DETEXI Network Video Management System

5.7

EXPAND YOUR CONCEPTS OF SECURITY

DETEXI Network Video Recorder

GET ONE SECURITY COMMAND AND CONTROL CENTER

The DETEXI NVR supplies the basis for video management, monitoring, analysis, and recording. Allows centrally manage and configure the network video products.

USER GUIDE

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DETEXI Network Video Recorder

DETEXI Network Video Management Software

Once the network cameras (or analog cameras and video encoders) are installed and configured, you can monitor and record video and/or audio from many cameras simultaneously on a local or remote PC via the Internet using the DETEXI software. The DETEXI Network Video Management System is an advanced client/server-based software that provides support for multiple, simultaneous users and thousands of cameras.

The core of the DETEXI system — Network Video Recorder. The DETEXI NVR supplies the basis for video management, monitoring, analysis, and recording; allows users to, among other things, centrally manage and configure the network video products (network cameras and video servers) to their viewing, recording and security preferences.

Intelligent Video Analysis

One of the key functions in the DETEXI NVR is recording video, as well as audio. Recording functionalities include setting up the rules of video management and intelligent ways of video recording, live viewing as well as searching for recorded video and exporting video to other systems.

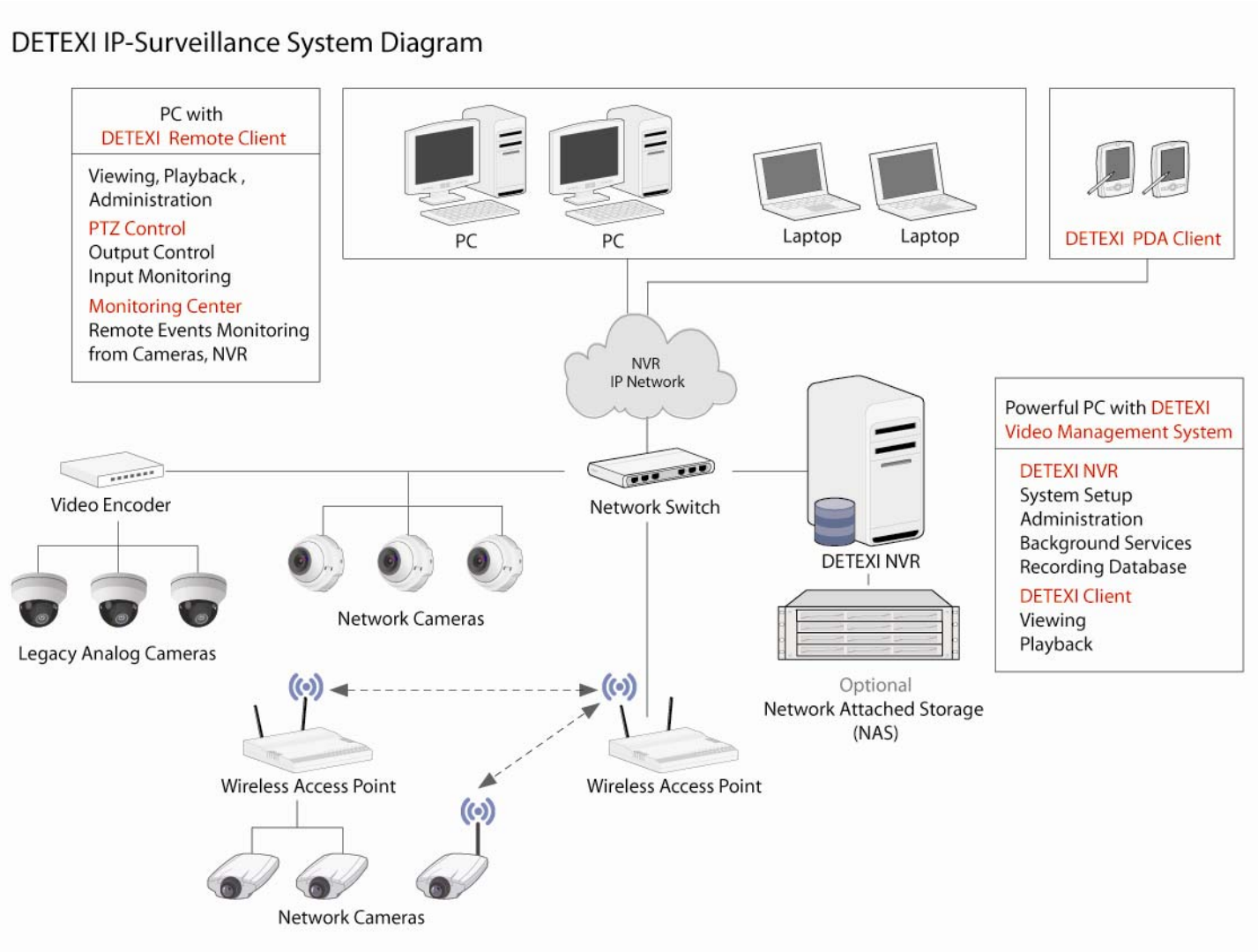
Intelligent video or video analysis is the process of analyzing video data with the goal of transforming it into actionable information. The NVR software provides the ability to complete different kind of actions at many different stages of video recording and viewing. This allows for immediate response to things that occur.

Network Video Recorder Domain Model

To address scalability and reliability and taking the cue from existing computer network topologies, a new and exciting approach to network video management and control has been developed — the NVR Domain Model.

Digital video recording consumes a large amount of hard drive storage space. With a large amount of cameras sending information to the NVR over a long period of time, the only way to adequately deal with it is to share the load over a distributed NVR network. The central administration point of this distributed network or domain is the NVR Domain Controller.

DETEXI IP-Surveillance System Diagram



Software Platform

The DETEXI network video management system is Windows Client/Server based software.

For large systems, or if the viewing station is located in a remote location, viewing DETEXI Client module is installed on a PC that is separate from the recording server where the DETEXI NVR is installed. The DETEXI NVR Control Center module installed automatically on the recording server is the DETEXI NVR graphic user interface and serves as a tool for communication between administrator and the DETEXI NVR.

The Remote DETEXI Client allows a user to perform the same tasks using the same user interface as on the computer where the NVR is installed (Local DETEXI Client). All settings are inherited and downloaded from the NVR. The Remote DETEXI Client also enables users to switch between different servers that have NVR installed, thus making it possible to manage video at many remote sites or in a large system.

Hardware Platform (Server and Storage)

DETEXI NVR is an open platform solutions that runs on "off-the-shelf" hardware, with components selected for maximum performance. Today's PC, with a Pentium processor and Windows operating system, is able to run a video management software, and record and store video from numerous cameras. If the hard disk on the actual server running the recording application is not enough, there are solutions (such as network-attached storage — NAS) that enable you to increase storage space and achieve increased flexibility and recoverability.

Integration

The DETEXI system can be easily integrated with different mechanical and electronic security devices. Presently DETEXI system supports — ISONAS PowerNet IP card reader-controllers, Digital Acoustics push-to-talk intercoms, Paradox security panels, RBH Access Technologies security card readers

DETEXI NVR General Features

The core of the DETEXI network video management system — Network Video Recorder. The DETEXI NVR supplies the basis for video management, monitoring, analysis, and recording.

General Features Provided by the DETEXI NVR

- The NVR video management enables multiple users to view several different cameras at the same time (DETEXI Client) and allows recording to take place simultaneously.

- The NVR video motion detection defines activity by analyzing data and differences in a series of images (areas of interest can be defined) providing VMD functionality to network cameras or video encoders that do not originally embed this feature. This alleviates the workload for any recording devices in the system and makes event-driven surveillance possible.

- The NVR provides several recording modes: manual, scheduled (with or without motion detection), on alarm, and on motion detection only.

- The NVR video management allows users to administer and manage cameras from a single interface NVR Control Center: managing IP addresses and setting resolution, compression, and security levels.

- The NVR supports remote access to the system configuration information (users, cameras, schedules, motion settings, tasks) and recorded video, storing in the NVR Archive via DETEXI Client software. Provides multiple search functions for recorded video.

- The NVR allows control of PTZ and dome cameras via mouse that is controlled by an operator in the DETEXI Client, or it can be done automatically via guard tours and sequences controlled by the software.

- The NVR supports configuration of I/Os: enables video to be sent and recorded, and alarms to be sent in response to external sensors. This allows remote monitoring stations (Remote DETEXI Clients) to become immediately aware of a change in a monitored environment.

- The NVR provides alarm management: the software can sound an alarm, display pop up windows with alarm video stream, send e-mails, or call a phone and play alarm-specific WAV file or text-to-speech message.

- The NVR also provides full duplex real-time audio support, for either live or recorded audio.

DETEXI Software Components

When the DETEXI software is installed, several applications are placed on the server PC, each with their own responsibility.

NVR Control Center

DETEXI NVR Control Center —

The DETEXI NVR handles all communication with the cameras/video servers that are included in the system. It also handles recordings, events and user management in the system. The underlying structure of the DETEXI NVR consists of individual services, registered as Windows Services which allow to execute and organize all the tasks it is responsible for.

DETEXI NVR Control Center is the DETEXI NVR GUI (Graphical User Interface) and serves as a tool for communication between administrator and the DETEXI NVR. Once the DETEXI NVR has been installed on your computer, the NVR Control Center allows you to start/stop services as well as modify settings if needed. Some of the services are configured as automatic by default.
If the DETEXI NVR and any camera in the system are separated by a proxy server, you may need to enter appropriate proxy settings.

DETEXI

Local DETEXI Client —

Installed automatically along with the DETEXI NVR is a useful system administrator tool for testing user configuration and basic functionality. It only connects to the local DETEXI NVR, does not require the NVR services to be running, and does **not require authentication** *(authentication features are disabled)*.

Remote DETEXI Client

Remote DETEXI Client —

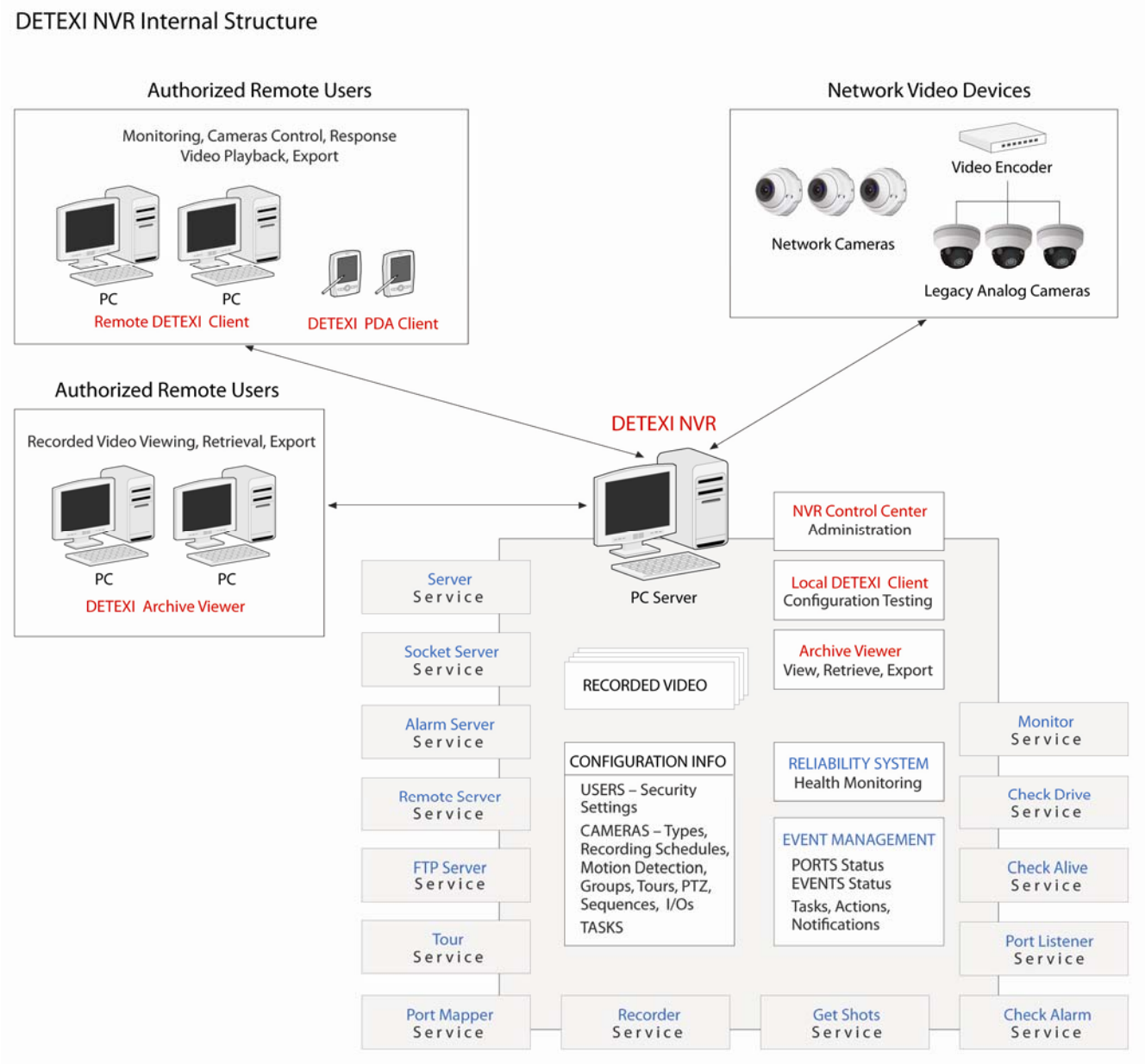
Installed stand-alone on any PC, or/and included automatically with the DETEXI NVR installation enables connection to any **authorized** DETEXI NVR available anywhere on the Internet or corporate network for remote viewing and control. Requires NVR settings configuration and authentication.

Archive Viewer

DETEXI Archive Viewer —

Included automatically with the DETEXI NVR and Remote DETEXI Client installation connects local and/or remote users to the DETEXI NVR recorded video (NVR archive) for video retrieval and export. For remote users permission/authentication is required.

DETEXI Software Internal Structure



The **DETEXI NVR** installed on a standard Windows PC server comes with recording and viewing functionalities as well as functionalities for configuring network video devices. Includes event handling and security; video motion detection and other video intelligence as well as integration with other systems such as access control and building management.

- A background service in Windows, DETEXI NVR will start automatically upon system start-up and continue running even after the user logs out. DETEXI is a self-contained package, so there are no plug-ins, downloads or players to install.
- Based on a Windows **DETEXI Client** provides for live video/audio viewing, cameras control and search/playback archived video functionality. All system settings are inherited and downloaded from the NVR.
- All dialogs that allow control and configuration of all aspects of the DETEXI NVR are found under the **NVR Control Center** — the NVR graphic user interface.

NVR Underlying Structure

The underlying structure of the DETEXI NVR software consists of many individual services, which allow execute and organize all the tasks it is responsible for. The services are registered with Windows as Services; some are configured as automatic by default.

