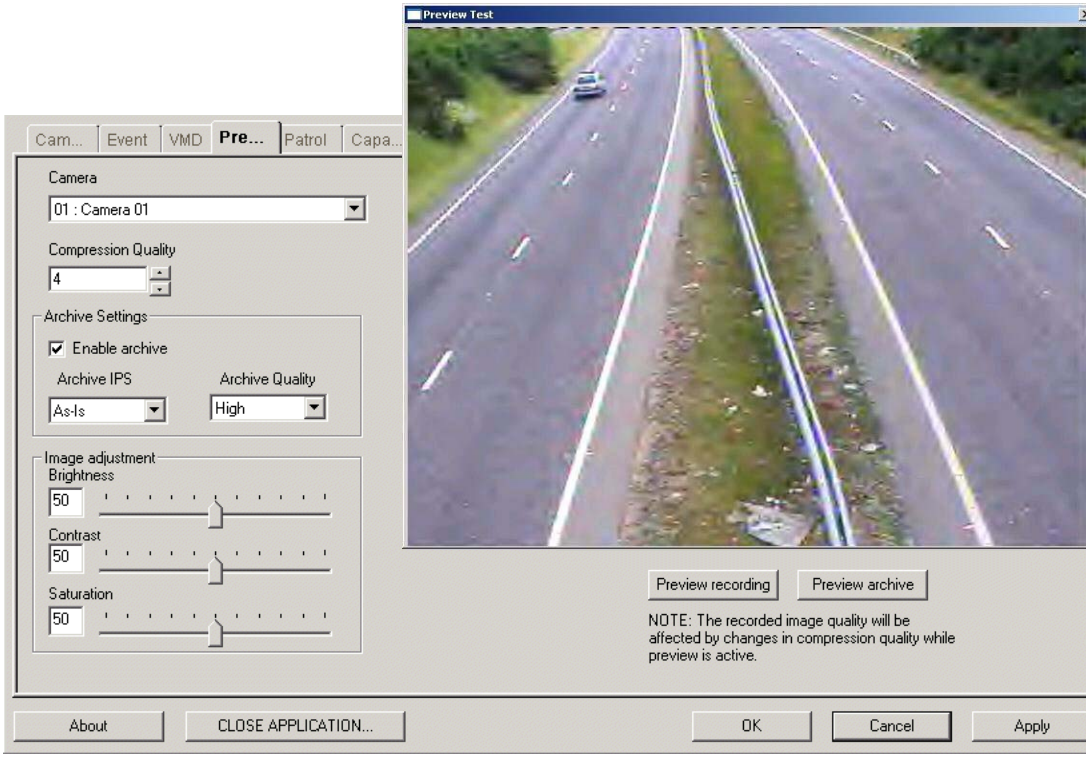


Figure 4-3: Previewing image-quality settings

5. To stop the preview, click the ☐ in the top right hand corner of the Preview Test window.

For information about the **Archive Settings** controls, refer to section 12.8: “Dynamic Re-Archiving” on page 133.

4.11: Configuring Audio Recording

Without the Multi-Channel Audio product option described in section 12.2:, the plettac Sentio-FXL supports one channel of audio input connected directly to the system’s motherboard. Using the **Audio** tab of the Configuration Console, you can associate this audio input with one of the cameras attached to your system.

When the system starts up, it detects the number of audio and video input channels. When you open the **Audio** tab of the Configuration Console, the number of each audio input channel is listed in the **Audio Channel** column, as shown in Figure 4-4.

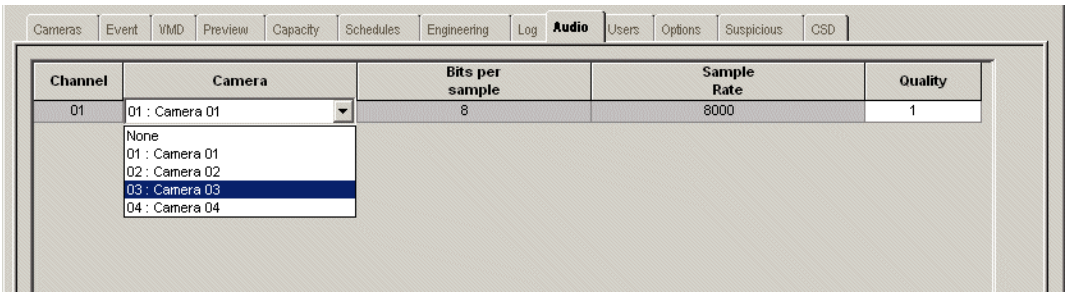


Figure 4-4: Associating a single audio channel with a video input

NOTE: If you have purchased the Multi-Channel Audio product option, you can have up to 1 audio input channels to associate with your cameras. For more information, see section 12.2: “Multi-Channel Audio” on page 123.

4.11.1: Associating audio input with a Camera

Without the Multi-Channel Audio product option, the plettac Sentio-FXL has only one audio input channel. Therefore, you must decide with which camera’s input you want to associate the audio input. The plettac Sentio

server timestamps both the audio and video data it records from that camera so that sound and motion are synchronized in Playback mode even if video is recorded at a low ips rate.

To associate an audio channel with a video channel click in the **Camera** field next to the audio channel and select the appropriate camera from the drop-down list. Once the audio channel is associated with one camera, it is no longer available in the drop-down list for others.

4.11.2: Specifying the audio recording quality

By default, the plettac Sentio server samples audio input at 64 kilobits per second (8-bit samples at 8000 Hz). This provides sound quality equivalent to that of an ISDN Telephone and is represented by the value 1 in the **Quality** field on the **Audio** tab.

To save on disk space, click in the **Quality** field and use the spinner arrows to set the value to 2, which represents an audio sampling rate of 13 Kb per second as it is compressed using the GSM codec. This provides sound quality equivalent to that of a mobile telephone.

For information about managing audio input in Live mode and in Playback mode, see Chapter 9 “Live Mode Operations” on page 77 and Chapter 10 “Playback Mode Operations” on page 89.

4.12: Enabling Alarm Switch Recording

With a special switch connected to the alarm input port of the plettac Sentio server, you can configure a camera to record only when this switch is activated. A purpose-built toggle switch is available for this purpose.

Press the switch once to begin recording. A red light indicates that the switch is in the record position.

To stop recording from the camera press the switch again. The light goes out.

Figure 4-5 shows how to enable alarm switch recording for a camera using the **Record Time** field of the **Cameras** tab.

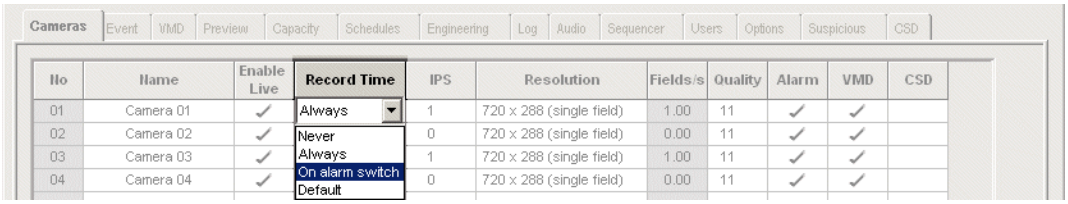


Figure 4-5: Enabling On Alarm Switch recording for a camera

CHAPTER 5: IP Camera Configuration

When installed on a network, your plettac Sentio-FXL can control and configure any IP camera also connected to the same network. This includes configuring standard settings for the frequency and quality of images recorded.

To enable the IP camera functionality, add the **/IPCamera** run-time parameter to the properties of the plettac Sentio server. For additional information about adding run-time parametners, refer to Appendix G, “Run-Time Configuration,” on page 159.

WARNING: If you have to re-start your plettac Sentio server at any time and do not have the /IPCamera in the command line, all previous IP camera configuration information will be lost.

A plettac Sentio-FXL server can support up to 16 IP cameras.

This chapter describes how to configure the IP camera recording functions of the plettac Sentio-FXL. It contains the following sections:

- The IP Cameras Tab
- Adding IP Cameras
- Customising IP Camera Names
- Removing IP Camera Names
- Enabling or Disabling Live Mode Display
- Setting the Video Recording Quality
- Previewing Video Quality
- Specifying when a Camera should Record
- Setting the video recording rate
- Enabling Alarm Detection
- Enabling Video Motion Detection (VMD)
- Enabling Camera Sabotage Detection (CSD)
- Enabling Alarm Switch Recording

NOTE: It is strongly recommended that you do not attempt to attach an IP camera to more than one plettac Sentio server. While it is possible to connect an IP camera in this way, the IP camera would be unable to send images to each server at its full ips.

5.1: The IP Cameras Tab

Using the **IP Cameras** tab of the Configuration Console, you can perform the following tasks for any of the IP cameras connected to your system:

- Customising IP Camera Names
- Enabling or Disabling Live Mode Display
- Specifying when a Camera should Record

  For example, you may want the camera(s) covering the lobby of your building to

record constantly during normal business hours. However, outside business hours, you may want them to automatically switch to event-based recording.

- Setting the Video Recording Quality
- Enabling Alarm Detection
- Enabling Video Motion Detection (VMD)

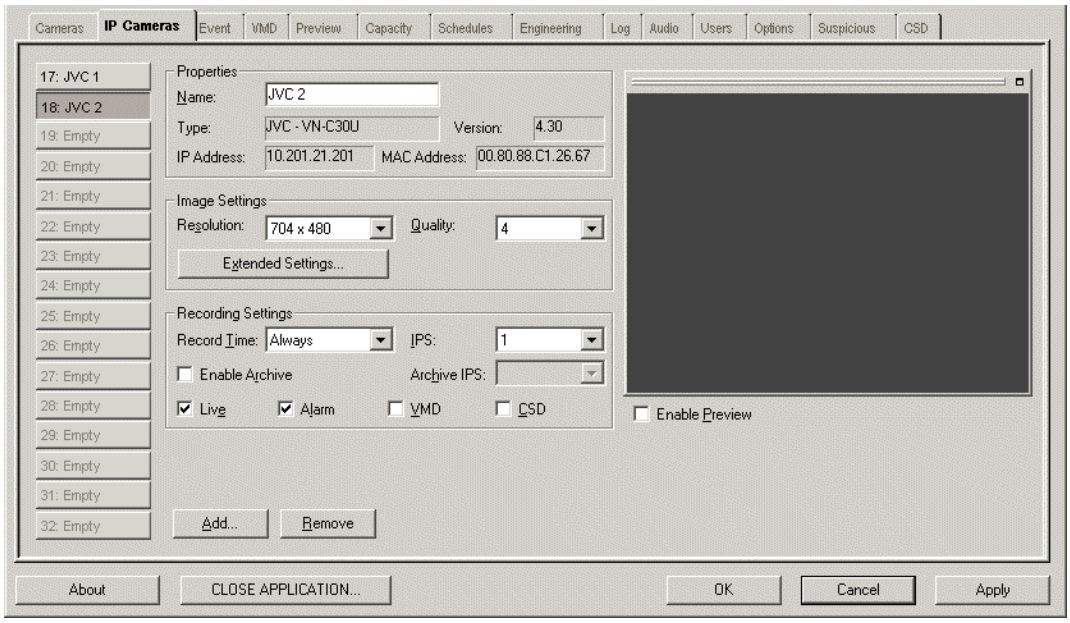


Figure 5-1: An example IP Cameras tab of the Configuring console

You must click either **OK** or **Apply** to retain the information about the added cameras or save any changes to the settings of an IP camera.

5.2: Adding IP Cameras

To add an IP camera to your plettac Sentio server click the **Add** button on the IP Cameras tab to open the IP Camera Setup dialog box illustrated in Figure 5-2.

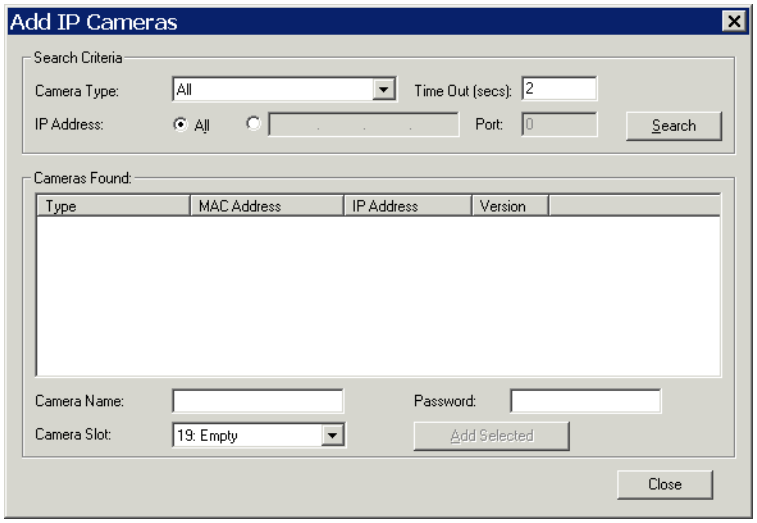


Figure 5-2: The Add IP Camera dialog box

If known, select the brand of camera from the **Camera Type** drop-down menu.

If you choose **All** from the Camera Type selections, you must also select All for the **IP Address**.

If you select a particular type of camera, you may search for information about that camera either at a specific IP Address or All IP addresses.

NOTE: If you enter a specific IP Address you must select a specific type of camera.

To locate any IP cameras, the plettac Sentio server polls the network and records the information about any cameras that respond to the message. The value entered in the **Time Out** field is the length of time that the server will wait for a response from a camera.

NOTE: Some brands of camera, for example Panasonic, do not respond to polls. A Panasonic camera broadcasts an identifying packet every 10 seconds for the first 20 minutes after it has been switched on. After this 20 minute period, you can connect to the camera if you know its IP address, otherwise the camera must be restarted.

When any IP cameras are located on the network, the details for each are displayed in the **Cameras Found** panel. This is illustrated in Figure 5-3

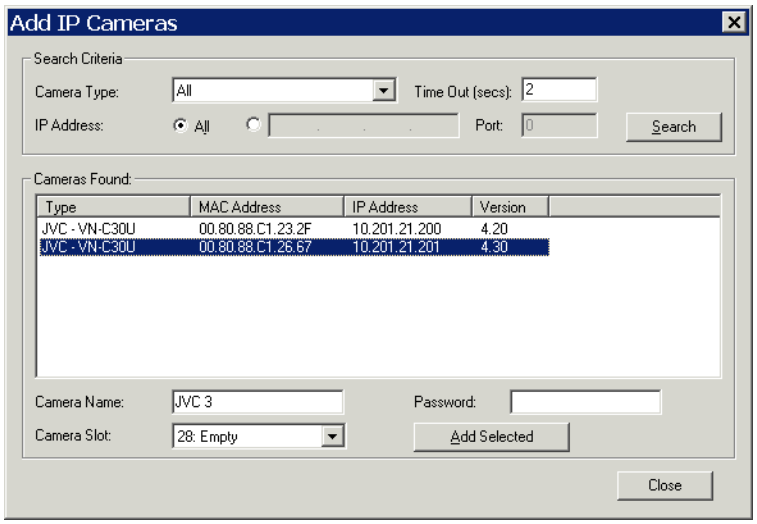


Figure 5-3: Example results of a search for IP cameras on the network

Select a camera and enter a name for it in the **Camera Name** field. If required, you can also enter a password to increase security when communicating with the camera.

Click the **Add Selected** button and the camera will be assigned to the next available IP camera slot on the system or you can select a slot from the drop-down list. A message will be displayed indicated whether the camera was successfully added.

When you have finished naming the cameras being added to the plettac Sentio server, click the **Close** button on the Add IP Camera dialog box.

Any IP cameras added to the server automatically appear on the following tabs of the Configuration Console and can be treated in the same way as any other camera:

- Event
  - the only restriction with Event recording is that an IP camera cannot be associated with an IP alarm, but can be associated with alarms connected directly to the server.
- VMD
- Patrol
- Capacity
- Suspicious

5.2.1: Customising IP Camera Names

The numbering of the default input locations for IP cameras depends on the number of video capture cards installed in the plettac Sentio server. For example, if you have an 8-channel system (two capture cards) the IP camera slots are numbered 9 to 24. These slots are shown as buttons on the IP Cameras tab. As IP cameras are added to a server, each camera is assigned to the next available input. The name entered when the camera was added appears on the appropriate button.

If necessary, you can change the name of a camera:

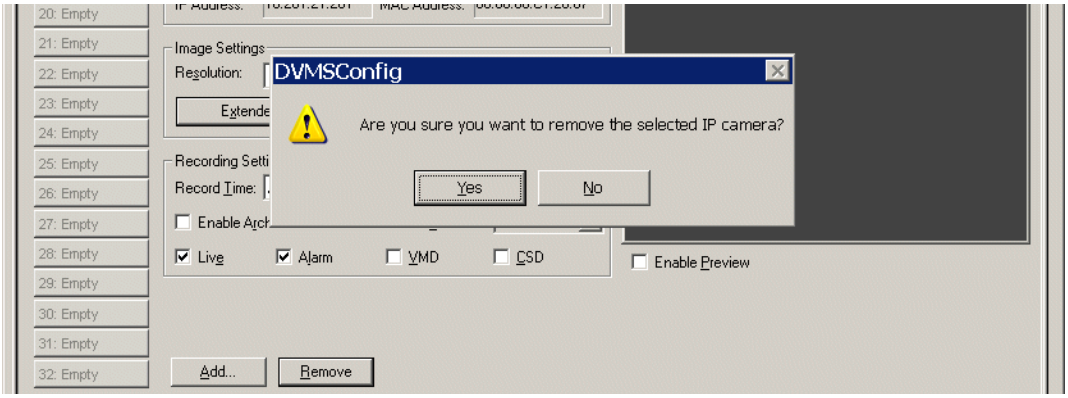
1. Select the camera by clicking the appropriate button
2. Enter a new name in the **Name** field of the **IP Camera Properties** panel.

NOTE: Try to make your camera names distinguishable using the first 10 characters because some

menus of the Configuration Console truncate them when the names are displayed.

5.2.2: Removing IP Camera Names

To remove an IP camera, select a particular camera button and click on the **Remove** button. You will be asked to confirm that you want to remove the camera. The button on Configuration console for the camera is disabled and the name changed to “Empty”.



NOTE: After removal, an IP camera continues to record until you click **OK** or **Apply** on the Configuration console.

5.3: Enabling or Disabling Live Mode Display

By default all the cameras connected to your system are enabled for automatic display in Live mode.

If you want to remove a camera view from Live mode, click on the **Live** check box to remove the check symbol (✓). When you next commit your changes, the message **No Input** appears in the camera view of the disabled camera in Live mode.

NOTE: Disabling Live mode display has no effect on recordings from the same camera.

5.3.1: Why disable Live Mode video display?

Images from IP cameras are compressed by the camera before being sent to the network. To display these live images, they must first be decompressed by the server which increases the CPU loading. Disabling the Live mode will increase system performance, especially if there are a large number of IP cameras connected to the server.

5.4: Setting the Video Recording Quality

Both the resolution and the selected quality level affect the size and appearance of recorded images.

In the **Image Settings** panel, the options in the **Resolution** drop-down menu are specific to a type of camera.

NOTE: Some IP cameras limit the number of ips that can be selected depending on the resolution chosen.
For example, JVC cameras can only be set to a maximum of 3 ips at the 704x480 resolution.

To set the quality at which you wish to record from a camera, click in the **Quality** field and select a quality setting from 1 to 11 (where 1 represents the highest quality and 11 the lowest.)

Quality 5 is approximately equivalent to SVHS quality. The default quality setting for an IP camera is 4.

NOTE: The image received from an IP camera is used for both recording and preview. If you change an IP camera’s quality from the Configuration console, this will immediately be reflected in the recording.

The lower the value you specify, the higher the quality of the images recorded by the camera and the more disk space they require. You can save on disk space by setting a high value (lower quality) for the quality of constant recording and use event-based recording to record at a higher quality when an event occurs. See section 6.5: “Configuring Event Based-Recording” on page 54 for more information.

NOTE: If you want to compare different settings of camera resolution and recording quality, use the **Preview** feature described in section 5.5: “Previewing Video Quality” on page 39.

The **Extended Settings** button accesses any special features of a particular brand and model of camera. An example is shown below.

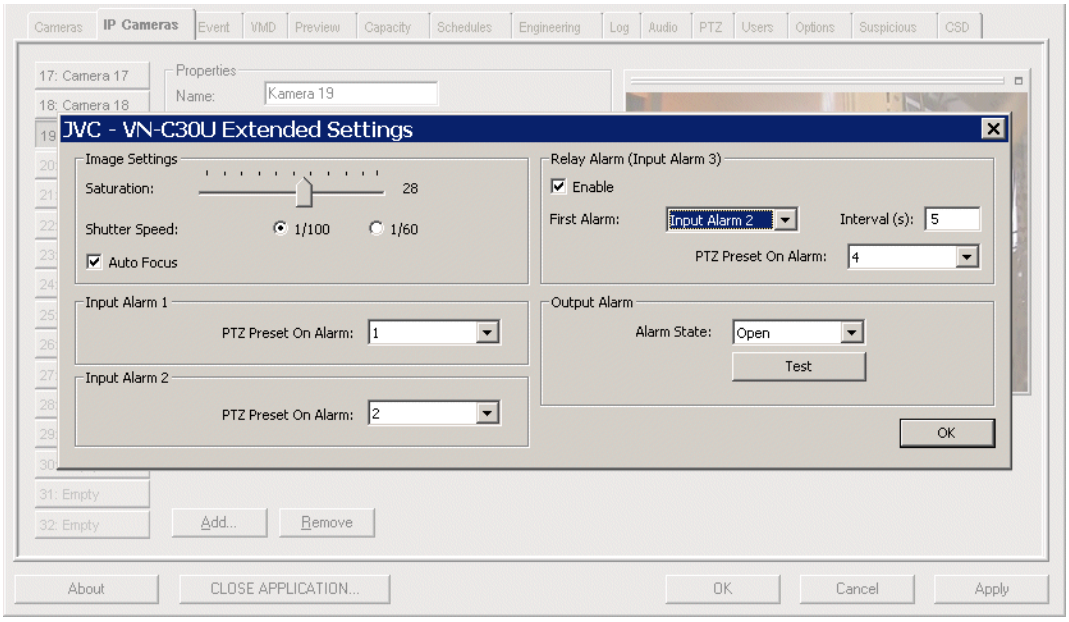


Figure 5-4: An example of an IP camera’s Extended Settings dailog

Details of the IP cameras supported by your plettac Sentio server are given in Appendix I, “Supported IP Cameras,” on page 165.

NOTE: When you enable the Auto Focus feature for any IP camera on your network, if it is also a PTZ camera, the focussing button on the PTZ control panel will be disabled. For further information, refer to section 9.5.2: “PTZ control in Live Mode” on page 81.

5.5: Previewing Video Quality

The IP Cameras tab of the plettac Configuration Console can display a **Preview** of the image from a particular camera. An example is shown in Figure 5-5.

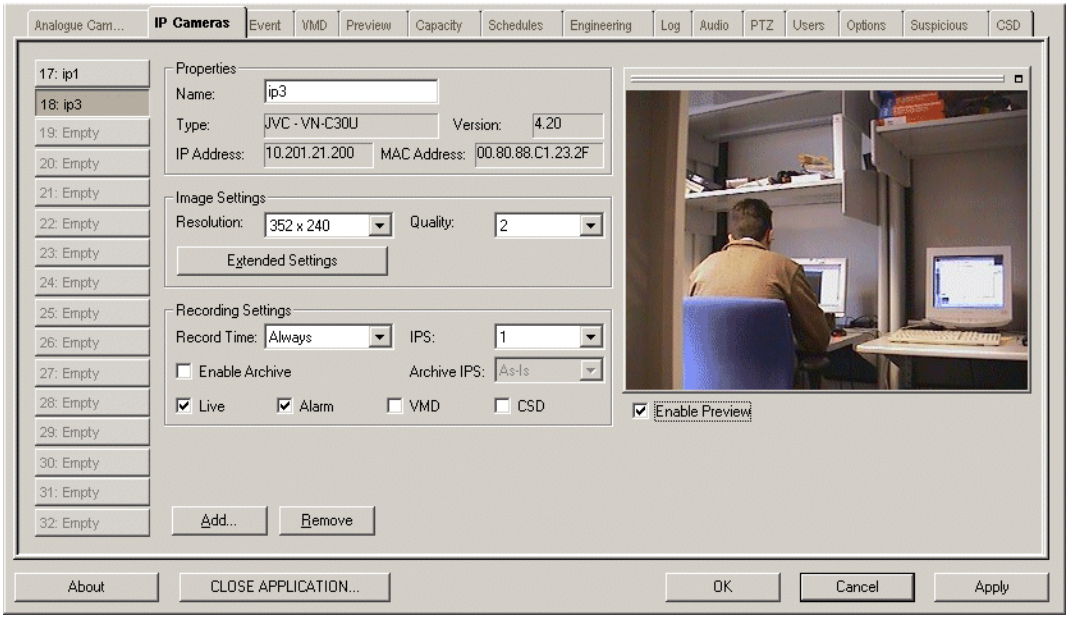


Figure 5-5: An example of an enabled Preview for an IP camera

To familiarise yourself with the various video-quality settings available you can view the Preview at its actual size as determined by the Resolution setting selected. Click the icon in the top right-hand corner of the cam-

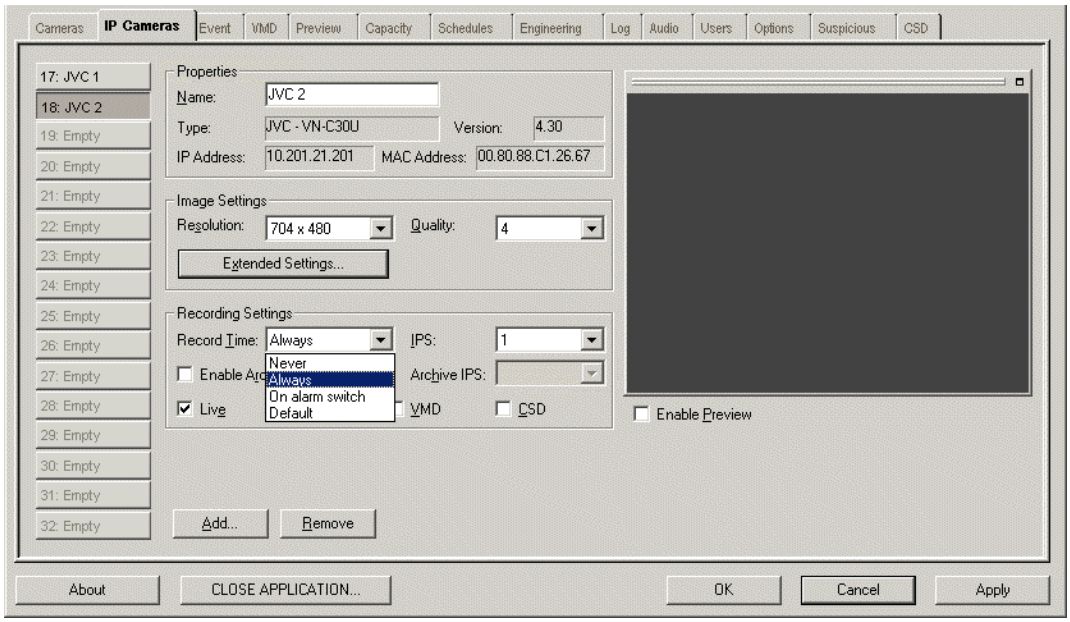
era view display on the IP Cameras tab. An illustration of the views for the three resolutions available on a particular JVC IP camera are shown in Figure 5-6. To close this camera view display, click the ❹ in the top right hand corner of the Preview window.

Figure 5-6: Previews of three resolutions for an IP camera. (Left: 176x112 Centre:352x240 Right: 704x480)

NOTE: The image received from an IP camera is used for both recording and preview. If you change an IP camera's resolution from the Configuration console, this will immediately be reflected in the recording.

5.6: Specifying when a Camera should Record

Click the **Record Time** field in the **Recording Settings** panel on the IP Cameras tab and select an option from the drop-down list, as illustrated below.



For an explanation of the Record Time options see Table 4.1, *"Options of the Record Time drop-down list,"* on page 30.

5.6.1: Setting the video recording rate

If you have specified either **Always** or **On alarm switch** in the **Record Time** field, you can also specify the **IPS** rate. IPS stands for Images Per Second, and specifies the rate at which images captured from each camera are recorded to disk.

To modify the recording rate, click in the **IPS** field of the IP Cameras tab and select from the available options in the drop-down list to set the recording rate.

The number of images per second that can be captured by an IP camera is not affected by the limitations of the direct analogue connections to a plettac server. The only limitations are from the processing power of the plettac Sentio server and the available bandwidth of the network to which it is connected.

If the warning message includes the text “Reduce in interval on Monday at 00:01”, it indicates that you do not have any schedules defined and that you need only adjust the settings on the **Camera** tab or **Event** tab. If you have defined any **Schedules**, the warning message will indicate the interval where the maximum is first exceeded. (For further information about schedules, refer to Chapter 6 on page 43.)

To minimise disk space usage, set a low or zero ips rate for constant recording (Always) and use event-based recording to trigger a higher ips rate when an event occurs. However, the system calculates the maximum potential ips that the combined event-based settings require and if they exceed the system’s maximum, displays the same warning. See Appendix A, “Compression and Archival Ratios,” on page 139 for more information.

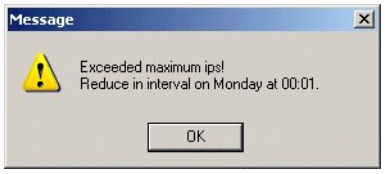


Figure 5-7: ips exceeded warning message

If the message in Figure 5-7 appears, press OK and review the last configuration change you made (in the Camera, IP Camera, Event or Schedules tabs). If the increased recording rate for that camera is essential, you must reduce the ips used by other cameras to keep within the system’s maximum recording rate.

5.6.2: Enabling Alarm Detection

The plettac Sentio server can accept input from external alarm systems via ports at the rear of the unit. You can associate an alarm event with a particular IP camera so that the frame of its camera view turns red whenever the alarm occurs. Examples of alarm events could be the opening of a door, the raising of a car-park barrier or the operation of a turnstile.

To enable Alarm detection for an IP camera click the **Alarm** check box. This enables the system to receive alarm signals that are associated with the camera view. Further configuration is required on the **Event** tab of the Configuration Console.

To reduce the amount of data recorded on disk, you can configure the plettac server to record from certain cameras only when alarm events occur. See section 6.4: “Associating Alarms with Cameras” on page 49 for more information.

5.6.3: Enabling Video Motion Detection (VMD)

To enable Video Motion Detection (VMD) for a camera select the **VMD** check box. This enables the system to detect movement of objects within a camera view.

Further configuration is required on the **VMD** tab of the Configuration Console. See section 6.3: “Configuring VMD for a Camera” on page 45 for more information.

To reduce the amount of data recorded on disk, you can configure the plettac Sentio server to record from certain cameras only when VMD events occur. See section 6.2: “Basic VMD Configuration” on page 44 for more information.

5.6.4: Enabling Camera Sabotage Detection (CSD)

To enable Camera Sabotage Detection (CSD) for an IP camera, select the **CSD** check box. This enables the system to detect whether a camera has been moved, defocussed or obscured. For further information, see section 12.4: “Camera Sabotage Detection (CSD)” on page 125.

5.6.5: Enabling Archiving of recorded images

To enable archiving of your recorded data, select the **Enable Archive** check box. When this check box is selected, the Archive IPS field is enabled and you can enter a value for the IPS rate to be applied to the archived recordings from the selected IP camera.

5.7: Enabling Alarm Switch Recording

With a special switch connected to the alarm input port of the plettac Sentio server, you can configure an IP camera to record only when this switch is activated. A purpose-built toggle switch is available for this purpose.

Press the switch once to begin recording. A red light indicates that the switch is in the record position.

To stop recording from the IP camera press the switch again. The light goes out.

CHAPTER 6: Event-Based Recording

The VMD and Alarms features of plettac Sentio-FXL enable you to configure the system to record only when an event occurs or to increase the frequency or quality of recording when an event occurs. This can reduce further the amount of data you need to store on disk and enable you to quickly identify significant occurrences in Live mode display and in Playback mode.

This chapter describes how to configure the plettac Sentio-FXL so that it records from cameras when specific events occur. It contains the following sections:

- plettac System Events
- Associating Alarms with Cameras
- Configuring VMD for a Camera
- Associating Alarms with Cameras
- Configuring Event Based-Recording
- Configuring the Suspicious Alarm
- Configuring Dial-Up on Alarm
- Configuring Acknowledgements to Stop Recording

6.1: plettac System Events

You can configure the plettac Sentio server to recognise certain types of occurrence and take special actions when these ***Events*** occur. By associating an event with a particular camera you can configure the plettac Sentio server to perform the following functions:

- modify its recording behaviour whenever the Event occurs
- automatically dial-up NetManager clients whenever an alarm Event occurs
- write an entry for that Event in the system's Event log (see Chapter 8 on page 65)
- highlight each occurrence of the Event in Live Mode (see Chapter 9 on page 77)
- highlight each occurrence of the Event in Playback Mode (see Chapter 10 on page 89)

This chapter is concerned with the first two tasks in this list.

INFORMATION: It is not mandatory that you modify recording behaviour for the occurrence of an event. Even, if you don't modify recording, the system still highlights the events in Live and Playback modes.

6.1.1: Events that may trigger recording

You can configure the plettac Sentio server to automatically modify its recording behaviour when a specific event occurs. Table 6.1 shows the events you can use to trigger recording.

Event	Description
Alarm	The Sentio server can accept inputs from external alarm systems via cables connected to ports at the back of its casing. Examples of an alarm event could be the opening of a door, the raising of a car-park barrier or the operation of a turnstile. You can associate an Alarm Input with one or more cameras so that the same alarm can trigger recording from several cameras simultaneously, though each with its individually configured ips rate, quality and duration.
Suspicious Alarm	The plettac Sentio server provides for one alarm input to be connected with one or more manually-activated buttons for use, typically in financial institutions, when staff members observe suspicious activities or persons. Several cameras can be associated with the suspicious alarm, so that the activation of any button triggers recording on all configured cameras.
Video Motion Detection (VMD)	The VMD feature enables you to configure the server to detect when there is motion in the camera view or in selected “Regions of Interest” (ROIs) of that camera view.
Super Video Motion Detection (SVMD)	If you have purchased the Super VMD (SVMD) product option, it enables the plettac Sentio server to apply enhanced detection rules to one camera view. SVMD functionality enables you to detect (in one or more ROIs of the SVMD camera view) whenever: • an object is removed • a foreign object is deposited • a moving object matches any combination of the following criteria: - its size matches a specified range - its speed matches a specified range - it moves in one of more specified directions SVMD functionality is described in detail in section 12.1: “Super Video Motion Detection (SVMD)” on page 115.
Camera Sabotage Detection (CSD)	The CSD feature enables you to configure the server to display an on-screen message or raise an alarm when a camera is obscured or moved. The recording rate and quality is usually set to a higher quality and rate when these situations are detected. CSD functionality is described in section 12.4: “Camera Sabotage Detection (CSD)” on page 125

Table 6.1: Events that can be used to trigger recording

NOTE: Certain settings of Record Time in the Camera configuration menu, (**Never**, **On alarm switch** and Schedules without alarms or VMD enabled) preclude the use of event based recording.

6.2: Basic VMD Configuration

When you click the **VMD** tab of the Configuration Console, the VMD menu is displayed as shown in Figure 6-1 This section provides an overview of the configurable elements of this menu. Detailed configuration procedures are provided in subsequent sections.

NOTE: If you have purchased the Super VMD (SVMD) product option, the VMD configuration screen contains different options. For details see section 12.1: “Super Video Motion Detection (SVMD)”

on page 115.

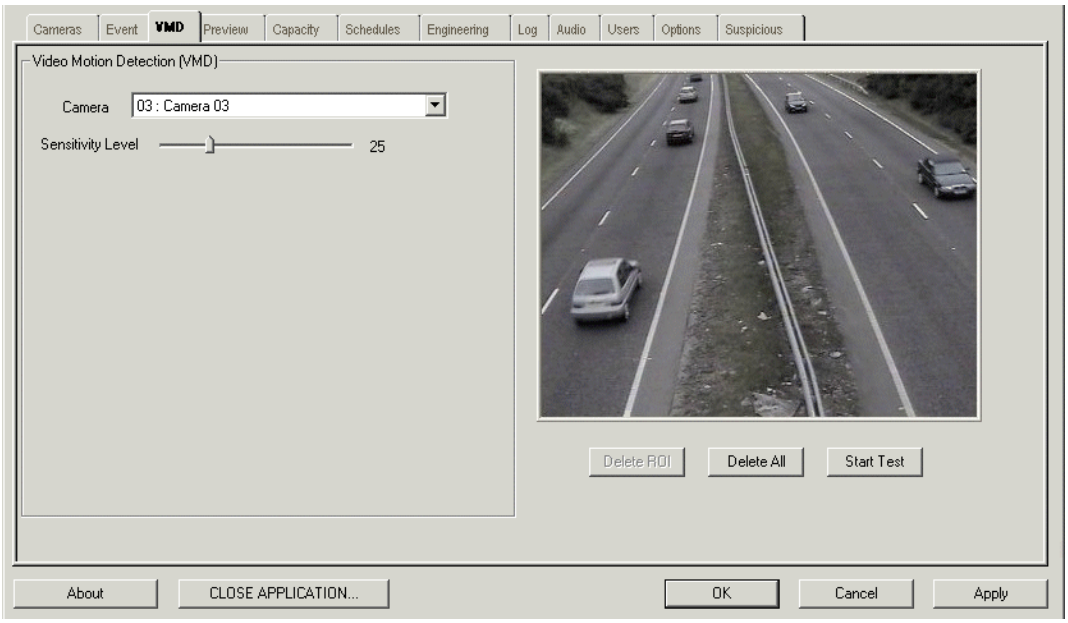


Figure 6-1: Configuring basic VMD for a camera

Table 6.1 describes the elements of the VMD configuration menu.

GUI Element	Description
Camera	Provides a drop-down list of cameras that have been enabled for VMD in the **Cameras** menu. One of these camera names may have the suffix (SVMD) if SVMD features have been configured for it.
Sensitivity	Sliding scale that you can use to increase and decrease the amount of movement that triggers a VMD event in all regions of interest defined for the current camera.
Output on Display	This check box is activated only if you have purchased the SVMD product option.
ROI Drawing Area	Area in which the selected camera view is displayed and in which ROIs can be drawn and selected for modification or testing. A default ROI covers the entire drawing area but is disabled once you draw one. When an VMD mode is selected, all ROIs with that mode are displayed as clear areas in a greyed-out overlay that covers the drawing area. Greyed-out areas represent parts of the image outside the ROIs. When you select an ROI, it appears outlined in yellow.
Delete ROI button	Deletes the currently selected ROI. See section 6.3.3:.
Delete All button	Deletes all ROIs in the current camera view. See section 6.3.3:.
Start Test	Provides a live test of the current VMD configuration. See Figure 6-3 on page 47.

Table 6.2: Basic VMD configuration settings

6.3: Configuring VMD for a Camera

VMD is a powerful feature that enables you to configure the plettac Sentio-FXL server to modify the way it records a camera's input when there is motion in a camera view or in selected "Regions of Interest" (ROIs) of that camera view.

This provides you with the following benefits:

- It helps you to conserve disk space by recording at high quality and rates only when there is movement
- It can alert security personnel monitoring the system in Live Mode

- It lets you easily identify points in your recordings where there was movement on camera.

NOTE: Before you configure VMD for a camera, ensure that VMD is enabled for the camera as described in section 4.8: “Enabling Video Motion Detection (VMD)” on page 32.

6.3.1: Basic VMD Configuration (Full Screen)

To configure VMD for a camera, use the following procedure:

1. Open the VMD menu of the Configuration Console as shown in Figure 6-2.

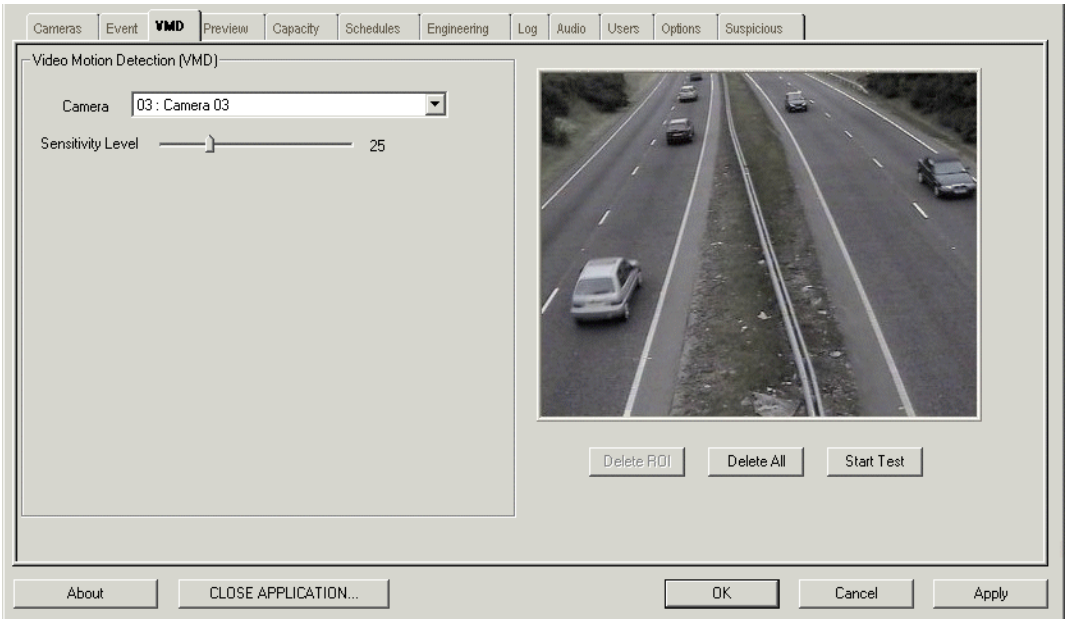


Figure 6-2: Configuring basic VMD for a camera

2. Click the arrow to the right of the **Camera** field, and, from the drop-down list, select the camera for which you want to configure VMD. Only cameras that have VMD enabled in the main **Camera** menu, appear in the list.
   Unless you define one or more Regions of Interest (ROIs), the VMD settings apply to the default ROI, which is the entire camera view.
3. Before applying the configuration, you can test its performance by clicking the **Start Test** button. This opens a special preview screen shown in Figure 6-3 on page 47, which shows images currently being captured from the selected camera. If there are objects moving in the camera view, they are outlined on the test screen with a red coloured box. If there is currently no motion in the camera view, you may need to arrange for someone to move in the camera view for your test.
   If you notice that some objects, such as lights, trees or plants or their shadows, are causing “false” VMD events as they move in the wind, you may decide further configure the VMD. Dismiss the

text screen by clicking the ❹ in the top right hand corner.

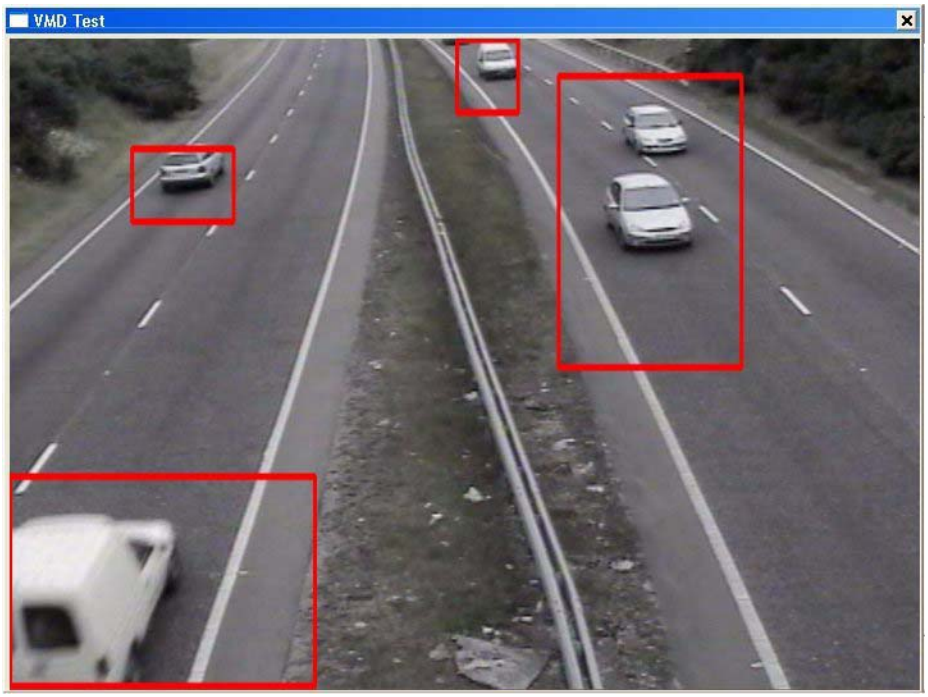


Figure 6-3: Test of VMD for the default ROI

4. To modify the amount of movement that triggers a VMD event, move the **Sensitivity** slider from left to right.

1. When you are satisfied that the configuration triggers the kinds of VMD events in which you are interested, click on **OK** to commit your changes.

6.3.2: VMD configuration using ROIs

It may not suit your needs to have VMD triggered by every movement in the camera view or by movement in every part of the camera view. Part of the camera view may be prone to constant change with passing traffic and pedestrians or with foliage moving in the wind.

By defining one or more Regions of Interest (ROIs) in the ROI Drawing Area, you can apply VMD only to areas of the camera view in which movement is significant and avoid areas that are prone to random motion.

To configure VMD for a camera with Regions of Interest, use the following procedure:

1. Open the VMD menu of the Configuration Console as shown in Figure 6-4.

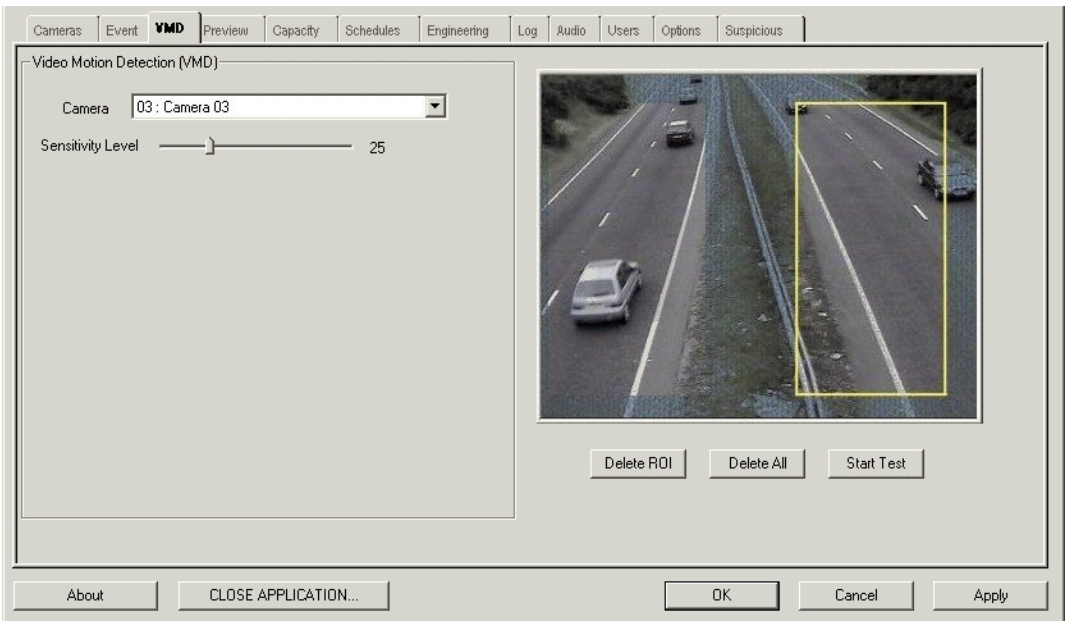


Figure 6-4: Drawing a VMD Region of Interest for a camera

2. Select the camera for which you want to configure VMD from the drop-down list of cameras. Only cameras that have VMD enabled in the main **Camera** menu, appear in the list.
3. Position your mouse cursor in the area of the image where you want an ROI. Click and hold down the left mouse button and drag the cursor to the diagonally opposite corner of the ROI. The ROI appears as a yellow rectangle. When satisfied with the size of the ROI, release the mouse button.

NOTE: You cannot adjust the size or shape of an ROI once you have drawn it. You must delete it and draw it again.

4. Click the **Start Test** button to test the performance of the ROI. The ROI should enable you to eliminate most false VMD events by only detecting motion in the area you consider most significant. If false VMD events still occur, you may need to redraw the ROI or adjust the sensitivity of the camera view.