Knowing the responsibility of each service is important. This allows users to make sure the necessary services for the given application are running and controlled properly, while unnecessary services are turned off to preserve system resources.

The DETEXI NVR can be considered as an intelligent storage and authentication server for the Remote DETEXI Clients with virtually unlimited number of IP video/audio suppliers (such as IP-cameras and video servers) logically attached to it.

- Any attached device can be used by the NVR. Video/audio source or sources of the remote events (motion events or remote I/O port events) are examples of attached devices.

1. NVR Services

Monitor service is an internal service to start/stop other DETEXI NVR services. It is also responsible for monitoring the health and status of all NVR Services.

Server service authenticates remote users connected to the NVR through the Remote DETEXI Clients. It is also responsible for tracking statistics about the remote user's connections.

Recorder service records information and images from each video input into the NVR archive, according to the configured schedules, preferences, alarms and events.

FTP Server service receives images from cameras via FTP and writes them into the NVR archive. It also raises an alarm when such images are received from a camera, and can also be used for FTP notification of IP address changes from the camera to the NVR.

Check Drive service monitors the condition of the storage path and device to confirm existence and available space for new video being recorded to the archive.

Check Alive service monitors if camera is online and video inputs are active.

Check Alarm service monitors the hard inputs of connected video devices, and raises alarms when defined changes are seen on such inputs.

Tour service moves PTZ cameras through a predefined series of locations according to defined schedules or on alarms or events.

Get Shots service captures still shots related to alarms from streaming video, when configured, and stores them in a special location in the archive.

Port Mapper service, when configured, routes network requests between two network connections on different subnets or networks. This allows for separate security and corporate networks across which the DETEXI system can communicate.

Port Listener service has the ability to monitor alarms raised by local alarm devices connected to the NVR computer.

Alarm Server service is responsible for raising alarms via the Text-to-Speech engine, telephone, e-mail and other mediums. This is configured as an Automatic Windows Service and starts at Windows startup.

Remote Server service is an internal service for intercommunications between linked NVR Domain Controller and child NVRs. This is configured as an automatic Windows Service and will start with Windows.

Socket Server service is an internal service to support remote TCP/IP access to the NVR. This is configured as an automatic Windows service and starts at Windows startup.

- ✓ All services are visible and configurable in the **NVR Control Center — Monitor**.
- ✓ The **DETEXI Reliability System** minimizes the risk of system failure and associated down-time.

2. System Health Monitoring

In the default setup the DETEXI NVR is working in an unattended mode, this means it is up to the local administrator to check the status of the programs and related hardware manually. However, in most cases a PC Server accommodating the DETEXI software is in a remote location with no local human interaction, therefore a designated person or persons should be aware of the DETEXI NVR status at any given time. You may not need the recorded video for weeks or even months, but if something happened (camera failure, power failure, network failure etc.) during that time it is possible that the NVR does not have some or any recorded video at all and the required evidence may be lost.

There are several areas that should be checked to insure that you have a healthy and functioning system:

- Is the NVR running at all (power is OFF or ON)
- Are all selected NVR services running
- Are all cameras with an active schedule functioning and being recorded
- Is there enough space to make a recording
- Are there enough system resources to make a recording
- Is the NVR Domain Controller network and all it's child NVRs healthy and running

To address these issues the **Reliability System** is embedded into the DETEXI Network Video Management software. To monitor the health of the NVR services you need to assign a predefined task that will be executed in a case of failure to each service you wish to monitor. Predefined tasks to be executed on check status/ health consist of one or more actions/notifications:

- Network Client notification
- E-mail notification
- Phone notification
- Speak notification
- Execute program action

3. Setup Health Monitoring Services — No Answer Task

To setup NVR health monitoring services you need to assign a task *(action/notification that will be executed in a case of failure)* to each component you wish to monitor.

1. In the **NVR Control Center — Monitor** (Fig 1).
2. Press blue Health Monitor On/Off button in the **bottom right** corner — the system health monitor **No answer task** panel appears.
3. To assign a task to the system component (service) — select **previously created** task from the drop-down list next to the component.
4. Assign a task to each system component.

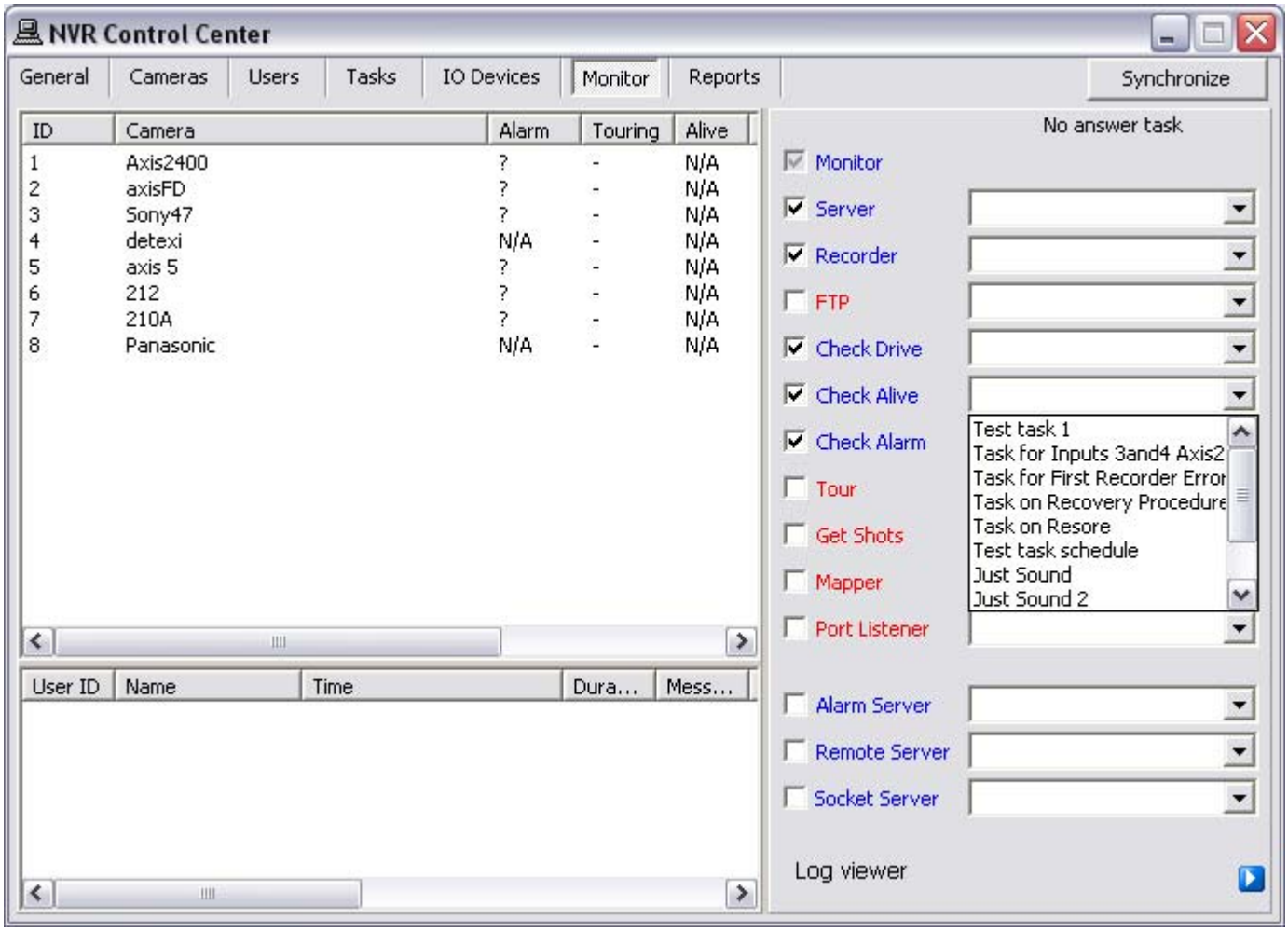


Fig 1. NVR Control Center — Monitor — No Answer Task
(Setup system health monitoring tasks.)

- ✓ Component failure if any will be **detected** within 3 minutes and the assigned task will be executed.
- ✓ System will check status **only** for the components with the checkbox **checked**.
- ✓ For more information, refer to the **NVR Events and Alarms** section.

Setup a Functioning DETEXI NVR / Client

After installing the DETEXI software, it **must be configured** for your cameras and video encoders. There are minimum DETEXI NVR and Remote DETEXI Client configurations necessary to have a functioning DETEXI NVR with live video. The recording, motion detection, and alarms also should be setup.

It is important to know how to properly setup the DETEXI software components and what functionality could be achieved. All dialogs that allow control and configuration of all aspects of the DETEXI NVR are found under the **NVR Control Center** — the NVR graphic user interface.

DETEXI Basic Configuration Steps

	DETEXI NVR	Local DETEXI Client	Remote DETEXI Client	DETEXI Archive Viewer
General Settings	▸ Start/Stop the NVR ▸ Setup Recording Storage ▸ Define Camera/Connection ▸ Test Camera/Connection ▸ Define User Information ▸ NVR Services ▸ Services Health Monitoring			
		▸ Test — Camera Connection Driver Selection PTZ functioning		
			▸ Setup NVR for the Client ▸ Setup Authentication	
Recording Settings	▸ 24/7 Recording Schedule ▸ Scheduled Recording with Motion Detection ▸ Multiple Recording Schedules ▸ Motion Only recording ▸ Setup Alarm on Motion ▸ Adjust Motion Settings ▸ Check Recording Status			
			▸ View/Monitor Cameras, Alarm Notifications	
		▸ Access/View/Export Recorded Video	▸ Access/View/Export Recorded Video	▸ Access/View/Export Recorded Video

- ✓ Refer to the DETEXI Software Components to learn the difference between **Local** and **Remote DETEXI Client**.
- ✓ Although the DETEXI **Client Archive Tool** and the DETEXI **Archive Viewer** have very similar capabilities, they access the archives in very different ways allowing for both tools to excel in different environments and for different needs. There are a few unique features in each as well.

Administration and Management

DETEXI NVR Control Center

1. Launch NVR Control Center

DETEXI NVR Control Center is the NVR GUI (Graphical User Interface) and serves as a tool for communication between administrator and the DETEXI NVR.

NVR Control Center

Open DETEXI NVR Control Center from the **Start — All Programs** or click the program icon on your desktop.
When the NVR Control Center is launched **General — Global Settings** is the default opening location (Fig 2). Some settings have default values at first, but before the NVR is used for recording, these settings will need to be tailored to the specific application needs based on recording specifications and resources available.

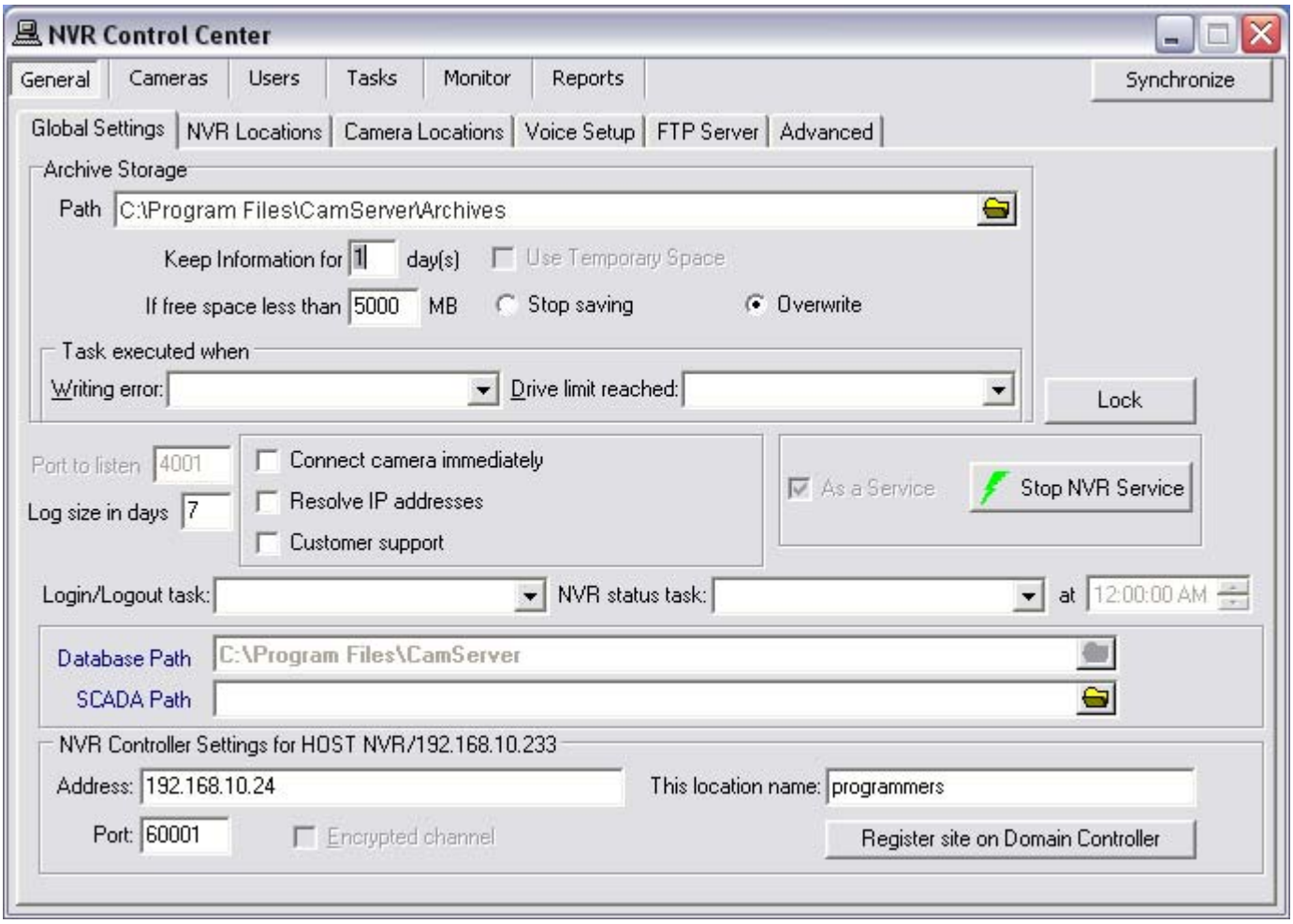


Fig 2. NVR Control Center — General — Global Settings
(NVR Control Center default opening location.)

2. Start/Stop the NVR

When the NVR Control Center is launched **General — Global Settings** (Fig 3) is the default opening location. Some NVR settings, including the **Archive Storage — Path**, cannot be set or changed while the NVR is running *(fields are grey and not accessible)*. If the NVR is running, you **must** first stop the services with the **Start/Stop NVR Service** toggle button on the right. When the settings are done start NVR again.