2. When you are satisfied that the configuration triggers the kinds of VMD events in which you are interested, click on **OK** to commit your changes. You may then draw additional ROIs in the camera to cover all significant areas of the camera view.

6.3.3: Deleting existing ROIs

On the VMD menu, if you select a camera that already has multiple ROIs defined, the ROIs appear as clear boxes in a shaded area that covers the camera view. One ROI (the last one drawn) is automatically selected.

The **Delete ROI** button becomes active, which enables you to delete the selected ROI from the VMD configuration. If you delete an ROI, the most recently drawn ROI is selected until there are no more ROIs and the default ROI covering the whole camera view is re-established.

The **Delete All** ROIs button becomes active, which enables you to delete all the ROIs for the selected camera.

Figure 6-5 shows a VMD configuration for a camera view, which has three VMD ROIs, one of which partially overlaps another. The yellow edge of the selected ROI is not visible where it is overlapped.

NOTE: It is possible to draw ROIs so that they overlap each other. If you select an ROI that is partially overlapped by another, its yellow outline may be partly hidden by the overlapping ROI but it has no effect on the configuration of the lower ROI.
Take care however not to completely overlap ROIs of the same mode. This would make the overlapped ROI unselectable and you would therefore not be able to modify its configuration without first deleting the ROI that overlaps it.

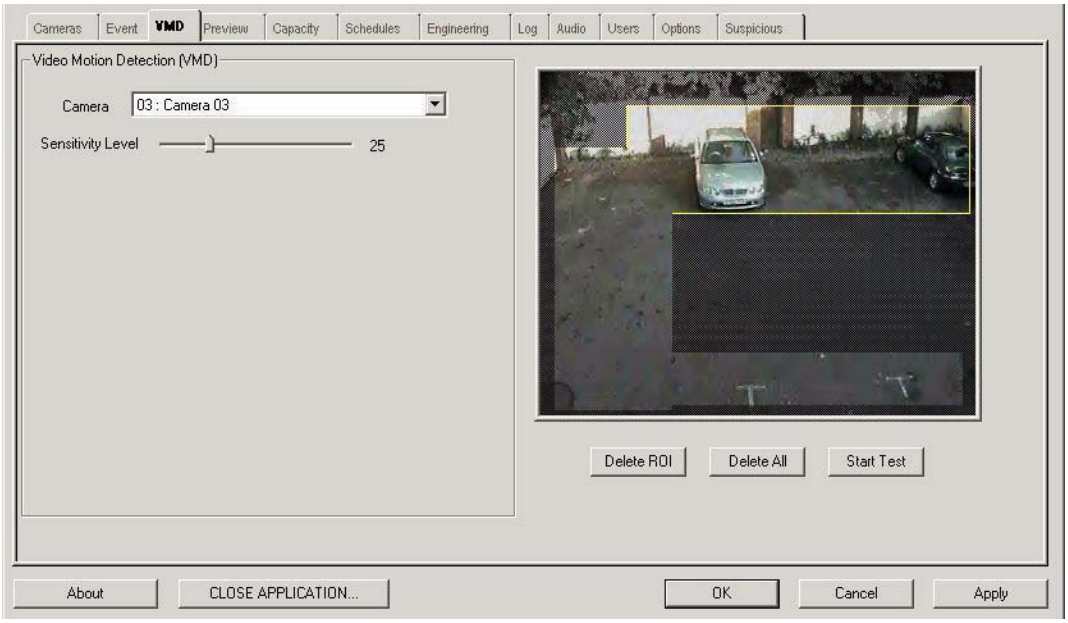


Figure 6-5: VMD configuration with multiple ROIs

6.4: Associating Alarms with Cameras

The plettac Sentio server can accept inputs from external alarm systems via cables connected to ports at the back of its casing, as described in Appendix D, “Video, Audio and Alarm Inputs,” on page 147. By associating an alarm input with a particular camera you can:

- highlight each occurrence of the alarm in Live Mode (see section 9.4:)
- write an entry for that alarm event in the system’s event log (see section 8.3:)
- configure cameras to modify their recording whenever the alarm occurs (see section 6.5:)
- configure automatic dial-up of NetManager clients (see section 6.7:)
- quickly locate each occurrence of the alarm in Playback Mode (see section 10.2:)

Examples of external alarms could be:

- the opening of an alarmed window or door
- the opening of a badge-access door
- the raising of a car-park barrier
- the operation of a turnstile

6.4.1: Associating an alarm input with cameras

Alarm inputs are numbered according to the alarm ports at the rear of the plettac Sentio server’s casing to which they are connected, as shown in Appendix D, “Video, Audio and Alarm Inputs,” on page 147. The connection of alarm cables to the input plugs is described in the *plettac Sentio FXL Installation Guide* The plettac Sentio server detects the number of available alarm ports and lists them in the **Alarm Input** drop-down list in the **Event** menu of the Configuration Console, (whether or not inputs are connected to them).

To associate an alarm input with one or more cameras use the following procedure:

1. On the **Event** menu of the Configuration Console (shown in Figure 6-11 on page 55), click in the **Alarm Input** field of the camera with which you want to associate the alarm input . . .

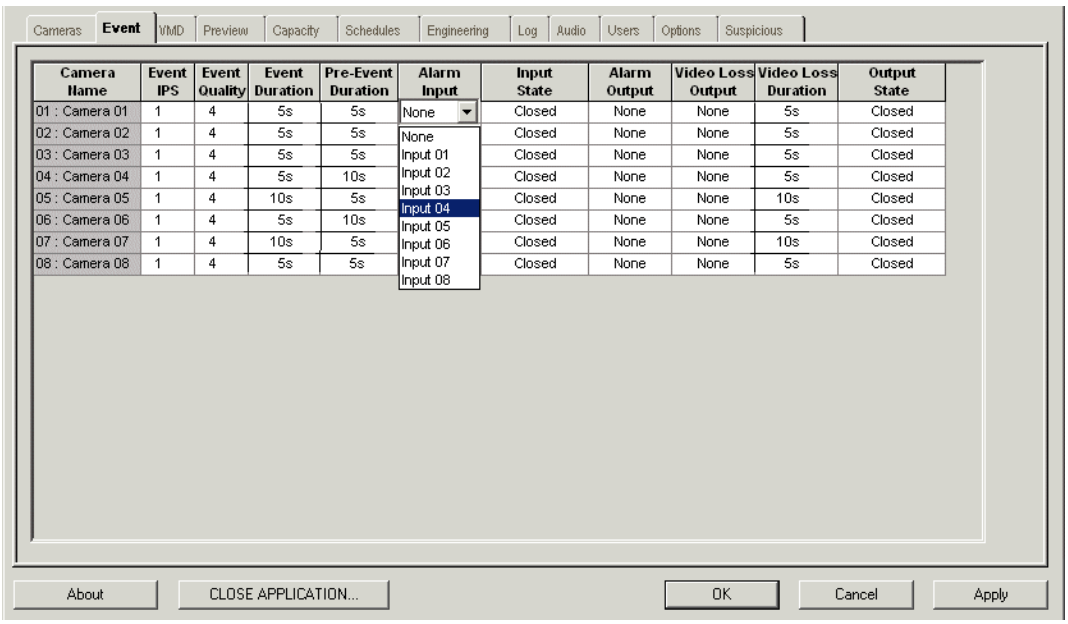
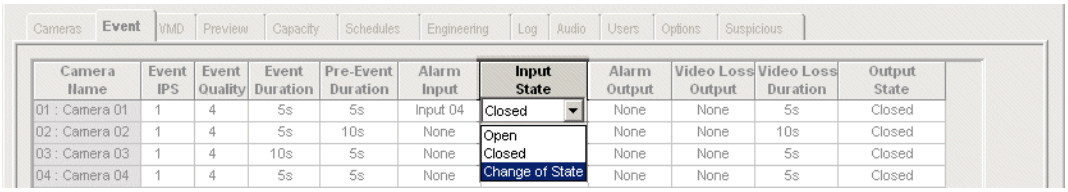


Figure 6-6: Associating an Alarm Input with a camera

2. From the drop-down list, select the alarm input port, appropriate for that camera.
   For example, if the alarm is triggered by a car-park barrier, you might associate it with a camera that covers the car-park entrance or exit.

3. Click in the **Input State** field of the same camera.

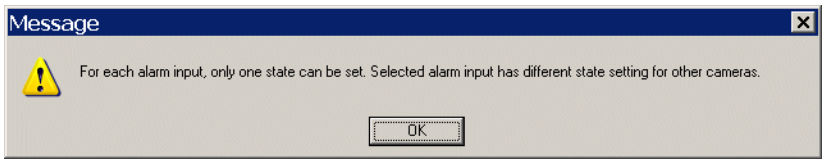


From the drop-down list choose one of the following values:

Value	Effect
Closed*	The initial setting, configures the server to trigger an alarm when the input alarm circuit is closed.
Open*	Configures the server to trigger an alarm when the input alarm circuit is open.
Change-of-State	Configures the server to trigger an alarm whenever the input alarm circuit is changes from closed to open or from open to closed.
* The meaning of Open or Closed depends on the physical wiring or your alarm circuits and alarm blocks.	

Table 6.3: Input State settings for external alarms

NOTE: You are able to associate the same alarm input with more than one camera, but the Input State must be the same for all cameras. If different input states are selected, the message shown below will be displayed.



4. Click in the **Event Duration** field. From the drop-down list, select the period for which you want the alarm event to be displayed in Live mode. Choose **Until Ack** to have the alarm displayed until an operator physically acknowledges it by clicking on the Alarms console or specify one of the pre-defined durations to have the alarm automatically clear after that time.

NOTE: Whether the system continues to record an event following its acknowledgment is determined by a selection made on the **Options** menu. For more information see section 6.8:.

5. When an event occurs, it may be more important to see what happened before the alarm or VMD was triggered than the images that follow the event. You can specify that the plettac Sentio server modify its recording behaviour for the duration of the alarm event. By configuring the **Event IPS**, **Event Quality**, **Pre-Event** and **Pre-Event Duration** fields, you can force the server to record

more intensively when alarms and events occur. This is described in section 6.5: “Configuring Event Based-Recording” on page 54.

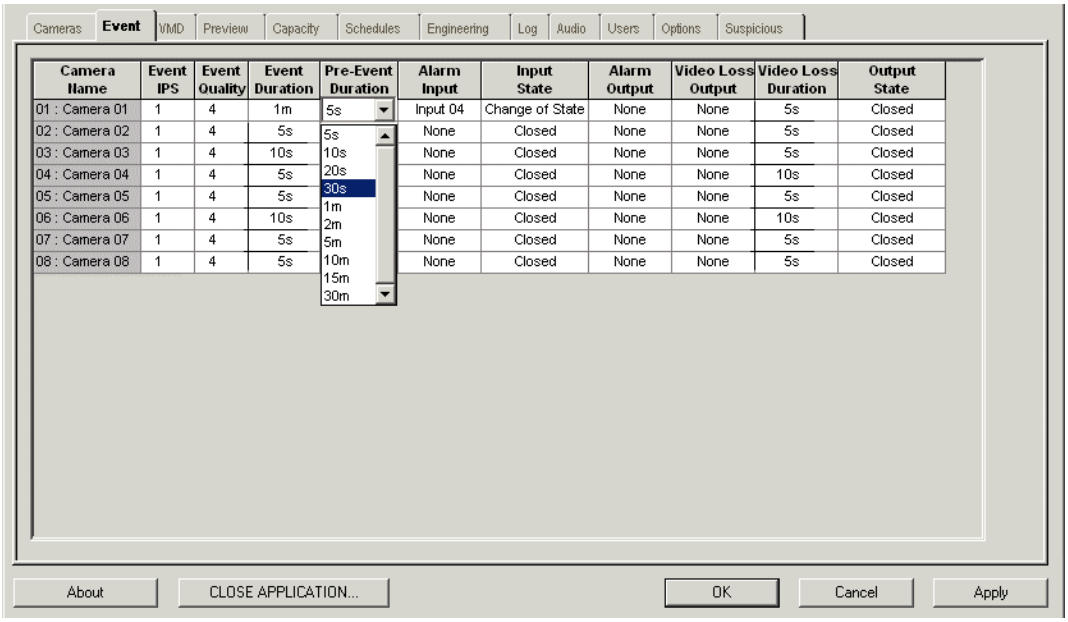


Figure 6-7: Setting the Pre-Event Duration for an Event

6.4.2: Configuring alarm output for a camera

If you have alarm outputs wired to the alarm blocks of the plettac Sentio server, you can have the server manifest the external alarms it receives by passing them on to another device. Alarm outputs from the server could terminate at a network management system, an audible signal or a warning light that draws further attention to the alarm condition.

If, for example, a door is opened, the system receives an external alarm, which it registers and possibly uses for event-based recording. It can then pass the alarm as output to a switch that turns on a red light to draw the attention of operators, who might otherwise be distracted.

The number of alarm outputs is limited by the number of alarm ports at the back of your server. Because each alarm port/block can have only 1 alarm output, the maximum available outputs is 4.

Using the following procedure, you can configure the plettac Sentio server to output an alarm when it receives alarm input from an external source:

1. On the **Event** menu, click in the **Alarm Output** field for the camera and select an alarm output from the drop-down list, as shown in Figure 6-8. The default setting is **None**.

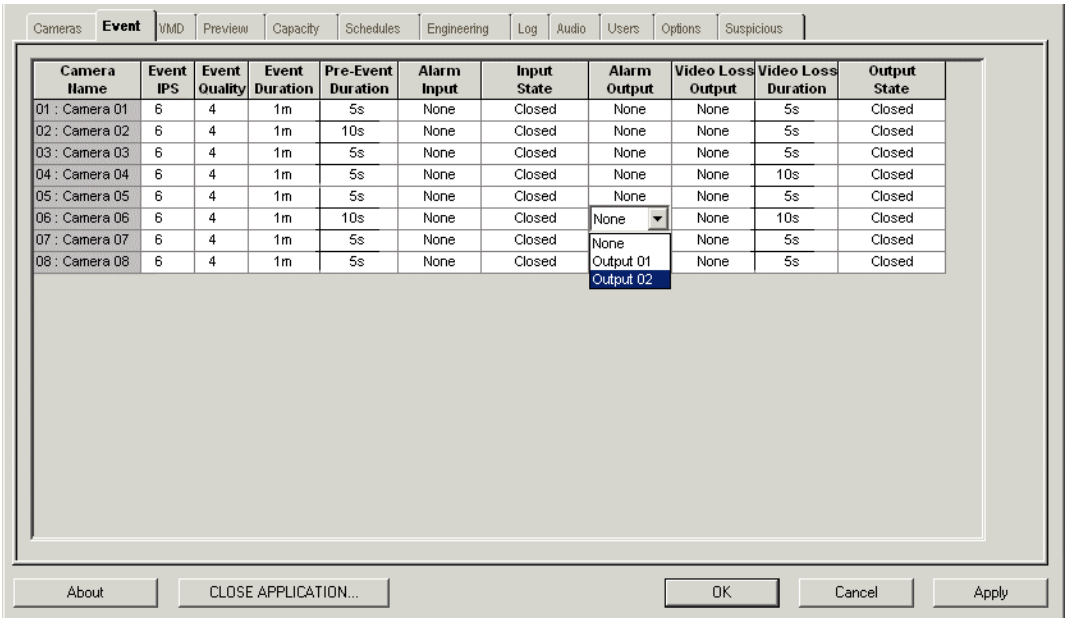
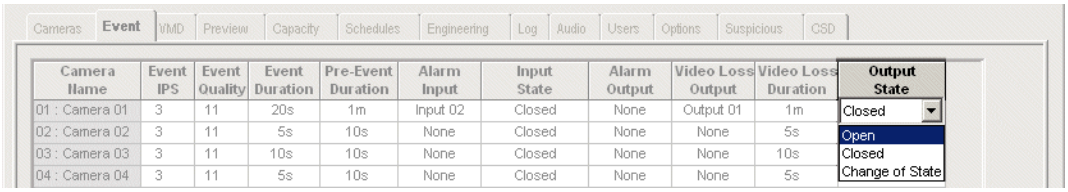


Figure 6-8: Configuring Alarm Output

2. Click in the **Output State** field of the alarmed camera,



Choose one of the following values from the drop-down list:

Value	Effect
Closed*	The initial setting. Configures the server to output an alarm when the input circuit changes to the alarmed state closed.
Open*	Configures the server to output an alarm when the input circuit changes to the alarmed state.
Change-of-State	Configures the server to output an alarm whenever the input circuit changes state.
* The meaning of Open or Closed depends on the physical wiring or your alarm circuits and alarm blocks.	

Table 6.4: Output state settings for external alarms

NOTE: You are able to associate the same alarm output with more than one camera, but the Output State must be the same for all cameras. If different output states are selected, the message shown below will be displayed.

6.4.3: Configuring Video Loss output alarms

You can configure the plettac Sentio server to output an alarm if it stops receiving video input from a camera, using the following procedure:

1. On the **Event** menu, click in the **Video Loss Output** field for the camera and select an alarm output from the drop-down list, as shown in Figure 6-9. The default setting is **None**.

NOTE: Depending on how you've configured and used external alarm outputs, you may decide to configure all Video Loss alarms on one alarm output or to distribute them across different outputs.

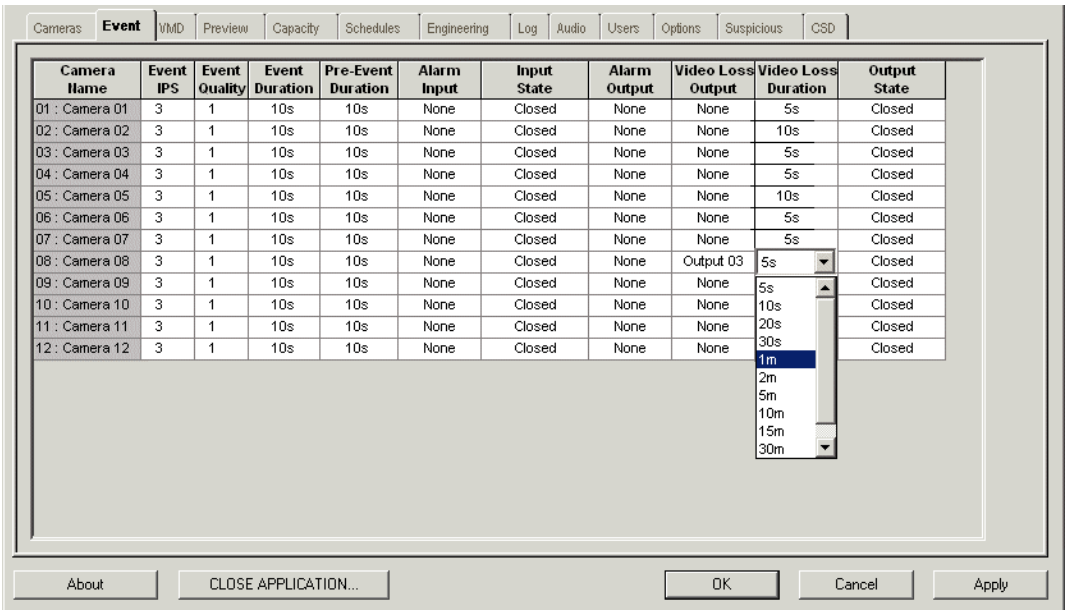
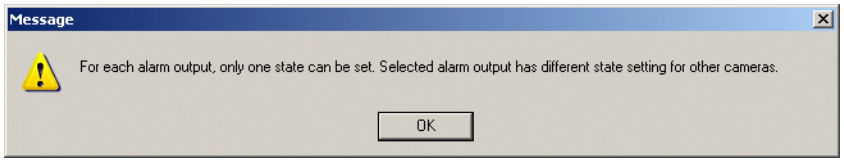


Figure 6-9: Configuring Video Loss alarm output

2. Click in the **Output State** field and select the value **Closed** (or **Change-of State**) from the drop-down list. The default state for normal operation (when a video signal is being received) is **Open**. This means that the alarm state for Video Loss (when **no** video signal is being received) is **Closed** which displays the alert message on the camera display and triggers any other outputs such as audible alerts.

NOTE: Video Loss alarms can share an alarm output channel with an external alarm but only if the two alarms are associated with the same output state (**Closed** or **Change-of-State**). If you attempt to use a different output state for an alarm output on two different cameras, the following error is displayed:



3. When you are satisfied that you have configured Video Loss alarms for your cameras, click on **OK** to commit your changes.

INFORMATION: You can monitor the occurrence of Video Loss alarms using the Event Review utility described in section 10.6: "Reviewing and Exporting Events" on page 96.

6.4.3.1 Configuring an audible alarm for Video Loss

You can configure the plettac Sentio server to make an audible alarm sound if it stops receiving video input from any of the cameras configured for video loss alarms.

To enable the audible Alarm, open the **Options** menu and click the **Enable Audio Alarm on Video Loss** check box as shown in Figure 6-10.

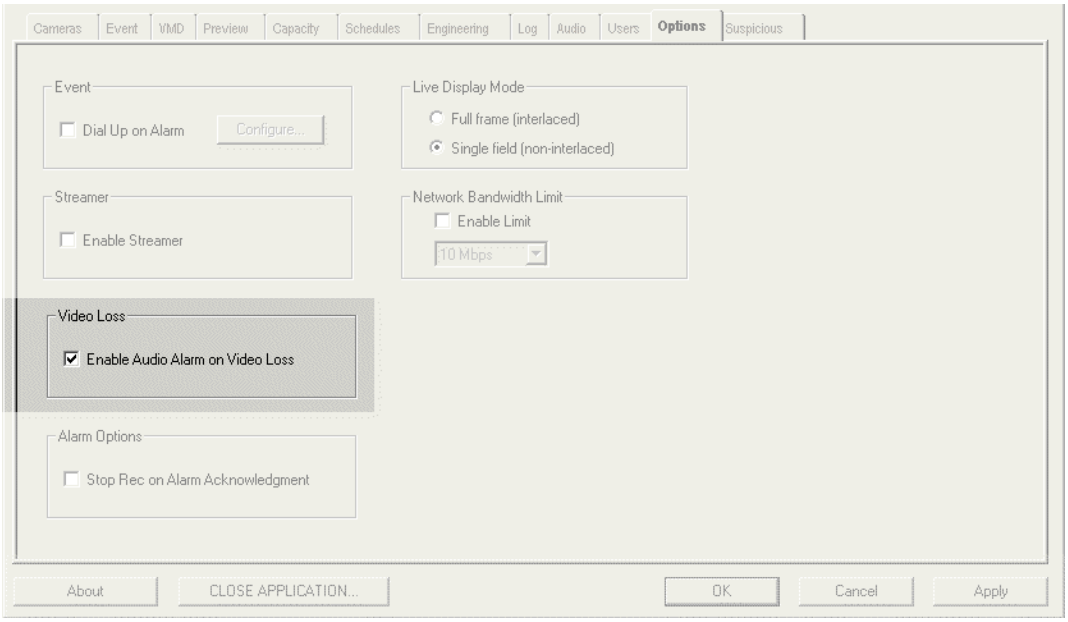


Figure 6-10: Enabling an audible alarm in the event of video loss

6.5: Configuring Event Based-Recording

You can configure the plettac Sentio server to modify its recording behaviour whenever an event (VMD or Alarm) occurs. In the basic **Camera** configuration, you can specify that the server records from a particular camera at a low rate such as 1 ips or not at all (0 ips) under normal circumstances. However on the **Event** menu, you can specify that the server record at a better quality and at higher rate, whenever an Alarm or VMD event occurs. Recording that is triggered by the occurrence of events is known as event-based recording.

INFORMATION: It is not mandatory that you configure events to modify the system's recording. You can configure your server to record at the same rate and quality in normal conditions and when events occur. However, one of the chief benefits of this feature is that it enables you to greatly reduce the amount of data recorded.

The following procedure describes how to configure event-based recording, when you have already configured VMD and alarms for the cameras attached to the plettac Sentio server:

1. On the **Event** menu, click in the **Event IPS** and **Event Quality** fields, use the drop down lists to select values that specify the recording rate and quality you want the server to record from the camera associated with the event. It is possible to set **Event IPS** to less than the standard ips rate. However, events are recorded at the higher of the two ips rates.
   In Figure 6-11 below, several of the cameras have been set to record at the maximum rate of 25 ips and at quality 1. It would require far too much disk space to record constantly at these levels.

However, when triggered by an event, recording with these settings gives you have an increased chance of recording significant action and the recorded images are of better quality.

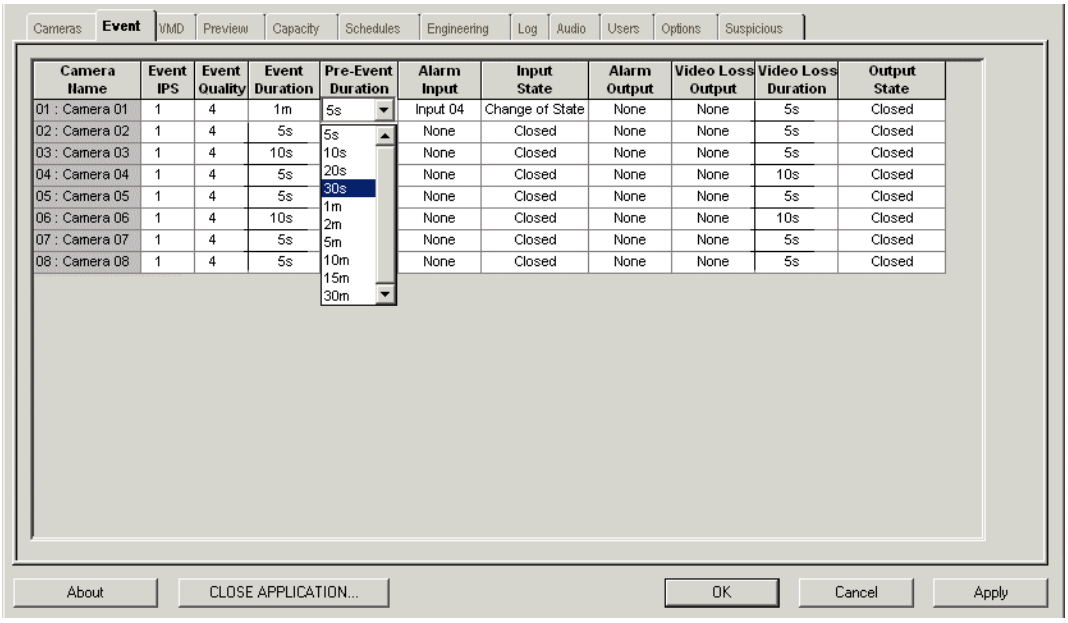


Figure 6-11: Configuring event-based recording for a camera

2. In the **Event Duration** field, specify how long you want recordings to last when triggered by the event. In the drop-down list, you can choose from 10 pre-set durations from 5 seconds to 30 minutes or you can specify **Until Ack** to ensure that the special recording continues until manually acknowledged by an operator.

4. When an event occurs, it may be more important to see what happened before the alarm or VMD was triggered than the images that follow the event. To make sure that action before the alarm event is recorded, use the **Pre-Event Duration** field. From the drop-down list, select a length of time preceding the alarm event that you also want the plettac Sentio server to record to disk. The default value for this field is **None**.
If you select any of the values from 1 second to 30 minutes, all information for this pre-event period is recorded to disk in addition to all the images following the event.
The ips rate and image quality for the post-event recordings are as set on the **Event** tab. The recording quality of the pre-event period remains at the rate set in the Cameras menu.

NOTE: Where the pre-event duration is less than or equal to 30 seconds, the recording rate can be switched from the “normal” ips to a higher “event” ips.
Pre-event durations of greater than 30 seconds are usually selected where a system is configured only to record in response to an alarm.

6.6: Configuring the Suspicious Alarm

On each plettac Sentio server, you can configure one suspicious alarm associated with an alarm input on the server’s alarm blocks. Depending on the hardware configuration and wiring, the alarm input dedicated to the suspicious alarm can receive signals from several inputs, for example, push buttons or panic alarms. Each of these would trigger an event-based recording.

To configure the suspicious alarm use the following procedure:

1. Open the **Suspicious** tab of the Configuration Console as shown in Figure 6-12.

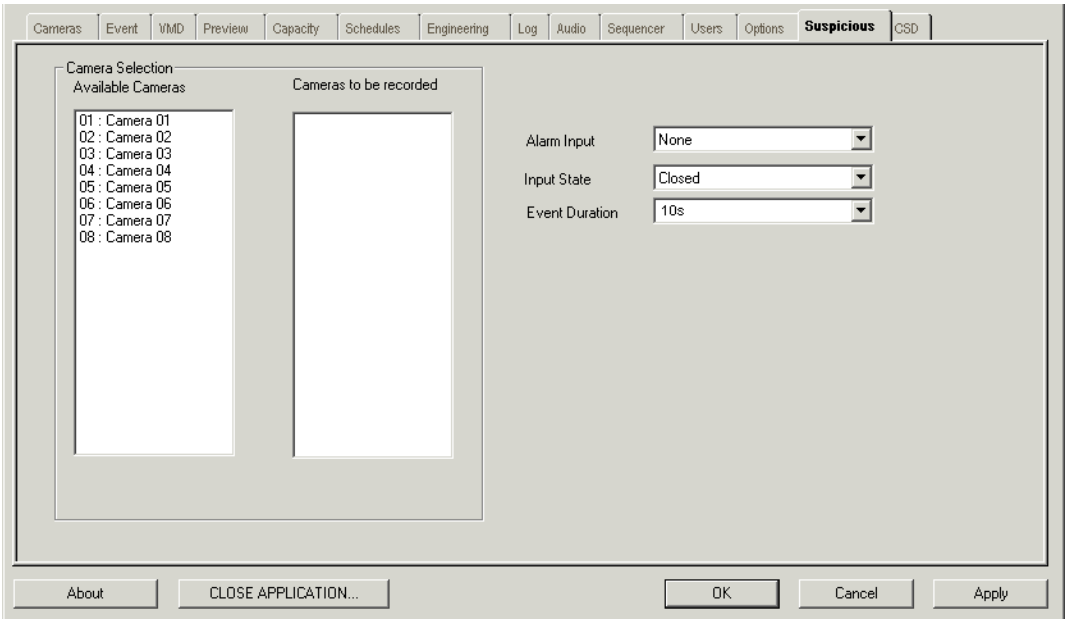
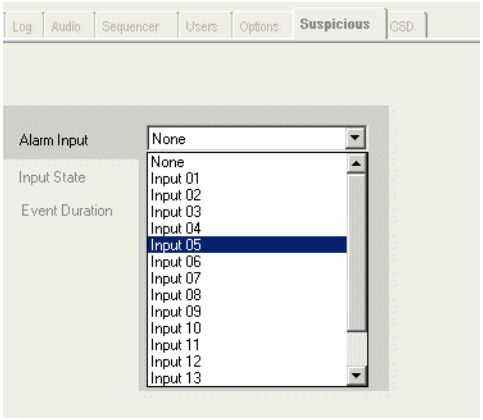
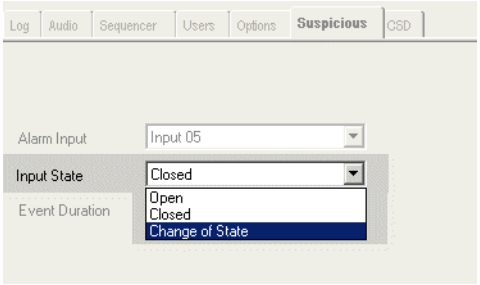


Figure 6-12: Configuring the plettac Sentio server's Suspicious Alarm settings

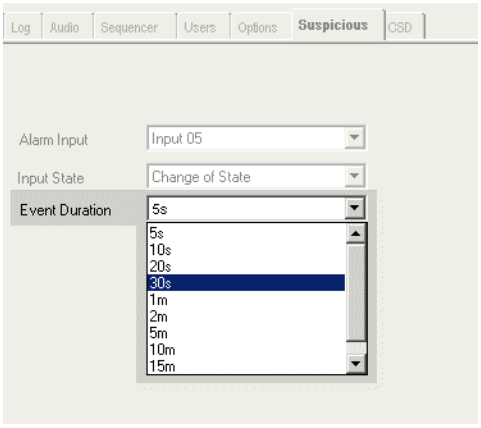
2. From the **Alarm Input** drop-down list, select the alarm input you have wired for suspicious alarm input.



3. From the **Input State** drop-down list, select the state that corresponds with the switching on the buttons that are to trigger recording.



4. From the **Event Duration** drop-down list, select a duration for the suspicious alarm. All cameras associated with this alarm record for this duration whenever the alarm is triggered. For more information see section 6.6.1: “Termination of Suspicious alarm recording” on page 58.



5. In the list box of **Available Cameras**, double-click the cameras from which the server should record when a suspicious alarm button is pressed. The cameras you select are transferred to the **Cameras to be recorded** list box. If you want to remove a camera from the alarm double-click it’s entry in the **Cameras to be recorded** list box to remove it from the list.

Each camera associated with the suspicious alarm records at the higher ips rate configured for it on either the **Camera** or on the **Event** menu. If a camera has not been associated with any other event (VMD or alarm) it is automatically enabled for event-based recording when selected for the suspicious alarm. As Figure 6-13 on page 57 shows, Camera 03 was already configured for use with another event but the other cameras used in the suspicious alarm configuration have their Event recording parameters automatically set to default values of 1 IPS and Quality 4. You can modify these fields as shown to increase the intensity of this recording.

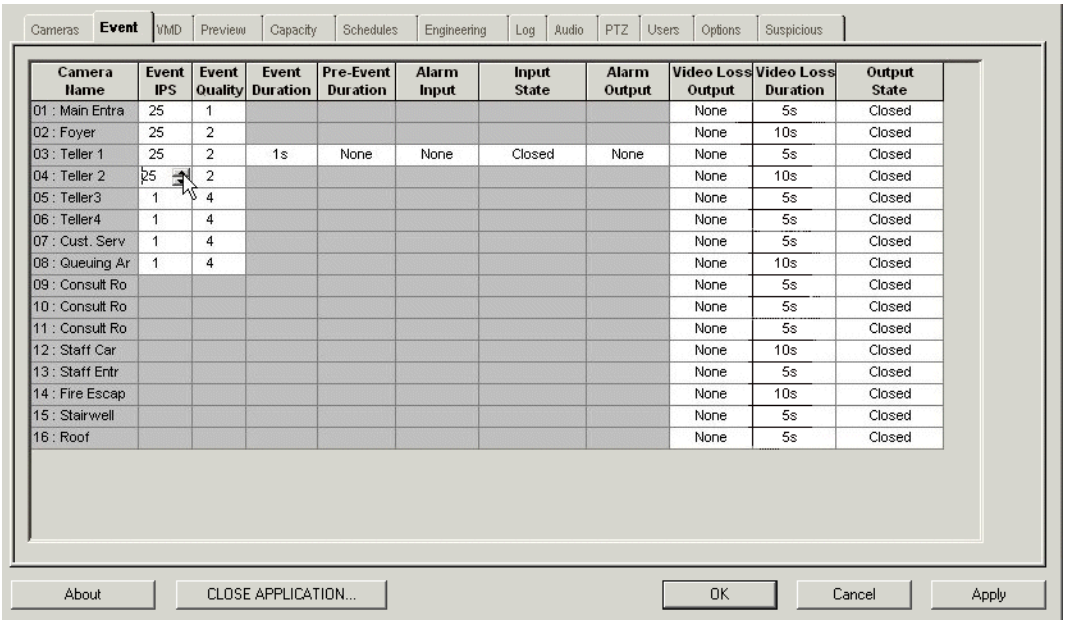


Figure 6-13: Suspicious Alarm enables the Event IPS and Event Quality fields for its cameras

6.6.1: Termination of Suspicious alarm recording

Unlike a contact alarm or VMD event, a suspicious alarm cannot be acknowledged manually by an end user of the plettac Sentio server. Recording continues for the duration configured for the alarm or until another occurrence of the suspicious alarm is triggered.

Another difference between suspicious alarms and other events is that they are not extended by successive occurrences of the event. If a contact alarm or VMD event occurs while another is active, the second event extends the duration of the recording by the configured duration. If a suspicious alarm occurs while one is active it terminates the first alarm (saving the recording) and begins a new recording from the second trigger time.

For example, if someone enters the lobby of a bank wearing a motorcycle crash helmet, the member of staff that sees them first presses their suspicious alarm button. All the cameras configured for the suspicious alarm begin recording at their configured IPS- and capture-quality rates. Although the alarm is configured to record for 2 minutes, another occurrence of the event can terminate it. If, for instance, a second member of staff subsequently sees the motor cyclist and also presses a button, the first suspicious alarm is terminated and recording starts for the second suspicious alarm. No recordings are lost if this occurs but they may not be as long as the configured duration.

Depending on the likelihood and frequency of such multiple triggers, you may decide to extend the stack size for suspicious alarms on the plettac Sentio server. For more information, see section 3.2.1: “Protecting Event-related recordings” on page 22.

6.7: Configuring Dial-Up on Alarm

You can configure the plettac Sentio server to automatically open a dial-up connection to a remote client when an Alarm or other plettac Sentio Event, such as Camera Sabotage or Video Loss, occurs. You can configure up to 5 client connections, which the server can attempt to dial up in sequence, until the connection succeeds.

INFORMATION: This feature requires properly installed and configured modems on both the plettac Sentio server and client machines. It also requires NetManager to be running on the client machines.

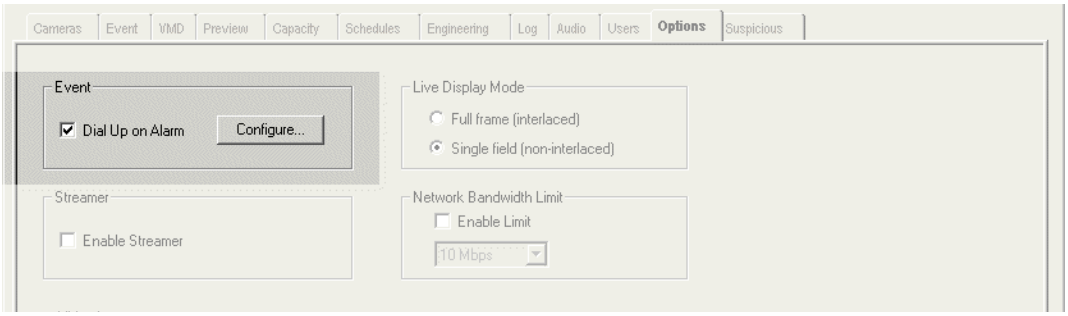
NOTE: Any client machines must have the following run-time parameter enabled:

```
/Host=TCP
```

For further information, refer to section G.1: “Setting a Run-Time Parameter” on page 159.

To enable and configure **Dial-up on Alarm**, use the following steps:

1. Open the **Options** menu and click the **Dial up on Alarm** check box. This enables the dial-up feature and activates the **Configure** button.



2. Click the **Configure** button to open the **Dial-Up Settings** dialog, shown in Figure 6-14.

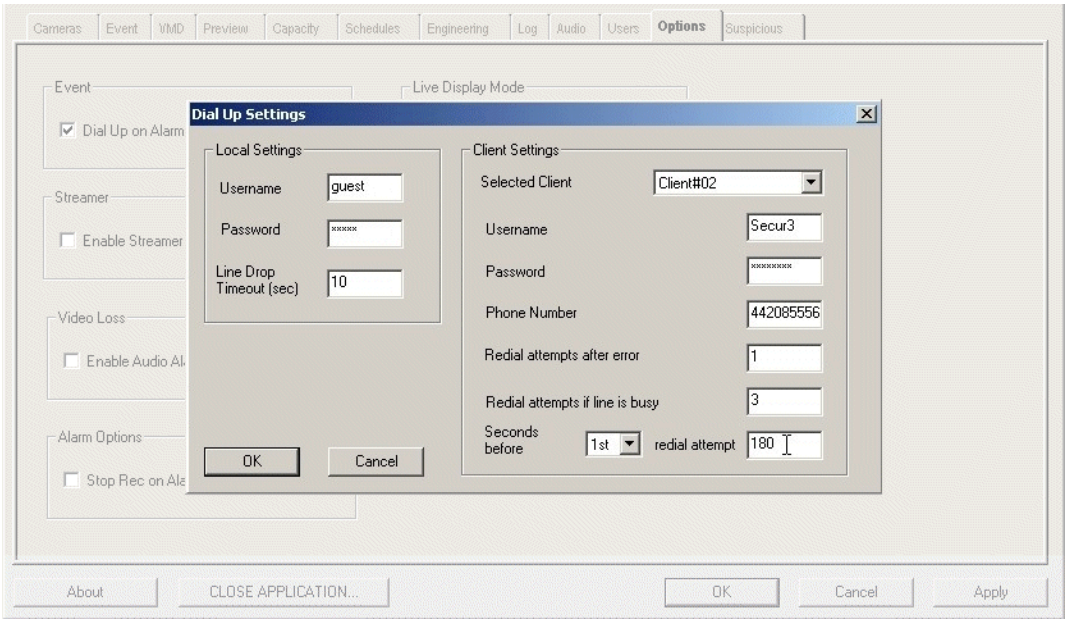


Figure 6-14: Configuring settings for Dial-Up on Alarm

3. Specify appropriate values for the server in the following fields of the **Local Settings** section:

Field	Description
Username	Enter the Username of any user configured on the Sentio server.
Password	Enter the appropriate password for the Username.
Line Drop Timeout	Specify the number of seconds after which the connection to the client should be dropped, if there is no response.

Table 6.5: Local Settings for Dial Up Settings

4. For the chosen plettac Sentio server, you can define up to 5 client connections. Specify appropriate values in the following fields of the Client Settings section:

Field	Description
Selected Client	Choose a client from the drop-down list of clients available for connection. When an alarm occurs, the Sentio server first attempts to connect to Client#1. If this connection cannot be established after the defined re-attempts, the server then tries to connect to the other defined clients in sequence.
Username	Enter a Username that is authorised for incoming connections to the remote client. (Note: This is a Windows username, not a plettac Sentio one.)
Password	Enter the appropriate password for the Username. (Note: This is a Windows password, not a Sentio one.)
Phone Number	Specify the dial-up number of the remote client machine.
Re-dial attempts after error	Specify the number of times the server should re-attempt to contact the client if it receives a connection error.
Re-dial attempts if line is busy	Specify the number of times the server should re-attempt to contact the client if it receives a busy signal.
Time between re-dial attempts	For each re-dial attempt configured for busy-line signals, you can configure a wait time. (There is little point in using up all the retries immediately.) Select an attempt from the drop-down list and specify the number of seconds the server should wait before re-attempting to contact the client. Select each attempt in turn and configure a wait time for each.

Table 6.6: Client Settings for Dial Up Settings

5. To define more client connections, choose another client from the drop-down list and configure the appropriate **Client Settings** fields.

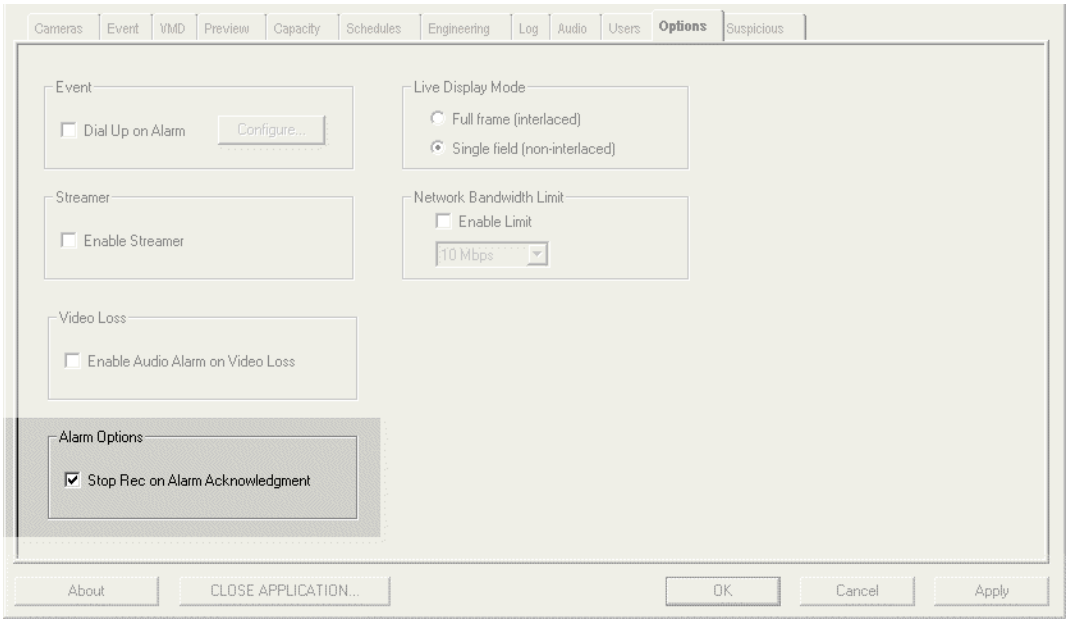
5. When you have defined all the client connections you need to, click the **OK** button to commit your configuration changes.

For information of how this feature operates on remote clients, refer to the Installation chapter of the NetManager User Guide.

6.8: Configuring Acknowledgements to Stop Recording

By default, the plettac Sentio server records all events for the duration specified. Even if the on-screen alarm is acknowledged, the server continues to records the event unless the duration configured for the event is **Until Ack**.

The **Options** tab contains a check-box labelled **Stop Rec on Alarm Acknowledgment**, which when checked modifies the default recording behaviour of the system.



If you select the **Stop Rec on Alarm Acknowledgment** check box, recordings of events stop immediately when acknowledged by users of the plettac Sentio GUI in Live mode.

Suppose a system is configured to record from one or more cameras for 15 minutes if an alarmed entrance, such as a fire escape, is opened. However, on occasion, the same door is opened under supervision of security staff to take deliveries. With the default configuration, this would record 30 minutes of unnecessary footage on the system's storage. However, with the check box selected, a member of security staff can acknowledge the alarm when he sees the door opened by his colleague.

CHAPTER 7: Configuring Scheduled Recording

The Recording Schedules feature enables you to define and save different preset recording characteristics that can be applied to one or more cameras at different times. For instance, during normal business hours you may choose to record constantly from your interior cameras and use event-based recording outside business hours. For exterior cameras you might choose to use event-based recording at all times but with a low ips constant recording as well. You can configure different schedules interior and exterior cameras that you can apply to cameras to quickly implement your specific recording strategy.

This chapter describes how to configure recording schedules in the plettac Sentio server and then apply them to record from cameras connected to the server. It contains the following sections:

- Defining Recording Schedules
- Applying Schedules to Cameras

7.1: Defining Recording Schedules

Using the **Schedules** tab of the Configuration Console, you can save a scheduled set of recording characteristics that you can apply to cameras to make the server modify how it records from these cameras depending on the time of the day or the day of the week.

For example, you may want the camera(s) covering the lobby of your building to record constantly during normal business hours. Outside business hours, however, you may want them to automatically switch to event-based recording.

Figure 7-1 below shows an example of a recording schedules that could be applied to cameras on your premises.

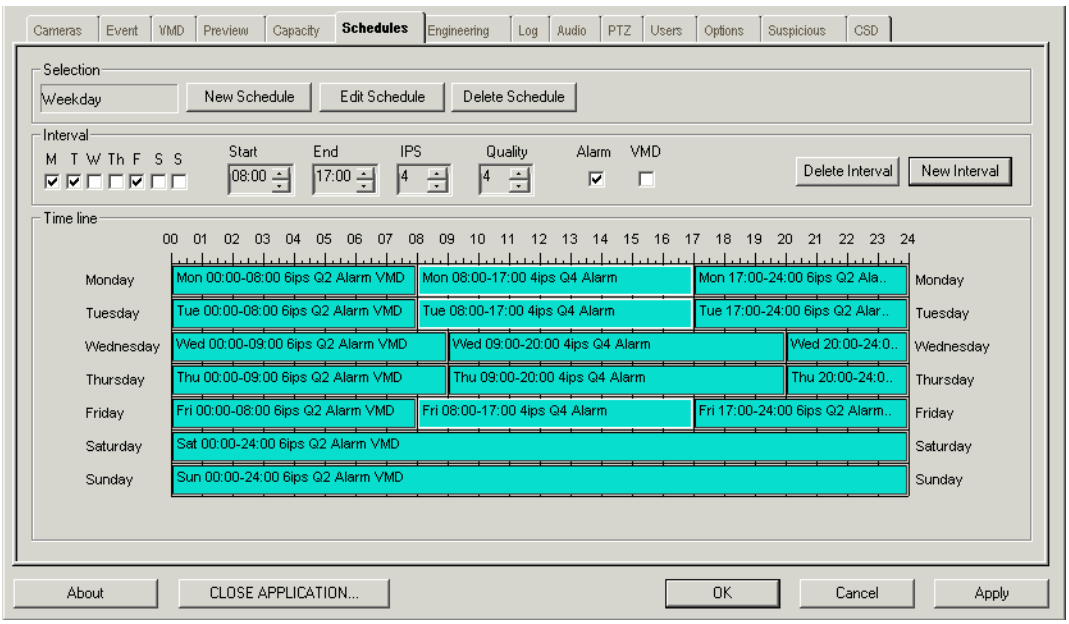


Figure 7-1: Example recording schedule

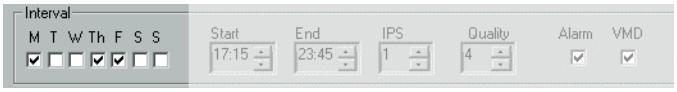
7.1.1: Create a Schedule

To create a recording schedule use the following procedure:

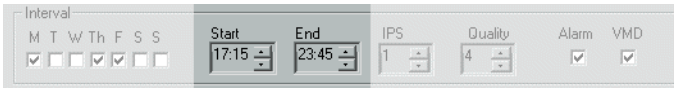
1. Open the **Schedules** tab of the Configuration Console as shown in Figure 7-1.
2. Click the **New Schedule** button. A dialogue box appears prompting you to enter a name for the new schedule.

3. Enter a name for the new recording schedule and click the **OK** button. A new schedule is displayed showing the grid divided into hours for each day of the week. Depending on your recording requirements, you can add or delete intervals or modify the details of intervals in each schedule.
4. To add an interval:

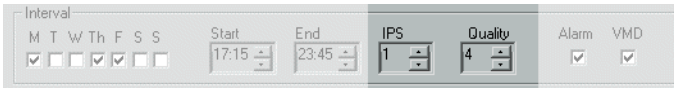
   a. Select the appropriate check box for the days on which the recording is to take place.



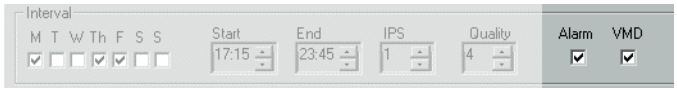
   b. Either click your left-mouse button on the start time in the grid and the right-mouse button on the end time, or use the spinner arrows next to the **Start** and **End** displays in the **Interval** panel to set the required times.



   c. Select the ips rate and recording quality for the cameras during the time they are to record. Refer to Chapter 4 “Analogue Camera Configuration” on page 27 for information about recording rates and quality.



   d. Select either or both check boxes for **Alarm** or **VMD** if you want to record only when an event occurs.



NOTE: You cannot select a 0 (zero) ips rate without also checking the Alarm or VMD checkbox. The example in Figure 7-2 shows this scenario which is ideal for event-based recording. Refer to Chapter 6 “Event-Based Recording” on page 43 for more information.

   e. Click the **New Interval** button to display the information on the grid

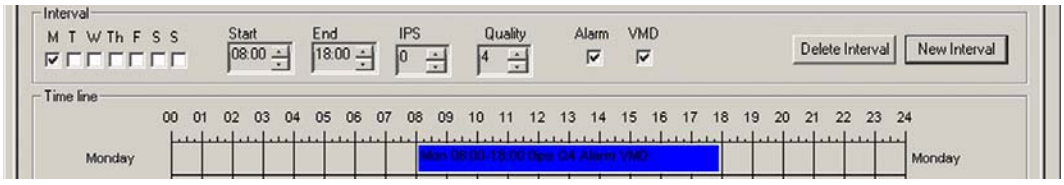


Figure 7-2: Example of an interval added to a schedule

   f. Repeat these steps until all the required information is entered for the schedule.

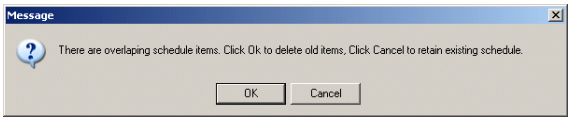
NOTE: The spinner arrows increment in 15 minute blocks and the minimum interval duration is 15 minutes.

7.1.2: Modifying Schedules

To modify a recording schedule:

1. Open the **Schedules** tab of the Configuration Console
2. Click the **Edit Schedule** button. A menu list of available schedules appears. Select the schedule you want to amend and the schedule's intervals are displayed.

3. Select the interval you wish to edit. The interval will be highlighted with a white border. If you want to edit more than one of the schedule's intervals, **Ctrl**-click on the required intervals.
4. Enter the amended start and end times, ips and quality rates, select the days on which the interval is to apply and also whether the recording is to be event-based by selecting Alarm or VMD or both.
5. Click the **New Interval** button. The message shown below will be displayed if the new period overlaps an existing interval.



Click **OK** to replace existing intervals with your new intervals.

6. Click **OK** on the **Schedules** tab to save the changes and close the Configuration console.

If you want to delete a schedule, click **Delete Schedule** and select the name of the schedule you no longer require.

a. Repeat these steps until all the required information is entered for the schedule.

7.2: Applying Schedules to Cameras

If you have defined a recording schedule, as described above, you can apply that schedule to one or more cameras in the **Record Time** column of the **Cameras** tab as shown in Figure 7-3.

Once a schedule has been applied to a camera, the **IPS**, **Quality**, **Resolution**, **Fields/s**, **Alarm** and **VMD** configurations are those specified in the schedule and are no longer configurable for the individual camera on the **Cameras** tab.

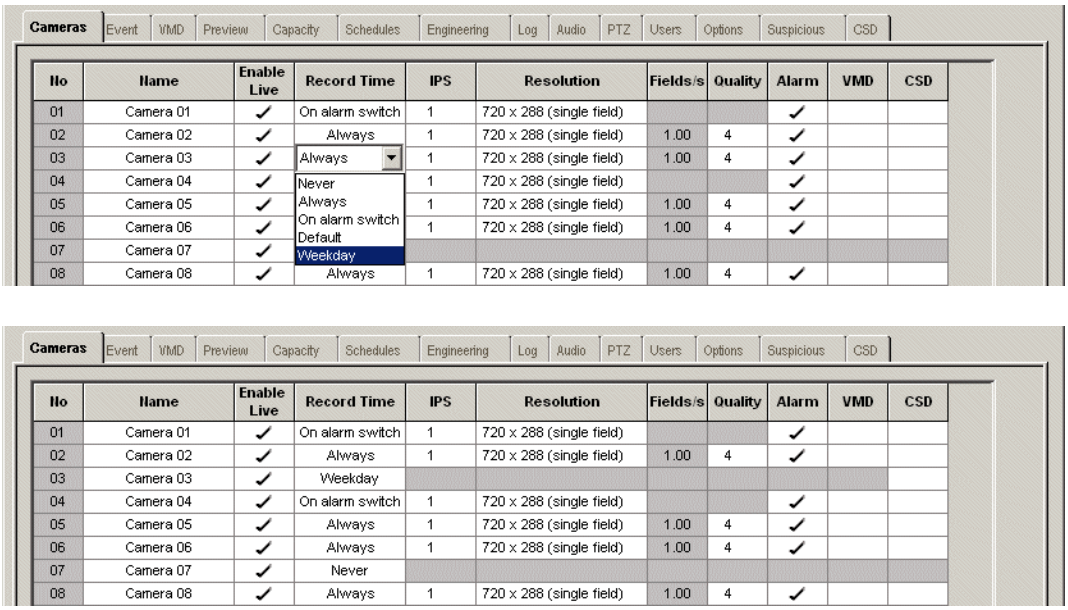


Figure 7-3: Applying a recording schedule to a camera

CHAPTER 8: System Administration Tasks

The plettac Sentio server GUI enables you to perform privileged administration tasks that do not configure or modify the operations of the system but are essential for the maintenance of the system.

This chapter describes tasks that must be performed by a user with Administrator or Manager privileges.

The following can be set on any networked server using the NetManager application or connected directly to the plettac Sentio-FXL machine:

- Network Bandwidth Limit

The following can be set when connected directly to the plettac Sentio-FXL machine:

- Monitoring the Event Log
- Configuring a Patrol Sequence
- Managing User Accounts

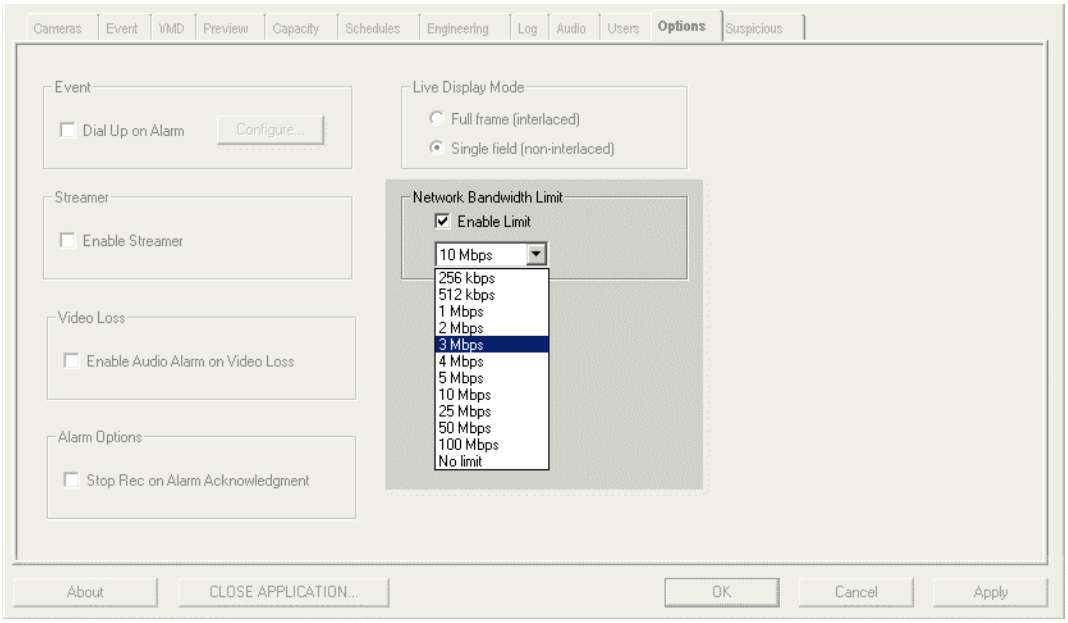
8.1: Network Bandwidth Limit

Sending large amounts of video data across your network can use up all available network bandwidth and cause other networked applications to slow down. This may prevent effective operation of other networked applications. You can set a “bandwidth throttle” via the plettac Sentio server Configuration console in order to limit the number of data packets sent between servers and client machines on the network.

NOTE: In order to achieve a particular transfer rate, the plettac Sentio software reduces the number of frames sent until the required limit is reached.

To set a **Network Bandwidth Limit**, follow the steps below:

1. Open the **Options** tab of the Configuration console and click the **Enable Limit** checkbox.



2. From the drop down list of limits, select the required bits per second rate to be achieved.

For further information, refer to Appendix B, “Network Bandwidth Requirements,” on page 141

8.2: Configuring a Patrol Sequence

By configuring a so-called Patrol, you can have a sequence of camera views display automatically in Live Mode on the server's master monitor.

NOTE: Patrol sequences can only be configured and are displayed only on the plettac Sentio server's master monitor. Is is not possible to configure or view a Patrol Sequence from a remote client.

You can configure the Patrol to start at a specific time or at intervals or to run continuously. The patrol can include some or all of the connected cameras and can include any camera more than once in the sequence. Operators monitoring the server in Live Mode can dismiss the Patrol by moving the mouse, if they need to concentrate on a particular camera view. If an Alarm occurs on any of the server's camera views, the server automatically interrupts the Patrol to display the relevant camera view.

To configure a Patrol sequence, use the following procedure:

1. Open the **Patrol** menu of the Configuration Console as shown in Figure 8-1

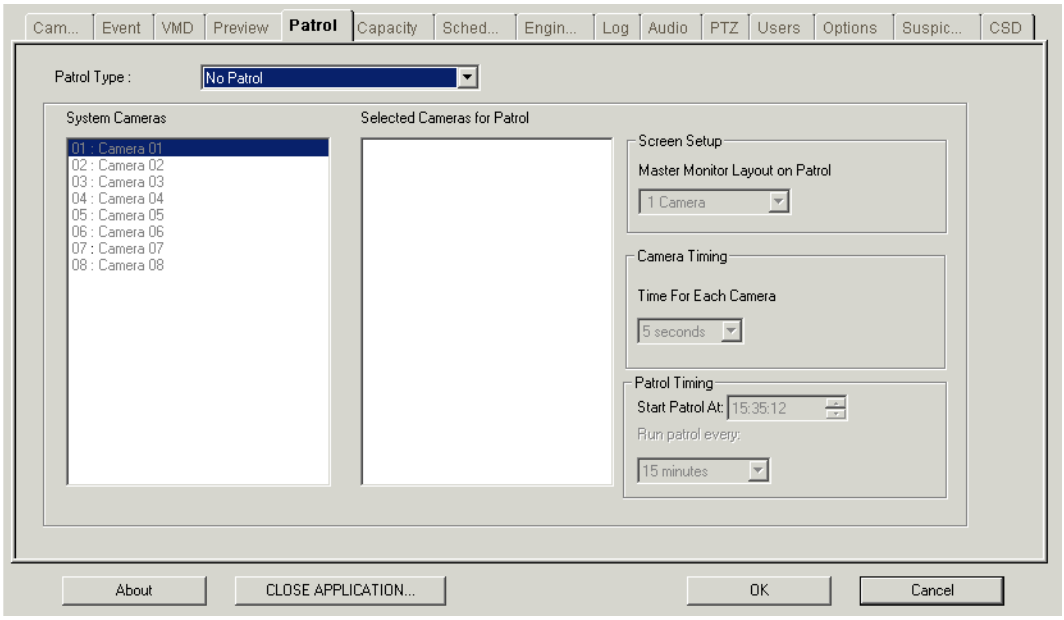
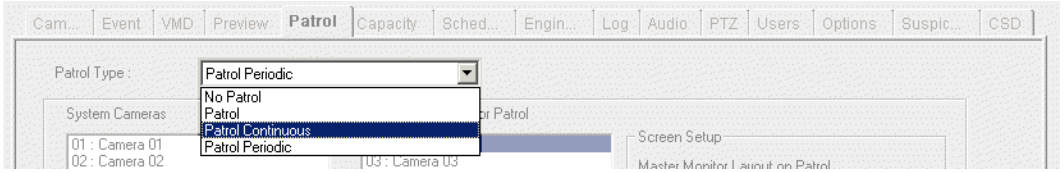


Figure 8-1: The Patrol tab of the Configuration console

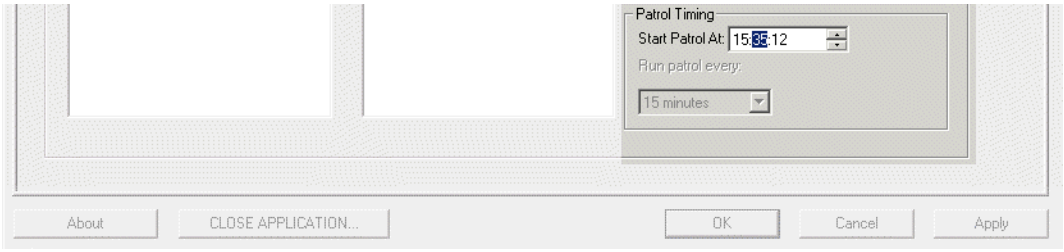
2. From the **Patrol Type** drop-down list, select one of the options described in Table 8.1.



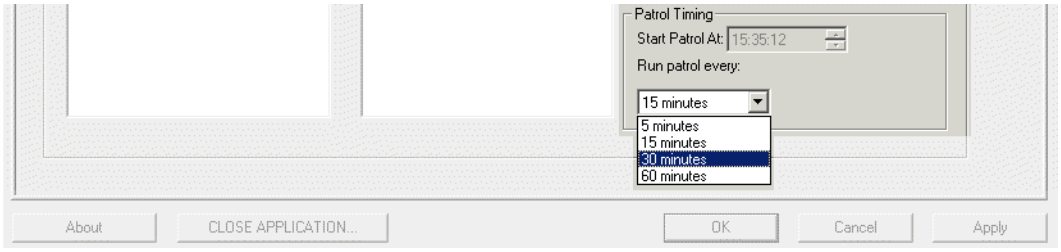
Patrol Type	Description
No Patrol	The default selection. This disables the Patrol sequence.
Patrol	Defines a one-time Patrol Sequence. Selecting this type enables the **Start Patrol at** field of the **Patrol Timing** area.
Patrol Continuous	Defines a continuous Patrol Sequence. The Patrol continues until it is interrupted by the operator. Selecting this type disables the **Patrol Timing** area.
Patrol Periodic	Defines Patrol Sequence that can be scheduled to be repeated at intervals. Selecting this type enables the **Run Patrol every** field of the **Patrol Timing** area.

Table 8.1: Patrol Type options

3. In the **System Cameras** box on the left, double-click the first camera you want displayed in the Patrol sequence. This creates an entry for it in the **Selected Cameras for Patrol** box.
   Continue to double-click other cameras in the **System Cameras** box in the order you want them displayed by the patrol. If you want, you can select a camera more than once, for example to have your most important camera view displayed between each of the others in the sequence. If you selected Patrol Continuous in step 2, the first camera view in the sequence follows the last when it cycles around, so you should avoid having the same camera in first and last position in the sequence.
   As the Patrol sequence displays live images it is not necessary for all the cameras you select to be configured to actually record.
4. In the **Screen Setup** area, select a **Master Monitor Layout** for the Patrol sequence when it displays. The drop-down list includes all the display layouts available in live mode, so the Patrol can display 1,4,9,10,12 or 16 camera views at once.
5. In the **Camera Timing** area, select a **Time for Each Camera** to be displayed on screen during the Patrol sequence. This specifies the minimum time for which each camera must be displayed during the Patrol sequence. In single camera layout, each camera view is displayed for the specified number of seconds. In multi-view layouts, each camera is displayed for at least the specified time but may remain on display for longer before it is replaced in the display.
6. Depending on the **Patrol Type** selected in step 2, different fields of the **Patrol Timing** area are configurable.
   - If you select a Continuous Patrol, neither field is enabled.
   - If you select a one-time Patrol sequence, only the select a **Start Patrol at:** field is enabled. Either type in a specific start time for the Patrol or use the spinner button to modify the default start time.



   - If you select a Periodic Patrol sequence, only the select a **Run Patrol every:** field is enabled. From the drop-down list select the interval that is to elapse between iterations of the Patrol sequence.



7. When you are satisfied with the configuration of the Patrol, click the **OK** button to commit the changes and close the Configuration Console.

NOTE: If you have configured the Patrol for continuous display, you may need to wait for up to 30 second before it begins.

8.3: Monitoring the Event Log

The plettac Sentio server keeps a record of the following types of events in its daily system log:

- Changes in the operational state of the system
- Changes in the configuration of the system
- Network connections to the system
- Alarm Events connected to the system
- VMD Events configured for its connected cameras

Apart from providing a record of all the configuration changes on your system, the log provides you with a way of analysing how frequently alarms and VMD events occur on the cameras for which they are configured.

8.3.1: Viewing the Log file

Use the following procedure to view the Log file:

1. Click the **Log** tab of the Configuration Console.
2. In the first drop-down list at the bottom of the screen, select the date of the log entries you want to review. The current date is selected by default.
3. In the second drop-down list at the bottom of the screen, select the type of log entries you want to review. Table 8.2 shows the options from which you can choose.

Selection	Description of Log Records
Events	Lists all the VMD and Alarm events that occurred in the selected day.
Operational Activities	Lists all the Events that relate to the operation of the system itself: • system startup and shutdown, • network connection by remote users. • connection or loss of video and audio inputs
Configuration Activities	Lists all the configuration tasks performed on the server in the 24-hour period.
Display All	Lists log entries of all types.

Table 8.2: Log Entry Selections Available for display

Once you make a selection, the logged entries of the specified type begin to load in the window. This can take quite a while to load, especially if you choose the Display All option. Each entry in the log is displayed on a new line, which begins with the code for that type of log entry.

4. You can sort the way the entries are displayed in one of three ways.

- To sort log entries by code, click on the column heading, **Code**.
- To sort log entries by alphabetical order of their description, click on the column heading, **Description**.
- To sort log entries by date, click on the column heading, **Date**.

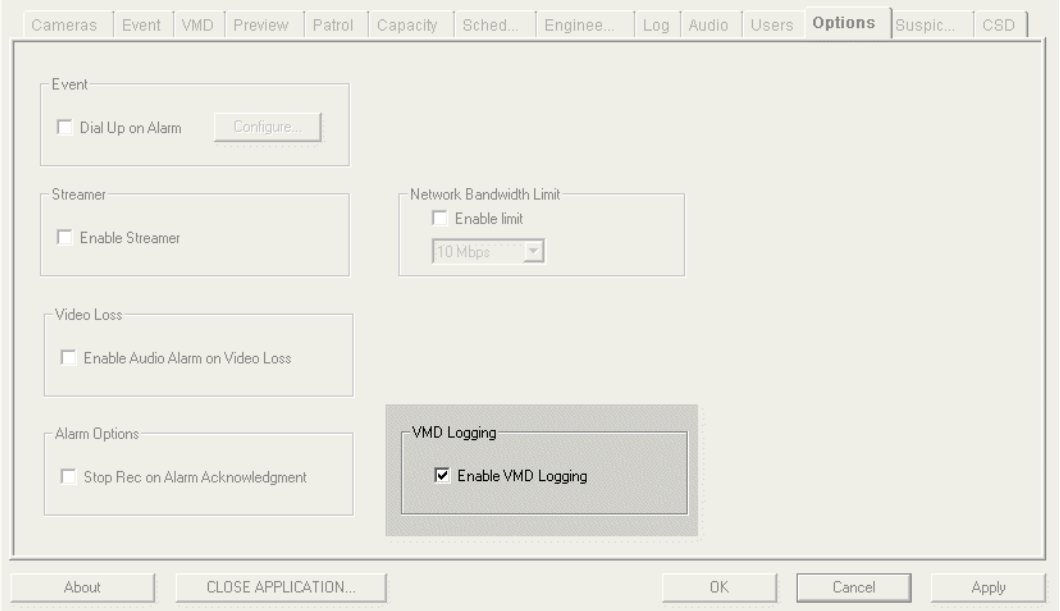
You can reverse any of these sort orders by clicking the same column heading a second time. Figure 8-2 and Figure 8-3 on page 70 show examples of different selections and sort orders.

WARNING: You can switch off **VMD Logging** if your system is generating large numbers of VMD events. With VMD Logging turned off, VMD “events” are not put into the database at all, nor are they displayed in the Log tab. Images are recorded at the specified **Event** ips as normal.

While the images associated with a VMD event are recorded, no referencing information is stored with them so they will not be searchable in the Historical Event Viewer nor displayed on the **Playback** timeline.

By default VMD Logging is switched on, as illustrated below. De-select the **Enable VMD Logging**

check box to turn it off.



Having VMD Logging on or off will influence system performance because on startup, a database repair is performed. If there are large numbers of VMD events (>200,000) this can take several minutes. Your plettac Sentio server estimates the time to perform the repair. If the time is < 30s, the message:

`Status: Connecting to server`

is shown. If it is likely to be >30s, the message:

`Verifying database. This may take n minutes. Please wait...`

where n is 1 or greater.

5. If you want a printed record of the log, click the **Print** button at the bottom of the screen. A printer must be installed and defined as the default printer.

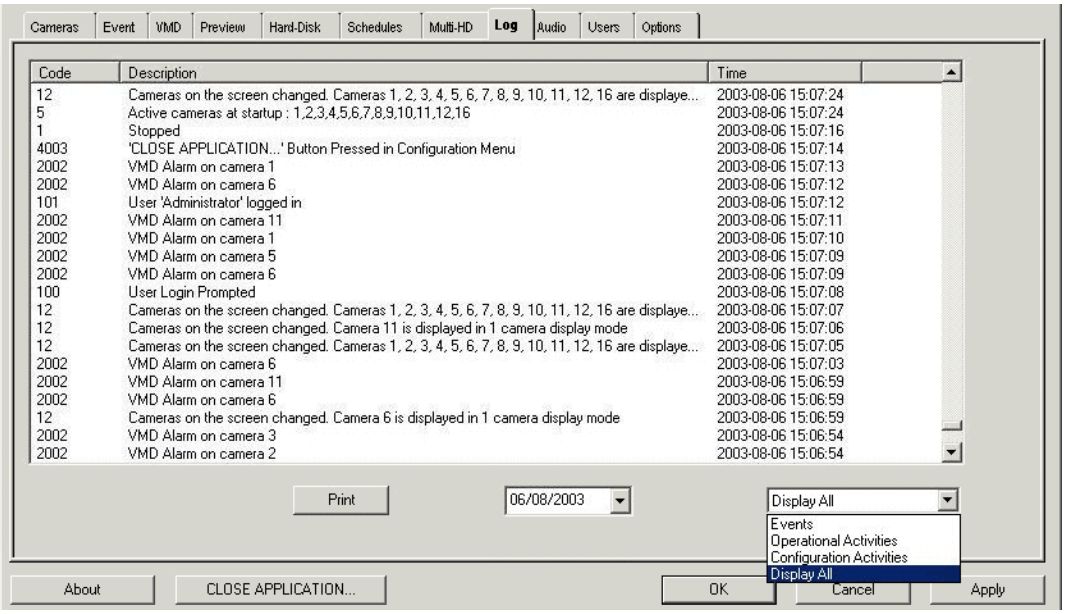


Figure 8-2: Full System Log sorted in descending order of date and time

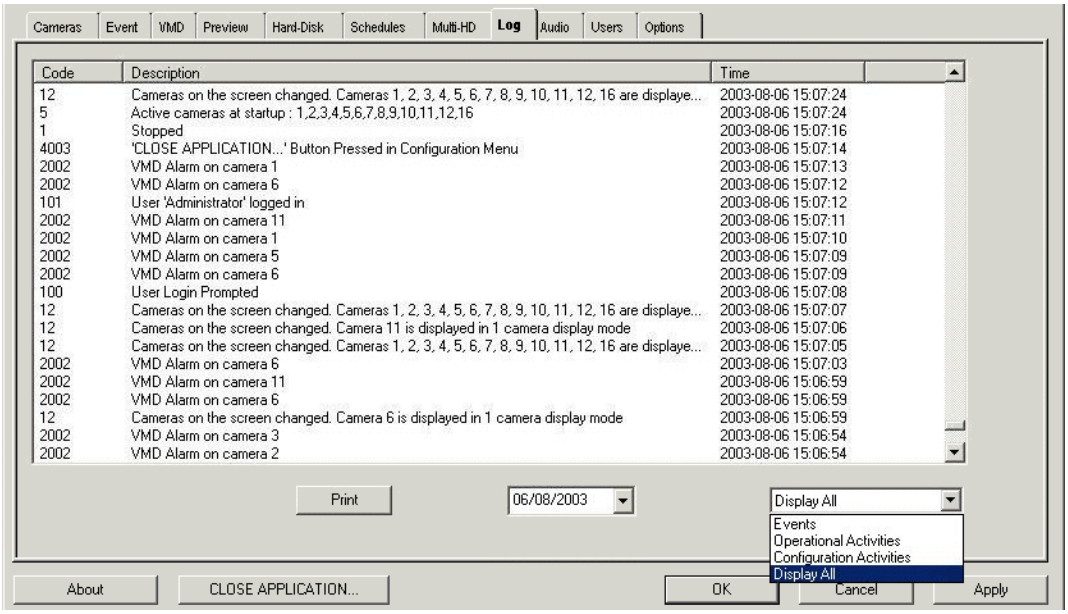


Figure 8-3: Log of Events sorted in descending order of code

8.4: Managing User Accounts

Any user with Administrator or Manager privileges, can create and modify accounts for other users of the plettac Sentio system and control which features of the product are available to different user groups.

By default, plettac Sentio IVMS servers do not have any password protection on installation. Once your server has been set up, you should open the Users tab of the Configuration Console and enable password protection for the default account names. To do this, click in the Password Protection field of the Access Rights panel, an example is illustrated below.

Table 8.3 shows the default user account names, passwords and privileges for your plettac Sentio server:

User	Password	Privileges
Administrator	Administrator	Administrator
guest	guest	Standard User

Table 8.3: Default User Accounts

NOTE: Initially the only user account with access to the Configuration Console is *Administrator*. For security reasons, it is essential that you modify the initial password of this account once the system has been installed.

The user *Administrator* can create other users on the system with one of three levels of privileges:

- Administrator
- Manager
- Standard User

The **Users** tab of the Configuration Console enables you to perform the following tasks:

- create and delete user accounts
- reset users passwords
- specify which features are protected by password
- specify which features are available to different user groups

8.4.1: Creating A New User

Users with Administrator or Manager privileges can access the **Users** menu of the Configuration Console to create user accounts for other users.

To create a new user account use the following procedure:

1. Open the **Users** tab of the Configuration Console as shown in Figure 8-4.

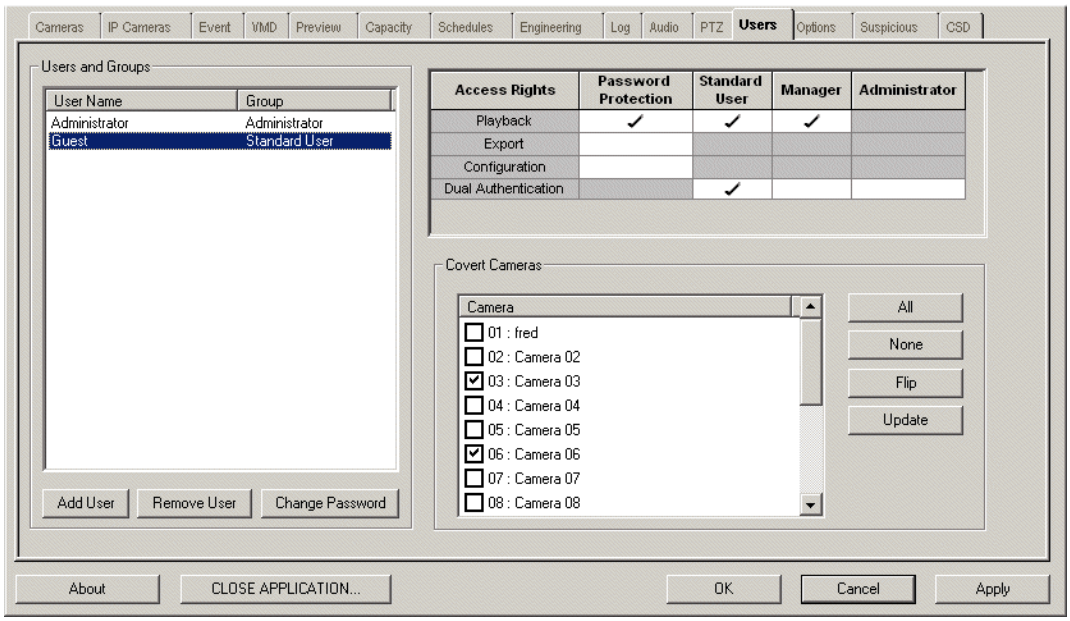


Figure 8-4: Creating a new User Account

2. Click the **Add User Button** to open the **Add User** dialog shown in Figure 8-5:

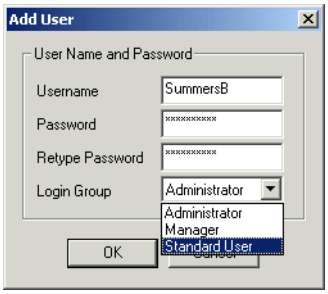


Figure 8-5: Setting the privileges for a new User Account

3. Specify values in the fields provided, as described in Table 8.4:

Field	Description
Username	Enter a username consisting of, at least, 5 alphanumeric characters.
Password	Enter a password consisting of, at least, 5 alphanumeric characters.
Retype New	Retype the password. (For safety reasons, you cannot copy and paste).
Login Group	From the drop-down list, select one of the groups described in Table 8.5 on page 72.

Table 8.4: Fields of the Add User dialog

Table 8.5 shows the access rights assigned to a new user by their user group:

Group	Feature	Access (when enabled)
Administrator	Playback	Full access to all Playback controls
	Export	Full access to export controls
	Configuration	Full access to all menus on the server and via remote clients.
Manager	Playback	Full access to all Playback controls
	Export	Full access to export controls
	Configuration	Full access to all menus on the server but not via remote clients.
Standard User	Playback	Full access to all Playback controls
	Export	Full access to export controls
	Configuration	Access only to the **Users** menu to modify own password. No access via remote clients.
Note: You cannot modify the user group of an account once it has been created.		

Table 8.5: Configuration access provided by user privileges

4. When you are satisfied that you have configured the user account correctly, click on the **OK** button.
5. You can create other accounts in the same way. When you have finished creating user accounts, click the **OK** button to commit the changes and close the Configuration Console.

8.4.2: Limiting the cameras a user may view

You may have covert cameras in your installation that you do not wish all users to know about or view. When you create a user and assign it to the Standard User group, the **Covert Camera** panel of the Users tab is enabled. An example is shown in Figure 8-6

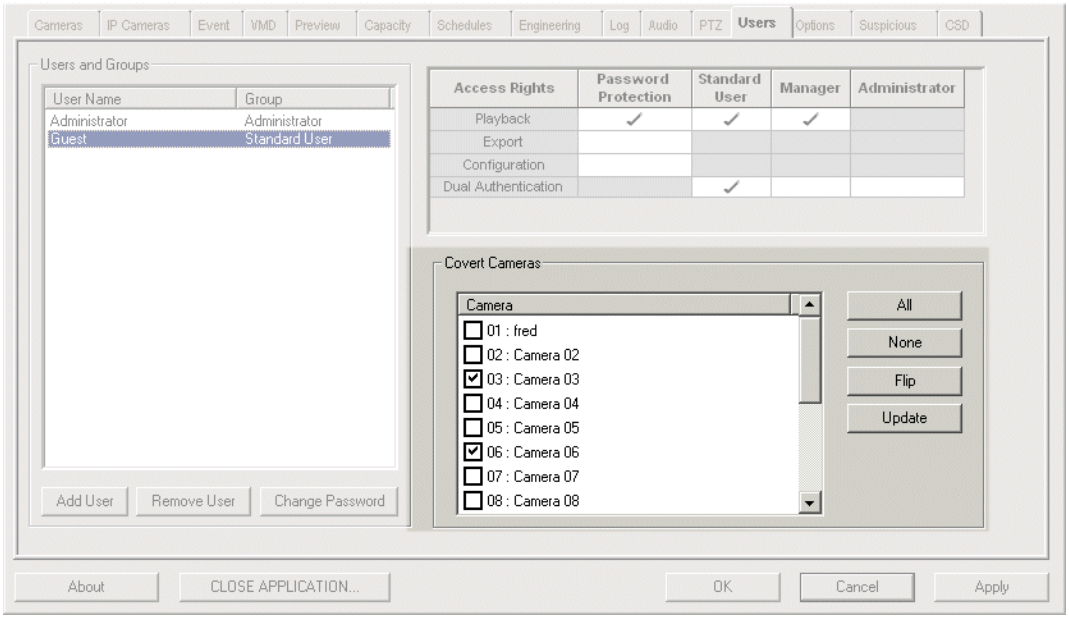


Figure 8-6: The Covert Camera panel of the Users tab

All cameras, analogue or IP, attached to a server can be designated as covert. With the particular user highlighted, select the cameras that are not to be viewed by the user. From the list of cameras, select the check box next to those cameras which are not to be seen. If the user is to not view any cameras, click **All**. (You can quickly de-select cameras by clicking **None**.)

The **Flip** button allows you to automatically select an alternative range of cameras. For example, if you have 24 cameras available (12 analogue and 12 IP) and have selected cameras 1, 3, 5, 7, 9 and 15 to be covert, clicking Flip will change the designated cameras to be those numbered 2, 4, 6, 8, 10-14 and 16-24. This is shown in

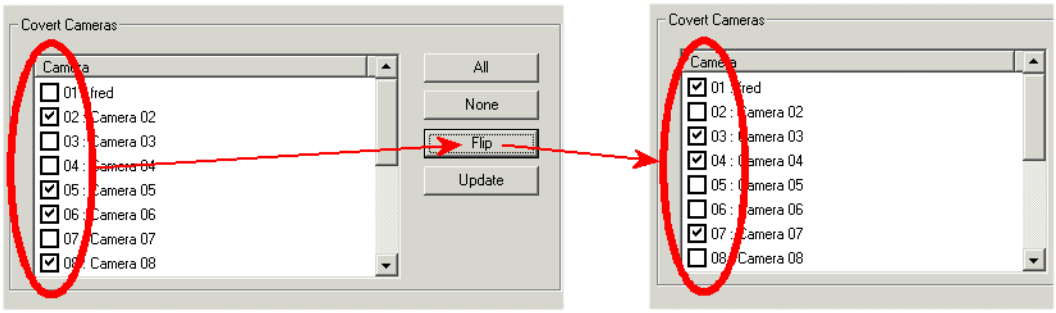
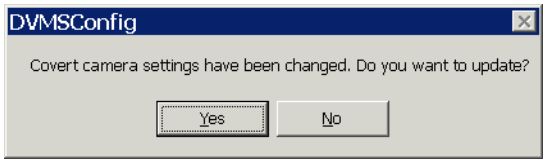


Figure 8-7: Illustration of the effect of the covert camera Flip button

When the user logs on to a server, the Camera List of the primary GUI will only show the names of those the user is allowed to view.

NOTE: The cameras designated as covert may be different for each user in the Standard User group.

When you have designated which cameras are to be covert, click the **Update** button. This saves your selections to the database. If you click **OK** or **Apply** on the Configuration console before updating the covert camera selections, the following warning message will be displayed.



NOTE: Designating a camera as covert affects the operation of the streaming function of your plettac Sentio system. For further information refer to section 9.6.1: “Enabling the Streamer” on page 84.

8.5: Controlling Access to Interfaces

The right hand side of the **Users** menu of the Configuration Console contains an access-control mask, which you can use to control users access to the GUI features described in Table 8.5 on page 72. You can decide whether users of a particular user group have access to each of these features and whether they need to connect with a password to use those features.

8.5.1: Dual Authentication

Dual Authentication provides stricter control by making it necessary for two people to enter their username and password in order to access or modify a particular feature. plettac Sentio software has three levels of user: Standard User, Manager and Administrator. When utilising Dual Authentication, the second authorisation must be of at least the next level of user, as shown in Table 8.6 below.

User Level	Level required for Dual Authentication
Standard	Manager or Administrator
Manager	Manager or Administrator
Administrator	Administrator

Table 8.6: Dual Authentication levels

The example in Figure 8-8 shows that a second password is required when either a Standard User or a Manager wants to access the Configuration console. The Standard User would require at least a Manager to authorise access and a Manager would require another Manager or an Administrator

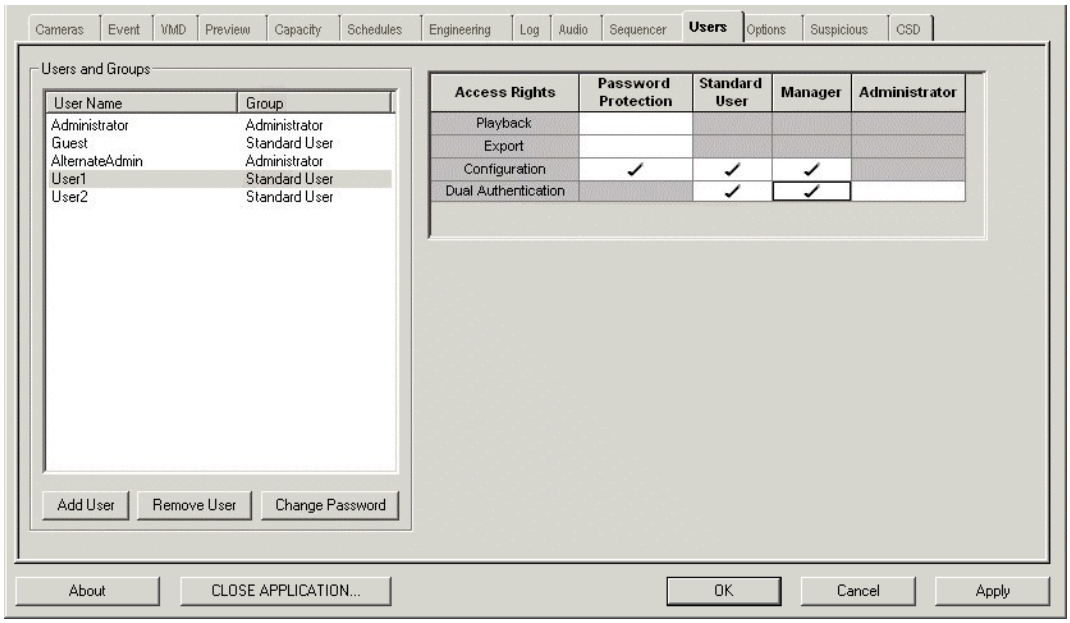


Figure 8-8: Dual authorisation required for a user

8.5.2: Allowing open access to a feature

Use the **Password Protection** fields to specify whether a feature is freely open to users of each group or whether they must login to access them.

Table 8.7 shows a configuration with the **Password Protection** field left empty for all features. This allows all users to access the features (within the limits described in Table 8.5 on page 72).

Access	Password Protection	Standard User	Manager	Administrator
Playback				
Export				
Configuration				
Dual Authentication				

Table 8.7: Open access to all features

8.5.3: Barring access to a particular feature

Table 8.8 shows a configuration with the **Password Protection** field left empty for Playback and Export but enabled for Configuration. The **Standard User** and **Manager** fields are enabled but not selected. This forces users with Administrator privileges to login with their passwords to access the Configuration Console but bars access from the other users groups. Playback and Export are still accessible by all users.

Access	Password Protection	Standard User	Manager	Administrator
Playback				
Export				
Configuration	✓			
Dual Authentication				

Table 8.8: Configuration access restricted to Administrators

8.5.4: Configuring password protection

Table 8.9 shows a configuration with the **Password Protection** field selected for all features. The **Standard User** and **Manager** fields are selected for each GUI feature. This forces all users to login with their passwords to access any of the GUI features (within the limits described in Table 8.5 on page 72).

Access	Password Protection	Standard User	Manager	Administrator
Playback	✓	✓	✓	
Export	✓	✓	✓	
Configuration	✓	✓	✓	
Dual Authentication				

Table 8.9: Password access to all users for all features

Table 8.10 shows a configuration with the **Password Protection** field selected for all features and **Dual Authentication** enabled. The **Standard User** and **Manager** must log in to access a feature and also have a second user, a Manager or Administrator respectively, to also log in to allow them access.

Access	Password Protection	Standard User	Manager	Administrator
Playback	✓	✓	✓	
Export	✓	✓	✓	
Configuration	✓	✓	✓	
Dual Authentication				

Table 8.10: Dual authentication for to all users for all features

CHAPTER 9: Live Mode Operations

When you start up the plettac Sentio-FXL system or connect to it using NetManager, the GUI is initially in Live Mode. This chapter describes the tasks that you may need to perform while the plettac Sentio GUI is in Live Mode. It contains the following sections:

- Dial-up on Alarm with NetManager
- Acknowledging Alarms
- Acknowledging VMD Events
- Pan-Tilt-Zoom Functionality
- Video Streamer
- Optional Features in Live Mode

NOTE: If you are combining video recordings with transaction data from automatic teller machines or retail cash registers, there are some changes to how alarms are displayed and acknowledged. For further information refer to Appendix C, “Transaction Integration,” on page 173

9.1: Live Display Mode

The images displayed in a camera view in Live mode can be selected as full-frame or single field. Full-frame video presents a non-interlaced image whereas the single field is an interlaced image. The default setting for plettac Sentio servers is single frame.

To change the **Live Display Mode** setting, select the Options tab of the Configuration console and click the required radio button.

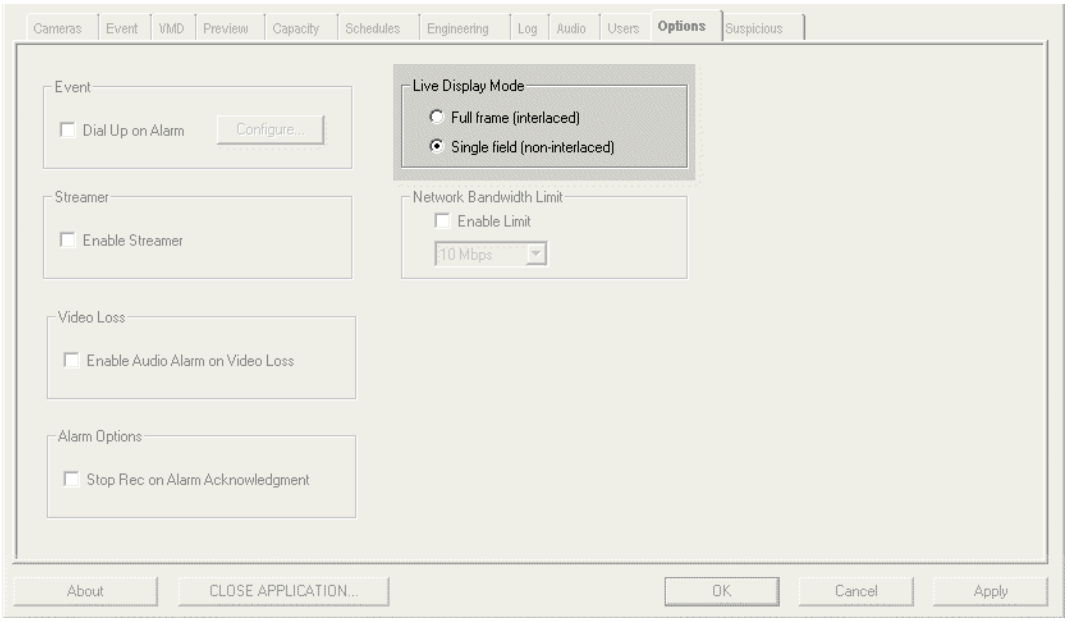


Figure 9-1: Live Display Mode selections on the Options tab

9.2: Dial-up on Alarm with NetManager

If you are using the NetManager application, you may be contacted automatically by the plettac Sentio server when an Alarm condition occurs. See section 6.7: ”Configuring Dial-Up on Alarm” on page 58 for more information about this feature.

If the **Dial-up on Alarm** option is configured on the plettac Sentio server and the address of your client is configured as a possible dial-up client, your client may receive connections from the server so you can take appropriate action. Refer to the NetManager User Guide for further information.

9.3: Acknowledging Alarms

For alarm events, the border of the camera display turns red and the Alarm Acknowledgement popup appears with a red entry for the affected camera, as shown in Figure 9-2.

Figure 9-2: Acknowledging alarms in Live mode

Depending on how the Alarm has been configured, the Alarm Acknowledgement popup may persist on screen for a number of seconds and then disappear. However, if the alarm duration is set to **Until Ack**, it remains on screen until an operator physically acknowledges it by clicking the red **ACK** button next to the Alarm name.

If the current screen layout is not displaying the camera view associated with the physical alarm, the occurrence of that alarm switches the screen layout automatically to the layout with the maximum number of display tiles.

If the camera associated with the alarm is configured to modify its recording behaviour when the alarm occurs, acknowledging the alarm cancels this modified recording. You can do this when you are certain that the alarm does not constitute a breach of security.

The plettac Sentio server logs the occurrence and acknowledgement of every Alarm that occurs, with the exception of VMD acknowledgements. For more information, see section 8.3: ”Monitoring the Event Log” on page 68.

9.4: Acknowledging VMD Events

VMD is intended as a feature of a computer-assisted surveillance system. It is not a replacement for human operator but as a way of helping security personnel easily identify and record significant occurrences.

In Live mode, the border of the camera view turns yellow when a VMD event occurs as shown in Figure 9-3.

Figure 9-3: Acknowledging VMD events

If security personnel are monitoring the display, the VMD event draws their attention to the event enabling them to decide whether or not it represents a security risk.

To acknowledge an event, simply click on the **VMD Ack** text that appears in the camera view. The border returns to its normal colour and the text message disappears.

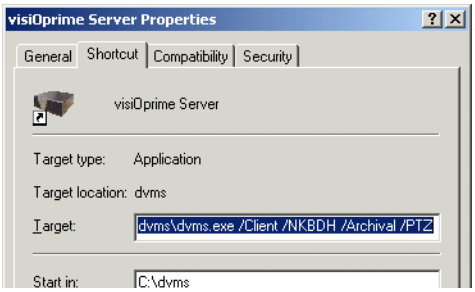
If an event is configured with a duration, it dismisses itself if the user doesn't acknowledge it before the duration expires. If an event is configured with Until Ack as its duration, it remains displayed until it is manually acknowledged.