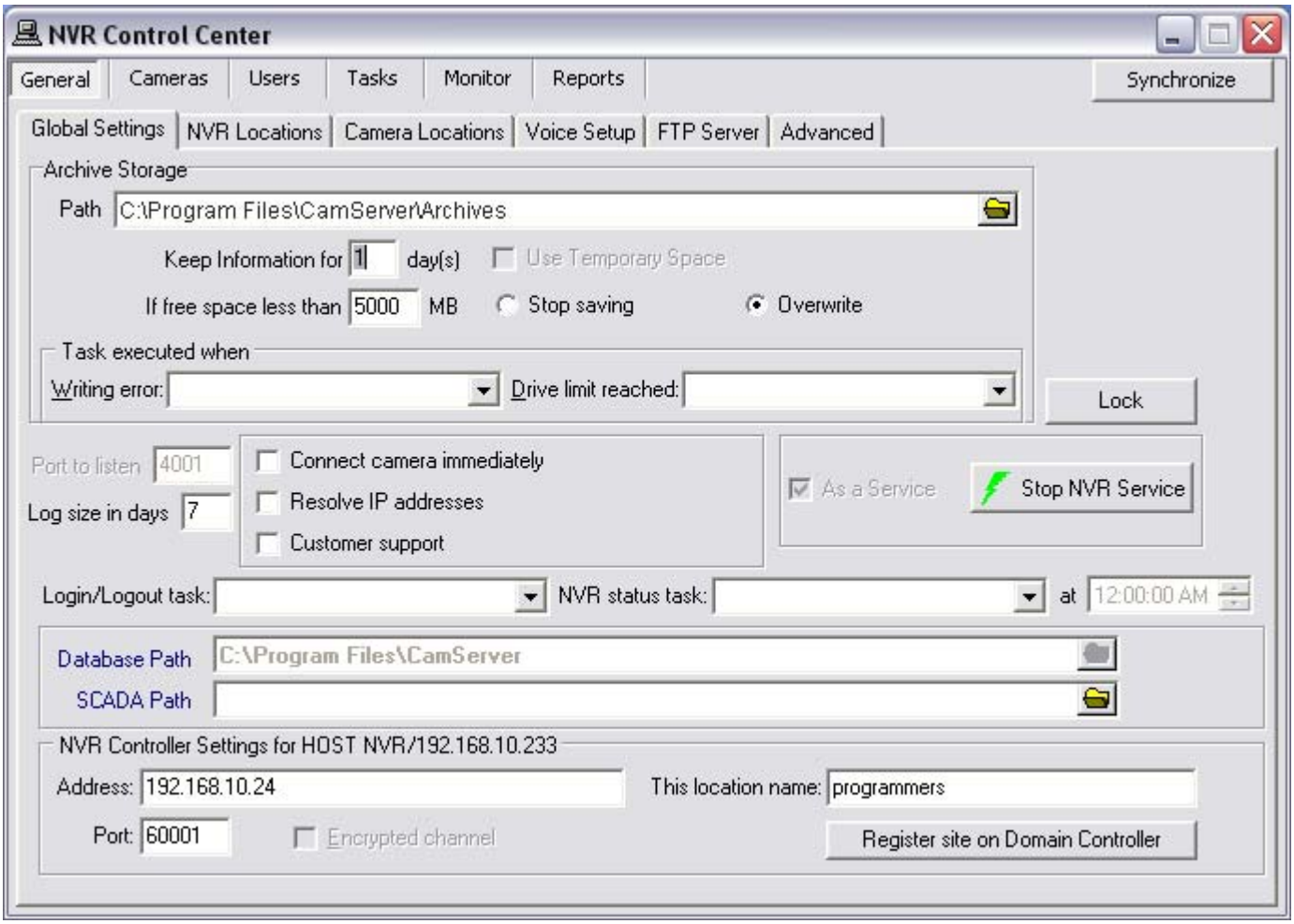


Fig 3. NVR Control Center — General — Global Settings
(Start/Stop NVR Service.)

- ✓ The underlying structure of the DETEXI NVR software consists of many individual services, which allow execute and organize all the tasks it is responsible for. The services are registered with Windows as Services; some are configured as automatic by default.
- ✓ All services are visible and configurable in the **NVR Control Center — Monitor**.

3. Advanced Settings

To setup NVR advanced settings — in the **NVR Control Center** go to the **General — Advanced** (Fig 4).

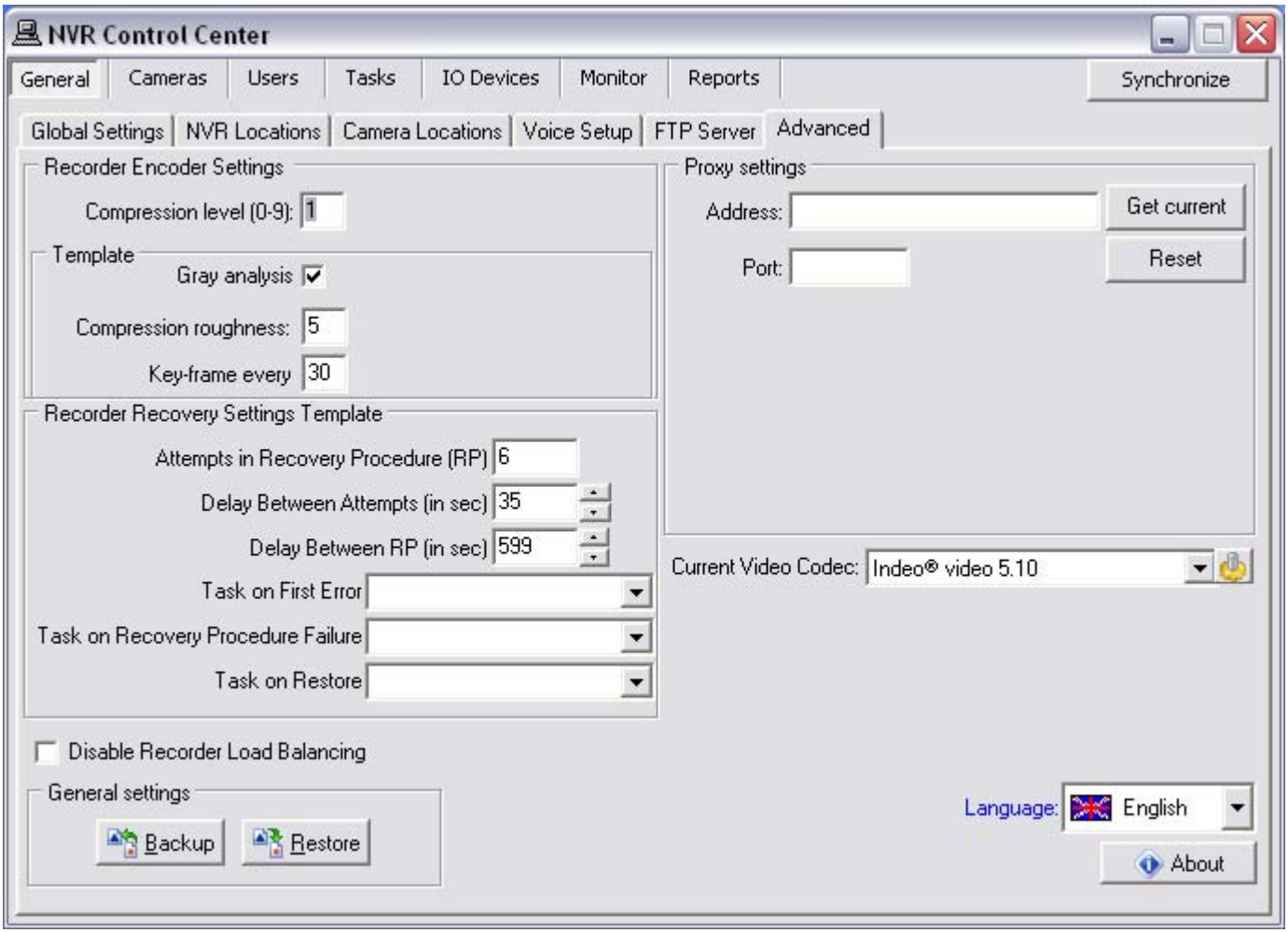


Fig 4. NVR Control Center — General — Advanced
(Setup NVR advanced settings.)

Proxy Settings

If a company uses Web-Proxy Server that requires authentication to get to the Internet, proxy setting must be done. **Get Current** button helps to get the information about current domain, computer and user names.

Recorder Encoder Settings

Configurable **Encoder** is available in the DETEXI NVR 5.5. When enabled, compression in the NVR involves finding the difference between two images in the video stream and then applying a compression algorithm. In the upcoming DETEXI NVR 5.7 release for optimized quality and bandwidth MPEG-4 and highly efficient H.264 video compression will be supported. Read more in the Administration and Management — Compression section.

Recorder Recovery Settings Template

One of the methods to deal with IP-devices errors is to setup a Recovery Procedure inside a camera recording schedule. This procedure fully describes how the Recorder will manage the faulty camera.
To learn more read the Reliability System — Setup Health Monitoring section.

General Settings Backup/Restore

Click **Backup** button to backup NVR general settings. Click **Restore** button to restore previously saved settings.

Current Video Codec

Codec selected from the **Current Video Codec** list is used as a default by internal automated conversion procedure in order to create an alarm video *AVI* file on the client request. Still another codec could be selected directly in the DETEXI Client.

Language Selection

Select your preferred language. English is recommended. Dutch and Swedish now under construction.

About NVR

To get the DETEXI NVR registration and license information click **About** button — the DETEXI NVR splash screen appears (Fig 5). To get more detailed information click the **Detailed Info** button on the splash screen. Detailed information includes supported modules, supported devices and supported cameras lists.

Fig 5. DETEXI NVR splash screen

(Get the DETEXI NVR registration and license information.)

4. Service Status, Monitor Service

All DETEXI NVR services are visible and configurable in the **NVR Control Center — Monitor**. The status of all the cameras that have been installed can be seen there as well (Fig 6).

- ✓ The color of the service name indicates its status — blue while running, red while stopped.
- ✓ Click on any service name to turn it red to stop the service or blue — to run.

The **Monitor** service is an internal service to **start/stop** other DETEXI NVR services. It is also responsible for monitoring the health and status of all NVR Services.

- ✓ The **color** of the service name indicates its status — blue while running, red while stopped.
- ✓ The **checkbox** next to a service name configures how it is affected by the Monitor service. If a service is checked, its status will be monitored and displayed.
- ✓ **Checked** services will also be started/stopped along with the Monitor service.

The Monitor service is started and stopped using the **Start/Stop NVR Service** toggle button in the **NVR Control Center — General — Global Settings** (Fig 6).

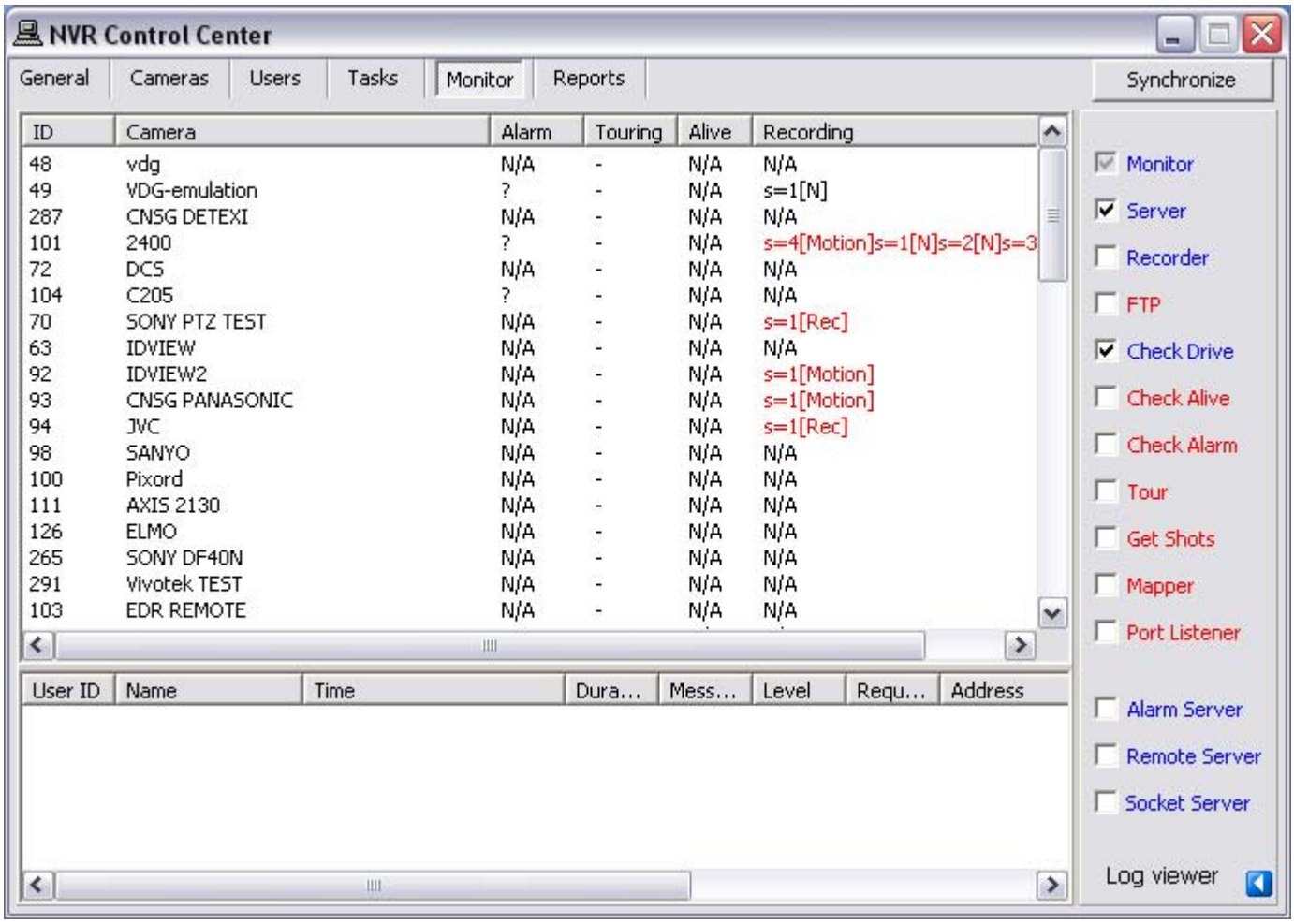


Fig 6. NVR Control Center — Monitor
(NVR services status, turning service on/off.)

- ✓ It is recommended that the **Monitor** service be **active** at all times.
- ✓ System will check status **only** for the components with the checkbox **checked**.
- ✓ If, for some reason, the user stops a service and it is selected to be monitored, it will be **restarted** by the Monitor service in approximately 30 seconds.
- ✓ During the system tuning you may need to **disable** restarting a service by the Monitor service. **Uncheck** the service checkbox to disable monitoring. Than you can click on the service name to turn it red to stop the service or blue — to run.

5. Runtime Configuration

For most settings, the NVR services support runtime configuration. This means that changes can be made to cameras, users, etc. **without stopping** the NVR services.
When you are ready for your changes to take effect, you should synchronize the services with the current configuration. The **Synchronize** button is found in the upper right corner of the NVR Control Center, **no matter** what page is active.

6. View System Log

To view log messages that the system components write to a common log file in the **NVR Control Center — Monitor** click **Log viewer** at the bottom right corner.

7. Turn off Services not Currently in Use

The unnecessary services can be turned off to preserve system resources. It is recommended that the Monitor service be active at all times. **Checked** services *(with checked checkbox next to the service name)* will be monitored and started/stopped along with the Monitor service.
To run/monitor, for example, just authentication and recording NVR services —

1. In the **NVR Control Center — Monitor** uncheck all services except Server and Recorder to enable their monitoring.
2. Click on the service names to turn the Server and Recording names blue and all others — red. This turns off the unnecessary services while keeps running the authentication and recording services.
3. Click **Synchronize** button to activate the new configurations.

- ✓ Server service authenticates remote users connected to the NVR through the Remote DETEXI Clients. It is also responsible for tracking statistics about the remote user's connections.
- ✓ Recorder service records information and images from each video input into the NVR archive, according to the configured schedules, preferences, alarms and events.
- ✓ Check Drive service monitors the condition of the storage path and device to confirm existence and available space for new video being recorded to the archive.

8. Assign NVR Status Task

DETEXI IP-Surveillance reliability checking is based on the Task Execution Engine. If something happens to the system, hardware or one of the DETEXI NVR components, certain task assigned to this event is executed.

But what if something happens to the Task Execution Engine by itself?

The obvious conclusion is — you will never have any task executed at all and you will never know that something is wrong with the DETEXI NVR. To solve this issue a special **NVR Status Task** was

developed which *(if assigned)* is executed once a day at a time you can predefine by yourself.
If this task HAS NOT BEEN executed at that time it means **you have to check the system**.

✓ The main purpose of the **NVR Status task** is to send out the **current status** of the NVR components at predefined time. It is initiated once a day at a predefined time and provides the user a list of the NVR components being monitored and their status.

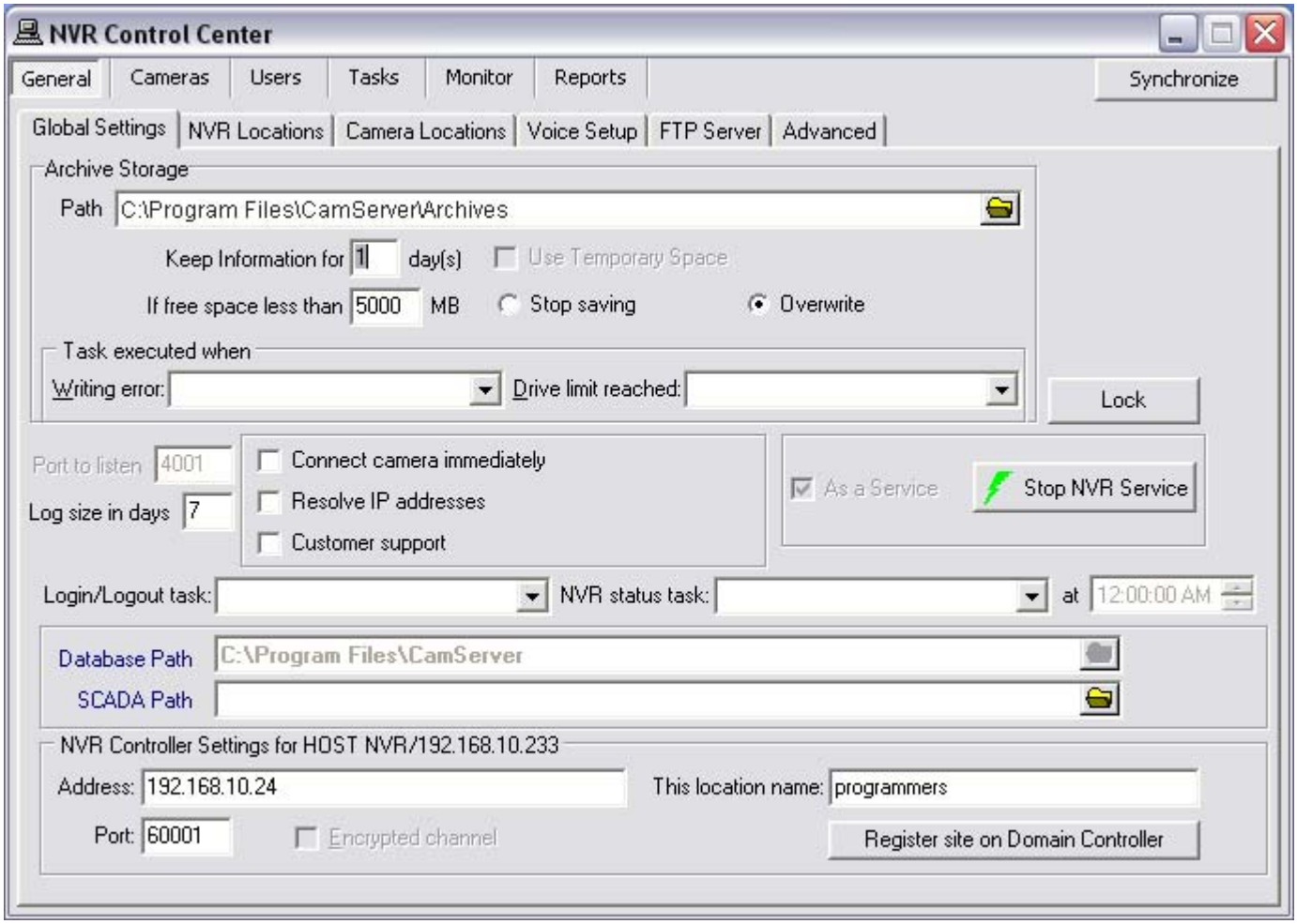


Fig 7. NVR Control Center — General — Global Settings
(Assign NVR status task.)

To assign NVR status task —

1. In the **NVR Control Center** switch to the **General — Global Settings** (Fig 7).
2. Select an appropriate predefined task from the **NVR status task** drop-down list.
3. Set a desired time.

✓ If you want to setup your own schedule with a different time interval (twice a day or once a week or whatever you want) to send out notification that the NVR is alive, you should create a Scheduled Task and use it for checking if the Reliability System is functioning properly.

Recording

1. Recording Rules

One of the key functions in the DETEXI NVR is recording video. Recording functionalities include setting up the rules of recording as well as intelligent ways of searching for recorded video and exporting video to other systems.

- In the DETEXI NVR video can be recorded on schedule (24/7 or other) with or without motion detection and on trigger (by motion or alarm). Scheduled recording can combine both continuous and triggered recording instructions (within schedule). Continuous recording normally uses more disk space than an alarm triggered recording. An alarm-triggered recording can be activated by, for example, video motion detection or an external input through a camera's input port.
- With scheduled recordings, timetables for both continuous and alarm or motion recordings can be set.
- After selecting the type of recording method, the quality of the recordings can be determined by selecting the video resolution, and level of image compression. These parameters, as well as frame rate, will affect the amount of bandwidth used as well as the size of storage space required. The number of frames per second can be set in all recording modes.

✓ Network video products can have varying frame rate capabilities, depending on the resolution. Full-motion video is 30 frames per second in NTSC video standard (in North America and Japan) and 25 frames per second in PAL video standard (in Europe). Some network cameras have the capability to do even higher frame rates.

2. NVR Storage System

The DETEXI NVR uses the standard Windows file system for storage, so any system drive or network attached drive can be used for storing video. An index of available video is stored in a separate file.
The advantages of using a database for storing all settings and recording metadata, and using a file system, include:

- The ability to manage shared access and ensure data integrity
- The possibility to efficiently search for recordings
- The ability to enable direct file access and record directly to disk

The NVR can enable more than one level of storage — that is, recording on a primary hard drive and archiving on local disks, network-attached drive, or remote hard drive. Users are able to specify how long images should remain on the primary hard drive before they are automatically deleted or moved to the archive drive.

Calculate Recording Storage Needs

Since the recording requires the most processing resources the recording storage needs must be considered when building the computer system to be used as the NVR Server. Use the DETEXI online Storage Calculator to estimate the storage needs of the NVR recording requirements in the Online User Guide — NVR — Administration and Management — Storage Needs.

- ✓ It is common for different cameras to require different quality recordings.
- ✓ It is more common to sacrifice recording frame rate to preserve the highest possible video resolution in recordings. This allows for crisper images of faces, license plates, etc. even when the fluidity of the video is not perfect.
- ✓ A typical recording quality of IP video is 4CIF (704x480) resolution or similar and between 3-6 FPS. Megapixel cameras are starting to become more common now as well, supporting maximum resolutions in the range of 1600x1200.

3. Recording Options

Recording in the DETEXI NVR is either schedule based or event based (triggered), and many recording options are available.

Schedule Based Recording

Schedule based recording can be set up as continuous (24/7 or other schedule) with or without motion detection or triggered. An alarm-triggered recording can be activated by, for example, video motion detection or an external input through a camera's input port. Scheduled recording can combine both continuous and triggered recording instructions (within schedule).

- Recording without Motion Detection — video is recorded constantly while on schedule, without motion analysis being done.
- Recording with Motion Detection — video is recorded constantly while on schedule, the video is analyzed and encoded with markers when motion is detected for faster and smarter replay.
- Recording on Motion only — video is analyzed constantly while on schedule, but only recorded when motion is detected.
- Recording on Motion Alarm — video is analyzed constantly while on schedule; the alarm raises when motion is detected starting the alarm video recording and execution of assigned task. An assigned task **must not** include the Record Camera action because a video stream is already initiated.
- Recording on Input Alarm — the hard input(s) of the camera are monitored while on schedule; when an alarm is detected the execution of assigned task starts. Recording of alarm video occurs if only an assigned task **includes** the Record Camera action that initiates a video stream from the camera.

Event Based Recording

- Recording on NVR Event (Record Camera action is **included** in assigned task) — video is recorded for any defined camera when a chosen event occurs in the NVR.

- ✓ The NVR response configuration is based on the NVR Task Execution Engine. In the NVR trigger is a set of criteria that, when met, starts the execution of assigned task. When an event is triggered, some of the common responses can occur, if configured. Recording occurs if assigned task includes the Record Camera action.
- ✓ Record Camera action records alarm video for a user-defined camera or for the camera associated with the event that triggered it. The length, picture quality, and camera position of the recording can be defined if desired. An alarm snapshot can also be taken by this task.
- ✓ Learning the NVR Event Management should allow a better understanding of how to configure system settings including recording instructions.

4. Setup Recording Storage (Archive)

Specify where to store the images. Recordings **will be deleted** when the reserved hard disc space is full, or when the recording is older than the amount of days specified in Keep Information for [ ] day(s). To prevent the hard drive from becoming full If free space is less than and Stop Saving/Overwrite should be set.

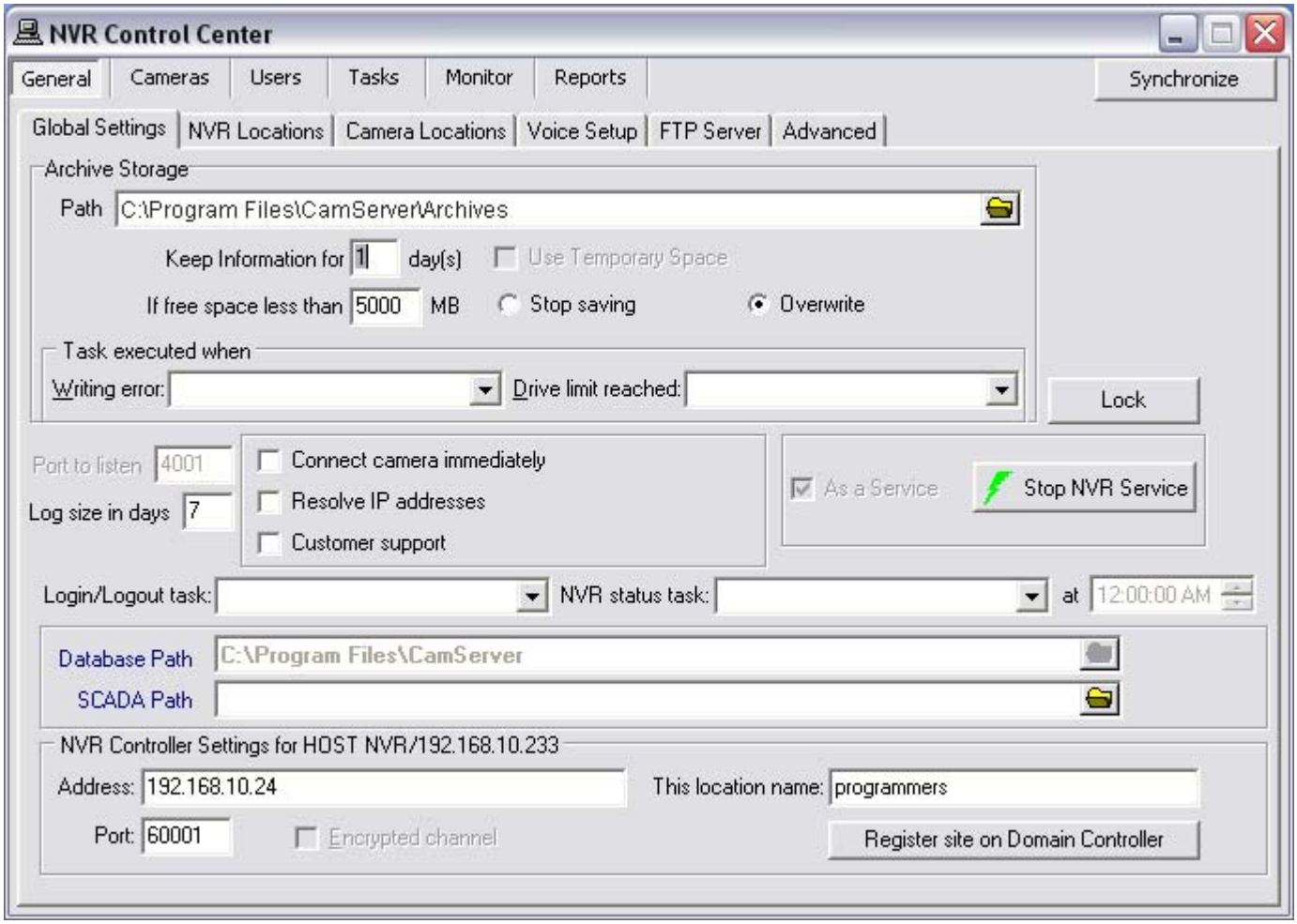


Fig 8. NVR Control Center — General — Global Settings
(Specify recording storage.)

1. In the **NVR Control Center** switch to the **General — Global Settings** (Fig 8).
2. Under the **Archive Storage — Path** specify local or network location for the NVR recording storage by clicking on the browse button. The directory must be empty when chosen.
3. Specify **Keep Information for [ ] day(s)**.
4. Set **If free space is less than** with a **Stop saving** or **Overwrite** option chosen.
5. Check **Use Temporary Space** checkbox if the archive is stored on a network device for more effective recording.