If the camera associated with the VMD event is configured to modify its recording behaviour when it occurs, acknowledging the event cancels this modified recording. You can do this when you are certain that the event does not constitute a breach of security.

The plettac Sentio server logs the occurrence and acknowledgement of every Alarm that occurs, with the exception of VMD acknowledgements. See section 8.3: "Monitoring the Event Log" on page 68 for more information.

9.5: Pan-Tilt-Zoom Functionality

NOTE: To enable this feature, the **/PTZ** command line option must be configured in the start-up properties of the plettac Sentio server. Once this feature is enabled on the server, any NetManager or NetManager*Lite* client that connects to that server can access the PTZ control console. For further information, refer to Appendix G, "Run-Time Configuration," on page 159.



The plettac Sentio server supports a range of PTZ and Dome cameras. The protocols for some are given in Appendix E, "Remote Control Commands," on page 151. For a full list, contact the plettac support team.

These types of cameras attached to the system can be controlled via the PTZ Control Dialog or via an optional plug-in joystick. In Live mode, click the PTZ button to display or collapse the PTZ Control Dialog.

This section describes the configuration to integrate PTZ cameras with the Live mode operations of the plettac Sentio server.

9.5.1: Configuration of PTZ cameras

If you have PTZ enabled cameras connected to your plettac Sentio server and have started the system with the /PTZ command-line option, a **PTZ** tab appears on the Configuration Console.

Click this tab to open the PTZ Configuration menu shown in Figure 9-4 .

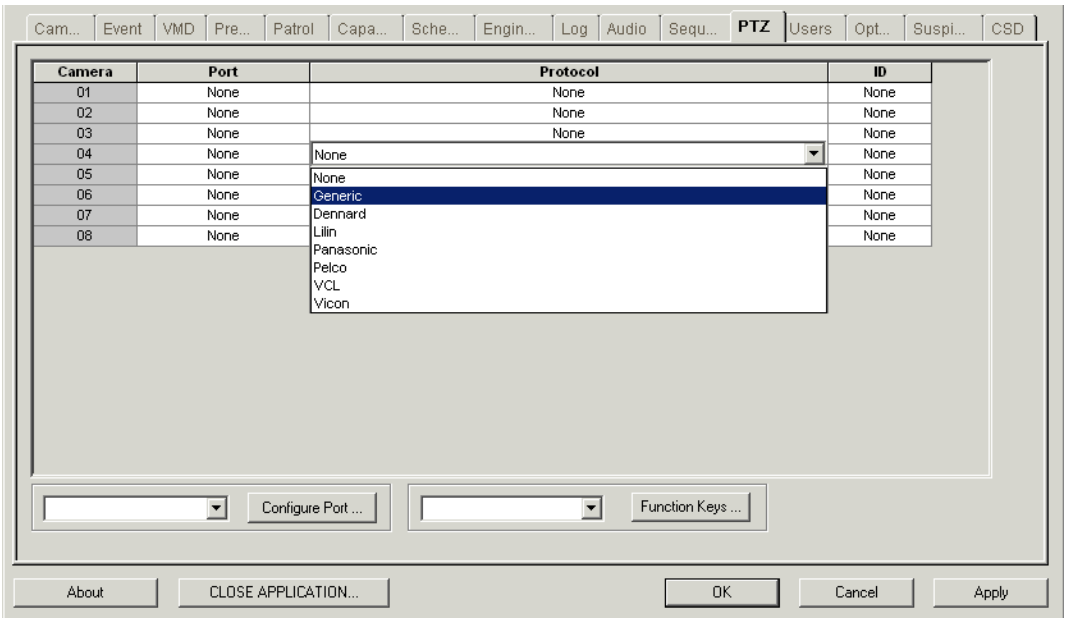


Figure 9-4: PTZ configuration settings

Table 9.1 describes the fields of the PTZ Configuration Menu.

Field	Description
Camera	This selects which camera
Port	Serial communications port. Each PTZ camera to be integrated must be configured on a port. Select the COM3 port and click the button labelled **Configure Port...**. The **PTZ Port Settings** dialog appears as shown in Figure 9-5 on page 81.
Protocol	Choose the protocol that matches the camera manufacturer.
ID	This is the hardware identification number assigned to the camera

Table 9.1: Fields of the PTZ configuration dialog

NOTE: It may not be possible to use the Configure Port button to specify the port for PTZ cameras. An alternative method is to use the Device Manager under System/Hardware in the Windows-XP

Control Panel.

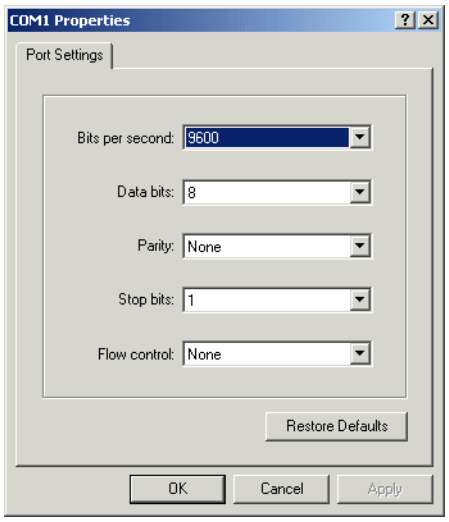


Figure 9-5: PTZ com port settings dialog

Enter appropriate options for the system being used and click on the **OK** button.
It is not necessary to press the **Apply** button first as the **OK** button applies any changes.

9.5.2: PTZ control in Live Mode

With the **PTZ Control Console** open, select the camera you want to control by selecting it for full-screen display in the main GUI. The currently selected PTZ camera has the **PTZ** label superimposed over its image and the camera name appears in the PTZ Control console. Thus you can only control one PTZ camera at a time.

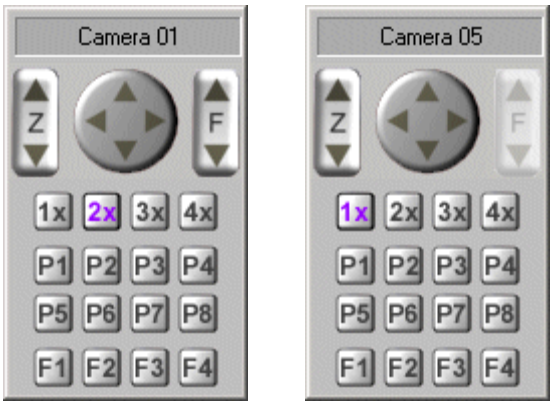


Figure 9-6: The PTZ Control Console (Standard (at left) and Auto Focus

NOTE: When you enable the Auto Focus feature for any IP camera on your network, if it is also a PTZ camera, the focussing button on the PTZ control panel will be disabled.

The 8 preset position keys (P1 to P8) can be used to store and reposition the PTZ camera at any time. To store the current position click and hold the required P1 to P8 button until it changes from purple back to grey. To reposition to any of the previously stored positions, simply click on the required P1 to P8 button.

The 4 function keys (F1 to F4) are defined for each supported PTZ protocol. These can be edited to suit your requirements. For further information refer to section 9.5.3: ”PTZ Function Key configuration”.

The description of each function key thus defined will be displayed as a tool-tip if the mouse hovers over the function key for more than a couple of seconds.

The following short-cut keys on the number pad of the keyboard can be used to control the currently selected PTZ camera in addition to using the PTZ dialog (with Num Lock off).

Numeric Key	Function
4(←)	Pan Left

Numeric Key	Function
6(→)	Pan Right
2(↓)	Tilt Downwards
8(↑)	Tilt Upwards
+ and –	Zoom in and out
/ and *****	Focus pull and push

Table 9.2: PTZ Control Keys

NOTE: Special commands strings for Pelco PTZ cameras are provided in Table E.2 in Appendix E, “Remote Control Commands,” on page 151.

9.5.3: PTZ Function Key configuration

For each camera protocol you can define up to 4 function keys. Each function key has a description and the required programming codes to perform that function. Select the required protocol and click the **Function Keys...** button to edit or review these settings. The Function Key buttons are accessed via the PTZ Control Dialog, see Figure 9-6 on page 81.

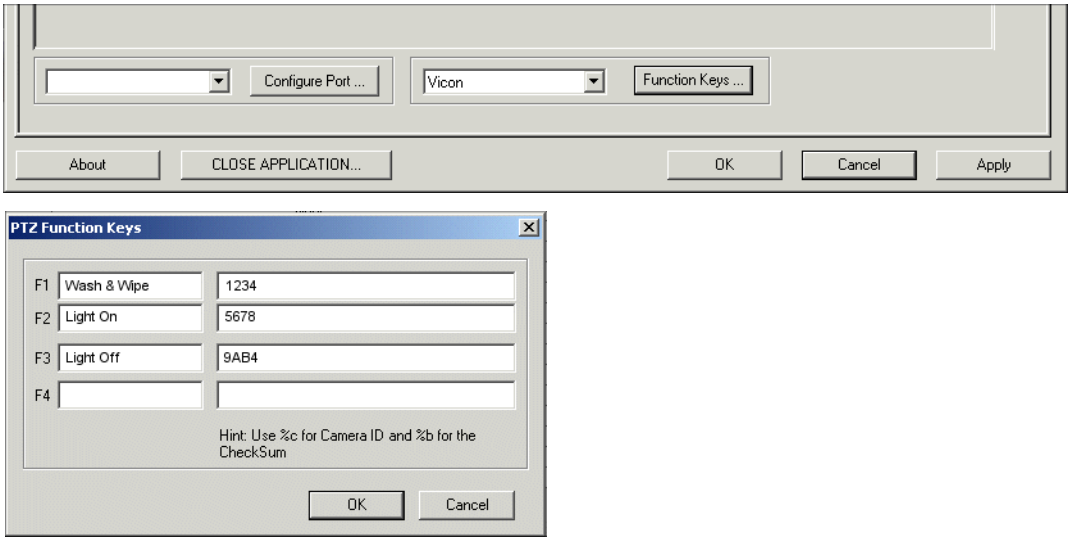


Figure 9-7: PTZ Function-Key settings

The actual programming codes are specified in hexadecimal (base-16) notation, using digits 0 (zero) to 9 and letters A to F. Consult the documentation supplied by the manufacturer of your PTZ camera for information about the correct protocol commands and syntax.

The description is the text displayed as a tool-tip on the PTZ Control console.

9.5.4: Joystick control of PTZ functions

A manual joystick is available to control the functions of your PTZ cameras This unit plugs into one of your server's USB ports..

Moving the joystick to the left and right controls the pan function and moving it forward and back controls the tilt function. Zoom control is effected by twisting the joystick handle.

NOTE: The Options tab has a check box which allows you to change the direction of the tilt movement on the joystick. You can either choose to have the camera tilt up when the joystick is moved "up" or to have the joystick have a flight-simulator style motion, where stick forward (up) means camera down. The change takes effect the next time you click the PTZ button. The check box is illustrated in Figure 9-8.

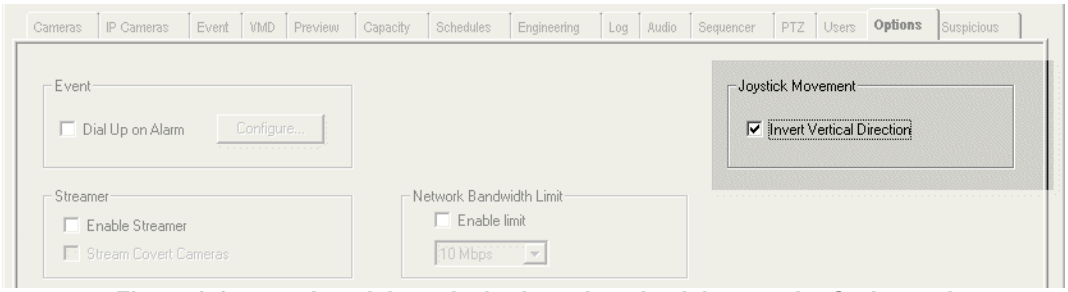


Figure 9-8: Joystick vertical orientation check box on the Options tab.

Camera presets - designating a particular camera position - can be recalled by pressing a button. Store a preset by holding a button down for three seconds. When a button is pressed, the colour of the corresponding button on the PTZ control panel of the GUI changes to mauve.

9.6: Video Streamer

With the Streamer feature, the plettac Sentio server can stream video across a network to clients that connect using web browsers.

Streaming can support up to 8 simultaneous clients, which can be PCs connecting via fixed networks or Pocket PCs connecting via wireless networks as shown in Figure 9-9.

Figure 9-9: plettac Sentio server streaming video to a Pocket PC in full-screen mode

9.6.1: Enabling the Streamer

Open the Options tab of the Configuration Console. Figure 9-10 illustrates the Streamer panel on this tab.

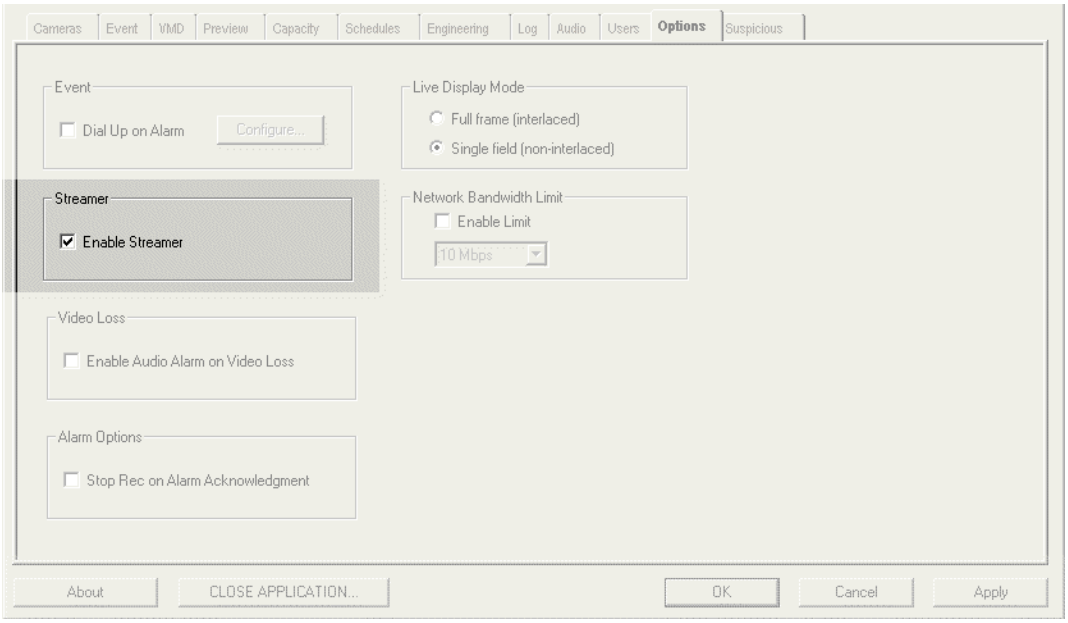


Figure 9-10: Enabling the Streamer option

Select the **Enable Streamer** check box to permit users to view images via a web browser.

When a new user's account is established, some cameras may be designated as covert. By default, any camera designated as covert cannot be streamed, unless you specifically permit it by selecting the **Stream Covert Cameras** checkbox. For further information about covert cameras, refer to section 8.4.2: "Limiting the cameras a user may view" on page 72.

NOTE: Even if a camera is currently being viewed on a device via streaming, if it is designated as covert for any user and the configuration settings are updated, the streamed image will immediately go blank.

9.6.1.1 Address for streamed video

The plettac Sentio server starts to stream video from Camera 01 (by default) to any client that connects to the following address using a web browser:

`http://<computer_name>/streamer.pl`

where <computer_name> is the name assigned to the server at installation.

WARNING: It is imperative that you do not change the computer name of the plettac Sentio server when you add it to your network.

9.6.1.2 Streaming Rates

The plettac Sentio server streams video at two rates

- 195 kilobit/second across fixed networks and wireless LAN
- 11 kilobit/second across mobile telecommunications networks

9.6.2: Connecting to a streaming plettac Sentio server

To connect to a plettac Sentio server that is enabled for streaming use the following procedure:

1. Open a Web browser and enter the streaming URL of the plettac Sentio server from which you want to see images. The streaming URL takes the form described in section 9.6.1.1 ”Address for streamed video”.
2. Enter any Username and Password that is valid for the server to which you are connecting.
3. Click the Login button

1. A dialog box appears prompting you to choose whether to run Windows media player as an independent application or embedded in your web browser. The example in Figure 9-11 shows the selection of the independent option, the result of which can be seen in Figure 9-12 on page 86...

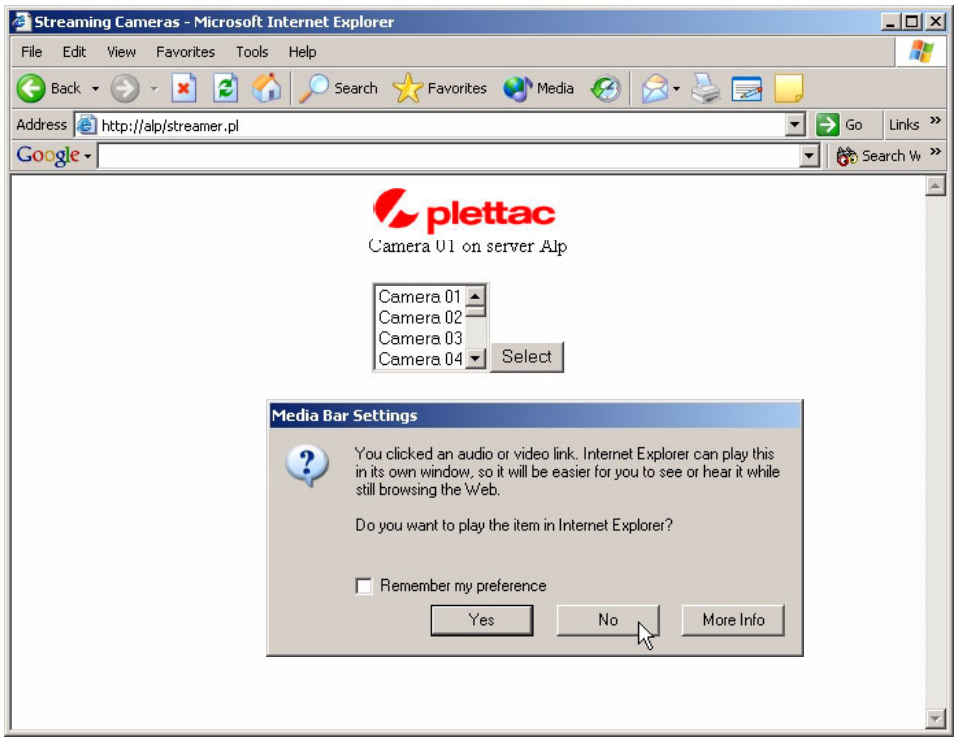


Figure 9-11: Opening a Streaming client connection

9.6.3: The Master Streaming Client

The first PC-based streaming client to connect to the server, becomes the master client. Only this client can select which camera's images are streamed by the server. All other clients receive the images from the camera view chosen by the master client..

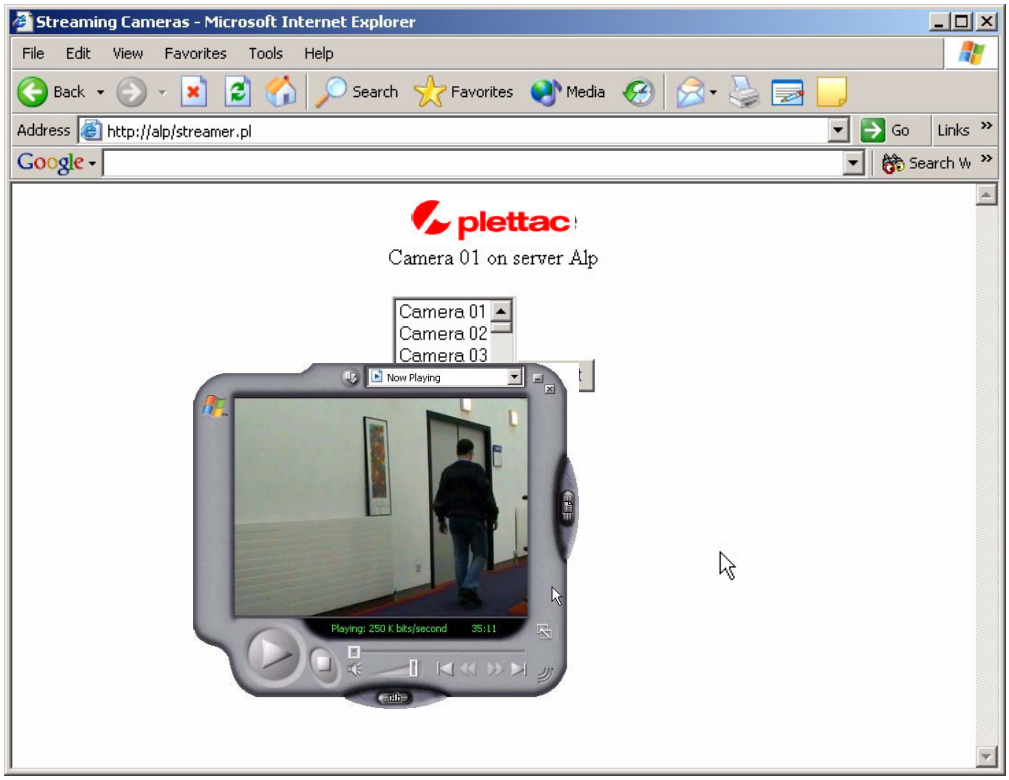


Figure 9-12: Selecting a camera view to be streamed

9.6.3.1 Selecting the Current Video Stream

As the user of the Master Streaming client, you select the camera view that is streamed by the plettac Sentio Server. Initially Camera01's images are streamed by default.

To change the video stream, use your mouse or tab and cursor keys to select a camera from the drop down list under the display panel and click Select.

The title of the newly selected camera appears above the display panel, which begins to update itself. Display update can take up to 15 seconds.

Just before the server starts streaming the new camera view, the previous camera view may appear for a second or two.

9.6.4: Enabling streaming to Pocket-PC clients

Streaming is supported only using Windows Media Player software (version 8.5 or higher) on the Pocket PC 2002 or Pocket PC 2003 operating system.

9.6.5: Client view of streaming

Unless you are connect to the server's streaming URL as the Master Client, you cannot control which camera's images are streamed. You have limited control over the way you display the images in your browser. This section provides additional information about controls and usage limitations.

If you click on the picture with the right mouse button you display a list of options one of which is to switch to full-screen mode.

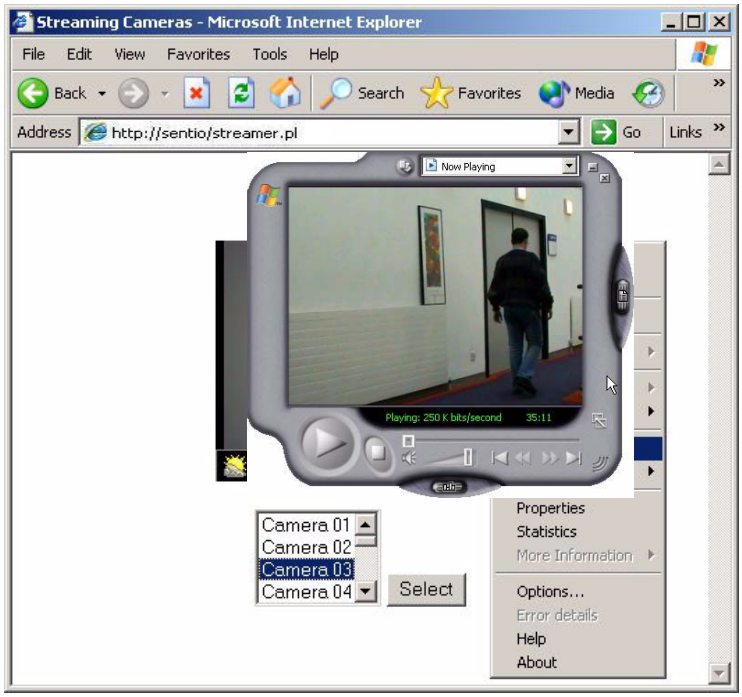


Figure 9-13: Client view of streaming

9.6.5.1 Limitations and Issues

There is a time lag of typically 15 seconds in the stream of video images to Pocket PC devices. No audio data is streamed.

If the user of the Master Client changes the camera view being streamed, the pictures are updated on your display but the title showing the camera number above the display may not update itself automatically. If you notice that the picture has changed and want to know the camera number, reconnect to the server with your browser to update the title. If the Master Client disconnects, then the first client changing the camera number or connecting becomes the master.

NOTE: If you would like to write your own streaming application, an ActiveX control for the plettac server is available. For more information, see Appendix F, “plettac ActiveX Control,” on page 155.

9.7: Optional Features in Live Mode

If you are using any of the following product options, the GUI contains additional elements in Live mode:

- Super VMD. See section 12.1.7: “SVMD in Live Mode” on page 123.
- Bi-Directional Audio. See section 12.3.2: “Opening the microphone manually for sBDA” on page 125.
- NetAlert. See section 12.6.3: “NetAlert alarm conditions” on page 131.

CHAPTER 10: Playback Mode Operations

You can review recorded data using the sentio-FXL server's GUI or NetManager in Playback mode. This chapter describes the tasks that you can perform while using the plettac GUI in Playback Mode. It contains the following sections:

- Accessing Playback
- Locating Alarm and VMD Events
- Exporting Recordings
- Printing Images in Playback Mode
- Capturing Images in Playback Mode
- Playing Exported Video
- Using sPlayer as a Remote Client

NOTE: The basic operations of Playback are described in section 2.10: "Playback Console" on page 15. If you are combining video recordings with transaction data from automatic teller machines or retail cash registers, there are some changes to the way Playback operates and to what is displayed on screen. For further information refer to Appendix C, "Transaction Integration," on page 173

10.1: Accessing Playback

If your system administrator has configured password protection for Playback mode, you may need to enter your password to use this feature.

10.2: Locating Alarm and VMD Events

VMD events and External Alarms appear as colour-coded vertical lines in the Playback time line. Depending on the frequency with which such events occur, the lines that represent them may be spaced out or may form contiguous blocks.

If there are long periods of time between the events that you wish to review, you do not need to review all the recorded images between them. You can use the event locator buttons to jump forward or back to the next event in the time line.

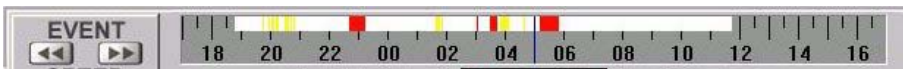


Figure 10-1: The Playback Time Line & Event Locator Buttons

NOTE: The Event Review utility enables you to use event types to select event-related recordings in Playback based on the following event types

- Alarm
- VMD
- Suspicious Alarm
- Camera Sabotage Detection
- Video Loss Alarm

For more information on the above see section 10.6: ”Reviewing and Exporting Events” on page 96.

WARNING: Selecting recordings for playback that are too close to the current time, diminishes the quality of video- and audio reproduction. To guarantee proper video reproduction, start playback at least 5 seconds before the current time. To guarantee proper audio and video reproduction, allow a 10-second lag before starting Playback.

10.3: Exporting Recordings

The plettac sentio server provides you with a means of transferring audio-visual recordings from your system’s hard drive(s) to the following types of external storage media:

- Local Hard Drives
- CDR
- DVDR

The latter two options are particularly useful for the transport and display of evidence to legal authorities. The sentio Export utility can include the sPlayer software with the data so that it can be played on any PC system running Windows (98 or later).

This section describes how to use the Export utility.

10.3.1: Starting the Export utility

NOTE: Before exporting any data from your plettac sentio server you should pause Playback to avoid adversely affecting system performance. If you must continue playing back recordings on the server, you are recommended to use NetManager to control any export.

In Playback mode, click the **Export** button on the Playback console. (You will be prompted to enter a password, if password protection has been configured for Export.) The export dialog opens as shown in Figure 10-2.

There is a short delay in startup while the system searches for valid export devices. The plettac server automatically detects local hard drives, network drives, CD and DVD writer drives and displays them in the **Target** drop-down list.

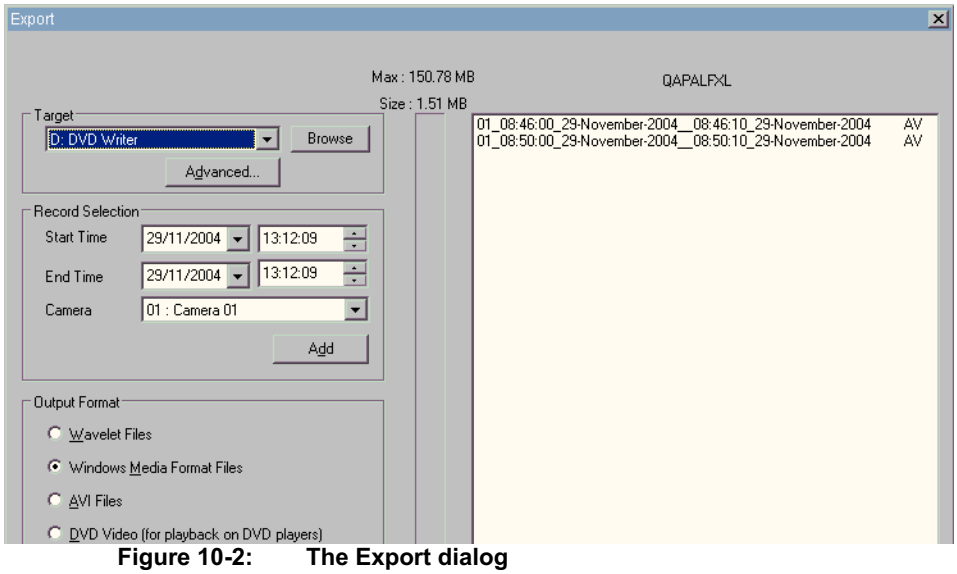


Figure 10-2: The Export dialog

10.3.1.1 Elements of the Export Dialog

Element	Description
Fields of the Target panel	
Target	Drop-down list that contains the valid CD, DVD and local hard drives detected by the Export utility. The number and types of target drives available for export depend on the hardware and software installed on the machine on which you run the export utility. See section 10.3.3.1 ”Required software for export to CD or DVD”.
Browse	Button that enables you to locate target storage devices on the local machine and on the network. Do not use this browser to select a CD or DVD drive as the target.
Advanced	Click this button to specify CD and DVD writer options. See section 10.3.3: ”Exporting to CD or DVD” on page 93.
Fields of the Record Selection panel	
Start Time	Fields you use to specify the starting time stamp of the video recording you want to export. Enter the date and time using the keyboard or spinner arrows. The date spinner displays a calendar from which you can select the date only if there recordings on the server’s disks from that date.
End Time	Fields in which you specify the closing time stamp of the video recording you want to export. Enter the date and time using the keyboard or spinner arrows. The date spinner displays a calendar from which you can select the date only if there recordings on the server’s disks from that date.
Camera	Drop-down list from which you can select the camera from which the export data was originally recorded.
Add Video & Audio	Button that creates an entry in the export list that includes both the audio and video tracks for the selected camera and times. If audio input is associated with the camera whose recordings you are exporting, it can greatly enhance its value as evidence. However, if no audio input is associated with the selected camera, using this option still exports a blank audio track, which slightly increases the size of the export data.
Add Video Only	Button that creates an entry in the export list that includes only the video tracks for the selected camera and times.
Fields of the Common Options panel	
Add Viewer	Check box that includes the sPlayer application (1.5 MB) in the export. It is advisable to include sPlayer if you are exporting to removable media such as CD or DVD and you are unsure as to where the recordings will be played.
Primary control buttons of the Export dialog	
Export List	List of video and audio/video recordings to be included in the current export. The filename of each export entry comprises the Camera Number and the start and end timestamps of the recording. See section 10.3.1.2 ”File naming convention for Export”. Each entry is marked as **AV** or **V** to indicate whether it contains audio and video or just video data.
Target Capacity Indicator	A vertical bar in the middle of the dialog that shows the total size of the entries in the Export List and the available storage space in the Target device.
Remove from List	Button that removes a selected entry from the Export List.
Cancel	Button that closes the dialog before you actually click either the **Export** button.
Export	Button that confirms the export of the entries in the Export List and starts the Export procedure.

Table 10.1: Descriptions of the elements of the Export dialog

10.3.1.2 File naming convention for Export

Each export file is named so that you can immediately identify its origins and content. Figure 10-3 illustrates the file naming convention.

Camera No.	Start Time	Start Date	End Time	End Date	Content Format
06_	02:57:00_	31-July-2008__	02:58:35_	31-July-2008	AV

Figure 10-3: Export File Naming Convention

10.3.2: Exporting to a hard disk drive

Use the following procedure to export to a local hard drive or to a mapped network drive:

1. Start the Export utility. See section 10.3.1: ”Starting the Export utility” on page 90.
2. Use the **Browse** button to open an explorer dialog and select the **Target** drive. The Target Capacity Indicator displays the available disk space on the selected drive.
3. From the **Camera** drop-down list, select the **Camera** whose recordings you want to export.
4. Select the start date and time for the Export. The default selection is the time stamp of the frame at which Playback is stopped.
5. Select the date and time of the image at which the Export should end.
6. Use the check box to specify whether to include the viewer software in the Export or not. This increases the size of the export by 1.5 MB and is written to the export only once.
7. Use the **Add Video & Audio** button or the **Add Video Only** button to add an entry to the Export List. The Target Capacity Indicator updates the display of the Export’s size and of the space available.
8. You can create as many additional entries for the Export list as will fit on the target drive. Each time you add an entry the available space is recalculated. If your addition would exceed the available space the Export utility displays the following dialog:

Figure 10-4: Export space exceeded warning message

NOTE: You cannot add a duplicate entry to the list. However, two export entries with the same start and end times are unique if one of them includes audio and the other does not.

9. When you have created entries for all the recordings you need to export, click the **Export** button. The Export utility displays its progress at the bottom right hand corner of the screen as shown in Figure 10-5 below. Export takes place in 5 stages, which are shown in a vertical progress bar. Progress within each stage is shown in the horizontal progress bar. During the first 4 stages, the utility prepares the export and writes to disk in stage 5.

Figure 10-5: The Export progress indicator

NOTE: For large export files you may notice the horizontal stages seem to be repeated. This is because Export breaks large files into smaller chunks and must repeat the stage for each.

When the export is complete a separate file is created for each entry in the Export List and the utility displays the following message:

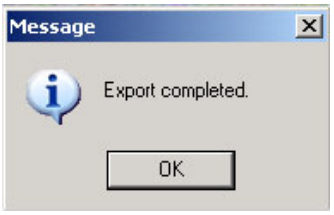


Figure 10-6: Export complete message

10.3.3: Exporting to CD or DVD

The sentio Export utility automatically detects the presence of a CD or DVD writer on the machine on which it is running and, if the correct software is available selects it as the default Export Target device.

Export supports the following CD and DVD formats:

- CDR
- DVDR (which comprises the DVD ± RW and DVD ∓ RW formats)

If you do not have a CD or DVD writer installed, there is no default selection for the export target. Using the Browse button, you can select a hard drive as the target for the Export utility. See section 10.3.2: ”Exporting to a hard disk drive” on page 92.

NOTE: If you have a CD or DVD writer installed and it doesn't appear in the Target drop-down list, you should ensure that the correct CD/DVD burning software is installed on the machine. See section 10.3.3.1 ”Required software for export to CD or DVD”.

During Export the burner software automatically detects whether the disk in the drive is a CD or a DVD.

To export to a CD or DVD use the following procedure:

1. Start the Export utility. See section 10.3.1: ”Starting the Export utility” on page 90.
2. Select a CD or DVD writer as the **Target**. The Advanced Export options button becomes active.

WARNING: Do not use the **Browse** button to select a CD or DVD writer drive, if it didn't appear automatically in the Target list when the Export utility started. If you do, the export will fail.

3. Click the **Advanced** button to specify the following writer options for the Export Target shown in Table 10.2.

Option	Description
Session Options	
Append	Radio button that specifies the data you export be added to any data already on the CD/DVD. This is the default setting.†
Overwrite	Radio button that specifies the data you export overwrite any data already on the CD/DVD. (Unless you also use the Erase Disk option, the old data remains on the CD or DVD but is no longer accessible from Windows.)
Completion Options	
Verify Data	Click this check box to have the CD/DVD writer perform a check to verify the integrity of the Exported data after burning it to the disk.
Permanently Write Protect	Click this check box to have the CD/DVD writer close the CD or DVD to any further writing once the current Export is complete. (Does not apply to rewriteable CD/DVDs.)
Erase Disk	For rewriteable media only. Click this check box to have the CD writer erase all data on the disk before it writes the Export files.
† Append is not supported for the DVD ± RW format.	

Table 10.2: Advanced export options

4. Click **OK** to commit any changes you make to the **Advanced Options**. This updates the Target Capacity Indicator in accordance with the changes made.
5. Select the **Camera** whose recordings you want to Export from the drop-down list.
6. Select the start date and time for the Export. The default selection is the time stamp of the frame at which Playback is stopped.
7. Select the date and time of the image at which the Export should end.
8. Use the check box to specify whether to include the viewer software in the Export or not.
9. Use the **Add Video & Audio** button or the **Add Video Only** button to add an entry to the Export List. The Target Capacity Indicator updates the display of the Export's size and of the space available.
10. You can create as many additional entries for the Export list as will fit on the media. Each time you add an entry the available space is recalculated.

NOTE: You cannot add a duplicate entry to the list. However, exports with the same start and end time are unique if one of them includes audio and the other does not.

11. When you have created entries for all the recordings you need to export, click the **Export** button. The Export utility checks that a CD or DVD is present in the drive and verifies that it has enough writeable space for the export. It also checks that it has enough free temporary storage on the local hard drives for the burning process.

NOTE: Some CD/DVD writer drives auto eject while erasing or verifying data during the burn process. If you are exporting on the plettac server machine, ensure that the door covering the CD/DVD drive is open during the export process.

10.3.3.1 Required software for export to CD or DVD

The plettac Server is supplied complete with a CD/DVD writer and with the correct burning software (Ahead Nero Burner v5.0 or later). The NetManager installation also includes the Nero Burner software application. If a remote client machine running NetManager does not have a CD or DVD writer, only Export to hard drives and network drives is possible.

If the Nero Burner has been uninstalled from your machine or is already running when you start the Export utility, your CD or DVD writer will not be available for Export and the following message is displayed in the Export Dialog:

```
CD Burning software could not initialise. Ensure it is not already in use.
```

10.3.3.2 Configuring the Write Speed of Export to CD or DVD

Using a run-time configuration setting, you can configure your remote client or plettac server to export at the speed that best suits your CD or DVD drive. Table 10.3 shows the configuration strings that you can configure in the properties of your plettac server or NetManager clients to configure write speeds.

Configuration	Speed
/CDR1	1x Speed (Default write speed for plettac sentio server)
/CDR2	2x Speed
/CDR4	4x Speed
/CDR8	8x Speed (Maximum DVD write speed)
/CDR12	12x Speed
/CDR16	16x Speed
/CDR24	24x Speed
Note: The faster the write speed selected, the more system resources the Export utility requires.	

Table 10.3: CD & DVD write-speed configuration

If your CD or DVD drive supports the specified speed, the Export utility writes at that speed. Otherwise, it uses the closest supported speed. Export from the plettac sentio server writes at 1x speed, by default. On remote clients, Export uses the fastest write speed available. Depending on system resources of the remote client machine, you may or may not want to use this speed.

10.3.4: Cancelling an Export

While an export is under way, you can cancel it using the button displayed with the Export progress indicator shown in Figure 10-5 on page 92. The system prompts you to confirm that you want to cancel the export. When you confirm cancellation, the export process terminates immediately if the target was a hard drive or network drive.

When the target is a CD or DVD, it can take up to 30 seconds for the Export process to terminate, if you cancel it. This delay is most noticeable when the target media is rewriteable.

10.4: Printing Images in Playback Mode

The print utility prints still images from Playback mode while playing is paused.

NOTE: For Print to function you must have a default printer installed. If you are unsure about how to install a printer under Windows XP, contact your system administrator or supplier. Once a valid printer is installed, use the following procedure:

1. Switch to Playback mode.
2. Play the video sequence from which you want to print a picture.
3. Use the Playback frame-advance controls to pause the picture at the precise point from which you require to print an image.
4. Choose a screen layout that displays the picture(s) you need to print.
   When you select the **Print** button, the utility opens a standard Windows print dialog box for each camera view on display. For example, If you select Print with Playback paused in sixteen view layout, then a dialog box for each of the 16 cameras will be opened. If you do not require the image from a particular camera view, you will have to cancel the dialog box for that camera. The Print dialog box allows you to choose where the image is printed.

The printer button changes from black to pink as the image is spooled to your printer.

NOTE: You can also access the Print utility by clicking **Export** while Playback is paused and then clicking the Export Utility's **Print** button.

10.5: Capturing Images in Playback Mode

The Image Capture utility captures still images from Playback mode when playing is paused. To capture still images from Playback, use the following procedure:

1. Playback the video sequence from which you want to capture a picture.
2. Use the Playback frame-advance controls to pause the picture at the precise point at which you require a still image.
3. Select a screen layout that shows only the image(s) you want to capture. If 16 tiles are displayed, then all 16, camera views are captured. If you want to capture the image from only one camera view, you must first double-click that tile, to switch to single-camera view.
4. Click on the **Image Capture** button, the camera button changes from black to pink and as the image is captured, the camera appears to flash.
   The capture utility saves the images temporarily to the directory `C:\dvms\img_captured` in Windows bitmap format and automatically enqueues them for Export. For information about using the Export utility, see section 10.3: "Exporting Recordings" on page 90. As can be seen in Figure 10-7, each image is named according to the camera view from which it is captured and the date and time at which it was originally recorded by the plettac server.

5. Start the Export Utility to write the captured images to a writeable medium such as CD or DVD. Once you exit the Export utility all the captured bitmaps are deleted, regardless of whether you complete the Export or cancel it before exporting the bitmaps.

NOTE: If you do not export the captured images, they remain in the `img_captured` directory until you next start the Export utility or until they are overwritten. Once the `img_captured` directory contains 51MB of data, the image capture utility begins to overwrite the oldest bitmaps.

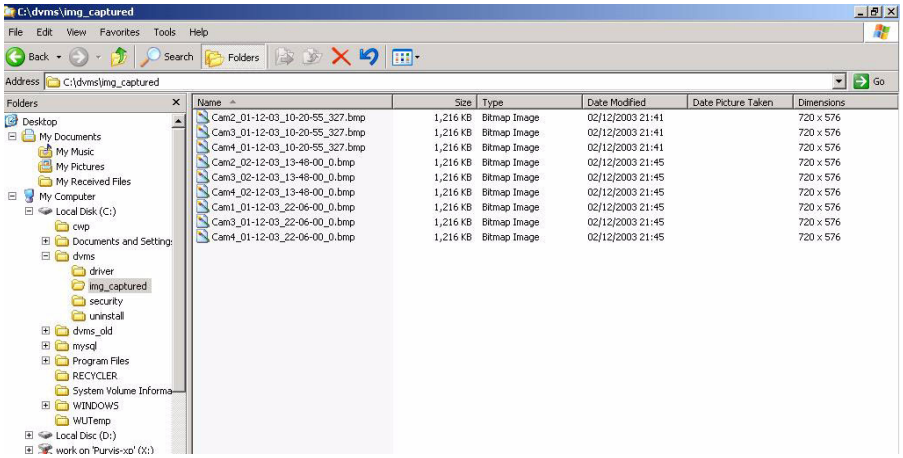


Figure 10-7: Captured still images saved as bitmaps

10.6: Reviewing and Exporting Events

Using the Event Review utility, you can search through the recordings on your system and identify video sequences associated with different types of events or with specific cameras. You can then view the status of event-related recordings on the disk and perform the following tasks:

- View them immediately in Playback
- Enqueue them in Export utility
- Delete them from the database

Using the Event Review feature is described in the following sections:

- Starting the Event Review utility
- Selecting Event types for display
- Displaying a summary of Events
- Listing the recordings associated with an Event
- Reviewing Event-related recordings
- Enqueueing Event-related recordings for Export
- Deleting Events from the plettac sentio database

10.6.1: Starting the Event Review utility

To start the Event Review utility, click on the icon to the left of the Playback control buttons as shown in Figure 10-8.

The Event Reviewer consists of two display panes, a status message field and two control buttons. The left-hand pane contains a tree-structured list of alarms that have occurred in the plettac server's recordings.

The server itself is represented at the top level of the tree. The right hand pane is used to display more detailed information about alarm selections in the left-hand pane.

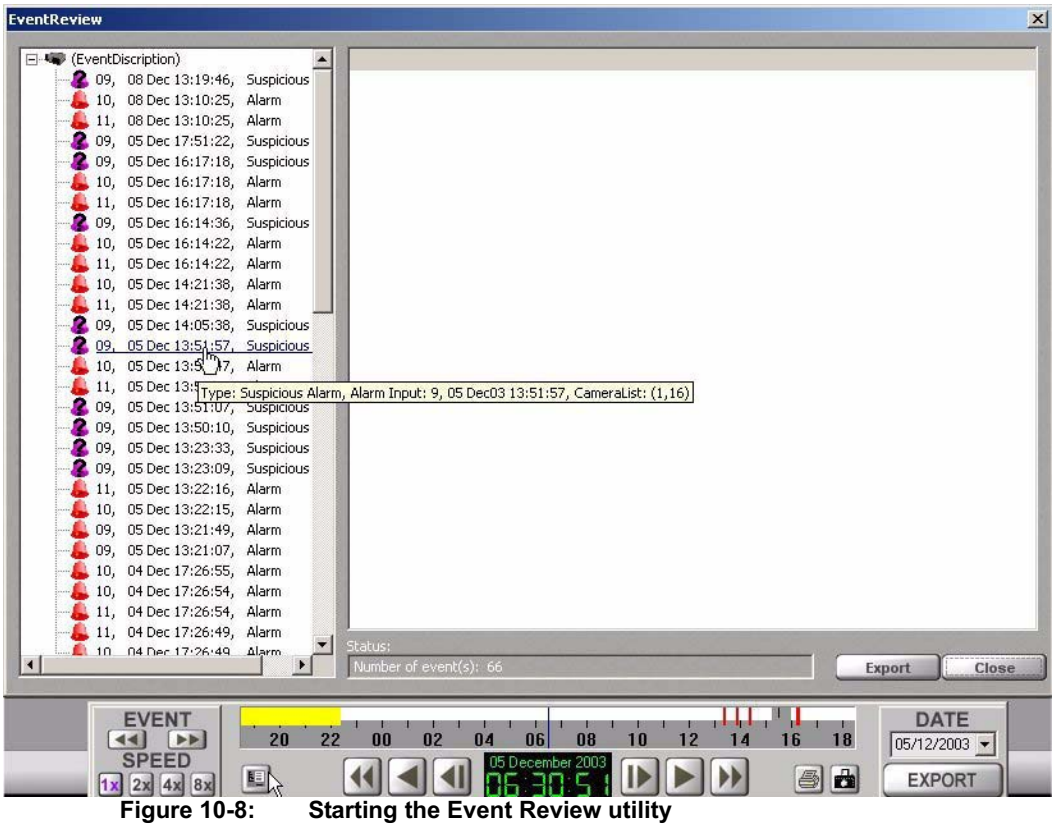


Figure 10-8: Starting the Event Review utility

Passing the mouse pointer over any entry in the Event Reviewer, displays a summary of the event details as a tooltip, which disappears after 5 seconds as shown in Figure 10-8. The tooltip shows the event type, the alarm input or camera that triggered it, the time it was triggered, and the cameras associated with it.

10.6.2: Selecting Event types for display

By default, when you open the Event Review utility, only two types of event are listed in the left-hand pane; Contact Alarms and Suspicious Alarms. Depending on your particular requirements and the frequency of other event types you may decide to include other types of event to the list. To list other types of event, use the following procedure:

1. With the mouse pointer over the server icon at the top of the event tree, click and hold down the right mouse button. A pop up menu appears with an entry for each of the four event types as shown in Figure 10-9. Only event types that have a tick beside their entry appear in the list.

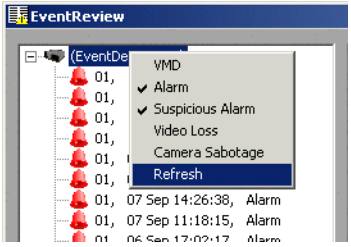


Figure 10-9: Selecting event types for display in Event Review

2. Move the selection to an Event Type that you wish to add to (or remove from) the display and release the mouse button. The utility displays the message "`Awaiting data...`", while it automatically updates the list in the left pane according to your selection.
3. You can add or remove event types from the display list only one at a time. So you must repeat these steps for each modification.