- ✓ With proper planning, the configured data retention time should not allow the drive limit to be reached, and will act only as a safety net. If data is continuously overwritten based on the drive limit, unnecessary strain is placed on the processor and hard drive.
- ✓ The Archive Storage settings **cannot be set** or **changed** while the NVR is running. If the NVR is running, you **must** first stop the services with the **Start / Stop NVR Service** toggle button. Than start NVR again.

5. Prevent Catastrophic Errors

There are several areas that should be checked constantly to insure the NVR can record —

- Is there enough space to make a recording
- Are there enough system resources to make a recording

If the tasks associated with these events are initiated you have to seriously reconsider your NVR settings and/or the hardware you are using.
In order to take advantage of getting a notification/action in case of a catastrophic failure you must setup the Writing Error and Drive Limit Reached tasks.

- ✓ Writing Error task initiates when the Recorder fails to record streaming data on the hard drive. It could be because of a hard drive error, a Windows error or the Recorder could not do its job because of **lack of resources** *(usually an underpowered CPU)*.

- ✓ Drive Limit Reached task initiates in case of free space for the system files or free space necessary for NVR functioning becomes **too low**. In some circumstances the Recorder service could even be stopped because the NVR cannot manage the given amount of information due to a lack of system resources. In this case you should reconsider your IP-devices recording schedule settings and /or Keep Information for parameter and/or your hardware configuration.

Setup Catastrophic Error Tasks —

1. In the **NVR Control Center** switch to the **General — Global Settings** (Fig 9).
2. Under the **Tasks executed when** select an appropriate predefined task from the **Writing error** drop-down list and the **Drive limit reached** drop-down list.

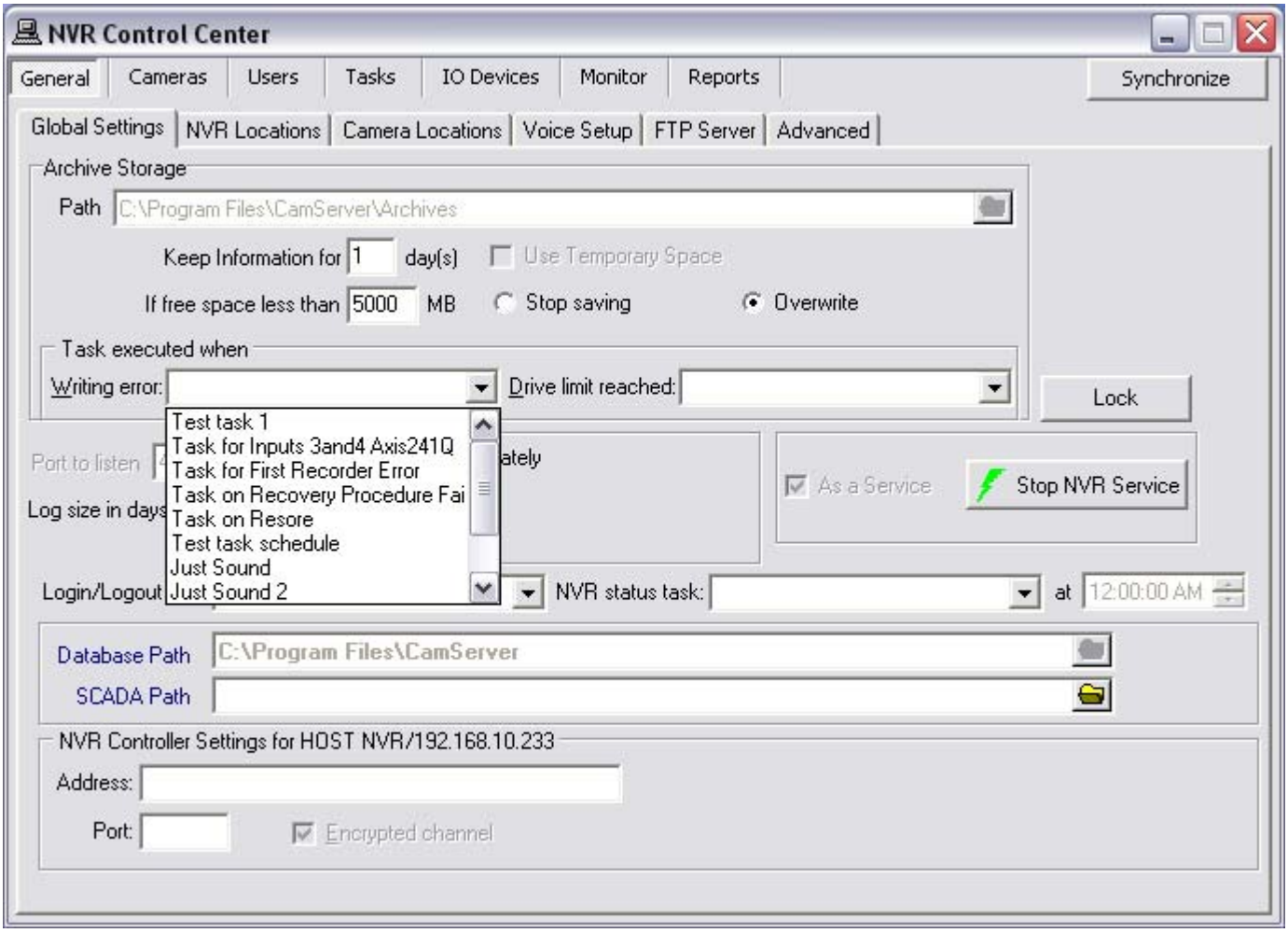


Fig 9. NVR Control Center — General — Global Settings
(Setup Catastrophic Error Tasks.)

✓ The advantages of using the native recording format are additional security and data integrity as well as advanced playback features. The proprietary format can be encrypted and password protected. Additionally, the proprietary format can be more difficult to edit and can be used to preserve the chain of evidence.

6. Export Recorded Video

The DETEXI NVR records video using proprietary file format but enables users to export recorded video:

- To standard AVI (Audio Video Interleave) file format
- The proprietary format can also be exported along with a proprietary "player" — restricted DETEXI Archive Viewer.

The advantages of using the native recording format are additional security and data integrity as well as advanced playback features. The proprietary format can be encrypted and password protected. Additionally, the proprietary format can be more difficult to edit and can be used to preserve the chain of evidence.

7. Recording Services

There are two NVR services that should be running and monitored by the Monitor service in order to record — Recorder and Check Drive.

- **Recorder** service records information and images from each video input into the NVR archive, according to the configured schedules, preferences, alarms and events.

- **Check Drive** service monitors the condition of the storage path and device to confirm existence and available space for new video being recorded to the archive.

Check Alarm Service
If Recording on Input Alarm method is setup in a camera/video server schedule, the Check Alarm service responsible for watching the status of IP device inputs should also be running and monitored.

- **Check Alarm** service monitors the hard inputs of connected video devices, and raises alarms when defined changes are seen on such inputs.

8. Synchronize Recording Services

The DETEXI NVR recording services support runtime configurations. This means that changes in the cameras recording settings can be made **without stopping** the NVR services. When you are ready for your changes to take effect, you should synchronize the services with the current configuration. The **Synchronize** button is found in the upper right corner of any NVR Control Center page.

9. Bandwidth Consumption

Bandwidth will be consumed between —

- DETEXI NVR and cameras while recording;
- DETEXI Clients and cameras when live video is being viewed.

Recording Bandwidth Consumption
Recording schedules, both continuous and motion-only require a constant stream from the camera while on schedule. In addition, recording can be configured to occur on an event — either on a camera input status change, or via a task triggered by some other event in the system. When calculating bandwidth usage, consider the worst case scenario — the time of day when the **maximum** number of cameras will have an active recording schedule, and also assume that many or all of your event recordings are active.

With these things in mind, use the DETEXI online Bandwidth Calculator to estimate how much bandwidth the NVR will need to operate as you intend in the Online User Guide — NVR — Administration and Management — Bandwidth Consumption.

Viewing Bandwidth Consumption
In DETEXI Clients, there are many options for viewing any number of cameras at once. Due to the smart-scaling features of the DETEXI Client's multi-camera view, the actual bandwidth usage will depend upon the computer's defined resolution, how many cameras are being viewed at once, as well as other factors that determine the cameras' display resolutions.

To include DETEXI Client bandwidth consumption in your calculation, you can use the following bandwidth estimations for viewing to be added to your recording bandwidth calculations —

- Single camera view — 10 mbit/s
- Multi-camera view (2-4 cameras) — 10 mbit/s
- Multi-camera view (> 4 cameras) — 5 mbit/s

- ✓ Bandwidth consumption should be considered for each Client license obtained for the DETEXI NVR (simultaneous connections), in the event that the maximum number of Clients allowed is connected at once.
- ✓ The bandwidth consumption estimated for each Client should be based on the type of viewing that will most likely occur on that workstation.

10. Compression

One of the key functions in the DETEXI NVR is recording video. The most processing resources are required by recording. To address this, image and video compression techniques can be utilized to reduce the bit rate. The goal is to reduce the amount of data as much as possible but, at the same time, have as little an impact on the image and video quality as possible.

The current version (5.5) of the DETEXI NVR streams and records network video in Motion JPEG format. Motion JPEG is a digital video sequence that is made up of a series of individual JPEG images.

- ✓ One of the advantages of Motion JPEG is that each image in a video sequence can have the same guaranteed quality that is determined by the compression level chosen for the network camera or video encoder.
- ✓ Since there is no dependency between the frames in Motion JPEG, a Motion JPEG video is robust, meaning that if one frame is dropped during transmission, the rest of the video will not be affected.

DETEXI NVR 5.5 Encoder

The main disadvantage of Motion JPEG is that it makes no use of any video compression techniques to reduce the data since it is a series of still, complete images. The result is that it has a relatively high bit rate or low compression ratio for the delivered quality.

For this reason, configurable **Encoder** is available in the DETEXI NVR. When enabled, compression in the NVR involves finding the difference between two images in the video stream and then applying a compression algorithm.

- ✓ By adjusting the Encoder settings, users can balance the recording file sizes and the video quality necessary for their system and network cameras/video encoders.
- ✓ Since the NVR encoding surely put an **extra burden** on the NVR's processor it is used only in rare situations. Today's PC is able to run a video management software, and record and store video from numerous cameras. If the hard disk on the actual server running the NVR is not enough, there are solutions (such as network-attached storage — NAS) that enable you to increase storage space

Encoder Settings Template

Setting up encoder settings for many cameras with complicated recording schedules could be time consuming. To make it easier a template enforcing particular settings in a newly created schedule can also

be setup (Fig 10) allowing the default settings to be adjusted later in any recording schedule.

1. In the **NVR Control Center — General — Advanced** under the **Recorder Encoder Settings** setup a **Compression Level (0-9)**.
   - ✓ **Level 0 disables** all compression capabilities, meaning all video will be saved in raw, uncompressed form *(default)*.
   - ✓ **Level 9** defines **the highest** available compression level, and is very resource intensive.
2. Under the **Template** **check** **Gray analysis** checkbox to enable gray analysis. When enabled, images are converted to gray-scale before comparing; minimizing the effect of color changes *(the setting is highly recommended for outdoor environments).*
3. Enter a **Compression roughness (1-7)** — the level of changes between two frames considered important.
4. Define **Key-frame every** — how often an uncompressed (key) frame is saved *(there should be at least one key-frame per minute of video).*

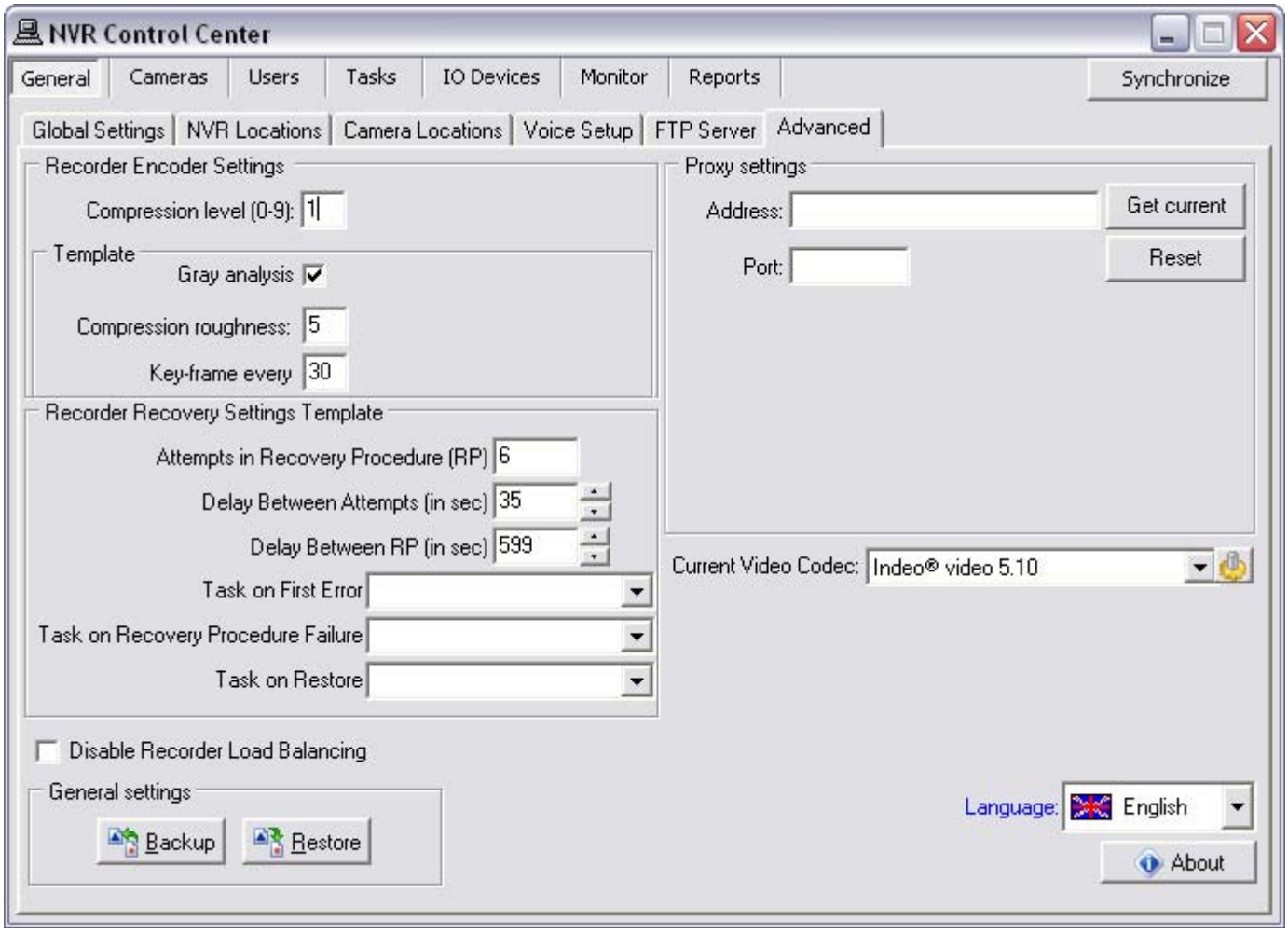


Fig 10. NVR Control Center — General — Advanced

(Encoder Settings Template).

- ✓ If recording on Motion Only/on Alarm is setup in a recording schedule the compression settings will be **ignored** to protect alarm video quality.
- ✓ Compression Level 0 *(default)* disables all compression capabilities; compression settings in the recording schedules will be disabled.

Encoder Settings in Recording Schedule

To adjust a camera encoding settings for an existing recording schedule (Fig 11) :

1. In the **NVR Control Center — Cameras** select camera to configure from the **Cameras List** and switch to the **Recording**.
2. Select a recording schedule and switch to the **Encoder** tab.
3. Adjust encoder settings — **Use Defaults** button will be enabled indicating that the encoder settings differ from those defined in the template. Click the button to return default settings.
4. Click **Save** button below the schedules list to save the updated recording schedule.

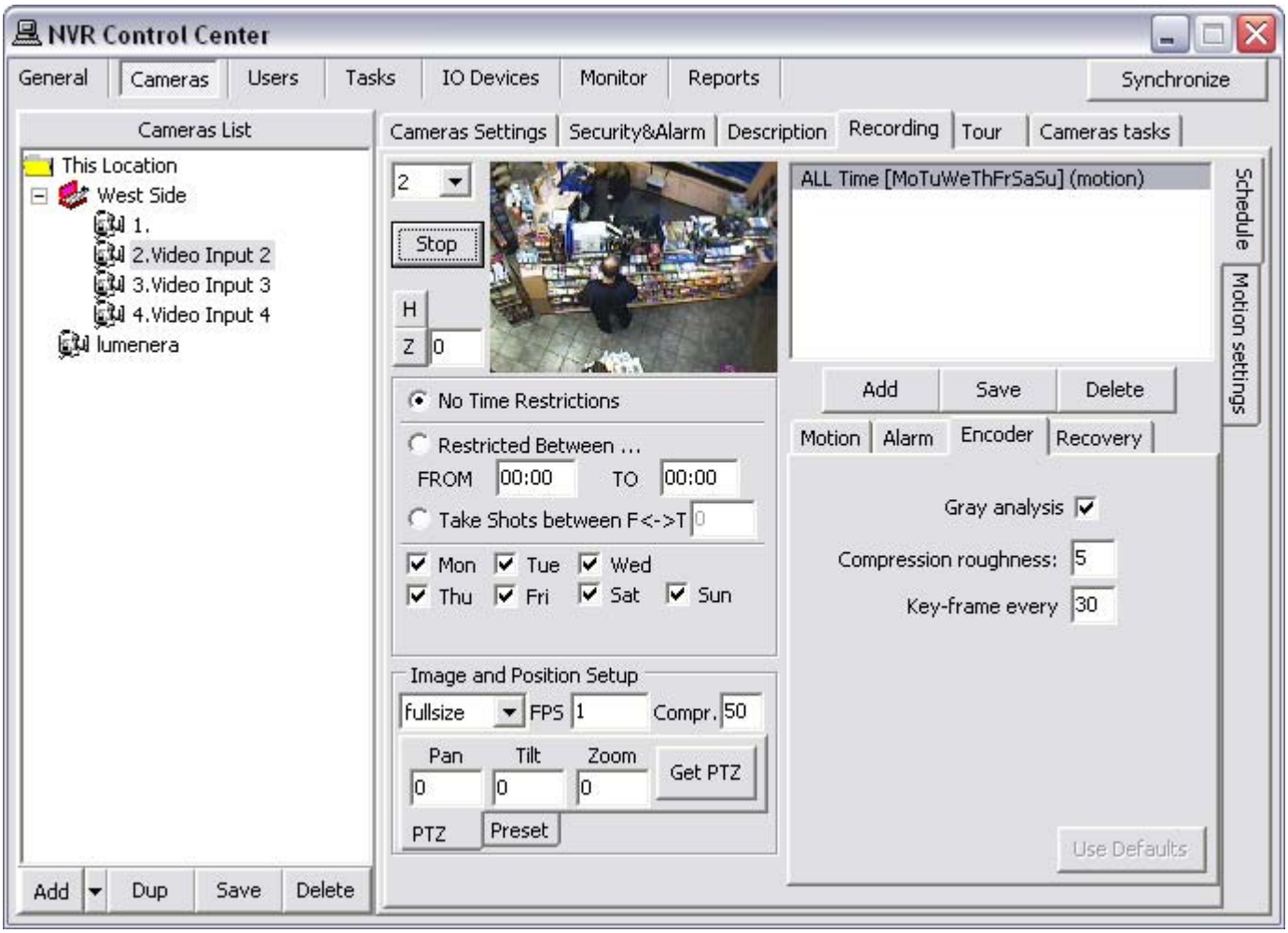


Fig 11. NVR Control Center — Cameras — Recording

(Recording Schedule Encoder Settings).

11. Compression in DETEXI NVR 5.7 and Higher

For optimized quality and bandwidth MPEG-4 and highly efficient H.264 video compression will be supported in upcoming DETEXI NVR 5.7 release and higher versions.

- ✓ MPEG-4 supports low-bandwidth applications and applications that require high quality images, no limitations in frame rate and with virtually unlimited bandwidth.
- ✓ H.264 is the latest MPEG standard for video encoding. H.264 is expected to become the video standard of choice in the coming years. This is because an H.264 encoder can, without compromising image quality, reduce the size of a digital video file by more than 80% compared with the Motion JPEG format and as much as 50% more than with the MPEG-4 standard. This means that much less network bandwidth and storage space are required for a video file. Or seen another way, much higher video quality can be achieved for a given bit rate.

Viewing

Another key function of the DETEXI NVR is enabling the viewing of live and recorded video in efficient and user-friendly ways using the DETEXI Client and DETEXI Archive Viewer software. The NVR enables multiple users to view several different cameras at the same time and allows recordings to take place simultaneously. Additional features are multi-monitor viewing and mapping, which overlays camera icons that represent the locations of cameras on a map of a building or area.

Live Viewing

The NVR provides users with the option of viewing images in different ways using the DETEXI Client: single and multi-camera live view (or video pop-up on motion detection), full screen, or camera sequence mode.

- ✓ Camera sequencing is a predefined "tour" that automatically displays live views, one after another, from a predefined list of cameras included in the tour. In this mode, users are able to select in which order the cameras should be viewed and for how long.

NVR allows control of PTZ and dome cameras via mouse that is controlled by an operator in the DETEXI Client, or it can be done automatically via guard tours and sequences controlled by the NVR.

Multi-Streaming

Viewing or recording at full frame rate on all cameras at all times is more than what is required for most applications. Frame rates under normal conditions can be set lower — for example, one to four frames per second — to dramatically decrease storage requirements. In the event of an alarm — for example, if video motion detection or an external sensor is triggered — the recording frame rate can be increased automatically. It also is possible to send video with different frame rates, compression, and resolution to different recipients *(if camera supports)*. This is called multi-streaming.

1. DETEXI Client

In the DETEXI network video management system, video can be viewed from any point on the network. Using the **DETEXI Client** part of the DETEXI software, multiple authorized users can access live or recorded video at any time and from any networked location.

There are two different installations of the DETEXI Client: **Local Client** for the system administrator and **Remote Client** for the system users.

DETEXI	**Local DETEXI Client —** Installed automatically along with the DETEXI NVR is a useful system administrator tool for testing user configuration and basic functionality. It only connects to the local DETEXI NVR, does not require the NVR services to be running, and does **not require authentication** *(authentication features are disabled)*.
Remote DETEXI Client	**Remote DETEXI Client —** Installed stand-alone on any PC, or/and included automatically with the DETEXI NVR installation enables connection to any **authorized** DETEXI NVR available anywhere on the Internet or corporate network for remote viewing and control. Requires NVR settings configuration and authentication.

- ✓ Before live video can be viewed in the DETEXI Client network camera **must** be defined in the NVR Control Center.
- ✓ For a high quality video viewing experience, it is crucial that DETEXI Client computers are equipped with a graphics card that **can handle** the live video and rendering required by the DETEXI Client application.

2. View Recorded Video — DETEXI Client Archive Tool vs. Archive Viewer

With the DETEXI NVR configured to record video, Local and Remote DETEXI Clients can access the recorded video also utilizing build in Client Archive Tool. There are two main tools that allow users to access the NVR video archive, search, view and export recorded video —

- DETEXI Client Archive Tool
- DETEXI Archive Viewer

Although the DETEXI Client Archive Tool and DETEXI Archive Viewer have very similar capabilities, they access and pull the recorded video from the archive in very different ways allowing for both to excel in different environments and for different needs. That is especially apparent when connecting over a network. There are a few unique features in each as well.

DETEXI Client Archive Tool vs. DETEXI Archive Viewer

The **DETEXI Client Archive Tool** pulls recorded video from the NVR archive transferring all frames in the time segment selected into local memory. For this reason, the amount of video that can be viewed at once is limited, and the initial load time is very affected by the network the video is being pulled across. Once loaded, however, this video can be viewed very quickly and efficiently at very high frame rates. When users already know the time and date of interest and only need to review a **small** amount of video, they might find the DETEXI Client Archive Tool **more efficient** than the DETEXI Archive Viewer.

When **large** amount of video need to be scanned for events the **DETEXI Archive Viewer** is the tool of choice. Rather than loading a collection of video into local memory, the Archive Viewer streams video directly from the NVR archive over the network. For this reason, a full 24 hours of data is at the user's fingertips for viewing at all times without requiring a large initial load time. However, this limits user to slower possible playback speed — completely dependent upon the network connection between the Archive Viewer and DETEXI NVR archive. It is not uncommon to see pauses in video playback for buffering of the video stream.

✓ When located on the DETEXI NVR computer, the DETEXI Archive Viewer is very efficient — limited only by the read speed of the hard drive and decoding speed of the video card.

Security

An important part of network video management is security. The DETEXI NVR enables the Remote DETEXI Client connection to any authorized DETEXI NVR available anywhere on the Internet or corporate network for remote viewing and control.

User Login Settings

When users connect to the NVR from the Remote DETEXI Clients, they will be required to authenticate with user settings defined in the NVR. The DETEXI NVR has the ability to provide different lists of cameras to different users, only allowing users to see and interact with the cameras they have privileges for. To allow remote users authentication / connection the following to be defined and setup in the DETEXI NVR Control Center:

- Authorized users
- Passwords
- Different user-access levels. For example: administrator access to all functionalities, operator access to all functionalities except for certain configuration pages, viewer — access only to live video.
- User cameras to interact — which authorized users have access to which cameras
- In addition, permissions such as PTZ control, maximum connection time, task control, etc. are also configurable on a **per-user** basis.

Camera Security Settings

A secure communication with network cameras is created in the same way by providing some kind of identity through a username and password to the camera and the DETEXI NVR. If authentication authorized and accepted, that is, verifying whether the device has the authority to operate as requested, the device is fully connected and operational in the system. This allows protecting the camera from an attacker who knows camera's IP address.

1. User Login Settings

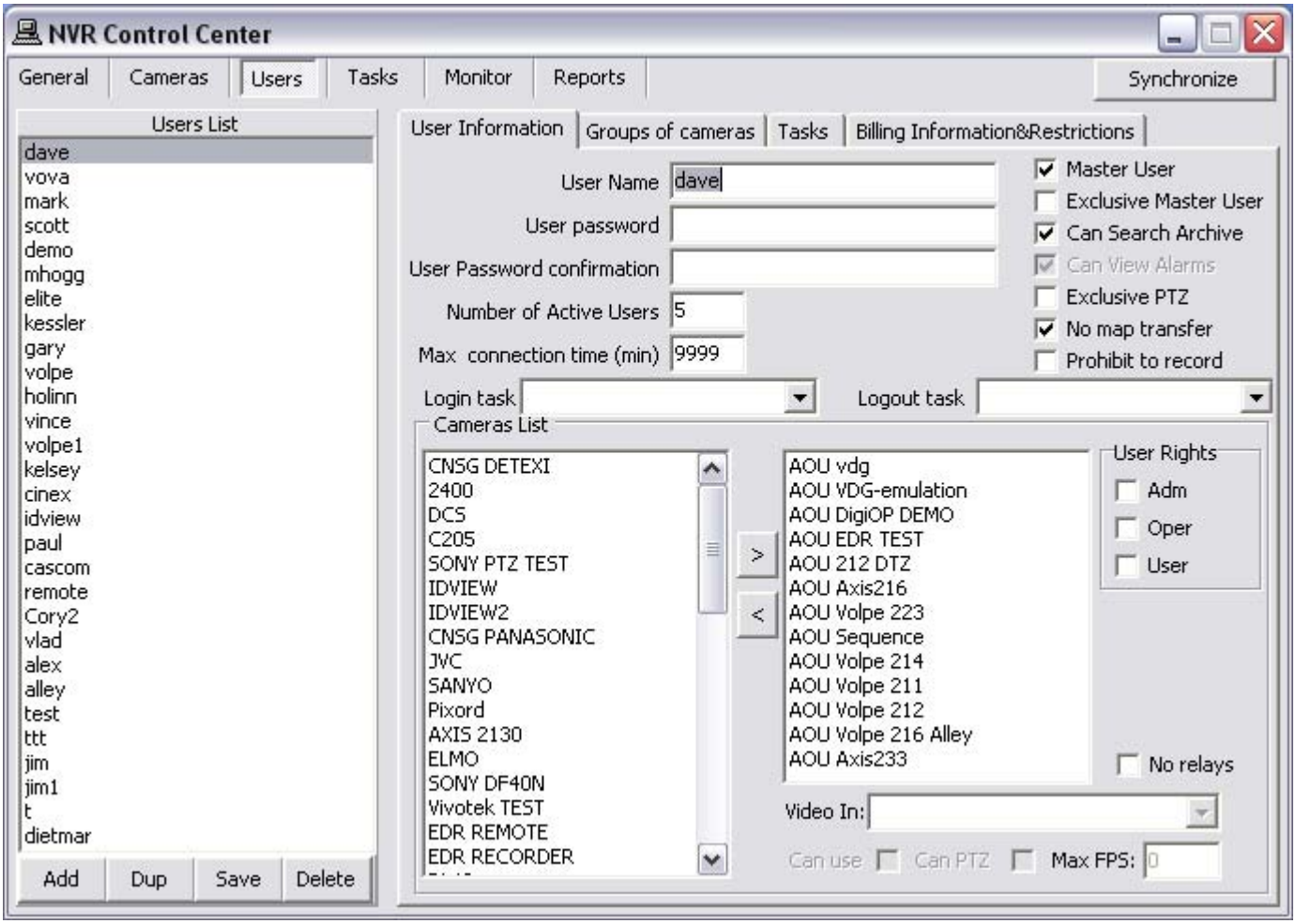


Fig 12. NVR Control Center — Users — User Information
(User login settings, cameras to interact.)