NOTE: Depending on the environment under surveillance and your configuration of VMD, the system may have many more events of type VMD than of any other type. For this reason the number of VMD

events that can be loaded into the Event Review is limited to the most recent 1000. When there are more than 1000 VMD events in the database, the following message appears in the status field when the list is updated:

```
More data exists. Items retrieved limited to avoid overload.
```

10.6.2.1 Event types

Table 10.4 shows the icons that the Event Review uses to denote the type of event associated with a video sequence and to indicate whether it is still in the protective stack configured for events of that type.

Icon	Event Type	Stacked	Description
	Contact Alarm		Denotes recordings triggered by alarm contact switches connected to the server's Alarm ports. A red stack icon appears beside the event if it is still in the stack configured for the event type.
	Suspicious Alarm		Denotes recordings triggered by staff members pressing suspicious alarm buttons connected to the server's Alarm ports. A purple stack icon appears beside the event if it is still in the stack configured for the event type.
	VMD Event	N/A	Denotes recordings triggered by a motion corresponding to the VMD configuration for that camera view.
	Video Loss Alarm	N/A	Denotes the loss of video input from a camera. By definition no recordings can be associated with such alarms but it may be useful to see when these alarms are acknowledged.
	CSD Events		

Table 10.4: Icons used to signify the type of an event and whether it is stacked

10.6.3: Displaying a summary of Events

The selections you make in the left-hand pane determines the type of data that appears in the right-hand pane.

A click with the left mouse button on the server icon at the top of the tree populates the right-hand pane with a detailed summary of all events listed in the left-hand pane as shown in Figure 10-10.

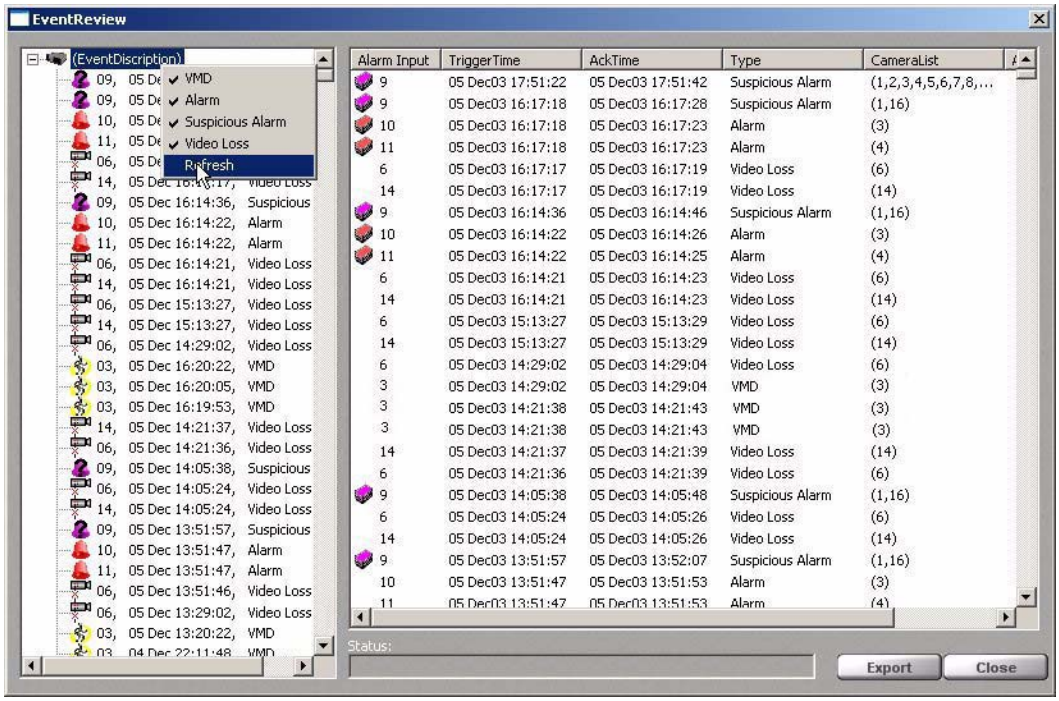


Figure 10-10: Summary of all events displayed in right-hand pane of Event Review

Table 10.5 describes the columns in which the alarm summaries are displayed.

Column	Description
AlarmInput	For events of type Alarm or Suspicious Alarm this column shows the number of the alarm input that triggered the event. For events of type VMD or Video Loss this column shows the number the camera that triggered the event. The most recent events of type Alarm and Suspicious Alarm can be held in a protected stack on disk, the size of which can be configured (see section 3.4: “Allocating Storage for Recordings” on page 25). If the recording associated with an alarm is still in the protected stack an appropriately coloured stack icon is displayed beside it in the summary list.
TriggerTime	Shows the time when the plettac sentio server registered the event.
AckTime	Shows the time when the event was acknowledged. Depending on configuration, the server can do this automatically after a configured duration or it can be left to be acknowledged manually by a system operator.
Type	The type of the event.
CameraList	The list of cameras whose recordings are associated with the event.
AudioList	The list of audio inputs whose recordings are associated with the event.

Table 10.5: Alarm summary columns in the right-hand pane of Event Review

10.6.4: Listing the recordings associated with an Event

When you click with the left mouse button an event in the left-hand pane of Event Review, its details are displayed in the right-hand pane. A separate line is displayed in the list for each camera whose recordings are associated with the event. Table 10.6 describes the columns in which the recording details are displayed.

Column	Description
Camera	The number of the camera that made the recording.
RecStartTime	The time at which the camera started recording. This can precede the actual trigger time, if a Pre-Event period is configured for the camera.

Column	Description
RecEndTime	Shows the time when the camera stopped recording the event.
TriggerTime	The time when the plettac server registered the event.
AudioList	The list of audio inputs associated with the camera.

Table 10.6: Details of Event based recordings

NOTE: The camera number displayed relates to the list of cameras that a particular user is permitted to view. For example, if some cameras are designated as covert, the number 1 displayed in the Camera column may not refer to the same physical camera when the event is reviewed by different users.

Using the right-hand mouse button, you can perform the following operations on the listed recordings:

- Review them in Playback
- Enqueue them for Export
- Delete them from disk

10.6.5: Reviewing Event-related recordings

You can use the Event Review utility to quickly find and review recordings associated with events in the following ways:

- Reviewing all recordings associated with an events simultaneously
- Reviewing an event-based recording by a particular camera

10.6.5.1 Simultaneous review of all recordings associated with an Event

In either pane of the Event Review utility, use the right-hand mouse button to click on the entry for an event as shown in Figure 10-11. Once you release the mouse button, the Playback console appears with a screen layout capable of displaying recordings from all of the cameras associated with the event. For instance, if the event triggered recording from two cameras, the 4-tile layout is used. Playback is paused at the event time. So if the server is configured to record a Pre-Event period from any of the cameras, you must use the Playback controls to review it.

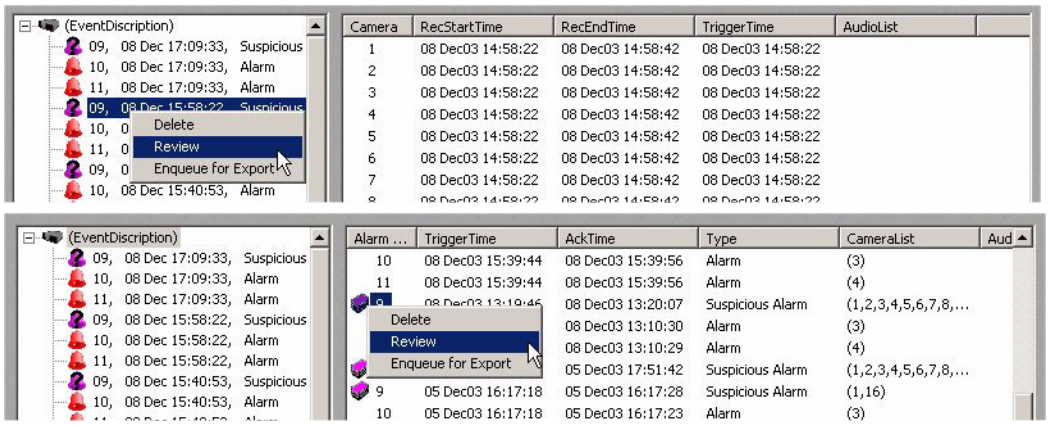


Figure 10-11: Simultaneous review of all recordings associated with an Event

10.6.5.2 Reviewing a specific camera's recording of an Event

When you click on an alarm in the left-hand pane the Event Review utility lists its associated cameras on the right. If you right click on a camera number you can choose the action **Review**.

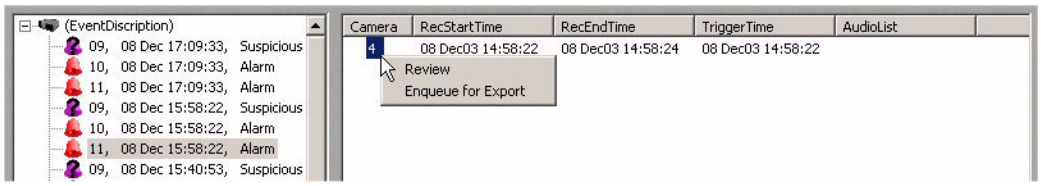


Figure 10-12: Review of a single camera's recording of an event

As with selections made from the summary list, Playback starts at the trigger time of the event but it uses a full-screen layout because only one camera view is selected. Another advantage of this method is that you can see from the recording details whether a Pre-Event period has been recorded or not.

10.6.6: Enqueueing Event-related recordings for Export

In the same way as you select recordings for review, you can select them for export. Using the right mouse button, you can enqueue:

- An event-based recording by an individual camera
- All recordings associated with an event simultaneously

NOTE: Even if you have previously reviewed all the associated recordings and decided that only some are worth exporting, it is quicker to enqueue all of them for Export and then remove the unwanted ones from the Export utility later.

To enqueue a recording of a single camera associated with an event, right click on the camera number in its detail view and select **Enqueue for Export** from the popup menu.

To enqueue all recordings associated with an event, use the following procedure:

1. Right click the Event in either pane of the Event Review utility
2. Select **Enqueue for Export** from the popup menu as shown in Figure 10-13. The status area shows a message to confirm that the recordings were successfully enqueued as shown in Figure 10-14.You can continue to select multiple events or individual camera recordings before opening the Export utility.

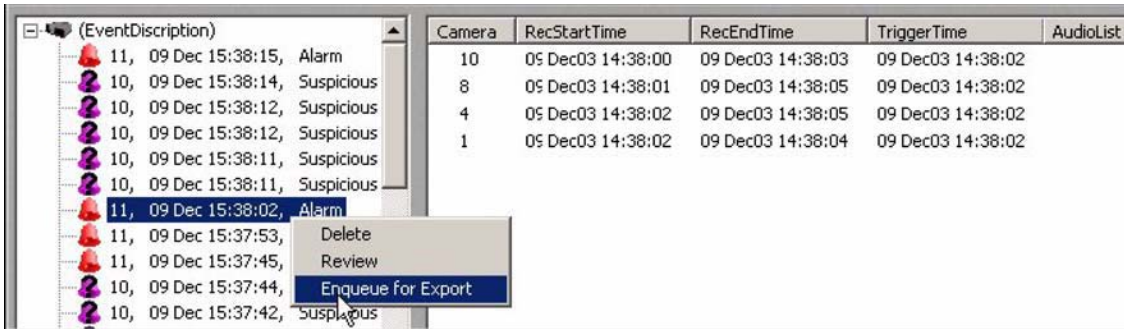


Figure 10-13: Enqueueing for Export all recordings associated with an Event

NOTE: An important difference between the selection of event-based recordings for review and for export is that Export includes the Pre-Event period in the exported recording by default. Whereas Playback starts all reviews from the trigger time only. Compare the values under **RecStartTime** and **TriggerTime** in Figure 10-13.

3. Open the Export utility by clicking the **Export** button at the bottom of the **Event Review** screen as shown in Figure 10-14. (Alternatively, you can use the **Export** button of the Playback interface but you must then close or minimise the **Event Review** screen manually).

Figure 10-14: Opening the Export utility from Event Review

4. In the Export dialog the recordings of the selected event, are already in the list of items to be exported. You can manually add and delete additional export items but if you quit from the Export utility all enqueued entries are lost. You cannot modify the start or end time of entries added by

the Event Review utility. If you wish to do so, you must delete these automatic entries from the list and manually add a new export entry for the same camera.

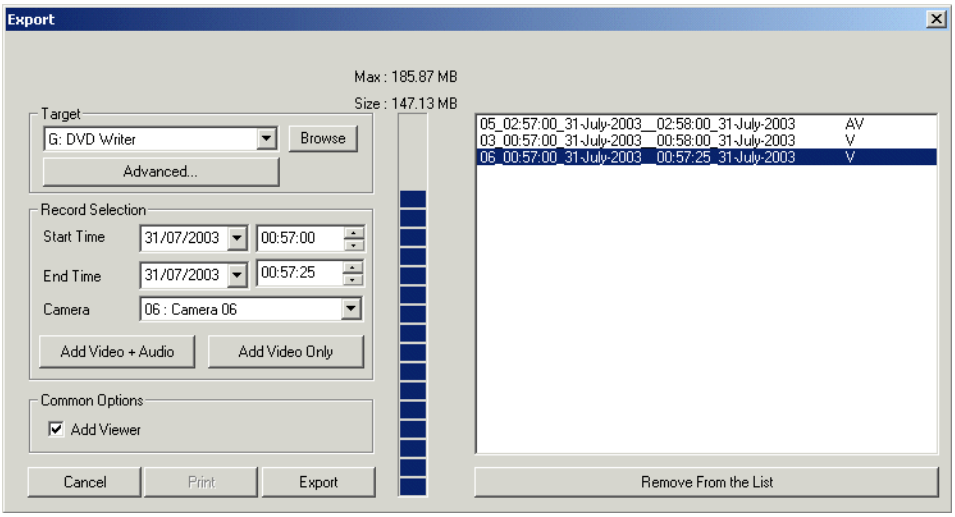


Figure 10-15: Export candidates automatically added by Event Review

NOTE: Because Video Loss Alarms, by definition, cannot be associated with any recorded data, if you try to enqueue a video-loss alarm for Export, the Export utility displays the following message:

Figure 10-16: "No record" warning message

This message also appears if the recordings are deleted after you've enqueued them for Export but before the actual Export is completed.

10.6.7: Deleting Events from the plettac sentio database

Using the Event Review utility, you can delete a selected event from the plettac sentio server's database and its association with recordings. This does not delete the event-related recordings themselves, which remain on disk until overwritten. For this reason the **Delete** option appears on the popup menu only when you right click the entries for events and not camera details.

To delete an event, follow this procedure:

1. With the mouse pointer over the icon for an event (either in the event tree as shown in Figure 10-9 or in the events summary in the right-hand pane), click and hold down the right mouse button. A pop up menu appears with an entry for each of the four event types as shown in Figure 10-9. Only event types that have a tick beside their entry appear in the list.

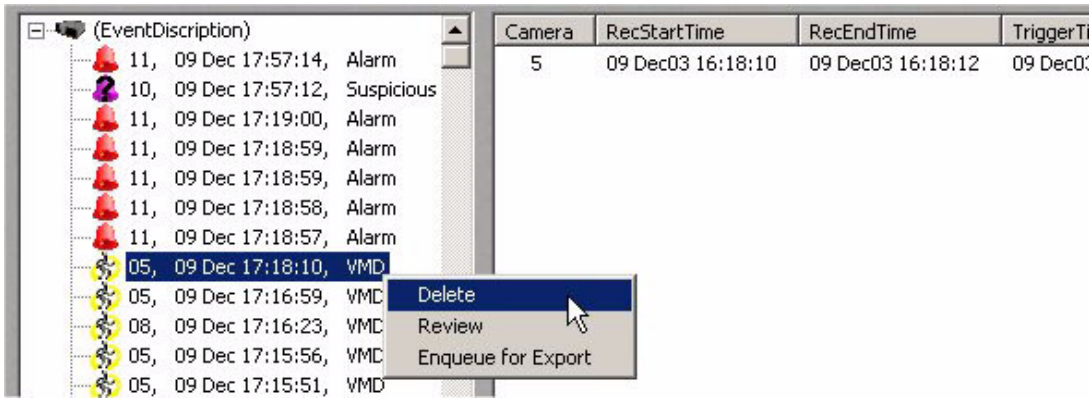
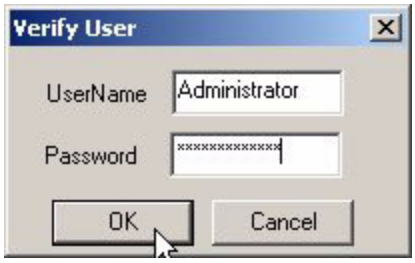


Figure 10-17: Deleting events in the Event Review utility

2. Move the selection to **Delete** and release the mouse button. The utility displays the following dialog to verify your authority to delete data from the server:



Enter your username and password and click **OK**.

3. The utility displays the following dialog to confirm that you want to delete the Event's record from the database:

Click **OK** to confirm that you want to continue. The message, "`Item Deleted`", appears in the Status message field at the bottom of the Event Review dialog.

NOTE: After the event record is deleted, it may still be possible to review the recordings that were previously associated with it using the Playback time line.

10.7: Playing Exported Video

This section describes how to use the sPlayer application to play back recordings that have been exported from a plettac sentio server. This section assumes that the export was made to CD or DVD media.

NOTE: You can install and run sPlayer from your computer or run it directly from a CD or DVD. If you want to use sPlayer to record from a plettac sentio server you must run it from a location where you can write data. So running sPlayer from CD or DVD may not be appropriate.

1. Place the CD into the disc drive and start Windows Explorer and click on the CD icon, the contents should look like those shown in Figure 10-18:

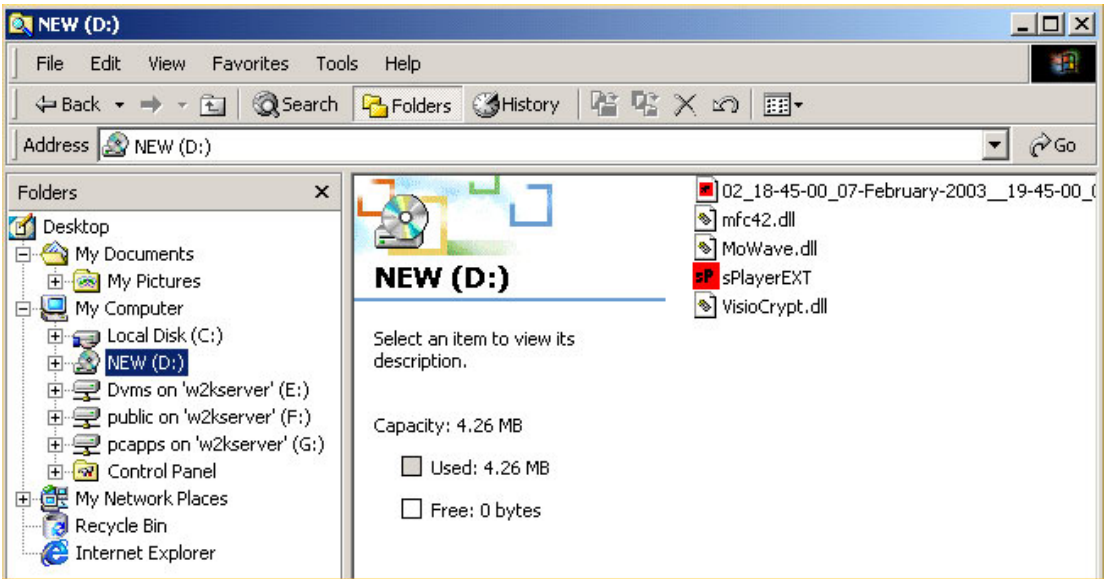


Figure 10-18: sPlayer retrieval from CD

2. Double click on the **sPlayerEXT** icon to start the application as shown in Figure 10-19.

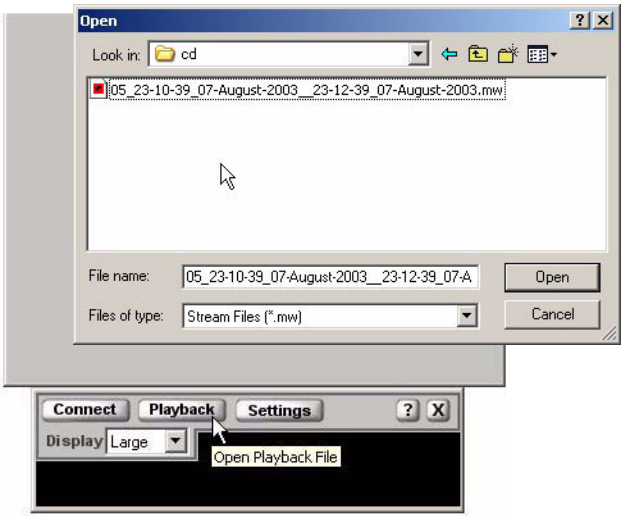


Figure 10-19: sPlayer Start Up

3. Click the **Playback** button to see a list of available recordings. sPlayer opens a dialog to let you locate the file you want.

4. Click on the name of the file you want to play; it will automatically enter the file name box. Figure 10-20 shows sPlayer in playback mode.

Figure 10-20: sPlayer in Playback mode

- The **Connect** button enables you to connect to any plettac sentio server on your network.
- The **Playback** button displays the open file dialog box.
- The **Settings** button gives access to the options available when replaying images in full screen mode.

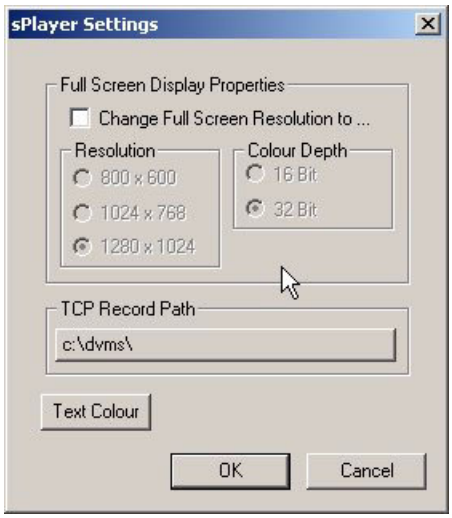


Figure 10-21: sPlayer Settings dialog

This dialog box enables you to select the playback screen properties to suit your graphics adapter and monitor capabilities in full-screen mode.

Click the **Text Colour** button to select the colour used to display text at the bottom of the screen. You don't need to click the **OK** button for this selection to take effect.

Use the **Display** drop-down list to select from five screen sizes in which to view the images. By double clicking on the playback screen image, the screen will switch to full-screen mode; to revert to the original size double click again.

The status box displays the current sPlayer status (play, fast forward, single frame, rewind and reverse). This information is also overlaid on the display screen.

If the recorded images were in ALARM and or VMD this text will be displayed on the right hand side, the alarm text will be red and the VMD text will be in yellow.

During replay the box shows an individual frame number as well as date and time. To navigate to an individual frame, click on the single frame button (these are the single arrows with a vertical bar in the middle of the group of buttons).

The slide bar on the top of this box indicates how far through the individual recording you are, the pointer may be clicked on and dragged to move to a different position of the recording. Clicking either side of the pointer will also move the recording back or forward by one frame.

To view the images while searching the data, use the play or review buttons. If you require faster viewing then use the fast forward or the rewind buttons.

To stop the recording to view a selected image, click on either of the single frame buttons. A frame number will be displayed in the view screen and on sPlayer's status box.

To move along the time line at a faster rate, click the **Real Time** checkbox.

10.7.1: Printing images using sPlayer

To print an image from an exported recording use the following procedure:

1. Playback the exported recording in sPlayer
2. Locate the image to be printed by clicking the frame advance button (either of the single arrows with vertical bars). An individual frame number should appear on the screen and sPlayer status box.
3. Click on the **Print** button.

NOTE: A printer driver must be installed and a default printer selected.

10.8: Using sPlayer as a Remote Client

To use sPlayer to connect to a plettac sentio server and display live video, follow these steps:

1. Click the **Connect** button and enter the Connection Properties
   - **a.** Select the host by name from the list, or
   - **b.** Enter the IP address and Port number of the plettac sentio server to which you want to connect.
2. Enter your Username and Password.
3. Press the **OK** button. When the connection is established the default camera view is displayed. You can use the Camera drop-down menu to select any other camera available on the server.

Once you're connected to the plettac server, you will be able to:

- Access live video images from the cameras linked to the server.
- View different cameras.
- Change viewing size to increase update rate.
- Record locally, clicking on the record button. This will change colour to purple and create a file in the folder where sPlayer is stored. Click again on the record button to stop recording.

CHAPTER 11: Searching Recorded Images

Sophisticated and precise searches of all recorded images can be made using plettac's SearchExpert feature that is fully integrated into the interface for plettac sentio servers and the NetManager application.

SearchExpert function allows you to search all recorded images for motion related events. This chapter describes the tasks that you can perform using SearchExpert. It contains the following sections:

- Accessing SearchExpert
- Quick Motion Search
- Advanced Motion Search
- Viewing Search Results

11.1: Accessing SearchExpert

plettac's SearchExpert can be accessed from the either the NetManager main interface, shown in Figure 11-1 or the Playback control console of the server, shown in Figure 11-2.

Figure 11-1: SearchExpert button on the NetManager interface

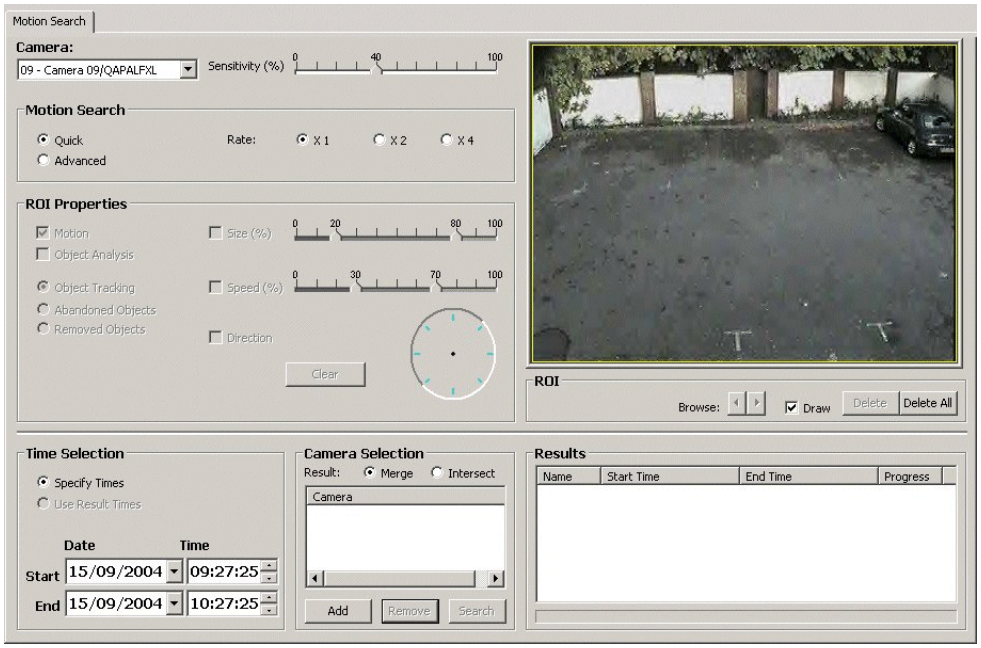
Figure 11-2: SearchExpert button on the server Playback control console

If no server connections have been established using NetManager, if you access SearchExpert from the NetManager interface, the camera list will be blank. If there are server connections, all the connected cameras will appear in the camera list, in the following format:

```
camera number camera name/server name
```

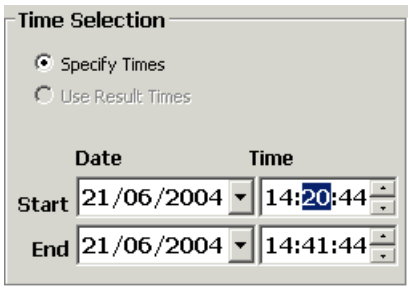
NOTE: The camera list is dynamically updated. If you remove a server or camera from the connection, it

will automatically be removed from the SearchExpert camera list.



INFORMATION: You cannot save any settings you have made for a camera. All defaults are reset each time you quit out of SearchExpert.

To enable SearchExpert to analyse your recorded images, you must select a start and end time and date that you want to search. Either type the times required directly or use the “spinner” arrows to adjust the hour, minute and second value for the two times. The date can either be entered directly or by clicking the down arrow to display a standard calendar display.



NOTE: If you have already searched the recordings from a camera, you can highlight it and click **Use Result Times** as the search times for another camera. For example, if a search of the recorded images from a camera in a car park shows some motion events, you can use this time frame to search what other cameras in the building recorded at the same time.

11.2: Quick Motion Search

The default settings for SearchExpert is for Quick Motion Search at a rate of one image per second (x1) with Sensitivity set to 40%. The Figure 11-3 shows these settings.

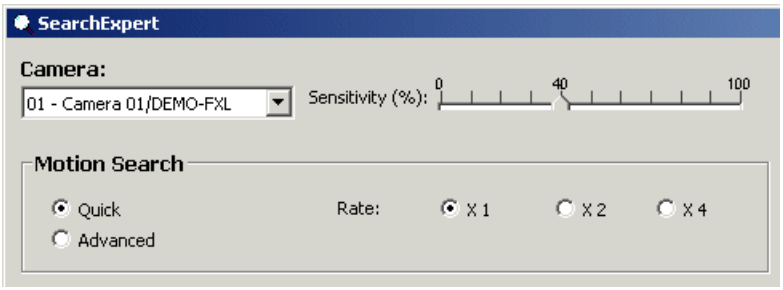
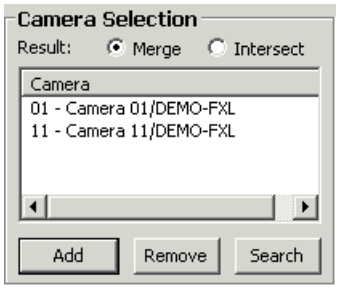
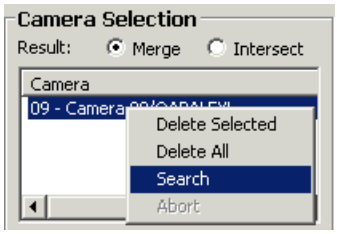


Figure 11-3: Default settings for SearchExpert

Sensitivity is a measure of how much difference between two images will be detected. A higher value means that very subtle changes will be seen, such as slight movement of an object or small change in light levels, whereas a lower value will mean that gross changes will be found, such as movement across a frame.

Select the cameras you want to search from the list of available cameras and click **Add** to make them available in the **Camera Selection** list. SearchExpert finds the first available image for the camera in the specified time period and displays this as the background image in the display area of the control panel. The Region of Interest (ROI) defaults to the full screen size.





NOTE: If there are no images available at the start of the time period specified, the message “Background image not available” is displayed in the SearchExpert console display area.

You can either click the **Search** button or right-click on a camera selection and select Search from the pop-up menu. SearchExpert searches the recorded images according to the search patterns. The **Merge** radio button displays all the results for all the selected cameras whereas choosing **Intersect** will find only those time periods when all selected cameras have a search result. For example, you might have three cameras showing different views of a car park and might want to only find movement that all three cameras recorded. See section 11.4: ”Viewing Search Results” for information about displaying the results.

WARNING: When a search is started, CPU utilisation rises to 100%. Avoid performing any other tasks on the plettac sentio server whilst the search is in progress.

11.3: Advanced Motion Search

SearchExpert’s Advanced Motion Search allows you to perform precise searches, by searching more images when available, looking for events such as movement in a particular direction or whether an object of a particular size has either been removed from the scene or added to it. Before adding a camera to the Camera Selection list, you need to select the **Advanced** radio button in the **Motion Search** panel and then define regions of interest (ROIs) and assign search properties to them.

Once you have configured your search parameters for a camera, click **Add** to move it to the **Camera Selection** list.

Click the **Search** button when you have added all the cameras to be searched. SearchExpert searches the recorded images according to the search patterns. See section 11.4: ”Viewing Search Results” for information about displaying the results.

11.3.1: Defining Regions of Interest (ROIs)

SearchExpert uses ROIs to modify where it searches in an image and what sorts of changes it looks for. The default setting for an ROI is the full screen area.

When the **Draw** check box is selected you can draw ROIs on the screen to highlight those areas you wish to analyse. De-selecting the check box enables you to edit your ROIs. You can move the ROI, and adjust its size by using the editing handles on the ROI bounding box. If any ROI overlaps another it may be difficult to edit the one that is obscured; use the **Browse** buttons to select the ROI.

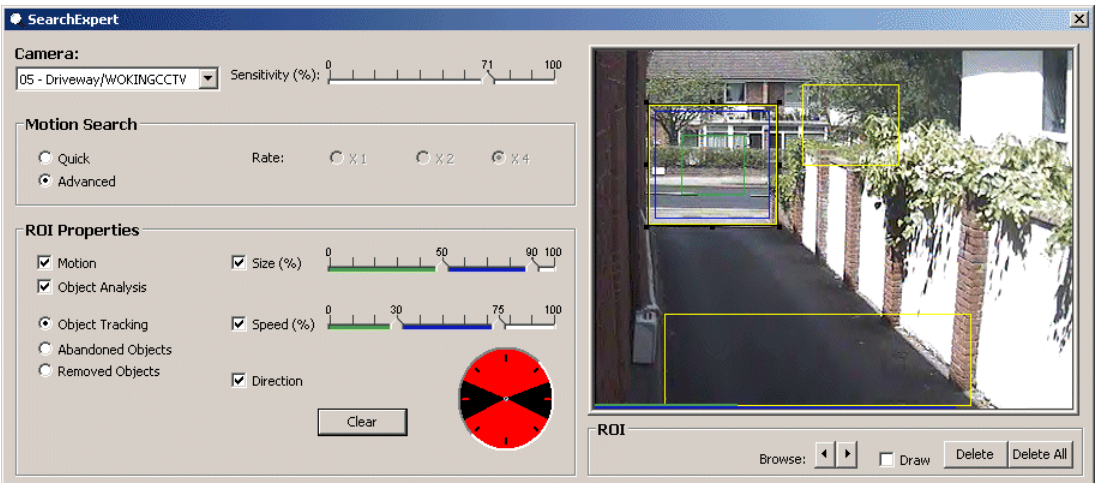
Clicking the **Delete** button deletes the currently highlighted ROI and **Delete All** removes all ROIs.

An ROI may also have specialised analysis properties applied to it to enable the following, if the **Object Analysis** check box has been selected:

- Object Tracking
- Abandoned Objects
- Removed Objects

11.3.1.1 Object Tracking

Object Tracking mode enables you to search for when motion is detected in specific directions and speeds and for objects that fit a specific size range. To search for moving objects in the recorded images click the **Object Tracking** radio button in the **ROI Properties** panel.



If the **Size** check box is not selected, any object that appears to move between images will be marked in the search results. If the size of moving objects is significant, use the sliders on the **Size** scale to specify a minimum size, a maximum size, or both, for objects to be detected in the ROI.

1. Move the minimum size slider to adjust the green outlined area in the ROI. This area represents the minimum on-screen size an object must have to be significant to the search. You can use this to exclude very small objects from the search.
2. Move the maximum size slider to adjust the blue outlined area in the ROI. This area represents the maximum on-screen size an object can have to be significant. You can use this to exclude large objects from the search.

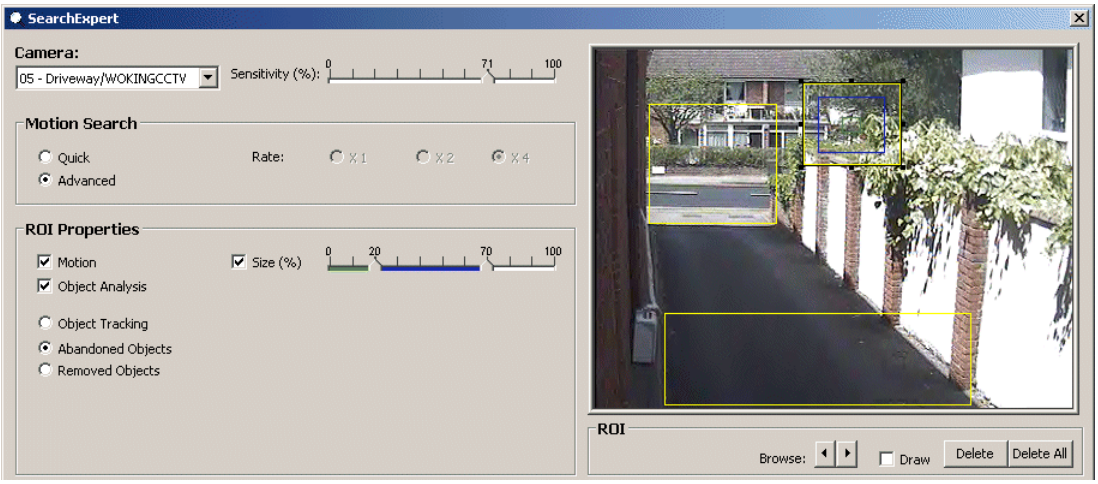
If the **Speed** check box is not selected, any moving object will be marked in the search results. If the speed of moving objects is significant, use the sliders on the **Speed** scale to specify a minimum speed, a maximum speed or both for objects to be searched for.

1. Move the minimum speed slider and a bright green line appears in the bottom left hand corner of the SearchExpert screen. The length of this line represents the distance an object would need to travel on the screen in one second to be shown in the search results.
2. Move the maximum speed slider and a blue line also appears in the bottom left hand corner of the SearchExpert screen. The length of this line represents the maximum distance an object can travel on the screen in one second and still be shown in the search results.

If the direction of moving objects is significant, use the **Direction** indicator to define the trigger direction(s). Initially all directions are selected, so movement in any direction will be found. Click on the circle and move the mouse pointer to select particular directions. Multiple selections can be made to define precise directions of movement. If the **Direction** check box is unselected, SearchExpert will find movement in any direction.

11.3.1.2 Abandoned Objects

Abandoned Objects mode enables you to search for where an object of a particular size appears in the camera view. To configure your search for objects that have appeared, click the **Abandoned Objects** radio button in the **ROI Properties** panel.

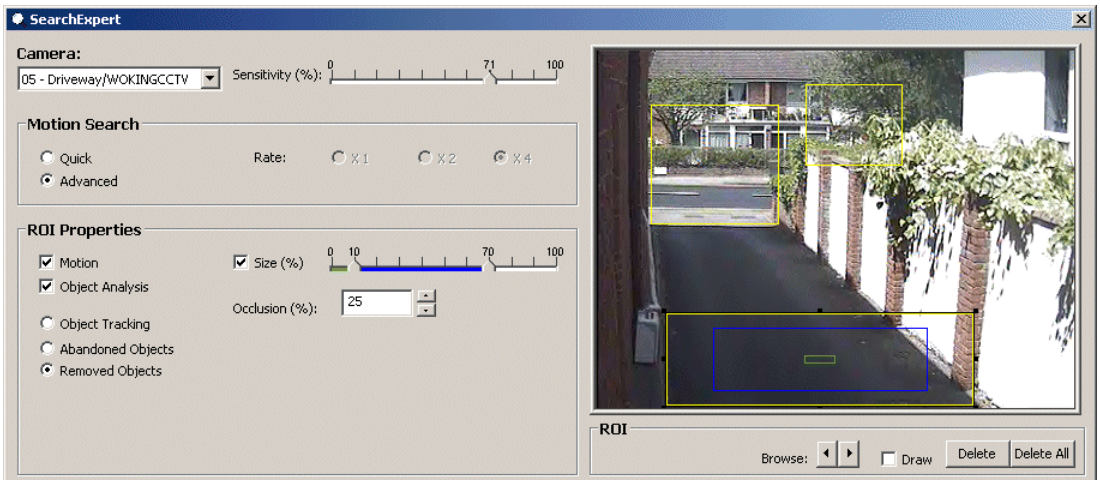


If the **Size** check box is not selected, abandoned objects of any size will be marked in the search results. If the size of abandoned objects is significant, use the sliders on the **Size** scale to specify a minimum size, a maximum size, or both, for objects to be detected in the ROI.

1. Move the minimum size slider to adjust the green outlined area in the ROI. This area represents the minimum on-screen size an object must have to be significant to the search. You can use this to exclude very small objects from the search.
2. Move the maximum size slider to adjust the blue outlined area in the ROI. This area represents the maximum on-screen size an object can have to be significant. You can use this to exclude large objects from the search.

11.3.1.3 Removed Objects

Removed Objects mode enables you to search for when a familiar object in the camera view is removed. To search for objects that have been removed click the **Removed Objects** radio button in the **ROI Properties** panel.



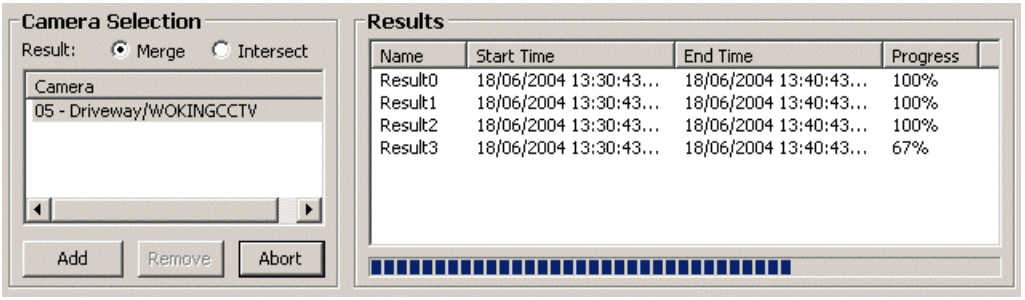
If the **Size** check box is not selected, any object that is removed from the area viewed by a camera will be marked in the search results. If the size of a removed object is significant, use the sliders on the **Size** scale to specify a minimum size, a maximum size, or both, for objects to be detected in the ROI.

1. Move the minimum size slider to adjust the green outlined area in the ROI. This area represents the minimum on-screen size an object must have to be significant to the search. You can use this to exclude very small objects from the search.
2. Move the maximum size slider to adjust the blue outlined area in the ROI. This area represents the maximum on-screen size an object can have to be significant. You can use this to exclude large objects from the search.

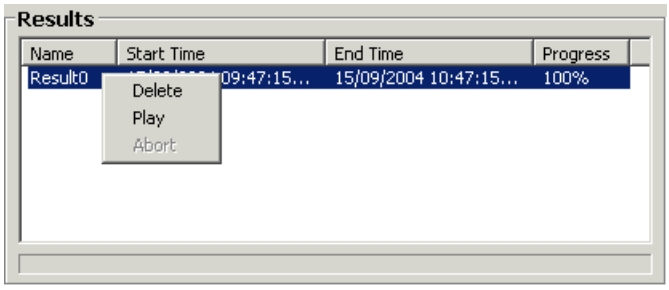
Some objects may be temporarily obscured by objects moving in the foreground so you can configure a tolerable level of occlusion for the ROI. In the **Occlusion** field, specify the percentage of the ROI that can be occluded without being included in the search result. If you specify a 90% occlusion rate, as long as 10% of the ROI's permanent content remains visible, it will not be included in your search result.

11.4: Viewing Search Results

The progress of each search is displayed in the **Results** panel.



If you want to cancel the search at any time, click the **Abort** button. You can also right-click on a name in the Results panel to access a pop-up menu of commands.



When the search is complete, double-click on the result name to show a time line similar to Figure 11-4 with VMD events marked in yellow and motion events located using object analysis marked in green.

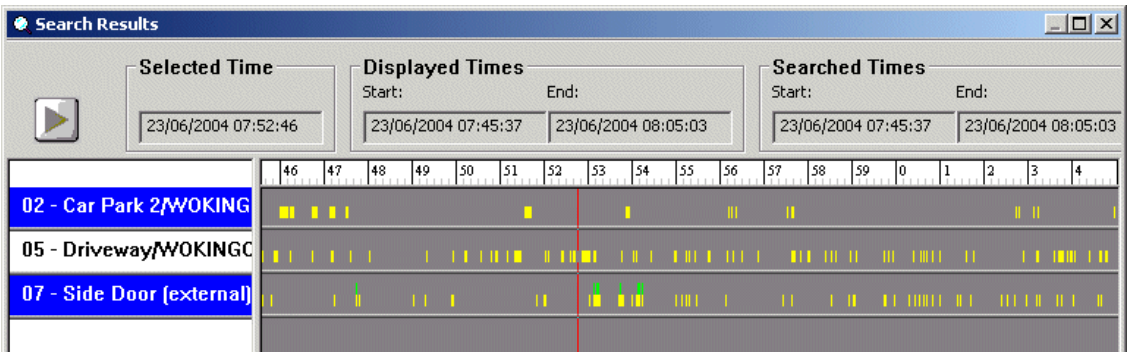


Figure 11-4: An example of a search result

NOTE: If your search is likely to take a long time, you can double click on the Result name at any time while the search is in progress to display a snapshot of the events found.

Move the red cursor, or double-click on the timeline, at the time where you wish the playback of the searched results to start and click the **Play** button. The precise time of where the cursor is placed is displayed in the **Selected Time** panel. The **Displayed Times** is the time shown between the left and right edges of the Search Results window and the **Searched Times** is the total time segment of the search result.

NOTE: If your PC's mouse has a mouse-wheel, you can use it to "zoom in" and "zoom out" on the timeline so that the displayed time intervals get shorter or longer.

Playback will switch to the display area of the NetManager or server interface. The text at the bottom of the camera view will show that it is in Search Expert Mode, as illustrated below

Depending on which search results you want to view, you can use any of the following steps:

- Double click on a camera name in the Search Results panel to playback the events from that individual camera
- Select more than one camera name, highlighting them in blue as shown in Figure 11-4, and click the arrow button to display the results from the selected cameras.
- Click the arrow button, with all camera names unselected, to play all the search results for all cameras

NOTE: When using SearchExpert from the server interface, the Event buttons of the Playback console will still move between recorded events, not searched events.

CHAPTER 12: Product Options

In addition to the basic features of the plettac server, there is a range of product options available that you can purchase to expand the functionality of the system. Some product options require additional hardware. This chapter describes how to use the following product options:

- Super Video Motion Detection (SVMD)
- Multi-Channel Audio
- Bi-Directional Audio
- Camera Sabotage Detection (CSD)
- Video Sequencer
- NetAlert
- Time Synchronization
- Dynamic Re-Archiving

SVMD and Multi-Channel Audio must be ordered and purchased from your supplier.

NOTE: Activation of some options may also require plettac support staff to visit your location and perform additional configuration.

12.1: Super Video Motion Detection (SVMD)

If you have purchased the Super VMD (SVMD) product option, you can configure the plettac server to apply this functionality to one camera view. SVMD applies enhanced detection rules which enables the plettac server to:

- track the direction, speed and size of objects moving in the camera view
- detect whether an object has been removed
- detect whether a foreign object has been deposited or abandoned

This section describes how to perform the advanced configuration for your SVMD camera.

NOTE: If the SVMD modes are disabled, it means that one of them is already configured for another camera. You cannot configure one of these modes on another camera without first disabling them on the current SVMD camera view.

Not only can you configure multiple ROIs for the SVMD camera, you can configure each individual ROI with its own settings and you can have a mixture of standard VMD and SVMD ROIs configured for one camera.

You can apply one of the SVMD modes to the default (full-screen) ROI or to ROIs that you draw in the ROI Drawing Area.

NOTE: You cannot mix different modes of SVMD in one camera view. You can combine multiple ROIs of one mode and standard VMD ROIs only.
For example, if you define an ROI in Object-Removal mode for Camera 05, you can define additional Object-Removal ROIs and standard VMD ROIs but you cannot add ROIs for Object Tracking or Abandoned Object.

INFORMATION: This feature must be unlocked using a software code issued by plettac support staff.

12.1.1: SVMD Configuration Menu

If you have purchased the SVMD product option, the VMD menu of the Configuration Console is different from the standard VMD menu described in section 6.2: “Basic VMD Configuration” on page 44. Figure 12-1 shows the additional configurable elements in the VMD menu when SVMD is enabled. These are described in detail in Table 12.1 on page 117. Detailed configuration procedures are provided in subsequent sections.

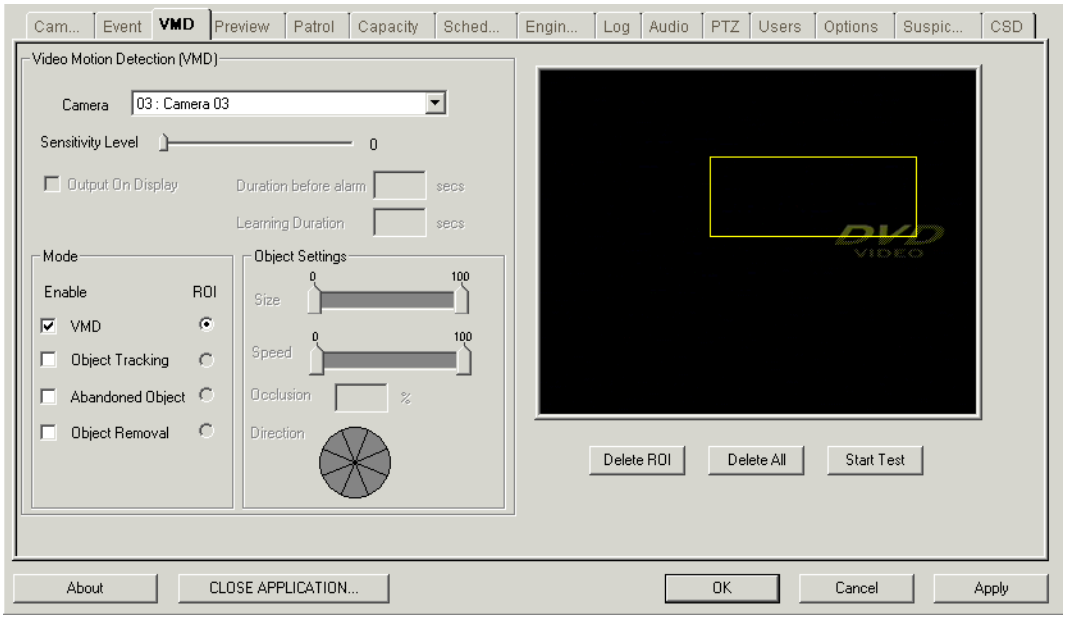


Figure 12-1: Configuring Basic VMD for a camera (SVMD option installed)

Once you select the **VMD** check box of the enable area the procedure for configuring basic VMD is very similar to that described in section 6.2: “Basic VMD Configuration” on page 44. If you want to draw ROIs, however, you must also select the **ROI** radio button.

12.1.2: VMD Menu with the SVMD product option

Table 12.1 shows the additional configuration items that appear in the VMD Menu of the Configuration Console when the SVMD product option has been purchased and activated.

GUI Element	Description
Settings that apply to all ROIs in the current Camera View	
Camera	Provides a drop-down list of cameras that have been enabled for VMD in the **Cameras** menu. One of these camera names may have the suffix (SVMD) if SVMD features have been configured for it.
Sensitivity	Sliding scale that you can use to increase and decrease the amount of movement that triggers a VMD event in all regions of interest defined for the current camera.
Output on Display	Check box that specifies that tracked, abandoned or removed objects be highlighted in the camera view of the SVMD camera in Live mode. This check box is enabled only on the SVMD camera.
Settings that apply to Individual ROIs	

GUI Element	Description
Mode	Check box that specifies the mode(s) of VMD that is to apply to the Region of Interest (ROI) you are drawing or configuring. VMD is the default selection and its default ROI covers the full camera view. In each camera configuration, you can combine standard VMD ROIs with ROIs of *one* other advanced mode (Object Tracking, Object Removal, Abandoned Object). These modes are not available for selection, if any one of them is already being used in another camera's VMD configuration. The Camera configured with an advanced mode of VMD, appears in the drop-down list with (SVMD) suffix. If you want to use only an advanced mode of VMD on the camera, you can disable standard VMD by unchecking its box. (Standard ROIs remain in their drawn positions and can be viewed when VMD is enabled again.)
ROI	Radio Buttons that focus your configuration on one mode of ROI at a time. When you click the Radio button opposite a mode of VMD, only the ROIs that use that mode are displayed and become selectable. The **Delete All** button beneath the ROI drawing area apply only to ROIs of the selected mode. You ***must*** select the **ROI** radio button even when you want to use the default ROI and do not intend drawing ROIs explicitly.
ROI Drawing Area	Area in which the selected camera view is displayed and in which ROIs can be drawn and selected for modification or testing. A default ROI covers the entire drawing area but is disabled once you draw one. When an VMD mode is selected, all ROIs with that mode are displayed as clear areas in a greyed-out overlay that covers the drawing area. Greyed out areas represent are outside the ROIs. When you select an ROI, it appears outlined in yellow.
Settings that apply only to objects in SVMD ROIs	
Size	Enabled only for ROIs in all SVMD modes. A scale with sliders that define the maximum and minimum size of objects that should trigger VMD events in an object-tracking ROI. This enables you to configure VMD that ignores movement by objects that are smaller (birds, leaves) or larger (busses) than the limits you define. For more information see section 12.1.3: "Configuring Object Tracking SVMD" on page 118 and section 12.1.4: "Configuring Object Removal SVMD" on page 119.
Speed	Enabled only for ROIs in Object-Tracking mode. A scale with sliders that define the maximum and minimum speed of objects that should trigger VMD events in an object-tracking ROI. This enables you to configure VMD that ignores objects that move more quickly or slowly than the limits you define. For more information see section 12.1.3:
Direction	Enabled only for ROIs in Object-Tracking mode. A circular indicator, divided into 8 segments, each representing a direction of movement. Selected segments are coloured red and de-selected segments are white. When a segment is selected, any movement in that direction triggers VMD events in an object-tracking an ROI. For more information see section 12.1.3:
Occlusion %	Enabled only for ROIs in Object-Removal mode. Specifies a tolerable occlusion percentage for the object you want to guard. This is the percentage of the object's on-screen area, that can be obscured by another object in the foreground with out causing a VMD event. For more information see section 12.1.4:.
Duration before Alarm	Enabled only for ROIs in Object-Removal mode. Used in conjunction with tolerable occlusion. Specifies a time period (in seconds), for which an excessive occlusion can be tolerated without triggering a VMD event. If the guarded object is occluded for longer than this period, a VMD event occurs. For more information see section 12.1.4: and section 12.1.5:.
Learning Duration	Enabled for ROIs in Object-Removal or Abandoned Object mode. You can specify a time period (in seconds) during which the server should sample images from this camera to "learn" which objects belong permanently in the picture. The server does not raise any SVMD events until the learning period is complete. For more information see section 12.1.4: and section 12.1.5:.

Table 12.1: Super VMD configuration settings

12.1.3: Configuring Object Tracking SVMD

In some cases the mere detection of motion is not in itself significant. In one day at a busy international airport, thousands of people may pass a CCTV camera on their way to the departure gates. However, if someone, having cleared Airport security, attempts to return to the departures hall, this represents a significant security risk. In this case the direction of the motion is what makes it significant.

Object tracking mode VMD enables you to configure a camera to trigger VMD events when motion is detected in specific directions and speeds and for objects that fit a specific size range. To configure a camera to use Object-Tracking mode VMD, use the following procedure:

1. Open the **VMD** menu of the Configuration Console as shown in Figure 12-2.

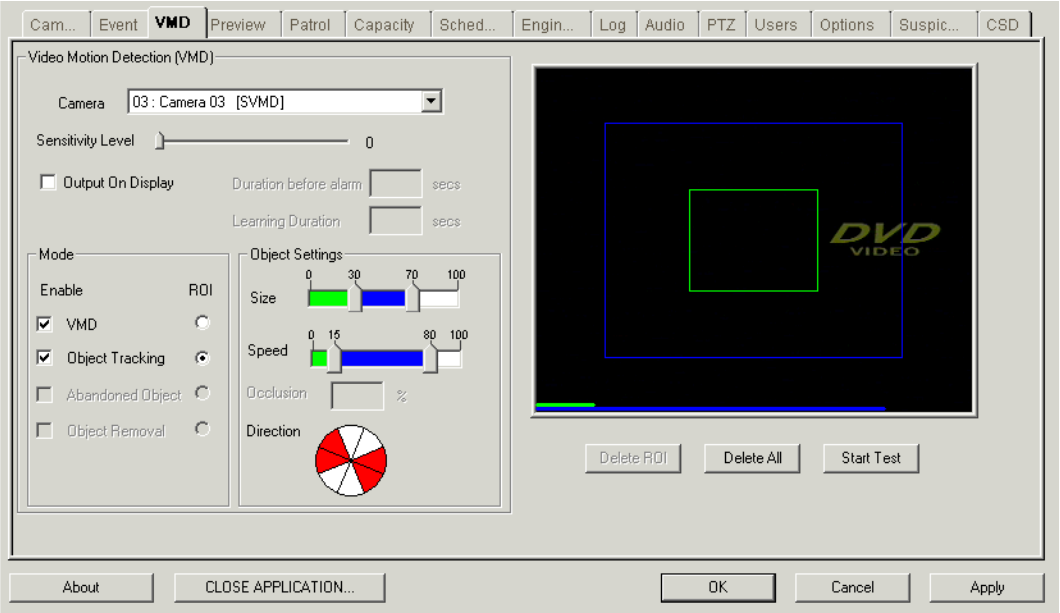


Figure 12-2: Drawing an Object Tracking region of interest for a camera

2. Select the camera for which you want to configure VMD from the drop-down list of cameras.
3. Click the **Object Tracking** check box in the **Mode** area. This activates the Object Settings area.
4. Decide whether your want to apply the VMD to the whole camera view or to a portion of it:

   0a. If you want the VMD to cover the full camera view, select the **ROI** radio button opposite the **Object Tracking** mode but do not draw any ROI.

   0b. If you want the VMD to apply to just a part of the camera view, select the **ROI** radio button, position your mouse cursor in one corner of the area where you want an ROI and drag out the border to draw the box.
5. If the direction of moving objects is significant, use the **Direction** indicator in the Object Properties area to define the trigger direction(s). De-select the segments of the **Direction** indicator, for which you do not want VMD events triggered. Initially all directions are selected (coloured red), so movement in any direction triggers a VMD event. As you de-select direction segments, they turn white. Figure 12-3 shows how you might configure Object Tracking to detect objects moving from right to left, front to back or any direction in between.

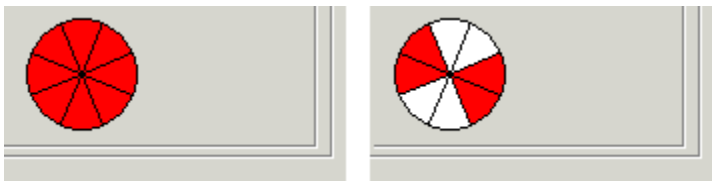


Figure 12-3: Setting the direction for Object Tracking

6. If the size of moving objects is significant, use the sliders on the **Size** scale, shown in Figure 12-2, to specify a minimum size, a maximum size or both for objects to be detected in the ROI.

   0a. As you drag the minimum size slider to the right, a square with a green outline appears in the ROI Drawing Area. The area of this square represents the minimum on-screen size an object must have to trigger a VMD event in this ROI. You can use this to prevent small and insignificant objects such as leaves or birds from causing VMD events.

0b. As you drag the maximum size slider to the left, a square with a blue outline appears in the ROI Drawing Area. The area of this square represents the maximum on-screen size an object can have to trigger a VMD event in this ROI. You can use this exclude large objects from consideration for example in an area where people are forbidden to leave their vehicles, only objects that are smaller than a car require attention.

7. If the speed of moving objects is significant, use the sliders on the **Speed** scale, shown in Figure 12-2 on page 118, to specify a minimum speed, a maximum speed or both for objects to be detected in the ROI.

0a. As you drag the minimum speed slider to the right, a bright green line advances from the bottom left hand corner of the ROI Drawing Area. The length of this line represents the distance an object would need to travel on the screen in one second to trigger a VMD event in this ROI.

0b. As you drag the maximum speed slider to the left, a blue line also advances from the bottom left hand corner of the ROI Drawing Area. The length of this line represents the maximum distance an object can travel on the screen in one second and still trigger a VMD event in this ROI.

NOTE: It is not possible to track very fast objects if the capture rate of your cameras is low. The recommended capture rate for object tracking is 5 ips.

8. Click the **Start Test** button to test the performance of the ROI. Figure 12-4 on page 119 shows the test of an Object-Tracking ROI. In test mode, the server outlines, with a coloured border, each object moving in the camera view that matches the specified direction, size and speed. The server uses a different colour for each new object. It also marks a trail showing the path taken by the object in the trigger direction.

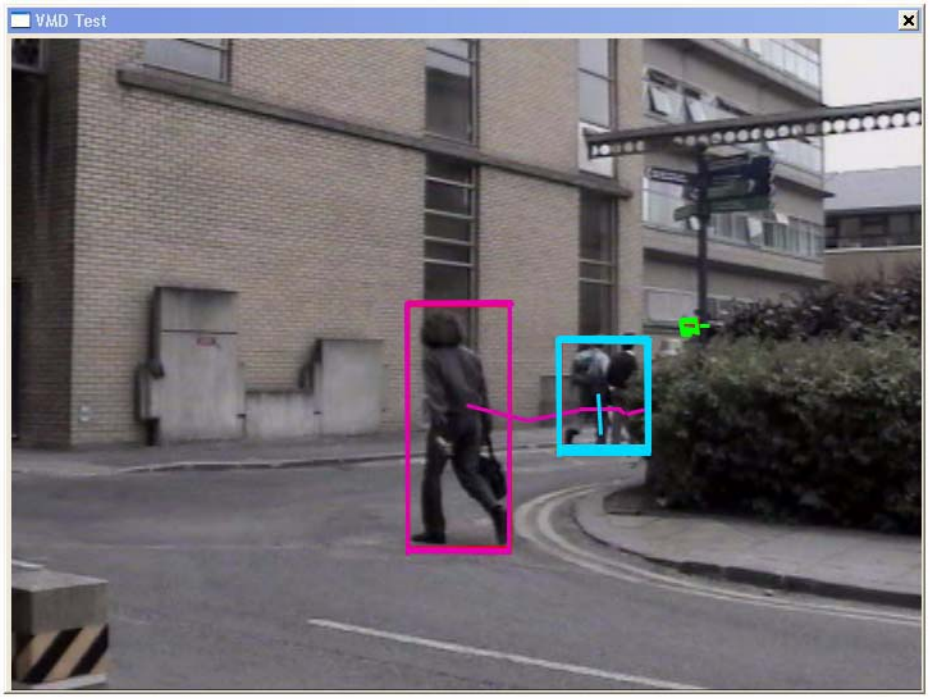


Figure 12-4: Testing an Object-Tracking ROI

9. When you are satisfied that the configuration triggers VMD events for movement in the defined direction in which you are interested, click on **OK** to commit your changes. You may then draw additional ROIs in the camera to cover all significant areas of the camera view. If you have defined a region of interest tracking motion from right to left in one part of the camera view, you can define others that trigger events for motion in different directions in other parts of the camera view or even overlapping the first ROI.

12.1.4: Configuring Object Removal SVMD

In some security scenarios, movement in the vicinity of valuable objects must be tolerated. In an Art gallery or museum, the public must be free to approach valuable displays as long s they do not interfere with them in any way.

Object-Removal mode VMD enables you to configure a camera to trigger VMD events when a familiar object in the camera view is moved, removed or obscured. To configure a camera to use Object-Removal mode VMD, use the following procedure:

1. Open the VMD menu of the Configuration Console as shown in Figure 12-5.

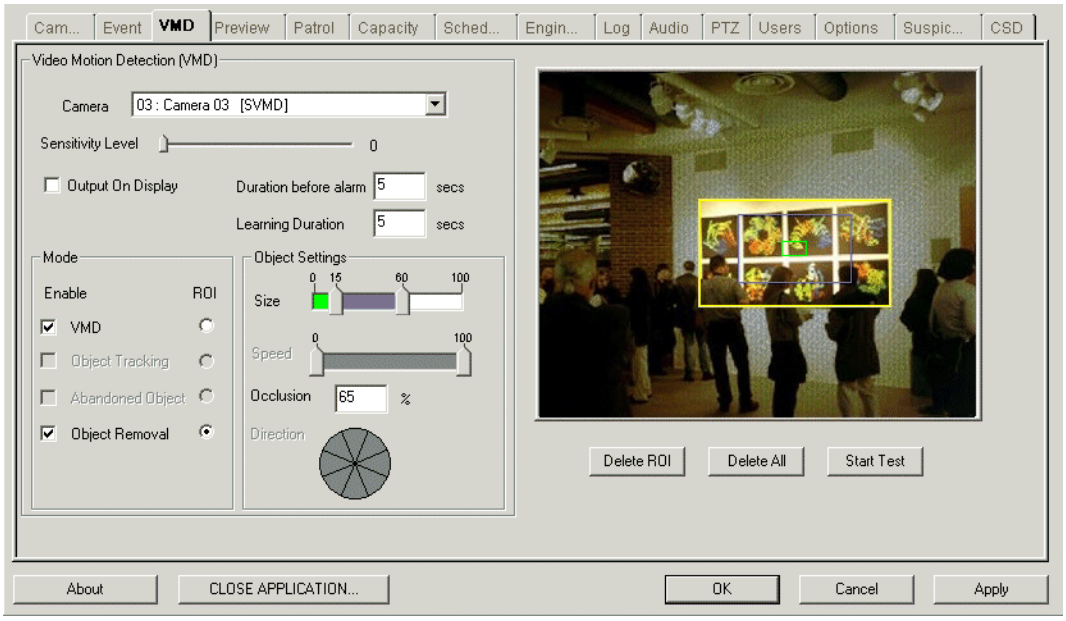


Figure 12-5: Drawing an Object Removal ROI for a camera

2. Select the camera for which you want to configure VMD from the drop-down list of cameras.
3. Click the **Object Removal** check box in the **Mode** area. This activates the Object Settings area.
4. Decide whether your want to apply the VMD to the whole camera view or to a portion of it:

   0a. If you want the VMD to cover the full camera view, select the **ROI** radio button opposite the **Object Removal** mode. If you use full-screen ROI, the server must become familiar with all the background objects in the camera view.

   0b. If you want the VMD to apply to just a part of the camera view, select the **ROI** radio button, position your mouse cursor in one corner of the area where you want an ROI and drag out the border to draw the box.This enables you to focus the server's attention on one or more specific objects in the picture. Figure 12-5 above shows an ROI drawn to guard against the removal of a painting in an art gallery.
5. For the plettac server to recognise when the object(s) that you want to guard are removed, it must learn to distinguish the objects that belong permanently in the ROI from those that move through it transients. In the **Learning Duration** field, you can configure a period in seconds for the server to familiarise itself with the scene. This period starts when you commit your configuration changes. It is best to perform this configuration when there are no transient objects in the picture. However, if you specify a relatively long duration and the transient objects move before it expires, the server can learn which objects are permanent and which are transient.
6. Because the objects that you want to guard may be temporarily obscured by objects moving in the foreground, you can configure a tolerable level of occlusion for the ROI. In the **Occlusion** field, specify the percentage of the ROI that can be occluded without triggering a VMD event. If you specify a 90% occlusion rate, no VMD events are triggered as long as 10% of the ROIs permanent content remains visible.
7. If transient objects frequently exceed the occlusion threshold of the ROI for short periods, you can configure the server not to trigger VMD events for short-term occlusions. In the **Duration before alarm** field, specify the minimum duration in seconds that an occlusion or disappearance must last before triggering a VMD event. This duration needs to be long enough to make the event significant but not so long as to compromise the recording of security breaches.

12.1.5: Configuring Abandoned Object SVMD

In some security scenarios, the deposition of a foreign objects, such as unattended luggage, may be of primary concern.

Abandoned-Object mode VMD enables you to configure a camera to trigger VMD events when a unfamiliar object appears in the camera view. To configure a camera to use Abandoned-Object mode VMD, use the following procedure:

1. Open the VMD menu of the Configuration Console as shown in Figure 12-6.

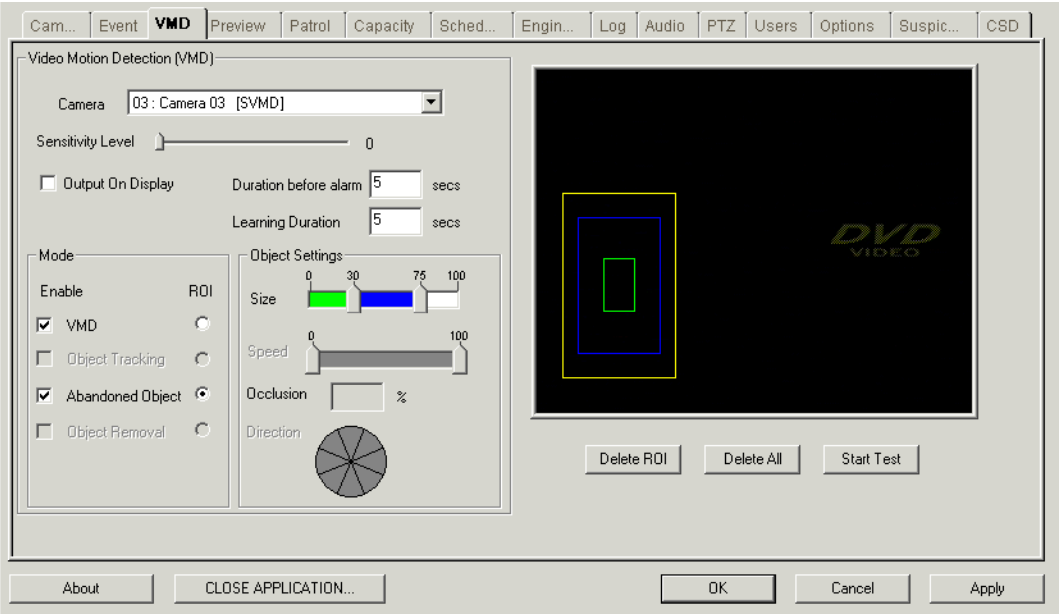


Figure 12-6: Drawing an Abandoned Object ROI for a Camera

2. Select the camera for which you want to configure VMD from the drop-down list of cameras.
3. Click the **Abandoned Object** check box in the **Mode** area. This activates the Object Settings area.
4. Decide whether your want to apply the VMD to the whole camera view or to a portion of it. As it is often not possible to predict where an object will be abandoned it is probably best to apply the configuration to the full camera view ROI. However, if there are areas where it acceptable for objects to be deposited or stopped, for example the hard-shoulder of a motorway, you might choose to draw an ROI explicitly. Figure 12-6 above shows a camera view of an Airport concourse in which the default ROI is used to detect abandoned objects that are smaller than a specified size.
5. For the plettac server to recognise when the foreign object(s) are abandoned in the camera view, it must learn which objects belong permanently in the ROI.
   In the **Learning Duration** field, you can configure a period in seconds for the server to familiarise itself with the scene. This period starts when you commit your configuration changes. It is best to perform this configuration when there are no transient objects in the picture. However, if you specify a relatively long duration and the transient objects move before it expires, the server can learn which objects are permanent and which are transient.

12.1.6: Modifying and deleting SVMD ROIs

As it is possible to have multiple ROIs configured in the same camera view and to have a mixture of standard VMD ROIs and SVMD ROIs on one camera, it could be very confusing if all were displayed at the same time.

Therefore, the VMD configuration menu allows only one type of ROI to be displayed at a time and for only one ROI of that type to be selected.

When you select a camera that already has VMD configured, you do not see any of the ROIs at first.

When you select a mode of VMD and the corresponding ROI button, the ROIs defined with that mode become visible as clear boxes in a shaded area that covers the camera view. The Delete All ROIs button becomes active, which enables you to delete all the ROIs of this mode for the selected camera. Figure 12-7 shows a VMD configuration for a camera view, which has three Object-Removal ROIs, one of which is partially overlapping another.

The configurable elements that apply to those ROIs are still not activated until you use the mouse to select an ROI explicitly. The selected ROI is outlined in yellow and the configuration takes on the settings that were saved for that ROI. The Delete ROI button becomes active.

If you deselect the **Enable** button for any mode of VMD or SVMD, ROIs of that mode are no longer visible until you reselect the mode and click the ROI radio button.

NOTE:

It is possible to draw ROIs so that they overlap each other. If you select an ROI that is partially overlapped by another, its yellow outline may be partly hidden by the overlapping ROI but it has no effect on the configuration of the lower ROI.
Take care however not to completely overlap ROIs of the same mode. This would make the overlapped ROI unselectable and you would therefore not be able to modify its configuration without first deleting the ROI that overlaps it. Figure 12-7 shows a selected ROI that is overlapped slightly by another ROI. Its yellow edge is not visible where it is overlapped.

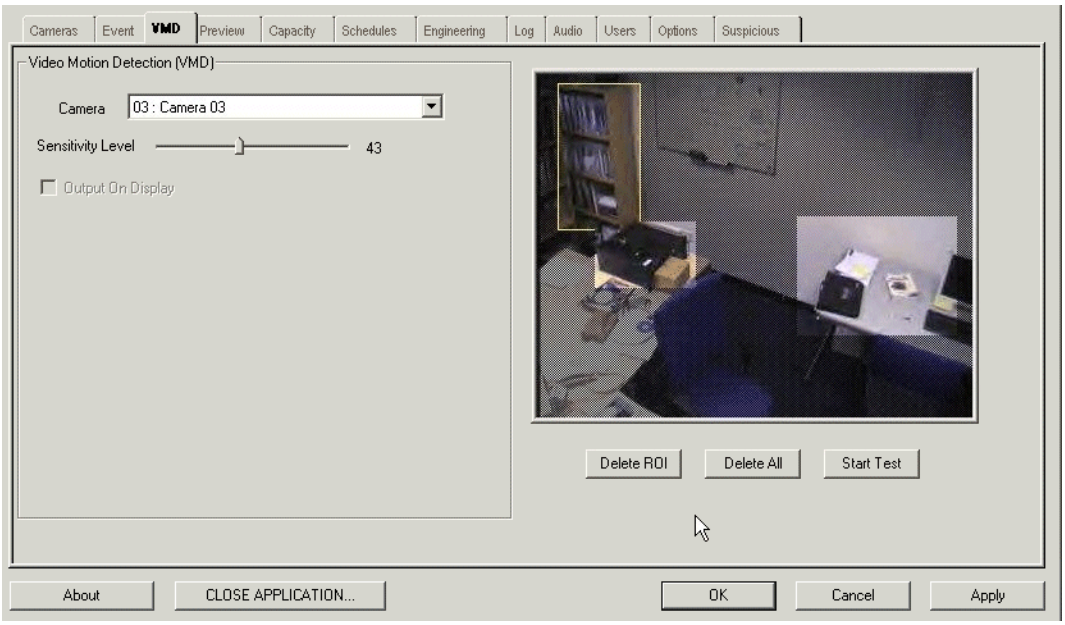


Figure 12-7: VMD Configuration with multiple ROIs

12.1.7: SVMD in Live Mode

If you have clicked the **Output on Display** check box in the SVMD configuration, objects that trigger SVMD events are highlighted in live display as shown in Figure 12-8. This highlighting is displayed only on the plettac server's console. NetManager connections display only the yellow frame and **VMD Ack** message.

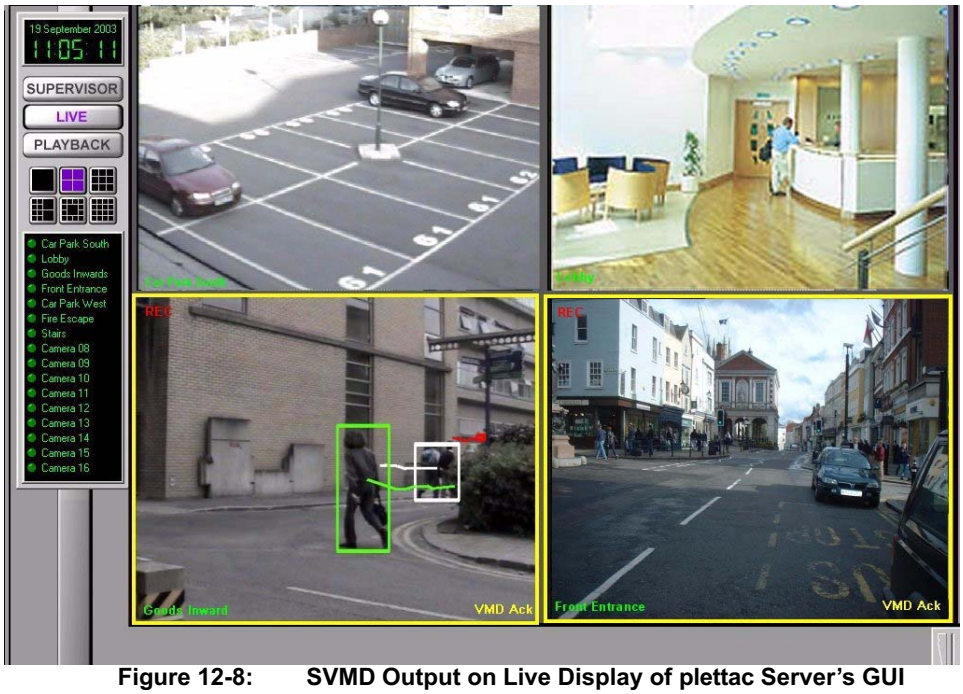


Figure 12-8: SVMD Output on Live Display of plettac Server's GUI

12.2: Multi-Channel Audio

If you have purchased the Multi-Channel Audio feature, your plettac server can accept 4 audio inputs for each audio/alarm card fitted at the back of the server. This means that you can record an audio track with several, or even all, of the video inputs to your system.

INFORMATION: This feature must be unlocked using a software code issued by plettac support staff.

The connection of audio inputs is described in the *plettac FXL 4.4 Quick Start Guide* and in the *plettac FXL Installation Guide*. Once the inputs are connected, use the **Audio** menu of the Configuration Console to associate audio and video inputs. The only difference is the number of audio inputs available. Figure 12-9

shows the association between cameras and multiple audio inputs on a plettac server with 16 video and 1 audio inputs.

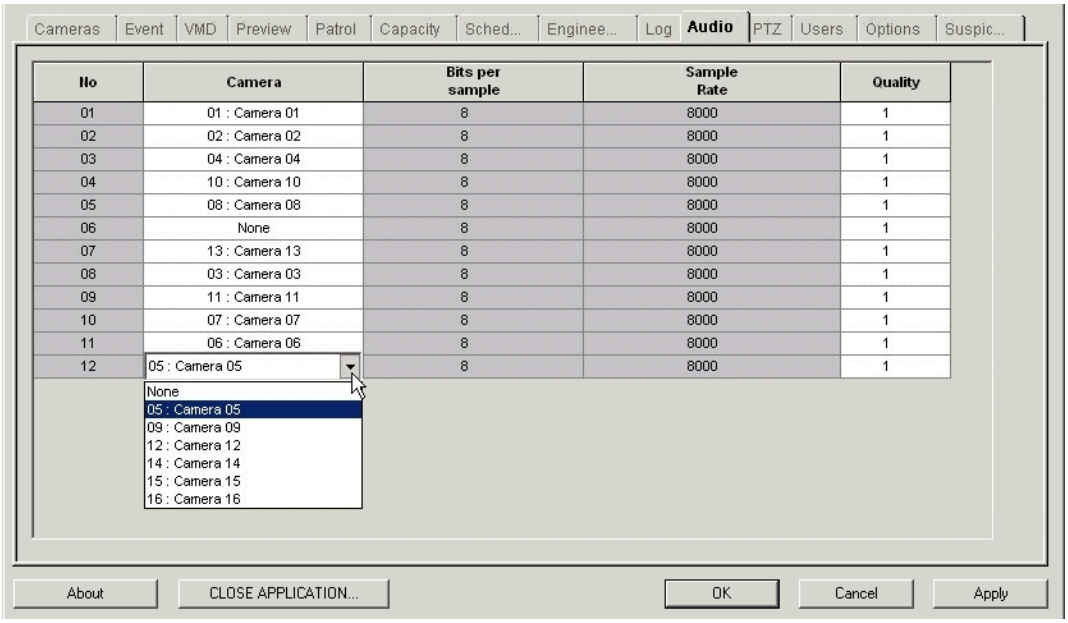


Figure 12-9: Associating multiple audio channels with your cameras

For details about configuration using the Audio menu, see section 4.11: “Configuring Audio Recording” on page 33.

12.3: Bi-Directional Audio

Bi-Directional Audio (BDA) enables audio to be transmitted between a NetManager client and an audio-equipped camera attached to the plettac server. The NetManager client requires a microphone and the camera must have a speaker for audio output and (optionally) a microphone for audio input.

This feature can enable an operator to speak to people who are in the vicinity of a camera on which they appear and (if the camera has an associated microphone) hear requests.

For example, if a customer leaving a car park finds that the barrier doesn’t lift, the NetManager user may be able to advise them or listen to requests they make via an intercom system.

This section is concerned with configuring the audio output from a remote client. For information about configuring audio input to the plettac server see section 4.11: “Configuring Audio Recording” on page 33.

12.3.1: Configuring the server for sBDA

1. To configure Bi-Directional Audio, double click on the sBDA desktop icon. The Bi-Directional Audio configuration dialog appears as shown in Figure 12-10.

Figure 12-10: sBDA Configuration Dialog

2. Enter the IP address of the host(s). Machines previously configured for sending data to your client may be displayed in the pick list and be available for selection.

3. Select the data compression; **None** (64 kbit/s) or **GSM** (13.2 kbit/s). When audio data is being received the background of the **Rx** box changes to green. If this data is compressed by the GSM codec, the background of the **GSM** box changes to green.
4. Click the Half-duplex check box to use half-duplex mode, which can avoid acoustic feedback by forcing the communicating parties to speak alternately.

1. Close Bi-Directional Audio configuration.

You can also use the Bi-Directional Audio Configuration dialog to open the microphone and address people using SBD or to configure auto audio. Alternatively, you can also perform these tasks using the sBDA Control Console in Live mode shown in Figure 12-11. These tasks are described on page 125

Figure 12-11: The Bi-Directional Audio Control Console

12.3.2: Opening the microphone manually for sBDA

In Live mode, you can speak to someone via the plettac server using sBDA. If Bi-Directional Audio has been enabled for your client, the sBDA Control Console is displayed at the bottom of the screen.

Click the microphone icon and hold down the mouse button. While the icon is clicked it changes colour to magenta and sBDA output is active. Any sound picked up by the attached microphone is transmitted to the audio output channel (regardless of any auto-audio threshold setting).

When you release the mouse button the microphone is closed again (unless you have configured an auto-audio threshold).

Figure 12-12: Two-way conversation using Bi-directional Audio

12.3.3: Setting Auto Audio and Background Noise level

The auto audio function enables NetManager users to address people using the sBDA feature, without having to click a mouse button on the microphone icon of the NetManager. To configure this feature open either the sBDA Control Console or use the sBDA controls from the Live mode of NetManager or plettac server GUI.

1. Click the hand icon to activate the auto audio function; the icon will change colour to purple.
2. The Threshold slider will now be available. Set the background (normal) level of noise by using the slider (0 for no background noise up to 10 for high background noise).
3. All sound above the set threshold will activate the audio and be sent to the server audio output.

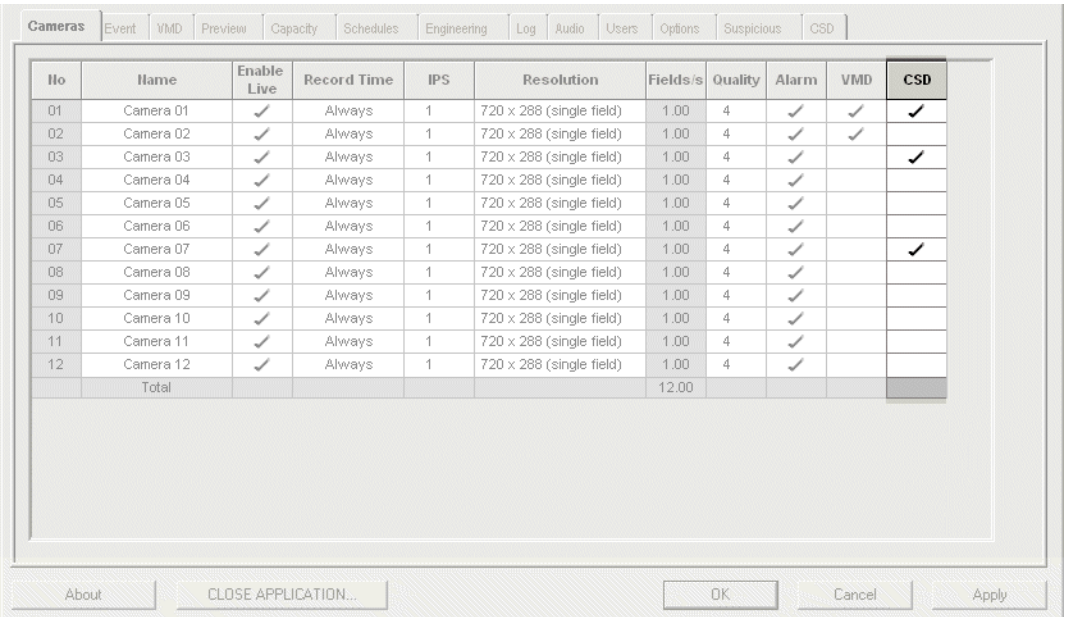
2. Clicking the hand icon again will turn the auto audio off (the icon will return to grey).

12.4: Camera Sabotage Detection (CSD)

Camera Sabotage Detection (CSD) enables the FXL server to detect whether a camera has been moved, defocussed or obscured.

CSD is intended as a feature of a computer-assisted surveillance system. It is not a replacement for human operator but as a way of helping security personnel easily identify and record significant occurrences.

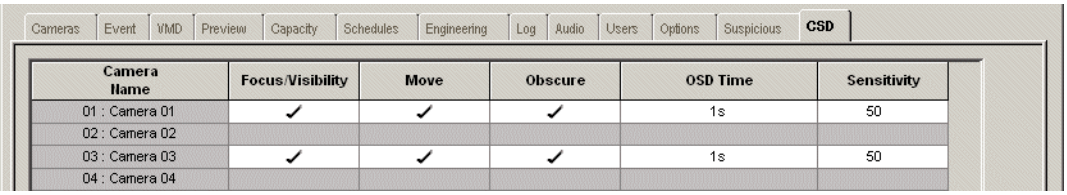
On the Cameras tab of the Configuration console, click in the CSD column for the cameras for which you want to enable this feature.



No	Name	Enable Live	Record Time	IPS	Resolution	Fields/s	Quality	Alarm	VMD	CSD
01	Camera 01	✓	Always	1	720 x 288 (single field)	1.00	4	✓	✓	✓
02	Camera 02	✓	Always	1	720 x 288 (single field)	1.00	4	✓	✓	
03	Camera 03	✓	Always	1	720 x 288 (single field)	1.00	4	✓		✓
04	Camera 04	✓	Always	1	720 x 288 (single field)	1.00	4	✓		
05	Camera 05	✓	Always	1	720 x 288 (single field)	1.00	4	✓		
06	Camera 06	✓	Always	1	720 x 288 (single field)	1.00	4	✓		
07	Camera 07	✓	Always	1	720 x 288 (single field)	1.00	4	✓		✓
08	Camera 08	✓	Always	1	720 x 288 (single field)	1.00	4	✓		
09	Camera 09	✓	Always	1	720 x 288 (single field)	1.00	4	✓		
10	Camera 10	✓	Always	1	720 x 288 (single field)	1.00	4	✓		
11	Camera 11	✓	Always	1	720 x 288 (single field)	1.00	4	✓		
12	Camera 12	✓	Always	1	720 x 288 (single field)	1.00	4	✓		
	Total					12.00				

12.4.1: Configuring a camera for CSD

After you have enabled the CSD feature for a camera, the fields on the **CSD** tab can be edited. You can choose what sort of tampering you wish to consider. By default. all options are selected, but you may choose to not worry about a particular form of tampering. For example, you may not need to worry about a fixed or hidden camera being moved.



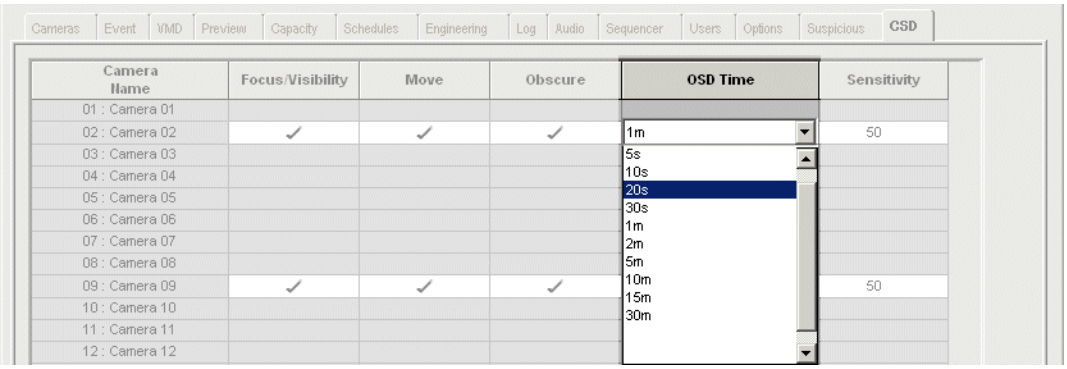
Camera Name	Focus/Visibility	Move	Obscure	OSD Time	Sensitivity
01 : Camera 01	✓	✓	✓	1s	50
02 : Camera 02					
03 : Camera 03	✓	✓	✓	1s	50
04 : Camera 04					

Movement of a camera is one of the types of sabotage that can be detected. The three types of sabotage detectable are outlined below.

- Focus/Visibility:
  - **Focus** is where a camera's lens is deliberately manipulated to obscure the scene being viewed. Similarly, **Visibility** is whereby an image is deliberately obscured by spraying a liquid over the lens of the camera.
    A camera viewing/recording an external scene on a foggy day will respond to the situation and treat it as camera sabotage.
- Move
  - Sabotage by movement is where a camera is deliberately turned to change the image being viewed or recorded.
- Obscure
  - Sabotage by obscuring is where an object is deliberately placed in front of a camera to block the image being viewed or recorded.

By using comparison of images received, the plettac server continually monitors the scene to determine whether a camera has been sabotaged and alert the operator.

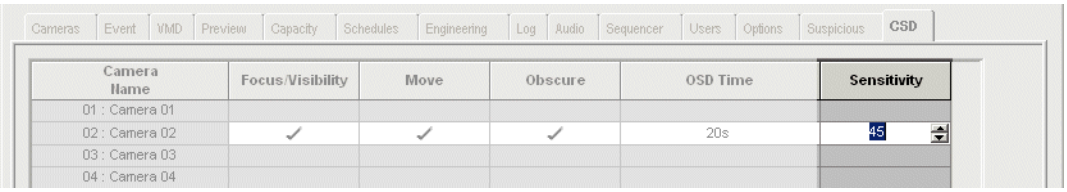
You can adjust how long the warning message remains on screen by clicking in the on-screen display (**OSD Time**) column and selecting the required time.



NOTE: The OSD time can be set to be shorter than the event duration time selected on the Camera tab. For example, the event duration might be set to 10 minutes and OSD set to 5 seconds. In this situation the “Camera Sabotage Detected” text disappears from the screen after 5 seconds but event recording continues for a total of 10 minutes. During this period the CSD event is still active, so NO NEW CSD events can be triggered.

CSD Sensitivity is the percentage measure by which a camera view can be affected before an alarm event is triggered. The higher the number the smaller the change allowed. For example, a high sensitivity for **Obscure** means that only a small amount of the view can be blocked before the alarm is triggered.

Click in the **Sensitivity** column for a camera and either type the value directly or use the spinner arrows to change the sensitivity level.



12.5: Video Sequencer

The video sequencer is an extra hardware option which can be used to display a timed selection of cameras on up to 4 sequence monitors, each with a text overlay.

INFORMATION: To enable Sequencer functionality, the **/Seq** command line option must be specified in the start-up properties of the plettac server. See Appendix G, “Run-Time Configuration,” on page 159

Each system can have up to four sequence monitor outputs (remote spot monitors).
The sequencer displays the camera views through the spot monitor(s) in a continual cyclical sequence.

12.5.1: Configuring the Sequencer

To configure a video sequence for your spot monitors, use the following procedure:

1. Open the **Sequencer** menu of the Configuration Console as shown in Figure 12-13.

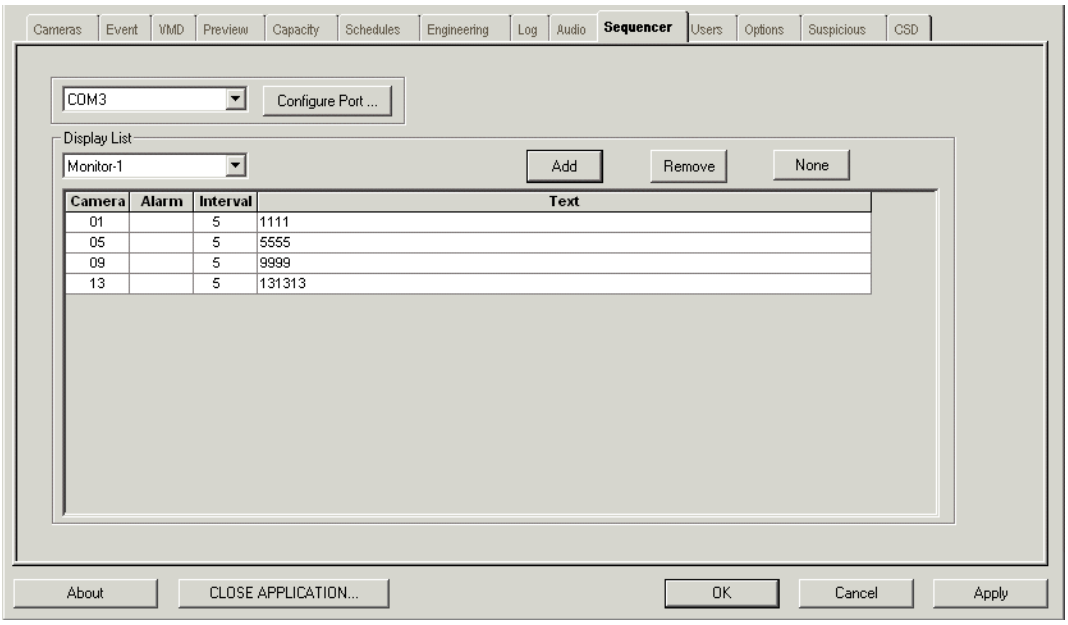


Figure 12-13: Configuring a display sequence for a composite monitor

2. From the drop-down list, select a serial port. Your system's hardware configuration determines which ports are available.

NOTE: When the Sequencer card is installed, the USB connection is usually assigned to port COM3. Ensure that the port entered in the plettac server Configuration console matches that in your computer's Device Manager.

3. Click the Configure Port button. The port configuration dialog appears as shown in Figure 12-14.

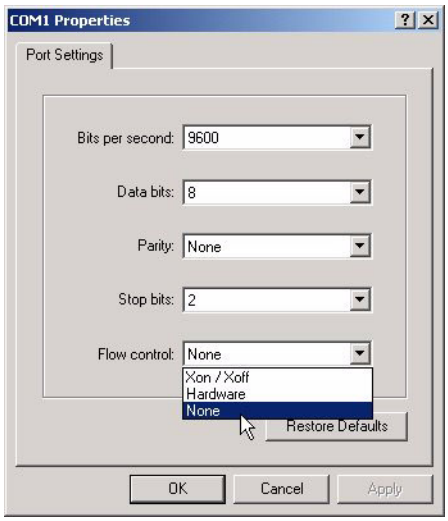


Figure 12-14: Port configuration for the Sequencer

4. From the drop-down list, select the monitor for which you want to configure a display sequence.
5. Click **Add** to add a camera view to the display sequence. A new row appears in the Display List. Each row you add to the list contains a column, in which you can configure the following parameters:

Cell	Description
Camera	Select one of the cameras on your system.
Alarm	Click the check box to specify that this camera view automatically appears on the sequence monitor when it has an active alarm.
Interval	The time period for which the camera view is to be displayed (1 to 999 seconds).

Cell	Description
Text	Any required text that you want to display with the camera view and any control characters to modify the text as shown in Table 12.3 below.

Table 12.2: Settings in each row of the display sequence

6. Continue to click the **Add** button to add the new rows to the sequence. You can add as many rows as you want to the sequence. As Figure 12-13 shows, you can place multiple entries for the same camera view in the sequence.

3. To delete an entry from the display list, select that row and click the **Remove** button. To clear all the entries from the display list click the **None** button.

12.5.1.1 Controlling the Appearance of Sequencer Text Overlays

When entering text several control codes are available to be issued to the Sequencer Text Overlay.

Command	Description
¢>5h	Text + Video
¢>5l	Text Only (NB l is a lower-case L)
¢?5h	Translucent Text
¢?5l	Opaque Text (NB l is a lower-case L)
¢1m	Bold Text
¢5m	Blinking Text
¢22m	Cancel Bold Text
¢25m	Cancel Blinking Text
¢r;cH	Position cursor e.g ø8;1H denotes row 8 column 1
The ¢ is the Control Sequence Introducer (CSI) obtained with Num Lock on and by holding down the left hand Alt key while typing 0162 on the number key pad. Use copy and paste to insert the character into the configuration interface. Text overlay coordinates originate at 1,1 in the top left corner and extend to 11 rows of 28 columns.	