To create a user with specific rights —

1. In the **NVR Control Center** switch to **Users — User Information** (Fig 12).
2. Below the **Users List** click **Add** button to open blank **User Information** dialog
   — or —
   Click **Dup** button to open a copy of selected user settings for editing.
3. Enter a single word, case-sensitive, alphanumeric **User Name** to use to login to the NVR.
4. Enter a single word, case-sensitive, alphanumeric **User Password** and re-type it to the **User Password Confirmation** to be sure it is typed as desired.

5. Enter the **Number of Active Users** to define the number of Client instances the user can be signed into simultaneously.
6. Enter **Max connection time** to define the number of minutes user can be continuously connected to the NVR before the connection will be terminated. User may login again if desired. A value of **9999** designates **no time limit**.
7. Check **Master User** checkbox to give the user permission to terminate other user sessions from the **Client — Get Users**.
8. Check **Can Search Archive** checkbox to give the user permission to view/search NVR archive.
9. Click **Save** button below the **Users List** to save the settings.

- ✓ Remember that **User Cameras to Interact** also **must** be setup.
- ✓ Usernames and passwords are **case sensitive**!
- ✓ Unless otherwise configured for security reasons, it is recommended to have at least two **Number of Active Users** allowed per user. In the event that a user's session is not logged out properly, this ensures that they can log in again without intervention from a Master User or NVR Administrator.
- ✓ The **User Rights** chosen for the first camera configured will automatically be assigned to each camera after that unless manually changed.
- ✓ PTZ permission is defined on a **per-camera basis**, and is enabled by default if the camera has PTZ capabilities when assigned to the user.

2. User Cameras to Interact

It is also necessary to define which of the available cameras the user has access to and also assign the level of authentication allowed from this user to the camera defined in the NVR Control Center — Cameras — Security & Alarm.

- ✓ In most cases, the camera has only one username and password, with administrative privileges.
- ✓ Be sure that User Rights (Adm/Oper/User) settings make sense considering the authentication settings in the Security & Alarm.

Define the cameras user has access to (Fig 11) —

1. In the **NVR Control Center** switch to **Users — User Information** select the camera from the **Cameras List** at the left and click **">"** button to add the camera permission to the user — the camera name appears in the selected cameras list at the right.
2. Select the camera name in the selected cameras list at the right.
3. Check proper checkbox under the **User Rights** to pass the previously configured camera authentication settings — **Adm**, **Oper** or **User**.
4. Check **Can PTZ** checkbox below the selected cameras list to give the user PTZ permission on the selected camera. This setting is enabled by default if the camera has PTZ capabilities when assigned to the user.
5. Repeat steps 1 — 4 to add more camera permissions.
6. Click **Save** button below the **Users List** to save user settings.

3. Camera Security Settings

Define camera security settings (Fig 14) —

1. In the **NVR Control Center — Cameras** with the camera selected switch to the **Security & Alarm**.
2. Under the **Names and Passwords** enter usernames and passwords. They should match the users that are defined within the camera.
3. In most cases, camera will only have one username and password by default, with administrative privileges; in this case enter **Adm name** and **Adm pwd** accordingly.
4. Click **Save** button to save settings under the **Cameras List**.

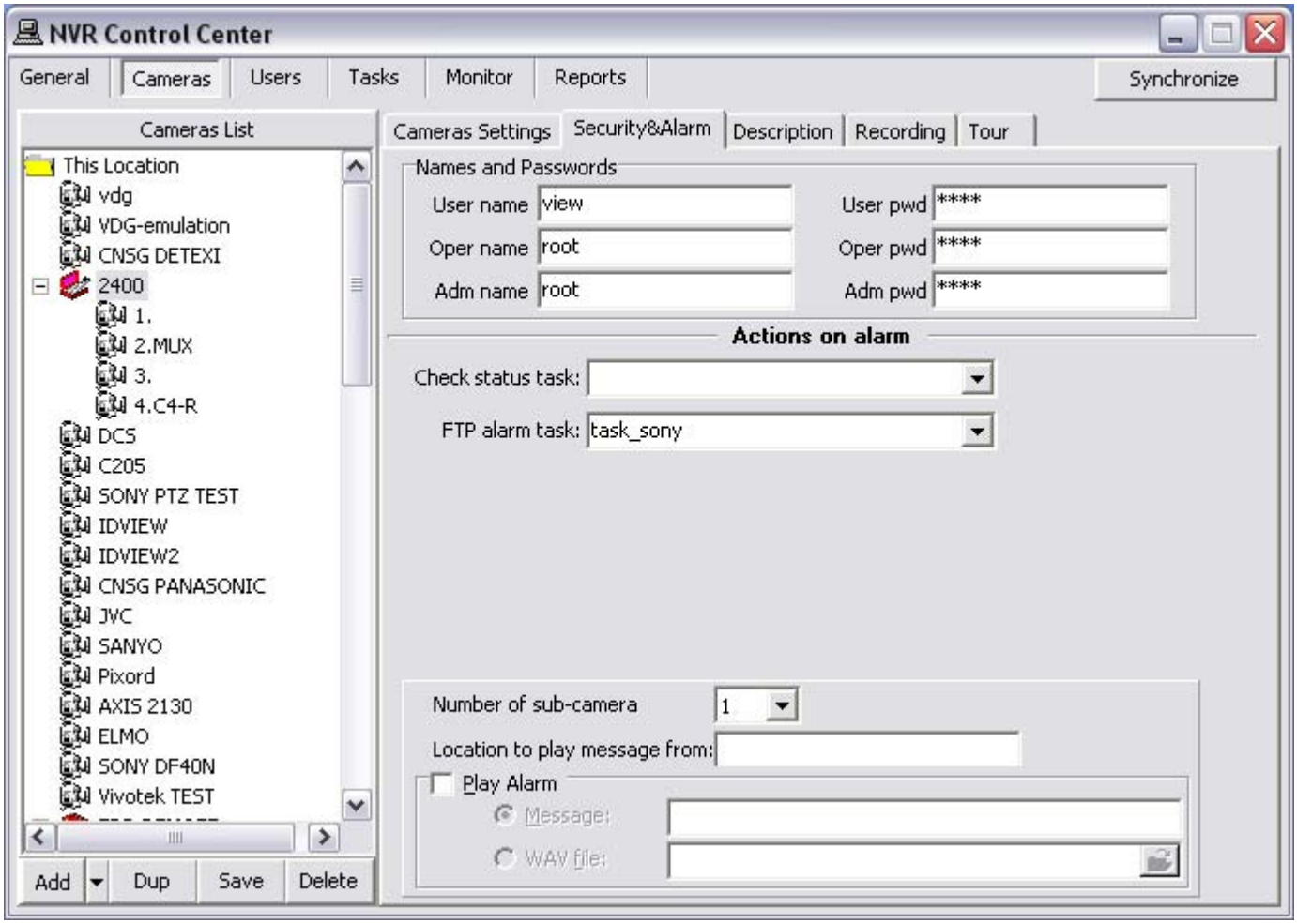


Fig 14. NVR Control Center — Cameras — Security & Alarm
(Camera security settings.)

- ✓ Usernames and passwords are **case sensitive**!
- ✓ In most cases, the cameras have only one username and password, with administrative privileges.

4. Add Task Execution to User Permissions

User Triggered Task — task execution can be added to user permissions, by assigning users the specific tasks they are allowed to trigger manually from the remote DETEXI Client.

1. In the **NVR Control Center** go to the **Users**.
2. Select a user from the **Users LIist** and switch to the **Tasks** (Fig 15).
3. Select a task of interest in the **Available** list and press the direction button to move the selected task to the **Selected** list.
4. Add more tasks to the **Selected** list if necessary.
5. Press **Save** button under the **Users** list to save changes.

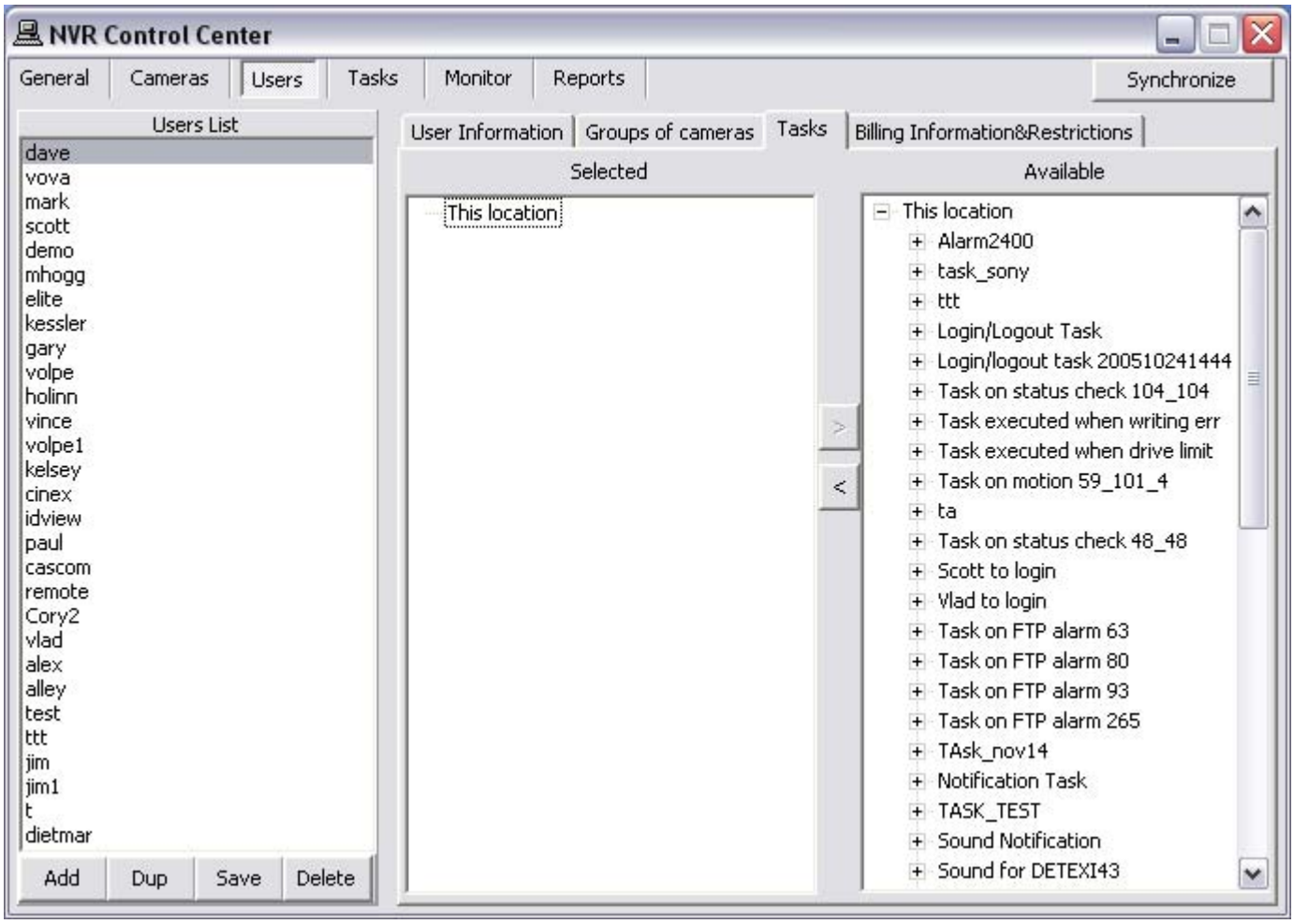


Fig 15. NVR Control Center — Users — Tasks
(Assign User Triggered Task.)

✓ Tasks configured with alarm-specific information should not be assigned as no alarm-specific information will be available.

Trigger Task from Remote Client

1. Login to the **Remote DETEXI Client** (Fig 16).
2. On the Client start page press the **Tasks** button to launch **Execute Task** panel with the tasks available upon the user logged in permissions.
3. Select a task of interest and press **Start Task** button.

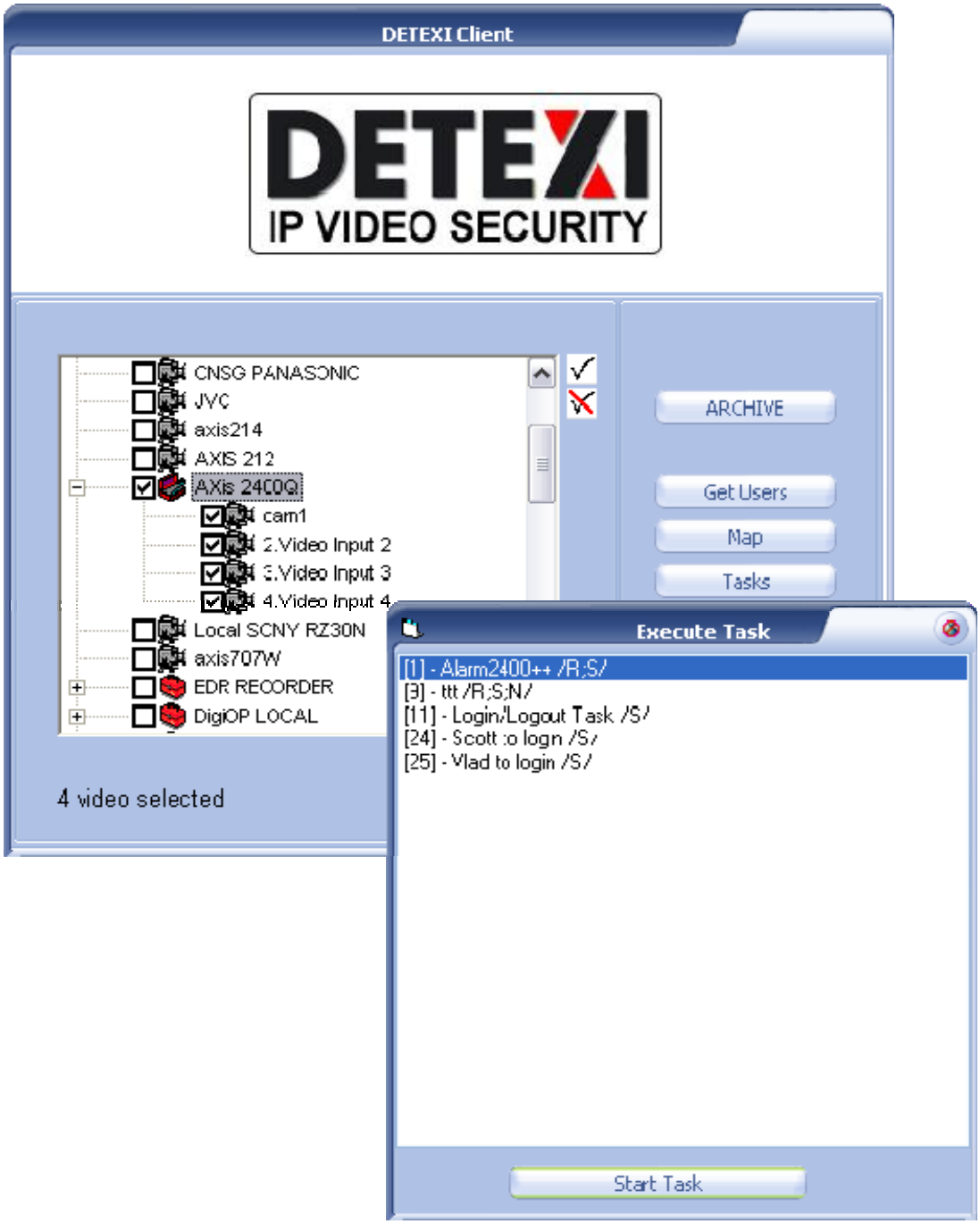


Fig 16. Remote DETEXI Client — Execute Task
(Trigger available task.)