Table 12.3: Sequencer text overlay control codes

Once you have made your selections click the **OK** button to commit the configuration. This resets the sequencer and applies the new settings, which can take up to 30 seconds to complete.

12.6: NetAlert

NetAlert is an optional application that you can purchase to monitor the status of a cluster of networked plettac servers.

12.6.1: Starting NetAlert

Start NetAlert by double clicking the Bell short-cut icon. (If NetAlert has been setup to start each time the PC is started then a Bell icon will already be displayed in the system tray - bottom right of the screen.)

The Bell icon can appear in one of the following colours, which indicates NetAlert's status:

Bell Colour	Status
Blue	NetAlert is initializing.
Green	NetAlert is running and there are no Alerts.
Amber	NetAlert has detected an alert condition.

Bell Colour	Status
Red	NetAlert is notifying of an alert condition.

12.6.2: Configuring NetAlert

1. Double click the Bell icon to open the NetAlert status dialog.

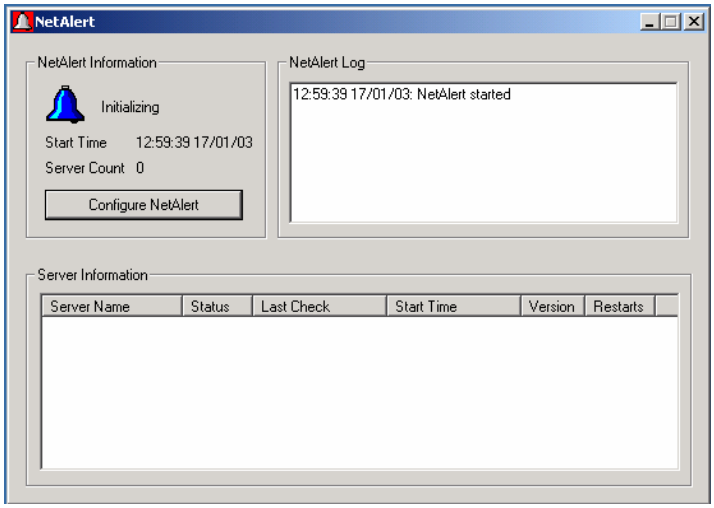


Figure 12-15: The NetAlert Status Dialog

NOTE: NetAlert always displays dates in ISO format (yyyy/mm/dd hh:mm:ss) rather than the local format.

2. Click on the **Configure NetAlert** button.

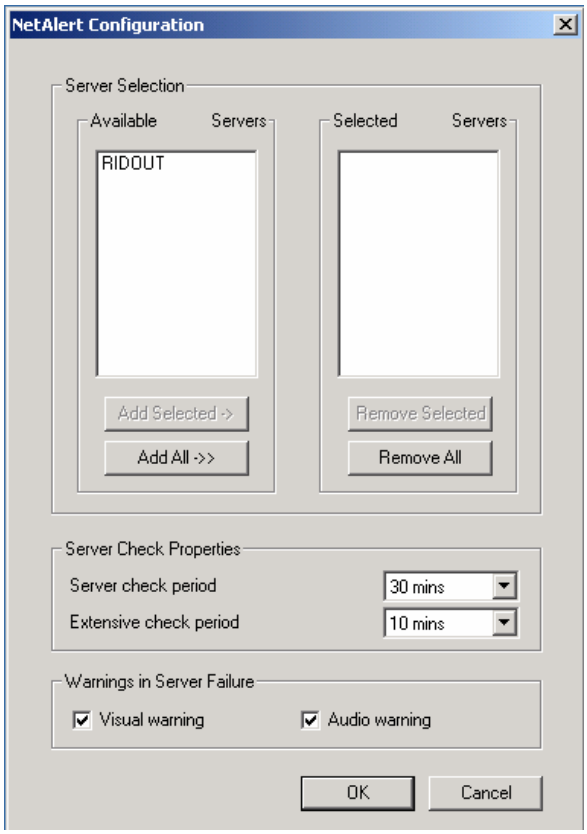


Figure 12-16: NetAlert Configuration dialog

Field	Description
Server Selection panel	
Available Servers	Select the server(s) you wish to monitor in the left hand panel.

Field	Description
Add Selected	Click this button to move the selected server names to the Selected Servers list
Add All	Click this button to move all the server names to the Selected Servers list
Selected Servers	Select those server names that you no longer require to be monitored by NetAlert.
Remove Selected	Click this button to move the selected server names to the Available Servers list
Remove All	Click this button to move all the server names to the Available Servers list
Server Check Properties panel	
Server Check Period	Specify how frequently NetAlert should check the status of the selected servers.
Extensive check period	Specify the period following discovering an Alarm condition that NetAlert should alert the remote user.
Warnings in Server Failure panel	
Visual warning	Check box to enable warnings to be displayed in a separate pop-up window if any of the servers should fail. Otherwise no popup window appears. The Bell icon in the system tray changes colour to red and blinks.
Audio warning	Check box to enable an alarm sound to be played with warning messages.

Table 12.4: Fields of the NetAlert Configuration dialog

12.6.3: NetAlert alarm conditions

If a server being monitored creates an alert condition, NetAlert triggers an Alarm. (The time for this to occur depends on the configured Server Check period.) The icon in the system tray changes colour to amber.

Should the alert condition not be rectified before the set Extensive check period elapses, a popup screen appears (if visual warning has been configured) and/or alarm sound (if audio warning has been checked too), indicating which server has a problem.

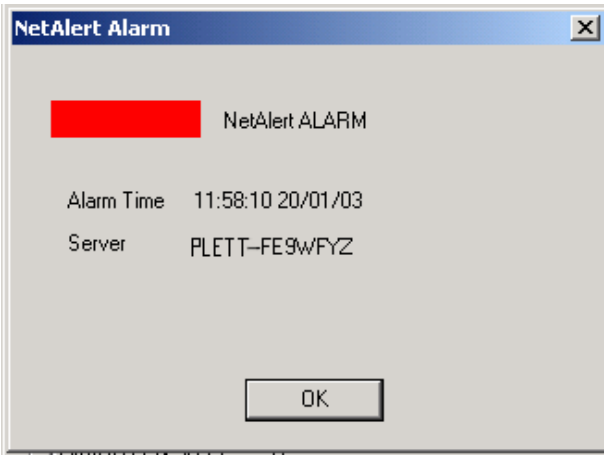


Figure 12-17: NetAlert Alarm popup

Clicking on the **OK** button closes this screen and opens the status screen.

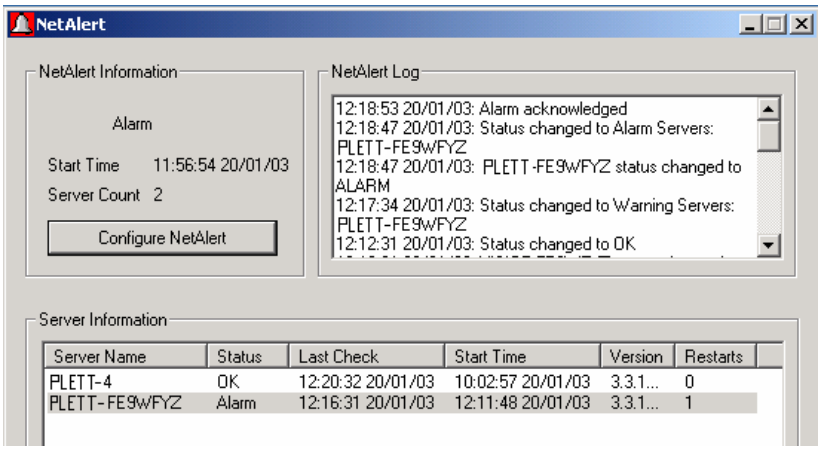


Figure 12-18: NetAlert Alarm Status screen

A log of the alarms and actions taken will be displayed in the NetAlert Log panel.

The server that triggered NetAlert displays "**Alarm**" in the status column. When the alarm condition is rectified the status is automatically reset to "**OK**".

12.6.4: Audio Only alerts

When configured to audio warning only, the alarm details can be checked by clicking with the right mouse button over the blinking red bell icon in the system tray. This will give three options:

- Open the NetAlert main dialog.
- Access the Configuration dialog.
- Acknowledge the alarm.

INFORMATION: For audio alert to work, you must have a sound or a sounds theme associated with error events on your PC. This is configurable from the Sounds Menu of the Control Panel.

12.6.5: NetAlert on Older Servers

Any plettac servers running software prior to 3.1 will be available for inclusion in the monitored servers but NetAlert will report that they are not responding.

12.7: Time Synchronization

This is an optional suite of software and associated hardware consisting of the following:

Component	Description
Lindy Precision Clock	An external 60 kHz MSF time code receiver connected to the PC via the serial port.
Tardis	An NTP server application allowing PCs on a network to synchronize their clocks with the PC running Tardis.
WinSync	An NTP server application allowing PCs to synchronize their clocks with a nominated server.

Table 12.5: Components of a Time Synchronization system

INFORMATION: If your plettac intelligent video management system is part of a network, it is essential that all associated machines are synchronised to the same time source, whether that is a dedicated

external clock or a particular computer.

Following successful installation there are no user configuration or reporting functions. For further information about plettac's recommended time synchronisation process, refer to your *plettac FXL Installation Guide.*

WARNING: If your system uses a WinSync/Tardis combination to synchronize time, you may need to restart the Tardis application on 01 January each year.

12.8: Dynamic Re-Archiving

If you have purchased a system with the Dynamic Re-Archive option, you can retain recordings on your system for longer by further compressing them with very slight loss in quality. Before configuring archiving, you must refer to Appendix C, "Archiving Guidelines," on page 143 for information about the restrictions associated with your system.

For example, you can greatly reduce the size of recorded data by removing colour data and archiving it in black and white. With the Dynamic Re-Archive option you must specify a system-wide time limit after which the system automatically archives the recordings of any cameras for which archiving is configured. Images are stored on disk in uncompressed format until the time limit is reached when they are automatically stored in archived format.

Each individual camera's configuration determines whether or not the server archives its recordings and how much compression is used.

12.8.1: Configuring Archive for a camera's images

If you have purchased a system with the Dynamic Re-Archive option, the **Preview** tab contains additional fields with which you can specify which cameras' recordings the server should archive and what level of compression and quality it should use. To configure archiving for a camera, use the following procedure:

1. Select the **Preview** tab of the Configuration Console as shown in Figure 12-19.
2. Select the **Enable Archive** checkbox to activate the **Archive Settings** panel.

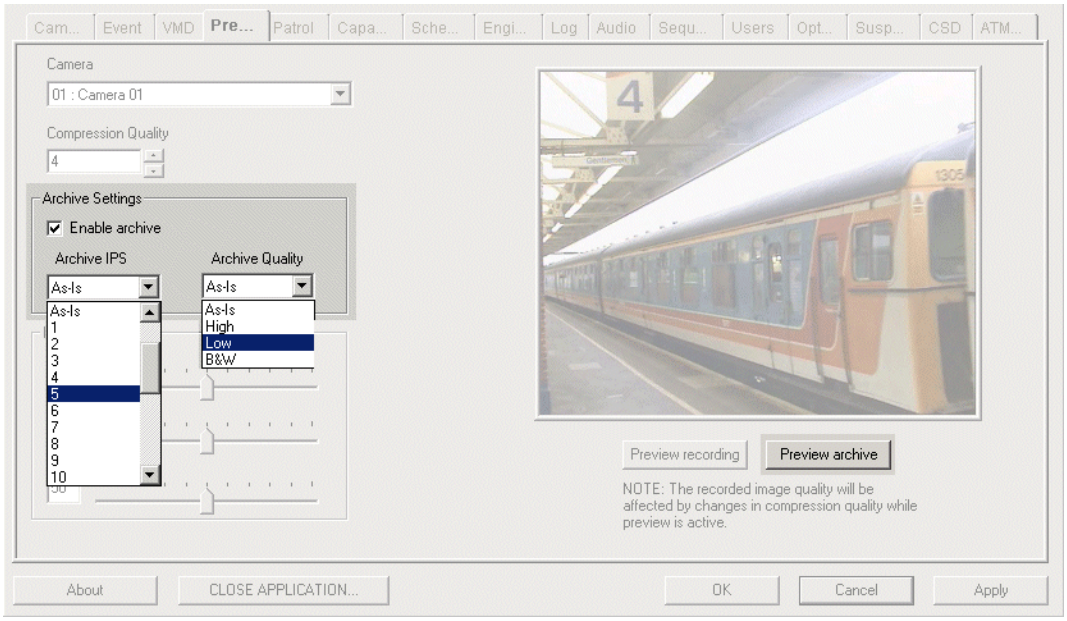


Figure 12-19: Configuring Archive settings

3. From the drop-down list in the **Archive IPS** field, select the number of ips you want to archive from the cameras recordings. If, for example, the camera always records at 16 ips, you might choose to reduce this to 10 ips or 1 ips. However, if the camera uses event-based recording to record at higher rates for Alarms and VMD you may not wish to reduce the data by so much.

Select **As-Is** to leave the ips rate unchanged at whatever rate was recorded. (For instance, you might choose this setting to Archive images recorded in alarm situations. See section 12.8.5: “Selecting recordings for Archive by Event type” on page 136.) You can also select rates of less that 1 image per second. You can for example select **1 in 4 sec** to archive only one image from every four seconds of recordings. The rate you choose for archiving depends greatly on the type and importance of pictures the camera records and on how useful the video will still be following the loss of some images.

4. From the drop-down list in the **Archive Quality** field, select either one of the options shown in Table 12.6. For detailed information about archival compression rates see section A.2: “Archival Compression Ratios” on page 140.

Archive Quality	Effect on images
High	Full-colour images reduced to between 50% and 80% of original size depending on the original quality.
Low	Full-colour images reduced to between 30% and 60% of original size depending on the original quality.
Black & White	Colour information is discarded reduced to between 50% and 80% of original size depending on the original quality.
As-Is	Quality of archived images is maintained.
The higher the quality of the original images, the more scope there is for compression	

Table 12.6: Archive Quality settings

12.8.2: Previewing Archive quality

If you have purchased a system with the Dynamic Re-Archive option, you can preview how images will appear following archiving by clicking the **Preview Archive** button.

INFORMATION: Preview Archive lets you verify that recordings will still be of evidential quality following any compression.

12.8.3: How Archive can extend system capacity

When the **/Archival** command-line option is used to enable Dynamic Re-Archive, the **Archive Settings** area of the **Capacity** menu becomes active.

At the bottom of the **Archive Settings** area is a field labelled **Capacity Including Archive**, which is filled automatically by the plettac server. The system’s recording capacity is expressed in units of time using the two most significant units of time. For example, with the current configuration, the system would begin to overwrite its recordings in 2,000,000 seconds, the system capacity would be expressed as 3W 2D. Table 12.8 on page 136 explains the symbols used to display the units of time displayed in this field.

INFORMATION: **Capacity Including Archive** is an approximate figure and is based on an assumption that 25% of recordings are associated with VMD. If all or indeed none of the recording on your system is triggered by VMD, this figure is likely to be inaccurate.

12.8.3.1 Archive parameters that affect system capacity

Total system capacity is a factor of disk storage, the number of cameras inputs being recorded, the frequency of events that trigger recording and the data retention period (if specified).

System capacity can be extended by the Archive utility but this varies with a number of different parameters.Table 12.7 shows Archive parameters that, in combination with each other and the frequency of events on the system, can affect system capacity.

Archive Parameter	Effect on System Capacity
No. of Archiving Cameras	The more cameras for which Archive is enabled, the greater is the potential for saving disk-space.
Archive Quality / IPS Rate	The archive quality and IPS rates specified the recordings of each camera determines the size of the datastream to be archived.
Event Types for Archive	Depending on the frequency of certain events on the system, the choice of recordings to be archived based on associated event types is significant in determining how much data is to be archived from all cameras.
Archive Schemes Applied	Archiving or discarding recordings associated with certain events, can greatly reduce the amount of data to be archived. The saving is dependent on the frequency of the archived or discarded events.
Note: As you use the Configuration Console to modify these parameters, you can see the effects reflected in the **Capacity Including Archive** field of the **Archive Settings** area.	

Table 12.7: Archive parameters that affect System Capacity

12.8.4: Configuring the Archive Time Limit

When you have configured Archival for one or more cameras, you need to specify the time limit after which the Archive utility is to archive data. The time limit you specify is the time for which all recordings are stored on disk with their original capture quality and IPS rate. After this period the Archive utility processes any recordings made from cameras for which Archive has been enabled.

In the **Archive Settings** area of the **Capacity** menu, enter a value into the field labelled **Time Before Archive**. The value can be expressed in any two of the time units shown in Table 12.8, with the following conditions:

- The minimum value you can specify is 1 hour.
- The archive time limit can be increased in units of 15 minutes up to the maximum.
- Any value you specify is rounded up or down to the nearest 15 minutes.
- The maximum value you can specify is the total recording duration displayed at the bottom of the **Recording Capacity** area on the **Capacity** menu. This is an approximation of the maximum recording duration possible with the current configuration of the **Engineering** menu. However, it is not recommended that you specify this maximum as the Archive time limit.
- If you specify a value that exceeds the maximum, it is reset to the maximum (or to the closest 15-minute interval).
- You can specify the time limit using any or the time units shown in Table 12.8 but the Configuration Console displays only two contiguous units of time. This means that you can specify a time limit of 245m 2000s but it will be displayed as 4h 45m.
- The space between time units is optional but is inserted by the Configuration Console for display.

Table 12.8 shows the meanings of all symbols that can be used to express the archive time limit. (The same symbols are used to display the system capacity).

Symbol	Unit of Capacity
Y	Years (365.25 days)
M	Months (30 days)
W	Weeks
D	Days
h	Hours

Symbol	Unit of Capacity
m	Minutes
s	Seconds
Note: Units of less than 1 Day are symbolised by lowercase letters	

Table 12.8: Symbols used to express units of Archive Time Limit and System Capacity

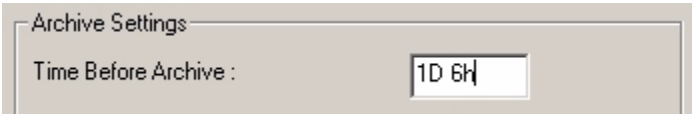


Figure 12-20: Setting the Time Limit after which recordings are to be archived

INFORMATION: If the total capacity of the system without archive is only 2 days, there is little point in specifying a value such as 1D22h as this does not allow the Archive to reduce the on-disk size of sizeable proportion of recordings (unless using the Discard scheme).

12.8.5: Selecting recordings for Archive by Event type

Having selected the cameras whose recordings you want to archive, you can also specify which recordings from those cameras are archived by their associated event-types.

In the **Archive Settings** area of the **Capacity** menu, you can choose for each event type whether you want its associated recordings to be:

- Retained on disk in their original format
- Archived on disk as specified on the cameras menu
- Discarded altogether when the archive time limit is reached

As shown in Figure 12-21, you can select a different archive scheme for recordings associated with

- Contact Alarm events
- VMD events
- Suspicious Alarm events
- No events (Normal recordings)

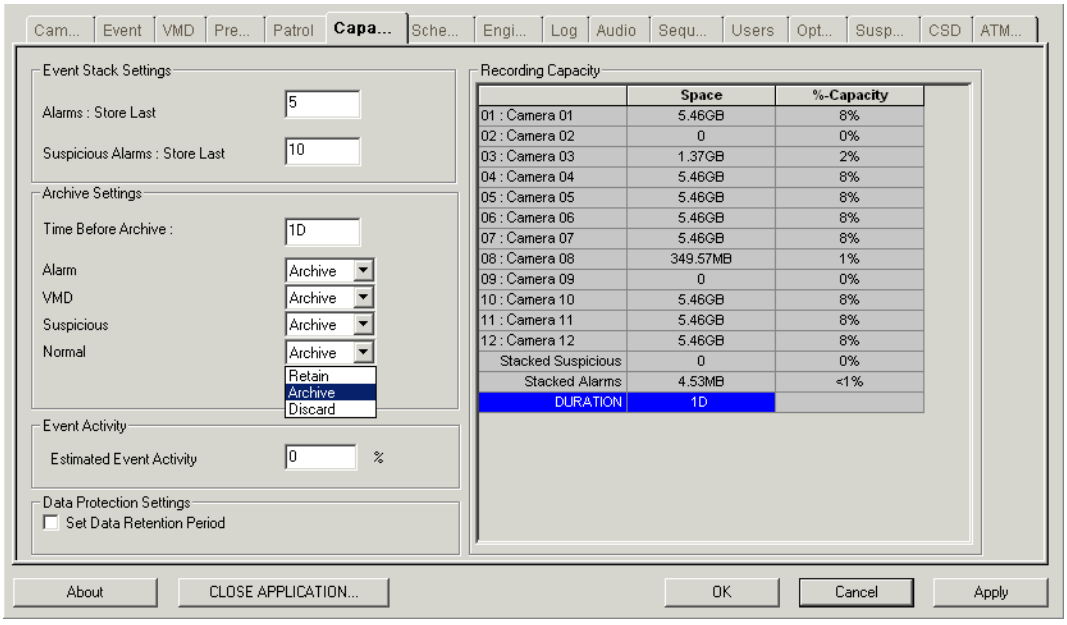


Figure 12-21: Selecting Archive schemes for different types of recording

The archive schemes you select for each type of recording combined with other factors (cameras, archive location, archive time limit) affect the value displayed in the **Capacity including archival** field at the bottom of the **Archive Settings** area.

INFORMATION: Depending on your overall storage resources, it is worth considering which types of recordings are most important. If you think that recordings triggered by suspicious alarms are likely to be more significant than those triggered by VMD, you may choose to archive the VMD recordings with severe compression and retain or use less compression on Suspicious Alarm recordings.

APPENDIX A: Compression and Archival Ratios

This appendix provides information on the compression rates that plettac-FXL applies to the video data it stores on disk. It comprises the following sections:

- A.1: PAL Image Quality and File Sizes
- A.2: Archival Compression Ratios

A.1: PAL Image Quality and File Sizes

The file size of one uncompressed video image is 414,720 bytes. When recorded at image quality 1, this is compressed to approximately 10% of its original size.

The file size of 1 second of uncompressed (quality 1) audio data is 8000 bytes. When recorded at quality 2 (compressed using the GSM codec) the equivalent audio data takes up 1626 bytes.

Table A.1 shows the size to which one camera's recording would grow over time for different combinations of Image Quality and Recording Rate (ips).

Recording Rate		1 ips	1 ips	1 ips	25 ips	25 ips
Image Quality	Compression Ratio	Kb per sec	Mb per hour	Gb per day	Gb per hour	Gb per day
1	10-to-1	41	144.14	3.38	3.52	84.46
2	12-to-1	34	119.53	2.8	2.92	70.04
3	16-to-1	25	87.89	2.06	2.15	51.5
4	18-to-1	23	80.86	1.9	1.97	47.38
5	20-to-1	20	70.31	1.65	1.72	41.2
6	25-to-1	16	56.25	1.32	1.37	32.96
7	30-to-1	14	49.22	1.15	1.2	28.84
8	36-to-1	11	38.67	0.91	0.94	22.66
9	44-to-1	9	31.64	0.74	0.77	18.54
10	52-to-1	8	28.13	0.66	0.69	16.48
11	60-to-1	7	24.61	0.58	0.6	14.42

Table A.1: File size increases for different ips rates, image qualities and recording durations

NOTE: All values shown are approximate only.

A.1.1: Adjustment for different CIF resolutions

The values in the table above are correct when the resolution of 2CIF (single field) is used. When using other CIF resolutions, the values for Kb per sec, Mb per hour, Gb per day and Gb per hour must be adjusted by the following factors:

Resolution	Adjustment	
4CIF	X 2	(multiply by 2)
CIF	/2	(divide by 2)
QCIF	/8	(divide by 8)

A.2: Archival Compression Ratios

If you have purchased the Super Archive product option, you can archive some or all of your recorded data, to compress it further on disk and conserves disk space for new recordings.

When you archive recordings you can specify one of the following compression algorithms:

- High
- Low
- Monochrome

The effect of each archival compression algorithm on the size of archived recordings depends on the image quality of the original recordings.

Table A.2 shows how archival compression rates vary with different original image qualities.

Original Quality	1	2	3	4	5	6	7	8	9	10	11
Archive Quality											
High	0.55	0.57	0.62	0.59	0.69	0.71	0.72	0.73	0.77	0.79	0.80
Low	0.33	0.35	0.40	0.41	0.43	0.48	0.48	0.52	0.55	0.58	0.57
Mono	0.55	0.54	0.56	0.58	0.57	0.64	0.62	0.64	0.67	0.70	0.72

Table A.2: Compression Ratios for Each Archive Quality

A.2.1: Archival File Sizes

Table A.3 shows how the file sizes of typical recordings are affected by each of the three archival qualities.

Original Quality	1	2	3	4	5	6	7	8	9	10	11
Original Size (KB)	44	37	25	22	17.5	14	12.5	11	9.7	8.6	7.5
Archive Quality											
High	24.0	21.0	15.0	13.0	12.0	10.0	9.0	8.0	7.5	6.8	6.0
Low	14.5	13.0	10.0	9.0	7.5	6.7	6.0	5.7	5.3	5.0	4.3
Mono	24.0	20.0	14.0	12.8	10.0	9.0	7.8	7.0	6.5	6.0	5.4

Table A.3: File Sizes of Archived Recordings for Each Archive Quality

APPENDIX B: Network Bandwidth Requirements

Depending on their configuration, the plettac servers compress the video and audio data captured at diferent rates. The amount of data the system serves to clients increases with image quality and is further incremented when an audio channel is associated with the camera. The number of attached cameras and the amount and quality of audio-visual recording you expect your system to perform has major implications for the network to which you attach it.

This appendix provides information on the bandwidth required by audio-visual data streams that the plettac-FXL receives across networks.

It comprises the following sections:

- B.1: Size of Audio-Visual Data streams
- B.2: Network Bandwidth for PAL Systems

B.1: Size of Audio-Visual Data streams

The file size of one uncompressed video image is 414,720 bytes per image. When recorded at quality 1, images are reduced to 10% of the original size.

Audio data is sampled at 8000 samples per second. Each audio sample takes up 8 bits. 1 second of uncompressed (quality 1) audio data is therefore 64,000 bits or 8000 bytes. When recorded at quality 2 (compressed with the GSM codec) the equivalent audio data takes up 13,000 bits or 1626 bytes.

Table B.1 shows how the size of the data stream captured from one camera varies at different settings of Image Quality and the incremental effect of audio visual (AV) recording.

Image Quality	Compression Rate	Video Image Size (Kb) @ 1 ips	Uncompressed Audio Data Rate (Kbps)
1	10-to-1	41	64
2	12-to-1	34	64
3	16-to-1	25	64
4	18-to-1	23	64
5	20-to-1	20	64
6	25-to-1	16	64
7	30-to-1	14	64
8	36-to-1	11	64
9	44-to-1	9	64
10	52-to-1	8	64
11	60-to-1	7	64

Table B.1: Size of data stream with different video quality settings and audio tracks

B.2: Network Bandwidth for PAL Systems

Table B.2 shows the network bandwidth requirement of a camera making AV recordings at 10 ips and at 25 ips, and also the maximum number such data streams that can be transferred across networks with different bandwidths.

Image Quality	AV Data stream of 1 camera @ 10 ips	Max. supported 10-ips AV Data streams for each LAN speed			AV Data stream of 1 camera @ 25 ips	Max. supported 25-ips AV Data streams for each LAN speed		
	Kbps	10 Mbps	100 Mbps	1000 Mbps	Kbps	10 Mbps	100 Mbps	1000 Mbps
1	3293	3	31	318	8213	1	12	127
2	2733	3	37	383	6813	1	15	153
3	2013	5	50	520	5013	2	20	209
4	1853	5	55	565	4613	2	22	227
5	1613	6	63	650	4013	2	25	261
6	1293	7	79	811	3213	3	31	326
7	1133	9	90	925	2813	3	36	372
8	893	11	114	1174	2213	4	46	473
9	733	13	139	1431	1813	5	56	578
10	653	15	156	1606	1613	6	63	650
11	573	17	178	1830	1413	7	72	742

Table B.2: Size of PAL data stream captured at 10 ips and at 25 ips with Audio

APPENDIX C: Archiving Guidelines

C.1: Archiving on the plettac range

The Archival feature on plettac's range of servers uses substantial processing resources.

When plettac systems are connected in complex configurations with a number of network connections, certain operational guidelines need to be followed. Some of the system functions become restricted. This document outlines the primary restrictions.

C.1.1: plettac E

The E can be configured for both the PAL and NTSC versions to archive the maximum configurable (i.e. no limitation) images for single and multiple camera options. However, a maximum of two NetManagers may be attached with one in continuous playback/exporting.

Points of note:

1. With the archive feature in use, Playback, SearchExpert and Exporting should not be attempted directly from the server. NetManager should be used for these functions.
2. No Streaming should be attempted if the archive function has been configured.
3. The NetManagers should not be left in a state of continuous playback as the archival process will fall behind.
4. During the archival process live/playback images and audio may become jerky or even stop for a short while.

C.1.2: plettac EX

The EX can be configured for both the PAL and NTSC versions to archive the maximum configurable (i.e. no limitation) images for single and multiple camera options. However, a maximum of two NetManagers may be attached with one in continuous playback/exporting.

Points of note:

1. With the archive feature in use, Playback, SearchExpert and Exporting should not be attempted directly from the server. NetManager should be used for these functions.
2. No Streaming should be attempted if the archive function has been configured.
3. The NetManagers should not be left in a state of continuous playback as the archival process will fall behind.
4. During the archival process live/playback images and audio may become jerky or even stop for a short while.

C.1.3: plettac FX

The FX can be configured for both the PAL and NTSC versions to archive the maximum configurable (i.e. no limitation) images for 4, 8, 12, and 16 camera options. A maximum of two NetManagers may be attached with one in continuous playback/exporting. A streamer can also be attached.

Points of note

1. With the archive feature in use, Playback, SearchExpert and Exporting should not be attempted directly from the server. NetManager should be used for these functions.
2. The NetManagers and streamer should not be left in a state of continuous playback as the archival process will fall behind.

3. During the archival process live/playback images and audio may become jerky or even stop for a short while.

C.1.4: plettac FXL

The FXL can be configured for both the PAL and NTSC versions to archive the maximum configurable (i.e. no limitation) images for 4, 8, 12, and 16 camera options. A maximum of two NetManagers can be attached with one in continuous playback/exporting. A streamer can also be attached.

Points of note

1. With the archive feature in use, Playback, SearchExpert and Exporting should not be attempted directly from the server. NetManager should be used for these functions.
2. The NetManagers and streamer should not be left in a state of continuous playback as the archival process will fall behind.
3. During the archival process live/playback images and audio may become jerky or even stop for a short while.

C.1.5: plettac PXL

The PXL may be configured so that the maximum Camera IPS, Event IPS and Archival IPS are set as follows:

Maximum Recorded Camera IPS per camera	Maximum Recorded Event IPS per camera	Maximum Archive IPS per camera			
		QCIF	CIF	2CIF	4CIF
30 *	30 *	14 *	5 *	1*	0
25	25	14	5	1	0
16	16	16	6	2	1
14	14	14	7	3	1
12	12	12	8	4	2
10	10	10	9	5	3
8	8	8	8	8	4
6	6	6	6	6	6

* NTSC systems only

A maximum of two NetManagers can be attached with one in continuous playback/exporting. A streamer may also be attached.

Points of note

1. With the archive feature in use, Playback, SearchExpert and Exporting should not be attempted directly from the server. NetManager should be used for these functions.
2. The NetManagers and streamer should not be left in a state of continuous playback as the archival process will fall behind.
3. During the archival process live/playback images and audio may become jerky or even stop for a short while.

C.1.5.1 Archive settings when connected to both analogue and IP cameras

If your plettac server is connected to a combination of analogue and IP cameras, the values you can choose for the IPS of any archived recordings will vary. The table below illustrates the situation where there are 16 analogue and 16 IP cameras connected to a plettac-FXL. If recording at high IPS rates on both

the analogue and IP cameras and using high quality archiving, you will not be able to archive any 4CIF images.

Analogue Camera Recorded IPS	IP Camera Settings			Analogue Archive Quality	Max Archive IPS per Analogue Camera			
	Resolution	IPS	Archive IPS per IP Camera		QCIF	CIF	2CIF	4CIF
25	Lowest	15	7	High	14	3	0	0
		15	7	Low	14	3	0	0
	Medium	10	4	High	14	3	0	0
		10	4	Low	14	3	0	0
	Highest	3	1	High	14	3	0	0
		3	1	Low	14	3	0	0
20	Lowest	15	7	High	14	3	0	0
		15	7	Low	14	3	0	0
	Medium	10	4	High	14	3	0	0
		10	4	Low	14	3	0	0
	Highest	3	1	High	14	3	0	0
		3	1	Low	14	3	0	0
16	Lowest	15	7	High	16	4	1	0
		15	7	Low	16	4	1	0
	Medium	10	4	High	16	4	1	0
		10	4	Low	16	4	1	0
	Highest	3	1	High	16	4	1	0
		3	1	Low	16	4	1	0
12	Lowest	15	7	High	12	6	3	1
		15	7	Low	12	6	3	1
	Medium	10	4	High	12	6	3	1
		10	4	Low	12	6	3	1
	Highest	3	1	High	12	6	3	1
		3	1	Low	12	6	3	1
8	Lowest	15	7	High	8	7	5	2
		15	7	Low	8	7	5	2
	Medium	10	4	High	8	7	5	2
		10	4	Low	8	7	5	2
	Highest	3	1	High	8	7	5	2
		3	1	Low	8	7	5	2

NOTE: The resolution of an IP camera varies depending on the manufacturer. Most camera models have three settings available.

APPENDIX D: Video, Audio and Alarm Inputs

The positions of the video, audio and alarm connections in the rear of the plettac-FXL casing have major implications for the selections available on the **Cameras** menu of the Configuration Console. This appendix provides information on the various inputs connected to the rear of the plettac-FXL casing. It comprises the following sections:

- D.1: Video Inputs
- D.2: Audio Inputs
- D.3: Alarm Inputs & Outputs

D.1: Video Inputs

Figure D-1. shows the PCI-card connections at the rear of a 12-port plettac-FXL.

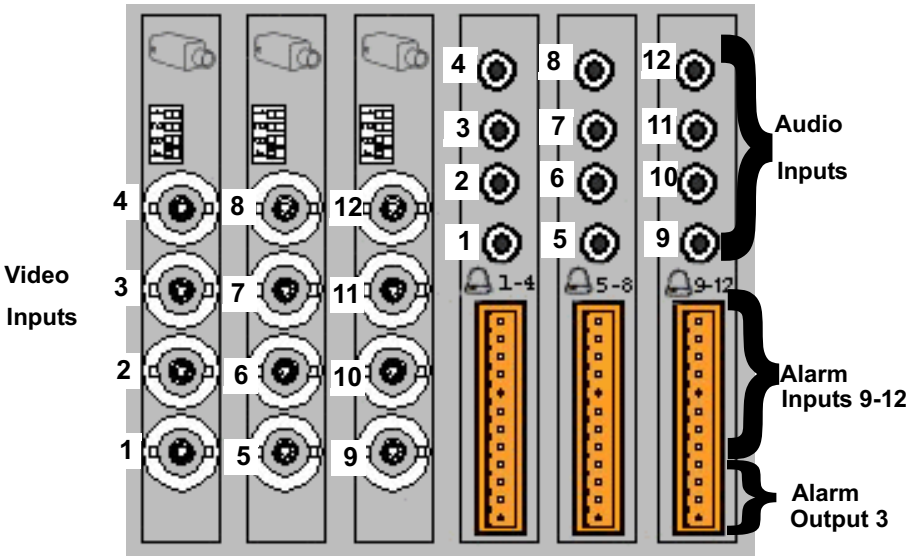


Figure D-1: Video, Audio and Alarm Inputs

There are 4 video inputs on each video-capture card. The numbering of inputs starts with the left-most card and on each card, video inputs are numbered upwards from the base of the unit.

The plettac-FXL can have up to 16 video inputs via coaxial cables to BNC sockets.

NOTE: Figure D-1 provides an example of video, audio and alarm inputs only. Do not be concerned if your system has a different number of inputs.

D.2: Audio Inputs

Figure D-2. shows the PCI-card connections at the rear of a 12-port plettac-FXL.

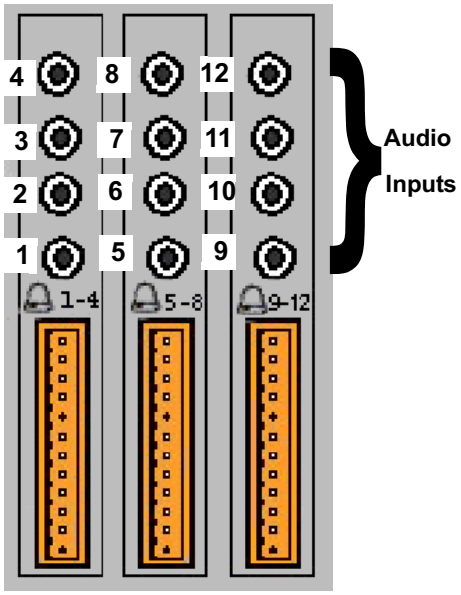


Figure D-2: Audio inputs

The plettac-FXL can have up to 16 audio inputs to the dual audio/alarm cards.

NOTE: Figure D-2 provides an example of audio and alarm inputs only. Do not be concerned if your system has a different number of inputs.

D.3: Alarm Inputs & Outputs

Alarm connectivity blocks will be vertical when located in a PCI slot or horizontal when located at the back panel. Alarm cards and combined Alarm/Audio cards are available.

Figure D-3 shows an example of the alarm ports of a 12-channel plettac-FXL system with 3 dual alarm audio cards.

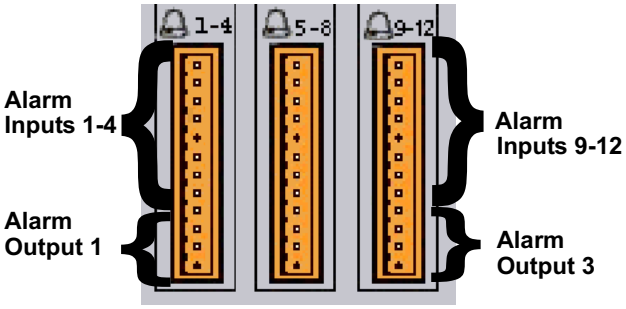


Figure D-3: Alarm inputs and outputs

Alarm cables screw into alarm blocks and simply push into alarm connectors.

All alarm blocks are wired the same way, as shown in Figure D-4.

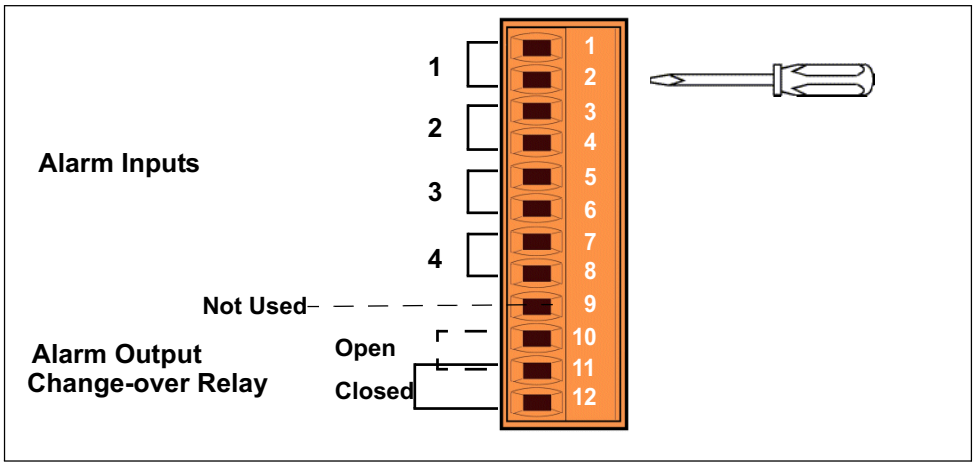


Figure D-4: Secure alarm-block wiring using the screws on the right

APPENDIX E: Remote Control Commands

This appendix provides information on special commands that you can use with specific types of Pan-Tilt-Zoom or Dome cameras. It comprises the following sections:

- E.1: Remote Commands
- E.2: Pelco PTZ Cameras
- E.3: MCI Emulation Commands

E.1: Remote Commands

The remote control interface currently supports the following telemetry commands to query information from and control operations to the plettac senti0 server over an RS232 serial link or a TCP link.

Command String	Function
AAn	Alarm Acknowledge n; where n is the camera number 1 to 16
ASn	Alarm Set (Initiate) n; where n is the alarm input number 1 to 16
CSc,a	Select camera c to be displayed in area a; where c is 1 to 16 and a is 0 (zero) to the number of views on display.
DTdatetime	Sets the playback start point. <datatime> is specified in ISO date order without separator characters, for example DT20020307131015 specifies 7th March 2002 at 10 minutes and 15 seconds after 1PM.
EA	Export Add
ES	Export Start
EQ	Export Quit
FSn	FullScreen n, 0=GUI/Windows, 1=Full Screen
Lluser,pass	Login using the specified Username and Password for remote host access.
LV	change to Live mode
NE	move forwards to the Next Event
OV	Output Volume
PB	change to Playback mode
PCb	Select Play Control button b, where b is: 0=Fast Rewind, 1=Reverse Play, 2=Reverse Frame, 3=Forward Frame, 4=Play Forward, 5=Fast Forward, 6=Stop Fast motion.
PE	Move backwards to the Previous Event
PS	Print Screen
QTn	Quit the IVMS application – must have administrator privilege, n=9 To shutdown.
SCh,u,p,n	Server Connect h=host ip address, u=UserName, p=PassWord, n=HostName
SPs	Set playback Speed to s, where s is 1, 2, 4 or 8.
VWn	Select n-View mode, where n is 1, 4, 9, 10, 13 or 16
ZCf,p	Execute PTZ Command function f with a parameter p. (see below)

Command String	Function
ZSc	Select camera c for PTZ control; where c is 1 to 16
?A	Get Alarm Status
?D	Get Display Mode
?E	Get Export Status
?L	List Cameras
?S	Query the current server name
?V	Query the protocol version, currently this returns the string 'DVMS host controller protocol V1.5'

Table E.1: plettac senti0 Remote Control Commands

E.2: Pelco PTZ Cameras

Table E.2 shows commands that have been tested for Pelco Spectra III cameras using D protocol:

Command String	Function
FF%c002B0001%b	Auto Focus On
FF%c002B0002%b	Auto Focus Off
FF%c002D0001%b	Auto Iris On
FF%c002D0002%b	Auto Iris Off
FF%c00330001%b	Auto White Balance On
FF%c00330002%b	Auto White Balance Off
FF%c00310001%b	Auto Backlight Compensation On
FF%c00310002%b	Auto Backlight Compensation Off
FF%c00070021%b	Flip 180 degrees
FF%c00070022%b	Go To Zero Pan
FF%c00290000%b	Reset Camera Defaults

Table E.2: Pelco camera Function Key commands

NOTE: Command sets for other cameras are available. Contact the plettac customer support team for details.

E.3: MCI Emulation Commands

The plettac senti0 server can emulate the Machine Control Interface (MCI) specified in the Dedicated Micros DIGITAL SPRITE LITE products and supports the following commands:

MCI Command	Function
READY	Ignored
<esc>M\CBUS LINK\SET\ESUPPORT MODE\PRO	Ignored
<esc>M\CBUS LINK\ATTACH	Ignored
DETACH	Ignored
<esc>M\PRI_MODE\	00=Live, otherwise=Playback
<esc>M\SEC_MODE\	01-06 n-Views, otherwise not supported
<esc>M\PLAY_SPEED\	NB: IVMS does not change to playback mode
<esc>M\PLAY_GOTO\	

MCI Command	Function
<esc>M\SEL_CHAN\	
<esc>M\TELM_MTN\	NB: Iris commands ignored, any stop stops all motion

Table E.3: MCI emulation commands

The username and password used can either be specified on the command line, or the login dialog of the server GUI.

APPENDIX F: plettac ActiveX Control

plettac provides a standard ActiveX control to enable live video to be shown in any ActiveX container. The control connects to one of the channels of a plettac server and streams video data using the native wavelet compression of plettac systems

The plettac ActiveX control provides Properties and Methods that enable programmers to modify the operation and appearance of the video display.

This appendix provides information on the plettac ActiveX control. It comprises the following sections:

- F.1: ActiveX Overview
- F.2: Properties and Methods for ActiveX
- F.3: ActiveX Installation
- F.4: Example of plettac senti0 Controls in HTML

F.1: ActiveX Overview

You can use the plettac ActiveX control to construct interfaces that stream video data from a plettac senti0 server.Typically, these applications are integrated into Web browsers.

If the ActiveX application's web server runs on the same machine as the plettac server, it can stream both Live and Recorded images to clients that connect to it.

If the ActiveX application's web server runs on a different machine from the plettac server, it can stream only Live images to clients that connect to it.

Your application can connect to different plettac servers to stream pictures. If you change the ActiveX control's server or port number while it is streaming it will automatically disconnect and reconnect using the new information.

F.1.1: Calculating the on-screen size of the video

Image height is calculated from the width and the aspect ratio of the screen. If you are viewing at 1024x768 and use a width of 400, the height will be calculated as 400 x 768 / 1024 = 300. Note that there is a border of 2 pixels all round and that the 4-camera layout is 25 pixels high (if used). You can now calculate the overall height and width of the control (necessary for embedding in html as well as general user interface design).

F.1.2: Comparison with Streamer product option

plettac ActiveX streams video data using the plettac senti0 system's native wavelet compression. This means that the images are of much higher quality that those streamed via the Streamer product option (See section 9.6: "Video Streamer" on page 83.) However, it also means that the streamed images are up to 10 times larger (in bytes) than images streamed via the Streamer option.

The bandwidth of the network across which your ActiveX application is streaming affects its performance. Frames may be dropped if there is not enough bandwidth.

F.2: Properties and Methods for ActiveX

F.2.1: plettac senti0 properties

Table F.1 lists the Properties you can include in ActiveX containers to display video data. I.

Name	Type	Description	Default
Server	String	plettac server name or dotted IP string	none
Port	Integer	Connect on this TCP port	4560
Username	String	plettac server login	none
Password	String	plettac server login	none
DLLPath	String	Specify location of support DLLs	c:\dvms\
Width	Integer	Video image width in pixels (fixed aspect ratio determines height)	240
Camera	Integer	View this camera (channel) number	1
ShowText	BOOL	Show camera name, time, IPS on screen	TRUE
Show4CameraUI	BOOL	Shows a simple UI with Cam. 1 – Cam. 4 buttons on it - add 25 to object height to see it	FALSE
IPS†	Float	Throttle the displayed IPS rate back to this value	25.0
StreamOnStartup	BOOL	Connect and show video immediately on creation	TRUE
RGBTextR	Integer	Text colour, red component (0-255)	0
RGBTextG	Integer	Text colour, green component (0-255)	255
RGBTextB	Integer	Text colour, blue component (0-255)	0
PlaybackFile	String	Local file name to play back	none

†You can only use the IPS parameter to reduce the display rate of the video stream. You cannot increase the ips rate because the upper limit is determined by the server's configured capture rate for that video channel.

Table F.1: Properties for ActiveX Video Display

F.2.2: plettac senti0 methods

Table F.2 lists the Methods you can include in ActiveX containers to display video data.

Method	Function
void StartStreaming()	Connect to specified plettac senti0 server and show video
void StopStreaming()	Disconnect and stop showing video
void StartRecording()	Start local recording of viewed image
void StopRecording()	Stop local recording of viewed image
void LocalPlaybackStart()	Start playback of locally recorded image
void LocalPlaybackStop()	Stop local playback
void LocalPlaybackResume()	Restart local playback
void LocalPlaybackReverse()	Play backwards
void LocalPlaybackFastForward()	Fast Forward
void LocalPlaybackRewind()	Rewind
void LocalPlaybackFrameForward()	Advance one frame
void LocalPlaybackFrameBack()	Go back one frame

Table F.2: Methods for ActiveX Video Display

F.3: ActiveX Installation

The files are provided in the directory `extras\sPlayerActiveX`. Copy all the files to a folder on your PC, for example, `c:\dvms`.

To register the control, open a DOS session, change to the directory to which you've copied the files and run the following command:

```
C:\dvms>RegSvr32 sPlayerActiveX.ocx
```

The CLSID of the control is: 82355148-E2E3-4762-8B8E-3D9B04BA90D9

The DLL files for the ActiveX control must be saved in the location pointed to by the `DLLPath` parameter. If you do use the parameter to specify a location explicitly, the control searches for the DLLs in `C:\dvms` by default.

When specifying a path, you must use double back slashes in the path, and at the end, as follows: `C:\\dvms\\`

F.4: Example of plettac Controls in HTML

It is possible to embed one or more controls in html like this:

```
<html> <head> <title>sPlayer ActiveX test page</title> </head>
  <body>
      <OBJECT ID="Video_Control"
CLASSID="CLSID:82355148-E2E3-4762-8B8E-3D9B04BA90D9"
HEIGHT=194 WIDTH=242>
   <PARAM NAME="Username" VALUE="Administrator">
   <PARAM NAME="Password" VALUE="Administrator">
   <PARAM NAME="DLLPath" VALUE="c:\\dvms\\">
   <PARAM NAME="Server" VALUE="MyPC">
   <PARAM NAME="Port" VALUE="4560">
   <PARAM NAME="Width" VALUE="240">
   <PARAM NAME="Camera" VALUE="4">
   <PARAM NAME="RGBTextR" VALUE="0">
   <PARAM NAME="RGBTextG" VALUE="255">
   <PARAM NAME="RGBTextB" VALUE="0">
   <PARAM NAME="ShowText" VALUE="TRUE">
   <PARAM NAME="Show4CameraUI" VALUE="FALSE">
   <PARAM NAME="IPS" VALUE="25.0">
   <PARAM NAME="StreamOnStartup" VALUE="TRUE">
      </OBJECT>
  </body>
</html>
```

APPENDIX G: Run-Time Configuration

This appendix provides information about the run-time parameters that can be configured on the plettac server, NetManager and NetManagerLite programs to modify their operations. It comprises the following sections:

- G.1: Setting a Run-Time Parameter
- G.2: Run-Time Parameters

NOTE: If you find parameters already configured on your system following installation, do not remove or modify these entries without first contacting the plettac support team or your plettac consultant.

G.1: Setting a Run-Time Parameter

There are a number of run-time parameters that you can configure in shortcuts to the following plettac applications via the Windows desktop:

- plettac server
- NetManager
- NetManager*Lite*

When you start the applications using these shortcuts, their behaviour is modified according to the parameters you have added.

To set a run-time parameter to a plettac application use the following procedure:

1. Locate the shortcut to the application on your desktop and right click on it as shown in Figure G-1, select properties and release the mouse button. The Properties dialog opens.

Figure G-1: Opening the Properties dialog of the application shortcut

2. In the **Target** field in the Properties dialog, type the new parameter to the end of the entries already in the field. See section G.2: “Run-Time Parameters” on page 160 for a list of parameters you may need to use. You may find some parameters already configured on your system

following installation. Do not remove or modify these entries without first contacting your plettac consultant.

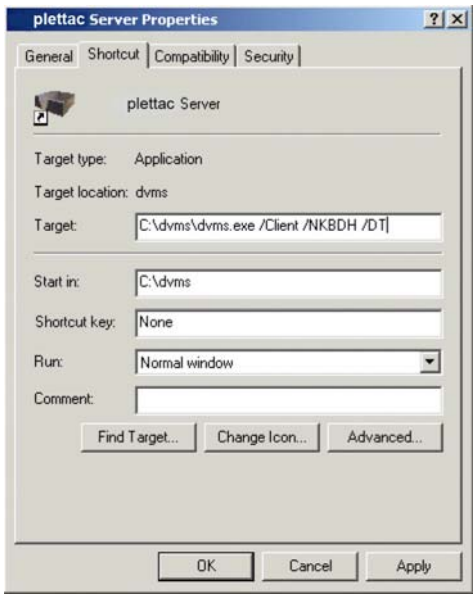


Figure G-2: Setting Run-Time Parameters in the Properties dialog

G.2: Run-Time Parameters

Table G.1 lists the parameters you can configure in the Target field of the desktop shortcuts of plettac applications.

Table G.1: Run-time Parameters for plettac Applications

Table G.2:

Parameter	Description	Server or Remote
/Archival	Enables the Dynamic Re-Archive utility.	S
/DeHiss=*n*	Applies one of 8 different de-hiss filters to all audio output from the plettac server. n can be any digit from 0 through 7. You can specify /DeHiss on its own, in which case the 0 filter is used by default.	S
/DT	Displays the capture date & time on each image.	S/R
/FDB	Flush Database. Deletes all records from the database and hard drive.	S
/Host=COM*n*-<*baud*>-<*parity*> ,MCI ,u=<*user*> ,p=<*pass*>	Enables external host commands on the specified COM port with specified baud and parity. The MCI switch changes to the Dedicated Micros MCI protocol rather than the plettac command set. (For detailed information, refer to the “Remote Control Commands” appendix of your plettac server user guide.) The optional user name and password can be specified, primarily for the MCI protocol. If you specify, u alone, the login dialog solicits a username for connections to the external host port. Example: `/Host=COM1-9600-N,MCI,u=guest,p=guest.`	S
/Host=TCP	Enables the Host protocol over TCP/IP port base + 3	S/R
/IPBox	Adds the IP and Port box to the Connect dialog of the plettac GUI enabling users to connect to servers other than the ones listed in the available server list.	S/R
/IPCamera	Allows the server to recognise IP cameras and enables the functionality to configure them.	S

Table G.2:

Parameter	Description	Server or Remote
/NAS	Enables mapped network drives on the MultiHD tab.	S
/NKBDH	No KeyBoarD Hook. Prevents the application from disabling system keys, such as Ctrl, Alt and Tab., which can provide access to other programs on the machine on which the application is running. Very useful for remote client installations.	S/R
/NTSC	Customises interfaces for NTSC video standards.	S/R
/PortNumber-###	TCP base port number, default port is 4560. To change it to 443, use the parameter as follows: `/PortNumber-443`	S/R
/PTZ	Enables PTZ configuration and controls and transmits this information to any remote clients that connect to it.	S
/RemoveableHD	Enables the Removable Hard drive option.	S
/Seq	Enables the Sequencer Tab and adds Generic to the list of PTZ protocols.	S
/SNMP	Enables the server to generate alarms using the Simple Network Management Protocol (SNMP) and add entries to the Trend Management Information Base (MIB)	S

APPENDIX H: Recordings during Summer/ Winter Daylight Saving Changes

This appendix provides information about viewing recordings made during the Spring and Autumn change-overs to and from Daylight Saving Time.

H.1: Moving to Daylight Saving Time

In regions where daylight saving is implemented, at the start of the period clocks are moved forward. For example, in the U.K., on the designated date in March, the official time jumps from 02:00 to 03:00.

Over the changeover time, your plettac-FXL server will appear to have a one hour gap in any recorded data from any cameras.

H.2: Moving from Daylight Saving Time

In the Autumn, clocks are put back one hour. For example, in the U.K., the official time jumps from 02:00 back to 01:00. All recorded audio and video data is available, but how the software accesses it during playback and export will vary depending on how you have setup your recording.

H.2.1: Constant recording during the changeover

When constant recording has been implemented, the timeline on the playback console will show a duplicate hour, for example from 01:00 to 02:00. If you place the cursor anywhere in the timeline prior to the first 01:00 and click Play, the recorded data will be displayed and continue until 01:59:59 and then jump to 02:00:00 and continue the playback, missing the second hour.

To view any of the data recorded during the second hour, you must place the cursor on the timeline after the second 01:00. The playback controls then operate in the standard manner to access any data from the duplicate hour.

H.2.2: Event-based recording during the changeover

Events are displayed in local time and so any events that occur during the duplicate hour are visible on the time line against the first hour's recordings, i.e. Contact Alarms (red) and VMD (yellow). For example, if an event occurs at 01:20 BST and is set to record for 15 minutes, it will appear on the timeline as shown below.

If an event or alarm then occurs at 01:40 GMT (i.e. after the changeover) it will be displayed as having occurred during the first of the duplicate hours, as shown below. As there is no overlap, there is no duplicate hour shown on the timeline.

If the second event occurs at the same time as the first, or the recording periods overlap, a duplicate hour will be displayed.

NOTE: All events are always recorded and can be also accessed by using the Event Review function. Event Review displays in local time, the list may appear to be incorrectly sorted. For example, if the first event occurs at 01:35 BST and the second at 01:10 GMT, Event Review will show them in the correct temporal order, i.e. the first above the second in the list.

NOTE: Double-clicking from the Log tab will only take you to the first hour and never to the duplicate hour.

H.2.3: Exporting data

Export of data over the daylight saving changeover hour will result in up to four output files on the export media/device. This covers the time up to the first hour, the first hour, the second hour and data after the second hour.

APPENDIX I: Supported IP Cameras

plettac servers support a range of IP cameras.

This appendix provides information on the Extended Settings for the cameras currently supported:

- JVC VN-C30U
- Panasonic KX-HCM
- Axis 2401
- Axis 221
- Axis 232D

I.1: JVC VN-C30U

The JVC VN-C30U is a versatile network camera with a powerful CCD and built-in Web server that allows you to connect it directly to your network. The built-in 10Base-T/100Base-TX interface gives you the high-speed connection you need for reliable data transfer and operation allowing real-time image delivery.

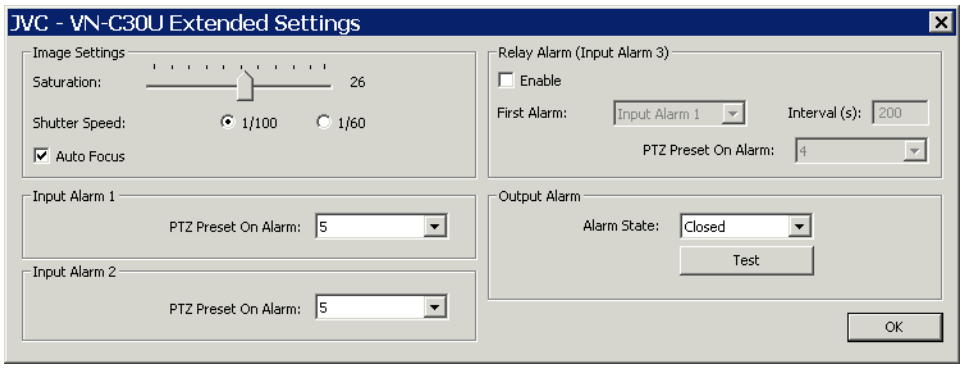


Figure I-1: Extended Settings dialog of the JVC VN-C30U

I.2: Panasonic KX-HCM

The Panasonic is a new network camera with a range of features including remote pan/tilt/zoom/focus control with optical zoom with automatic and manual focusing.

The KX-HCN employs a 380K pixel CCD image sensor and has an integrated web server.

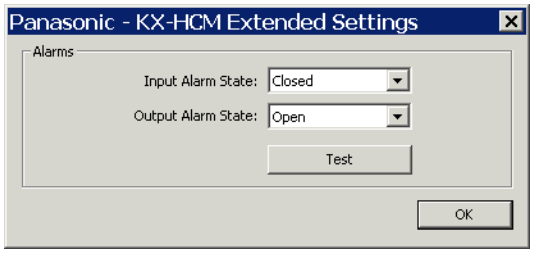


Figure I-2: Extended Settings dialog of the Panasonic KX-HCN

I.3: Axis 2401

The Axis 2401 is an analogue–to–IP converter. The unit has one analogue video input and one IP output and supports four alarm inputs and one alarm output.

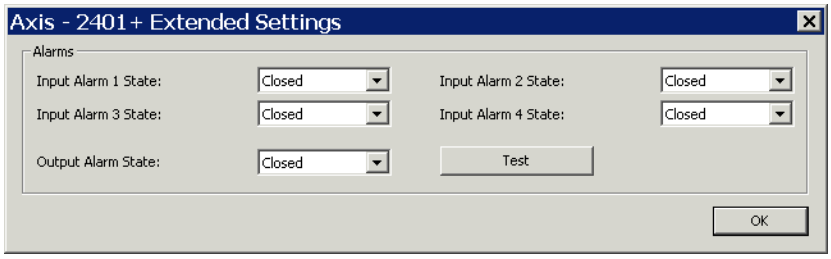


Figure I-3: Extended Settings dialog of the Axis 2401

Select the required state for an alarm from the appropriate drop-down list.

I.4: Axis 221

The Axis 221 is an analogue–to–IP converter. The unit has one analogue video input and one IP output and supports four alarm inputs and one alarm output.

Figure I-4: Extended Settings dialog of the Axis 221

Select the required state for an alarm from the appropriate drop-down list.

I.5: Axis 232D

The Axis 232D is an analogue–to–IP converter. The unit has one analogue video input and one IP output and supports four alarm inputs and one alarm output.

Figure I-5: Extended Settings dialog of the Axis 232D

Select the required state for an alarm from the appropriate drop-down list.

APPENDIX J: ATM Integration

plettac servers can be fully integrated into security systems involving automated teller machines (ATMs) which enables you to capture all video activity in the vicinity of an ATM and associate it with transaction information that you define.

ATM integration is associated with your plettac server and SearchExpert function. The integration allows you to:

- Display transaction data on a monitor in Live mode
- Record transaction data with video images
- Search data using any of your pre-defined parameters

ATM integration is available only as a server-based feature.

WARNING: Before you start your plettac server, you must first complete the procedures described in section J.2: “Programming Your ATM” and section J.3: “Making ATM and Multiplexor Settings Available”. You must also unlock the ATM integration feature.

J.1: Overview

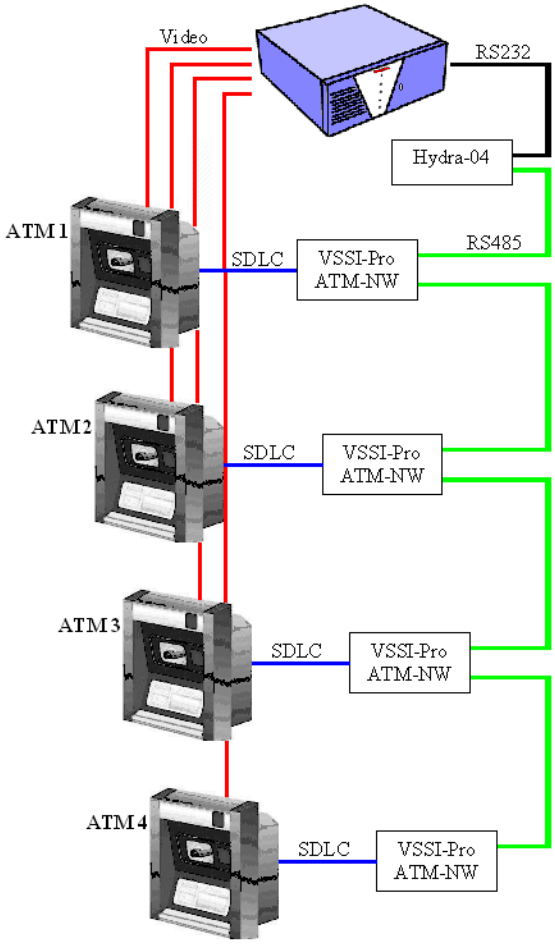


Figure J-1: Example installation of an ATM integration

J.2: Programming Your ATM

Each of ATMs to be integrated with your plettac server must first be programmed so that the ATM generates a unique and unchanging line to identify the start of the card use and another to identify the end of the card use. The following is an example of a transaction:

```
001 TRANSACTION BEGIN

001 19/11/03 13:54

001 RECEIPT:0075

001 CARD NO:440647010929

001 ACC:10929001640

001 CHEQUES DEPOSIT

001 TRANS NO.077

001 TRANSACTION END
```

where, “001 ” is an address added by a multiplexor (See *“Configuring ATM Integration”* on page 169.). Here “TRANSACTION BEGIN” can be used as an identifier to identify the start of the transaction, where “TRANSACTION END” can be used as the end of the transaction identifier.

J.3: Making ATM and Multiplexor Settings Available

Your ATMs may be connected, directly or indirectly, to one of your plettac server's COM ports. In the latter case, several ATMs are connected to the system via a multiplexor. A multiplexor terminates a transaction line using a defined line terminator. The following information must be made available to IVMS

1. Transaction line terminator.
2. Serial communication settings of ATM if connected directly to IVMS or the multiplexor if ATMs are connected to IVMS via the multiplexor.
3. transaction start line identifier.
4. transaction end line identifier.
5. ATM address if multiplexor is used, and/or if an ATM itself is programmed to generate the address preceding each transaction line.

The above information must be made available to IVMS by using the **ATMConfig** application as described in the following sections.

J.4: Configuring ATM Integration

Before starting to configure the integration of your electronic cash machines, it is essential that you define two unique strings: one that is recorded at the start and one that is recorded at the end each time a card is used.

The proprietary stand-alone plettac application called AtmConfig.exe is the tool for making ATM connection configuration information and ATM settings available to the plettac server.

NOTE: AtmConfig.exe does not configure your ATMs nor any connections they have with the plettac servers. The application collects this information and converts it into a format that is recognised by your plettac equipment.

J.4.1: Multiplexor configuration

When you first access the ATM configuration application, the following dialog box opens.

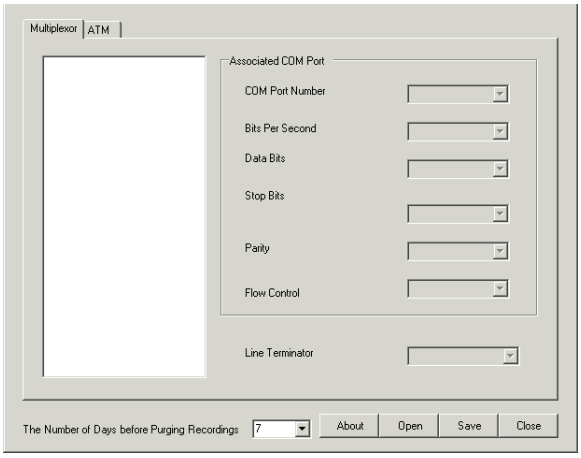
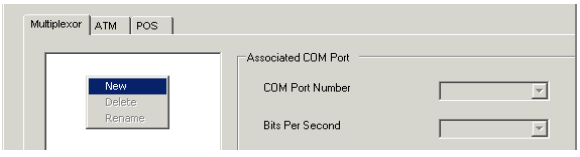


Figure J-2: ATM initial configuration dialog box

For each RS232 serial connection to your plettac server, you must create a corresponding device entry by right-clicking in the left panel of the **Multiplexor** tab and select **New** from the pop-up menu.



You must configure the setting for this device to be the same as that of each ATM if the ATM is directly connected to the server, or to be the same as that of the multiplexor if ATMs are connected to your server via a

multiplexor. Repeat this step for each of device directly connected to the plettac server's COM port that uses RS232 serial communication protocol. IVMS supports three type of line terminators as follows:

1. CRLF: carriage return and line feed
2. CR: carriage return
3. LF: line feed.

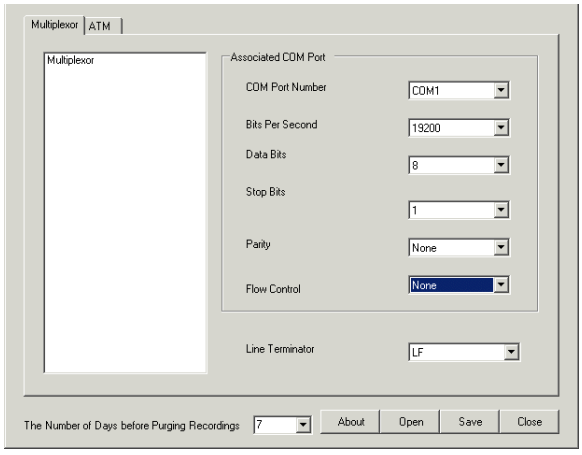
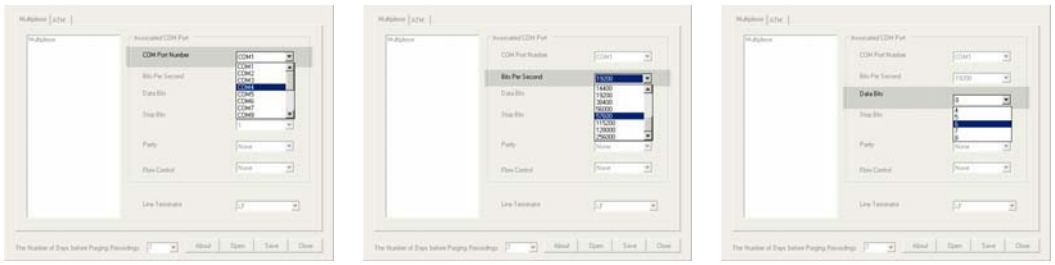
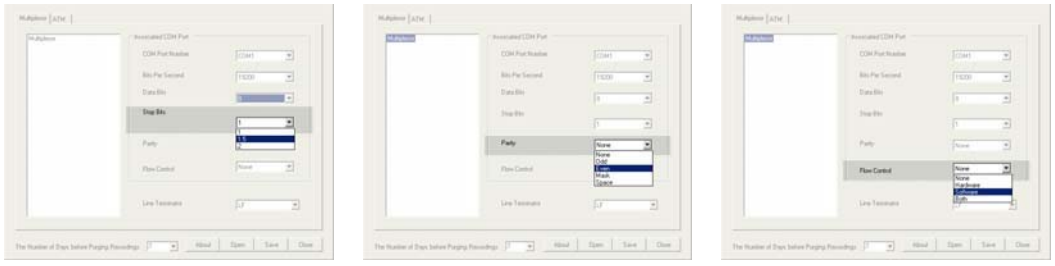


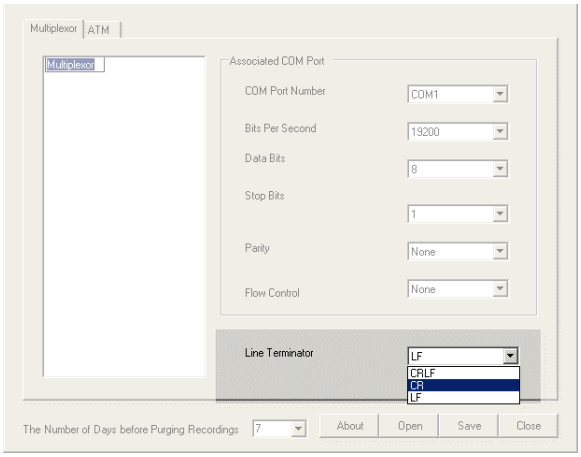
Figure J-3: ATM configuration with fields enabled

Select the required values for the **Associated COM Port** settings.





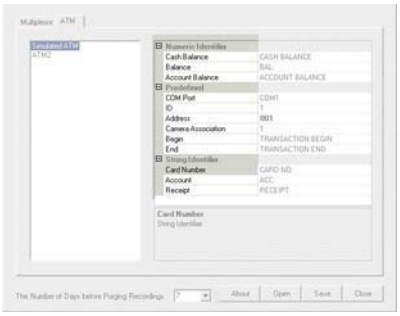
Select the end-of-line designator used by your multiplexor or, if no multiplexor is used, the ATM, in the **Line Terminator** field.

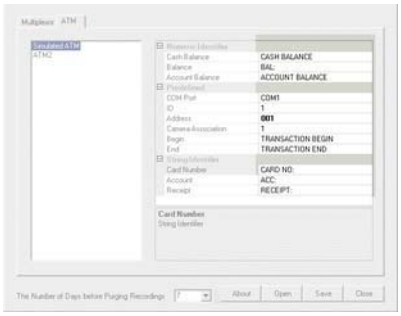


J.4.2: ATM configuration

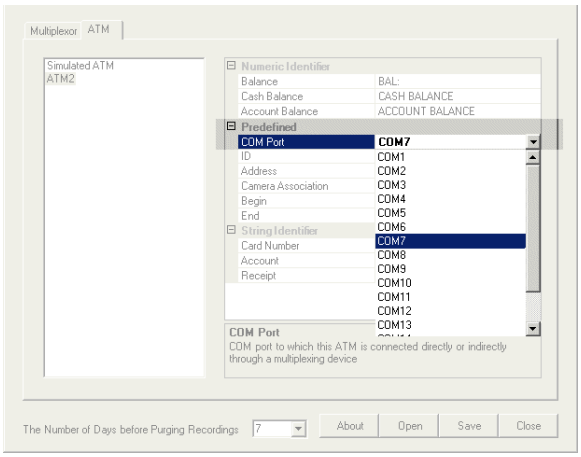
Select the **ATM** tab to configure ATMs to be integrated with IVMS. When you first use AtmConfig.exe, you will have to create an ATM entry for each ATM to be integrated. The left-hand panel of the ATM tab lists all the selected ATMs on your network. Highlight a machine name and the right-hand panel displays the current settings for that particular machine. The properties of the ATM will be automatically propagated to the right-hand panel of the ATM tab.

The terms in the left-hand column, under the categories Numeric Identifiers and String Identifiers, are those that appear on the Search Expert interface. The terms on the right are the values that you can search for and which should match the text that will be in the transaction records of your ATMs.



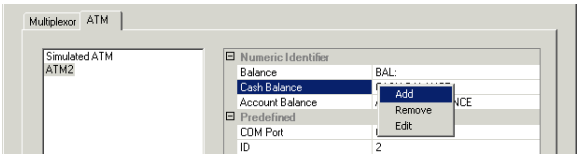


You can amend the values in the various fields in order to configure the machine by clicking in the required field and typing the changes directly or selecting from a drop-down menu where appropriate.

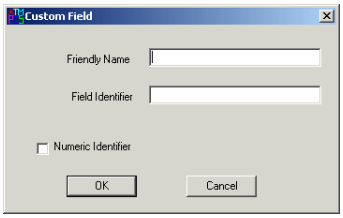


NOTE: In the Camera Associations field, a maximum of 32 cameras can be associated with an ATM.

You can add additional identifiers that can be used as search terms in transactions. Right-click in right-hand panels and select **Add**. You will be prompted with a dialog box entitled **Customer Field**.



Enter a name and an identifier for the field. The name will appear on the Search Expert interface and the identifier is the string that can be searched for in any transaction record. When you select the Numeric Identifier check box, you will be able to search for vales in the range associated with the identifier.



For example, you might name a field as Opening Balance with an identifier defined as “OpenBal”. If this is marked as a numeric identifier, you can then search for transactions that contain, for example, OpenBal >=1000 and OpenBal <=10,000. The field identifier should also include all non-white space that appears before the numeric information. If a transaction record contains a line such as:

OpenBal: 2540

you should define the identifier as “OpenBal:”.

NOTE: You can **Add**, **Remove** or **Edit** all entries on the **ATM** tab except those shown in the **Predefined** category.

In addition to **Numeric** and **String Identifier** categories, the ATM tab also has the **Predefined** category. In the Predefined category, you specify the following properties:

1. COM Port
   This is the plettac server’s COM Port to which the ATM is connected. If one or more ATMs are connected via a multiplexor, it is the multiplexor that is connected to the plettac server’s COM port.
2. Begin
   This is the first transaction line which the ATM is programmed to generate each time a card is used as described in section J.2: “Programming Your ATM” on page 168.
3. End
   This is the last transaction line of the ATM which the ATM is programmed to generate each time a card is used as described section J.2:.
4. Address
   This is the string of characters prefixing each transaction line and includes any spaces and non-printable characters. Both an ATM or multiplexor can generate a string of characters to be used as address. If both an ATM and a multiplexor generate address strings, this field is a combination of the strings generated by both devices. This field cannot contain the line terminator of the device connected to the COM Port, whether it is an ATM or multiplexor.
   You can also specify non-printable characters for address by using the “back-slash” character (‘\’) followed by the three digits of an ASCII code. For example, “\014” stands for character having ASCII code value of 14. (To display the back-slash character itself, use ‘\\’.

NOTE: Please note that this field must be unique among all ATMs using the same multiplexor.

5. ID
   A non-zero identifier of value 0-255 which must be unique among all ATMs using the same multiplexor.

J.4.3: Purge Old ATM Transaction Recordings

On the bottom of **ATM Configuration** dialog box there is dropdown list which allows you to specify the number of days after which any ATM transactions recorded by the plettac server for searching purpose will be deleted.

J.4.4: Save and Load Configuration

After you have set up the configuration, you should click **Save** button to save your configuration. Your plettac server will always use the most recently saved configuration that was stored prior to the server being started. You can modify any previously saved ATM configuration by clicking the **Open** button.

J.5: Accessing ATM Transaction Search

ATM Transaction Search is associated with the plettac IVMS's Search Expert function. Search Expert can be accessed from the Playback control console of the server, shown in Figure J-4.

Figure J-4: SearchExpert button on the server Playback control console

The SearchExpert dialog box shown in Figure J-5 appears when you have ATM integration installed.

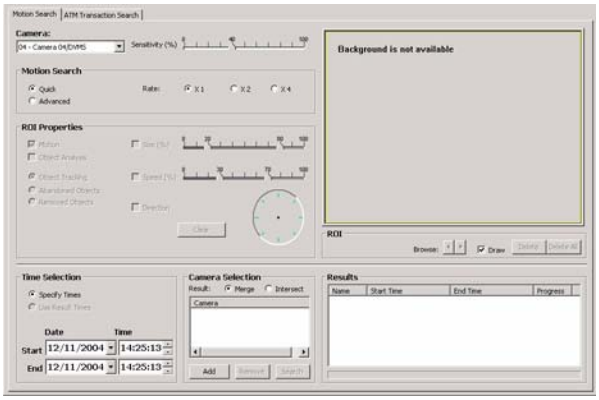
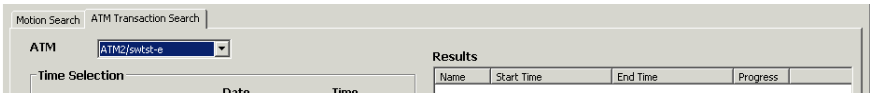


Figure J-5: The SearchExpert dialog box showing the ATM Transaction Search tab

J.5.1: Simple searches

Click on the **ATM Transaction Search** tab and select the required ATM name from those available.



From the **Time Selection** fields, choose the required date and time periods that you wish to search for transactions.

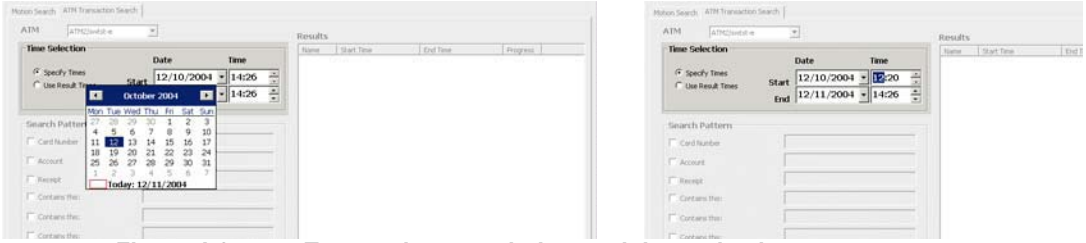
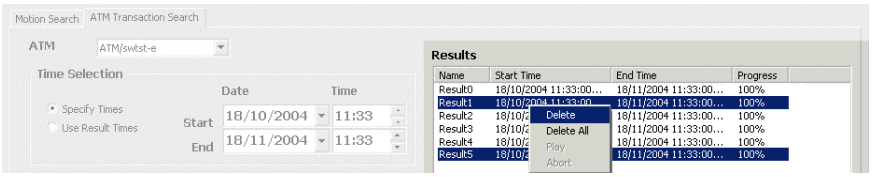


Figure J-6: Transaction search time and date selection

After choosing the time period to search you can click the **Search** button to find all transactions that occurred. Once the search has been completed, the **Progress** column will show 100%. If nothing is selected in the **Search Pattern** panel, the search will find all transactions of the selected ATM in the specified time period.

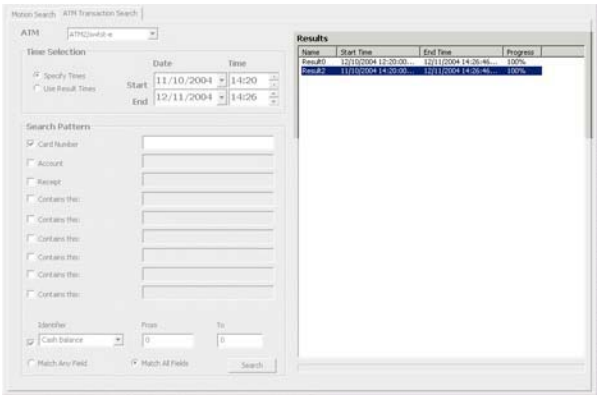
NOTE: If no search pattern is defined, there may be too many transactions and processing the search will take a long time.

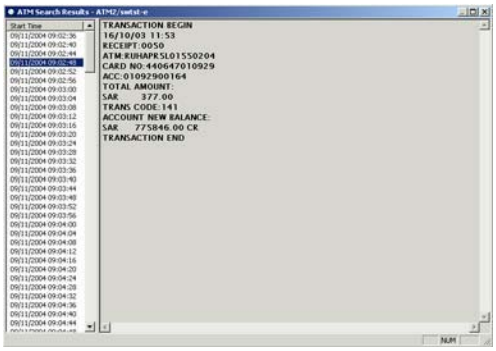
Right-click in the Results panel to display a pop-up menu with the following selections:



- **Delete**: Delete selected search results.
- **Delete All**: Delete all search results listed in the Results panel.
- **Play**: Play the selected search result. (This menu item is only enabled if there is only one selection and selected result is 100% completed.)
- **Abort**: Abort the current search if the search is still being conducted.

Double-click on the result entry to open the **ATM Search Results** window which lists all the transactions found. Click on a transaction to display the information it contains.



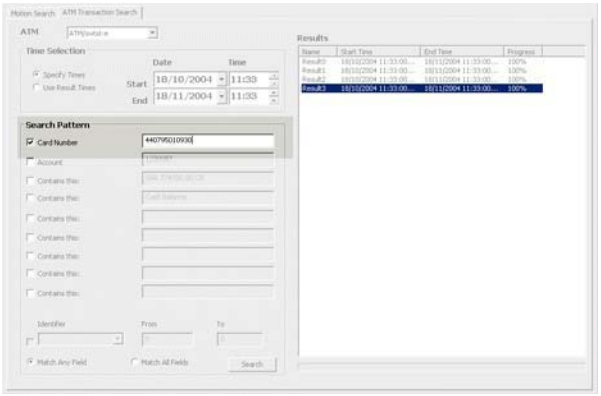


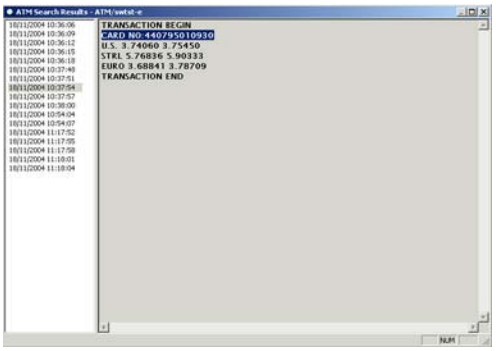
NOTE: If you have a search result, you can use the times of each of the transactions in the result as the Time Selection for an alternative search criteria by highlighting the result and clicking **Use Result Times**. As there may be many hundreds of transactions in the first search result, processing this may take a long time.

J.5.2: Refining transaction searches

It is possible that there may be hundreds of transactions during a particular time period. plettac IVMS allows you to refine your search by searching for specific information contained in the transactions record.
The information may be either a text string you enter in a search field or values relating to user-defined parameters.

For example, you may suspect that some fraudulent transactions have been made using a particular credit card. Enter the number in the **Card Number** field and click **Search** to find only those transactions pertaining to that card.





The search protocol for numeric identifiers is dependent on how your ATM machine writes the relevant information to the transaction record.

1. If your ATM writes the identifier and value on one line, the search will match the identifier and then ignore any blank space until it locates the next character. Starting with this character, Search Expert will check if the value is in the specified range.
2. If your ATM records items on separate lines, the search will match the identifier and skip any end-of-line character and then use the first non-blank character as the start of the value to check if that value is in the specified range.

NOTE: If your ATM records a standard currency symbol, such as GBP or £, preceding any monetary amounts in a transaction, you must ensure that the symbol is part of the definition of any corresponding numeric identifier if information is printed on one line. If information is printed on separate lines, you must ensure that the symbol is one of the numeric identifiers.

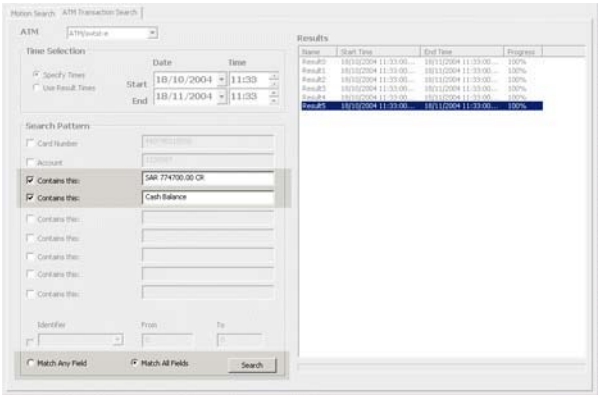
For example, in the following type of transaction record, SAR must be defined as a numerical identifier using AtmConfig if the transaction amount following the symbol SAR is to be searched.

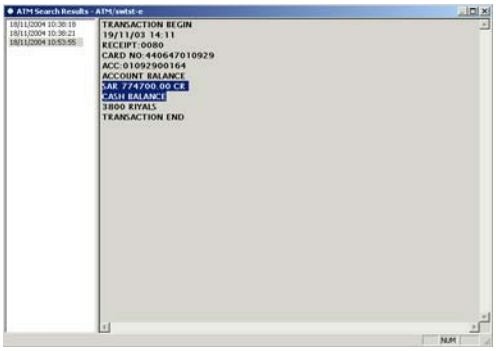
```
001 TRANSACTION BEGIN

001 19/11/03 14:11

001 RECEIPT:0080

001 CARD NO:440647010929

001 ACC:01092900164

001 ACCOUNT BALANCE

001 SAR 774700.00 CR

001 CASH BALANCE

001 3800 RIYALS

001 TRANSACTION END
```

Alternatively, you may know that a particular phrase or word appears in a transaction record. Activate a search field by selecting the check box adjacent to it and type in the word or phrase.

NOTE: If you have more than one term for which you want to search, you can either look for transaction records that contain any of them by selecting the **Match Any Field** radio button at the bottom of

the dialog window. Alternatively, if the transaction record must contain all the terms, you should select the **Match All Fields** radio button.

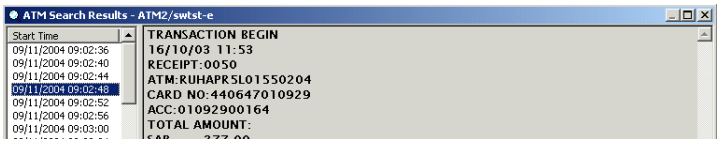




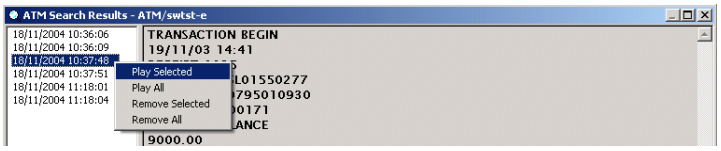
J.5.3: View recordings associated with transactions

There are several ways in which you can view any recorded video images associated with transactions.

1. Double-click on a particular transaction in a results window. This will start the play back of the recorded images for transactions starting from the transaction on which you double-clicked.



2. Right-click on a transaction in a results window and select from the pop-up menu.

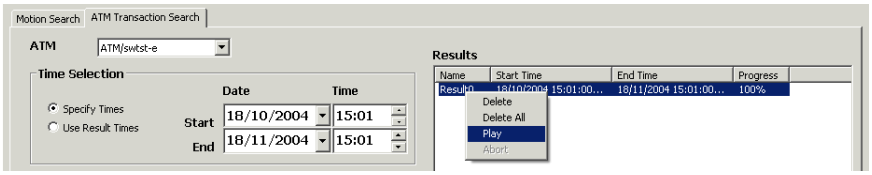


- select **Play from Selected** to play recordings starting from the first selected transaction
- select **Play All** to play all recorded video data starting from the first transaction in the list. (Even transactions which are not highlighted will be played.

NOTE: You can also remove all or any selected transactions from the list using the alternative pop-up menu items.

- select **Removed Selected** to remove all selected transaction records.
- select **Remove All** to remove all transaction

3. Right-click on an entry in the list displayed in the Results panel of the **ATM Transaction Search** tab. From the pop-up menu,



NOTE: You can also delete all or any selected search results from the list using the alternative pop-up menu items.

If you have previously displayed the transactions by double clicking on a search result name, deleting the search result name does not remove the transactions from the **ATM Search Results** window.

Glossary

A

ACK	Abbreviation of ***Acknowledgement***. Action required of operators to confirm that they have noted alarms and events. Typically, this action is a mouse click in the camera view in which the alarm or event has occurred.
ADC	Administration Data Centre
ADSL	***Asynchronous Digital Subscriber Line***. A modem technology that converts existing twisted-pair telephone lines into access paths for multimedia and high-speed data communications. ADSL can transmit up to 6 Mb/s to a subscriber, and as much as 832 Kb/s or more in both directions.
AS IS	A setting that leaves configuration in its present state or value.
ATM	Asynchronous Transfer Mode
ATM	Automatic Teller Machine. Cash store accessed by a customer's credit or debit card. Also referred to as cash machines and autobanks.
AV	***Audio Visual*** or **Audio Video**.

B

Bandwidth	
BDA	***Bi-Directional Audio***. Optional feature of plettac-FXL that can be configured for one CCTV camera to enable users of the NetManager application to communicate verbally with people in the vicinity of that camera.
BNC	***Bayonet Nut Connector***. A type of connector used with coaxial cables. The basic BNC connector is a male type mounted at each end of a cable. This connector has a centre pin connected to the centre cable conductor and a metal tube connected to the outer cable shield. A rotating ring outside the tube locks the cable to any female connector. BNC connectors can also be used to connect some monitors, which increases the accuracy of the signals sent from the video adapter.

C

CCTV	***Closed Circuit Television***. A television system in which signals are not publicly distributed; cameras are connected to television monitors in a limited area such as a shop, a car park, an office building, or an airport. CCTV is commonly used in surveillance systems.
CD-R	***Compact Disk Recordable***. A CD that can be written to once.
CD-RW	***Compact Disk Read Write***. A rewriteable CD.
CIF	***Common Intermediate Format***. a set of standard video formats defined by their resolution. The various designations refer to the number of horizontal and vertical lines of pixels retained from a digital image. The designation 4CIF is equivalent to full-frame video and CIF is one quarter of a frame.
CSD	***Camera Sabotage Detection***. A software feature that allows a plettac server to determine whether a camera has been tampered with by analysing changes to the image being received from it.

D

DVD — ***Digital Video Disk*** or ***Digital Versatile Disk***. A storage medium similar to CD in diameter, thickness and materials but with smaller grooves (740 nM) and pits, which provides superior capacity. DVDs can comprise two reflective layers beneath the tracks on each side and can store data on both sides. The amount of data that can be stored on a DVD depends on the compression being used.

DVD+RW — One of several re-writeable DVD formats, which provides 4.3 GB of storage and a maximum write speed of 2.5xDVD. The format was designed to ensure maximum compatibility with existing DVD-ROM drives and DVD-Video players, on both the physical and logical levels. This means that a DVD+R or DVD+RW disc recorded in a DVD+R/+RW video recorder can be played in virtually all DVD-Video players or DVD-ROM equipped PCs, and that any DVD+R or DVD+RW disc recorded with data on a PC DVD+R/+RW drive can be read by most DVD-ROM drives. It supports both CLV and CAV writing methods.

DVD-RW — One of several re-writeable DVD formats, which provides 4.3 GB of storage and a maximum write speed of 1xDVD. It is compatible with many PC DVD drives and consumer electronic DVD players but does not support defect management or the CAV writing format.

DVD-RAM — One of several re-writeable DVD formats, which provides 4.3 GB per side. DVD-RAM is used predominantly in computing, because of its defect management and zoned CLV format for rapid access.
DVD-RAM uses a wobbled groove to provide clocking data, with marks written in both the groove and the land between grooves. The grooves and pre-embossed sector headers are moulded into the disc during manufacturing.

Dome Camera — CCTV camera enclosed within a protective dome of perspex that masks the direction of the camera's focus at any particular time.

F

FPS — ***Frames per Second***. see also ips

Frame Sync — Part of the analogue video signal that indicates the start of each frame.

G

GUI — ***Graphical User Interface***.

GSM — Codec used for compression of audio data quality 2.

H

HD — ***Hard Disk***. Part of a unit, often called a "***disk drive***," "***hard drive***," or "***hard disk drive***," that stores and provides relatively quick access to large amounts of data on an electromagnetically charged surface or set of surfaces. The term hard is used to distinguish it from a soft, or floppy, disk. Hard disks hold more data and are faster than floppy disks. Hard disks, for example, can store several billion bytes (gigabytes) of data.

HDD — ***Hard Disk Drive***. The mechanism in a PC that controls the positioning, reading, and writing of the hard disk, which furnishes the largest amount of data storage for the PC. Although the hard disk drive and the hard disk are not the same thing, they are packaged as a unit and so either term is sometimes used to refer to the whole unit.

I

IP — ***Internet Protocol***.

ips — ***Images Per Second***. The capture rate of a video stream.

ISDN — ***Integrated Services Digital Network***. A set of communications standards that defines how a single telephone cable or optical fibre can simultaneously carry voice, digital network services and video using end-to-end digital connectivity. ISDN supports data transfer rates of 64 cubits/s (64,000 bits per second).

M

MHD — ***Multiple Hard Drive***. Term used to refer to systems that have more than one local hard drive installed.

N

NAS — ***Network Attached Storage***. A network disk available for recording.

NCTV — ***Networked Closed Circuit Television***. A CCTV system that can be accessed across a network.

Network Bandwidth — The available capacity of a network.

NMS — Network Management System

NTSC — ***National Television Standards Committee***. TV and video format used in the United States, Canada and Japan, which divides the picture into 60 fields and uses interlaced scanning to update the picture on screen. The electron beam passes over the odd-numbered fields in 1/60th of a second and then updates the even-numbered fields in the next scan. This means the television presents a complete picture 30 times a second. The plettac-60/60L and plettac-480L are designed for use with NTSC cameras.

O

Ohm — Unit of electrical resistance or impedance. CCTV cameras usually have 50 Ohms.

OSD — On-screen Display.

P

PAL — ***Phase Alternation by Line***. TV and Video format used in European countries and other parts of the world, in which the electron beam passes over the entire screen 50 times per second. which means the television presents a complete picture 25 times a second.

PC — Personal computer

PDF — ***Portable Document Format***. Adobe Corporation’s electronic publishing format based on Postscript.

PSTN — Public Switched Telephone Network. The world-wide aggregation of circuit-switching telephone networks that has evolved to carry analog voice data. he world's collection of interconnected voice-oriented public telephone networks, both commercial and government-owned. It's sometimes referred to as the Plain Old Telephone Service (POTS).

PSU — ***Power Supply Unit***.

PTZ — ***Pan Tilt Zoom***. Features of certain CCTV cameras that enable the user to control the position and field of vision of the camera. See Dome Camera.

R

ROI — ***Region of Interest***. Area drawn with the mouse on a camera view in which VMD or SVMD rules are uniquely applied. See VMD and SVMD.

S

Sequencer — An extra hardware option (not available with plettac-E & plettac-EX) that can display a selection of cameras in a timed sequence on up to 4 monitors each with a text overlay facility.

SVMD — ***Super Video Motion Detection***. Enhanced VMD functionality that can be configured for one camera attached to the plettac-FXL. SVMD is more discriminating than standard VMD and can be configured to raise events when objects:

- move in a particular direction
- move in a configured speed range
- disappear from where they should be
- appear where they should not be

Streaming — Delivery of a data stream (video audio or both) across a network to a client that plays the data as it loads, without saving it to disk.

T

TCP/IP

Transfer Control Protocol / Internet Protocol. A two-layer communications protocol that manages the end-to-end delivery of data across a network. The TCP layer manages the splitting up of a message or file into smaller packets. The IP layer handles the addressing of each packet to ensure it gets to the right destination, where the TCP layer resembles the packets into the original message.

U

UPS

Uninterruptible Power Supply. A device that enables your computer to keep running for at least a short time when the primary power source is lost.
It also provides protection from power surges.

V

VMD

Video Motion Detection. Feature of plettac Sentio-FXL that can be configured to detect movement in the picture captured by a stationary camera and trigger an event that is logged by the system and can be used to trigger recording. See also SVMD.

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