5. Setup User Billing Information and Restrictions

Setup a user billing information and connection time restrictions (Fig 17) —

Billing Information

1. In the **NVR Control Center** go to **Users** and select a user from the **Users List**.
2. Switch to the **Billing Information & Restrictions**.
3. Enter **Time Block (min)** and **Fee (per block)**. The information will be used in the NVR Billing module.

Restrictions

Up to three restricted time intervals could be setup for a user when the user is banned to reach the NVR.

4. Under the **User Restricted Between** setup each interval start and end times.

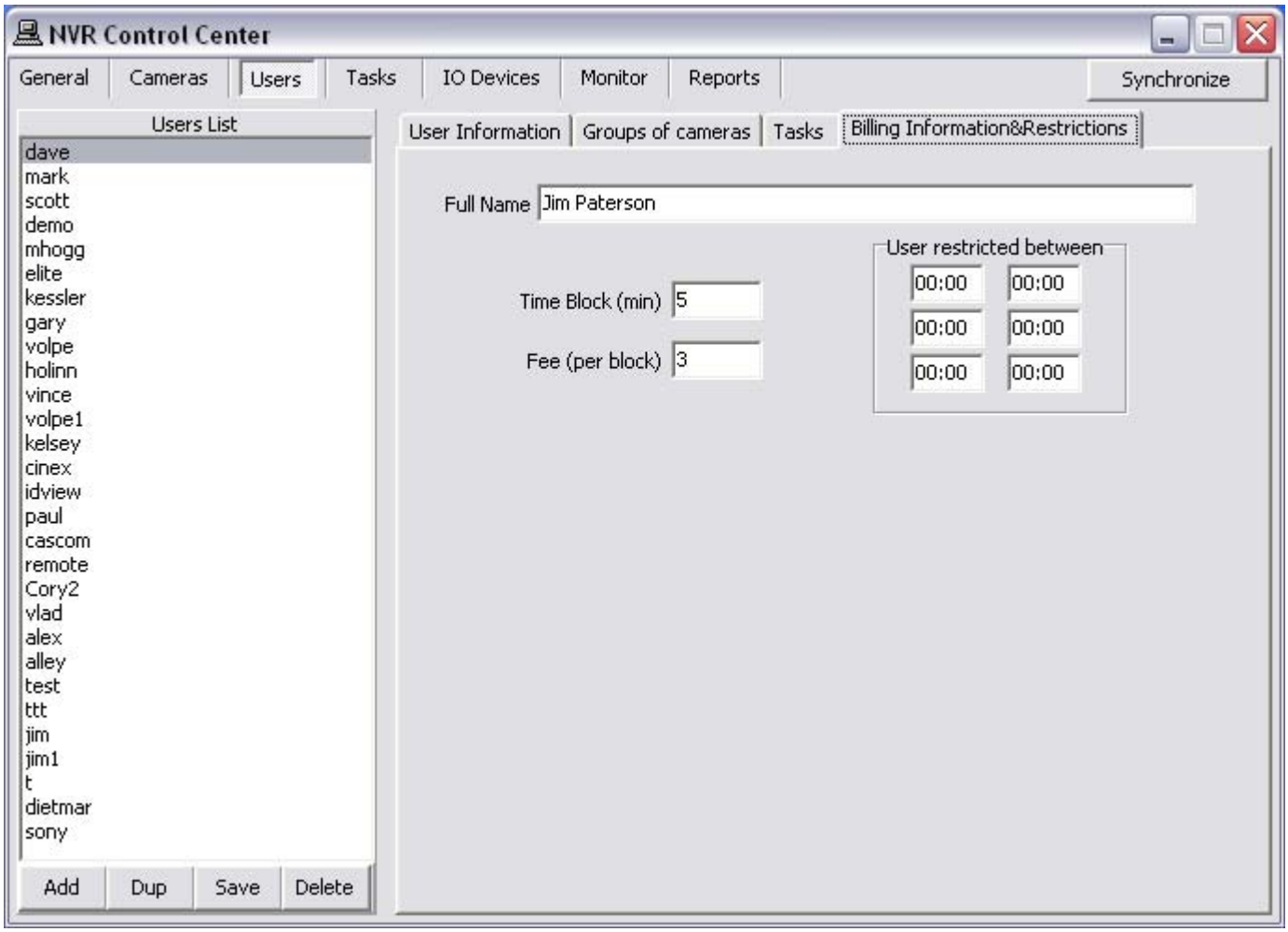


Fig 17. NVR Control Center — Users — Billing Information and Restrictions
(Setup billing information and connection time restrictions.)

6. Run Statistic Report

The statistic reports provide user logon information i.e. the date and time when a user has been authenticated and logged on to the NVR network and logged out as well. Monitoring this information is crucial for network administrators to track users' activity (Fig 18).

1. In the **NVR Control Center — Reports** specify the date range.
2. Enter the **User Name** or **Host Address**.
3. Click the **Run** button to view/print the report.

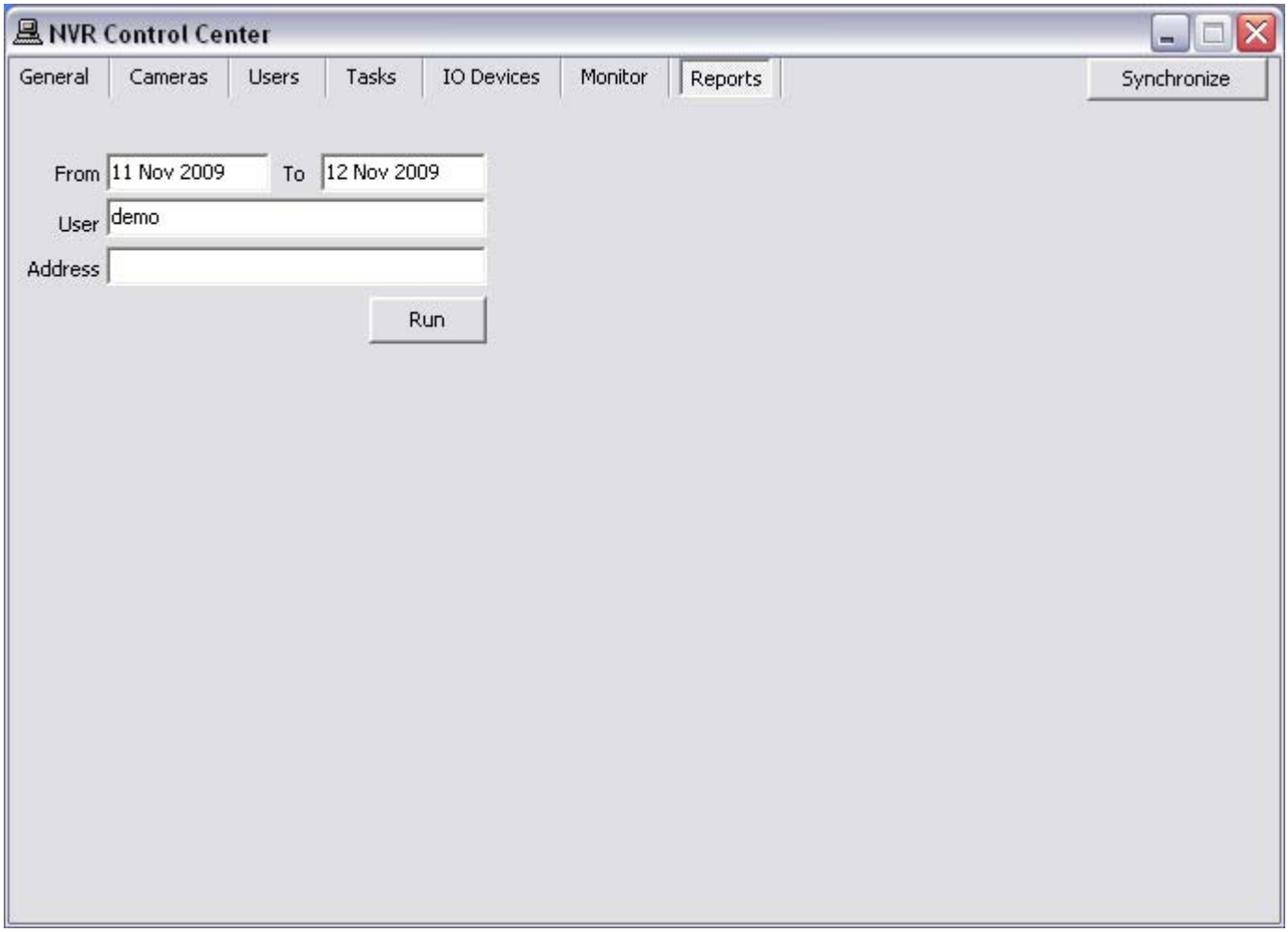


Fig 18. NVR Control Center — Reports
(Run statistic report.)

Statistic report

Statistic report is showing user's activities. (Fig 19).

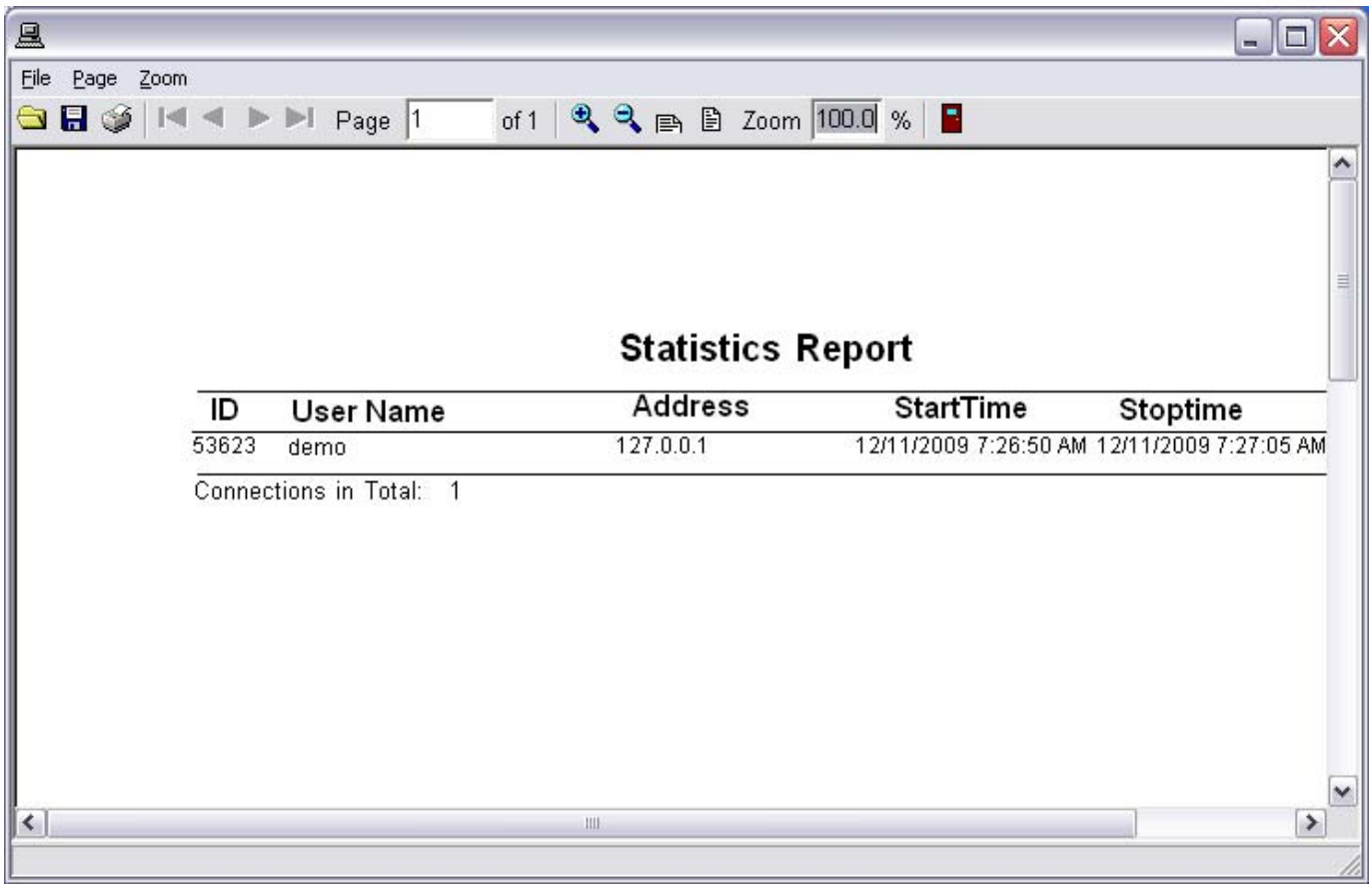


Fig 19. Statistic report

Audio

In an analog system, separate audio and video cables must be installed from endpoint to endpoint. In a network video system, a network camera with audio support processes the audio and sends both the audio and video over the same network cable for monitoring and recording.

Many network camera manufacturers are recognizing the importance of audio, and audio is becoming a common feature in network cameras. Some video encoders also have built-in support for audio, which means that they can provide audio functionality in an analog camera installation.

Having audio as an integrated part of the DETEXI NVR is an invaluable addition to a system's ability to detect and interpret events and emergency situations. The NVR supports three basic modes of audio communication: simplex, half duplex and full duplex — depending on the application, it can be configured to send audio in only one direction or both directions, which can be done either simultaneously or in one direction at a time.

- ✓ Full duplex mode enables users to send and receive audio (talk and listen similar to a telephone conversation) at the same time.
- ✓ Full duplex requires that the client PC has a sound card with support for full-duplex audio.
- ✓ **Alarm Server** service responsible for raising alarms via the text-to-speech engine, telephone, and e-mail **must** be running and configured in order to send alert notifications.

1. Enable Camera Sound

Depending on the application, the NVR can be configured to send audio in either both directions or only one, which can be done either simultaneously or in one direction at a time — full duplex, simplex and half duplex modes.

- ✓ Be sure that the NVR audio settings make sense considering the camera audio capabilities and settings.

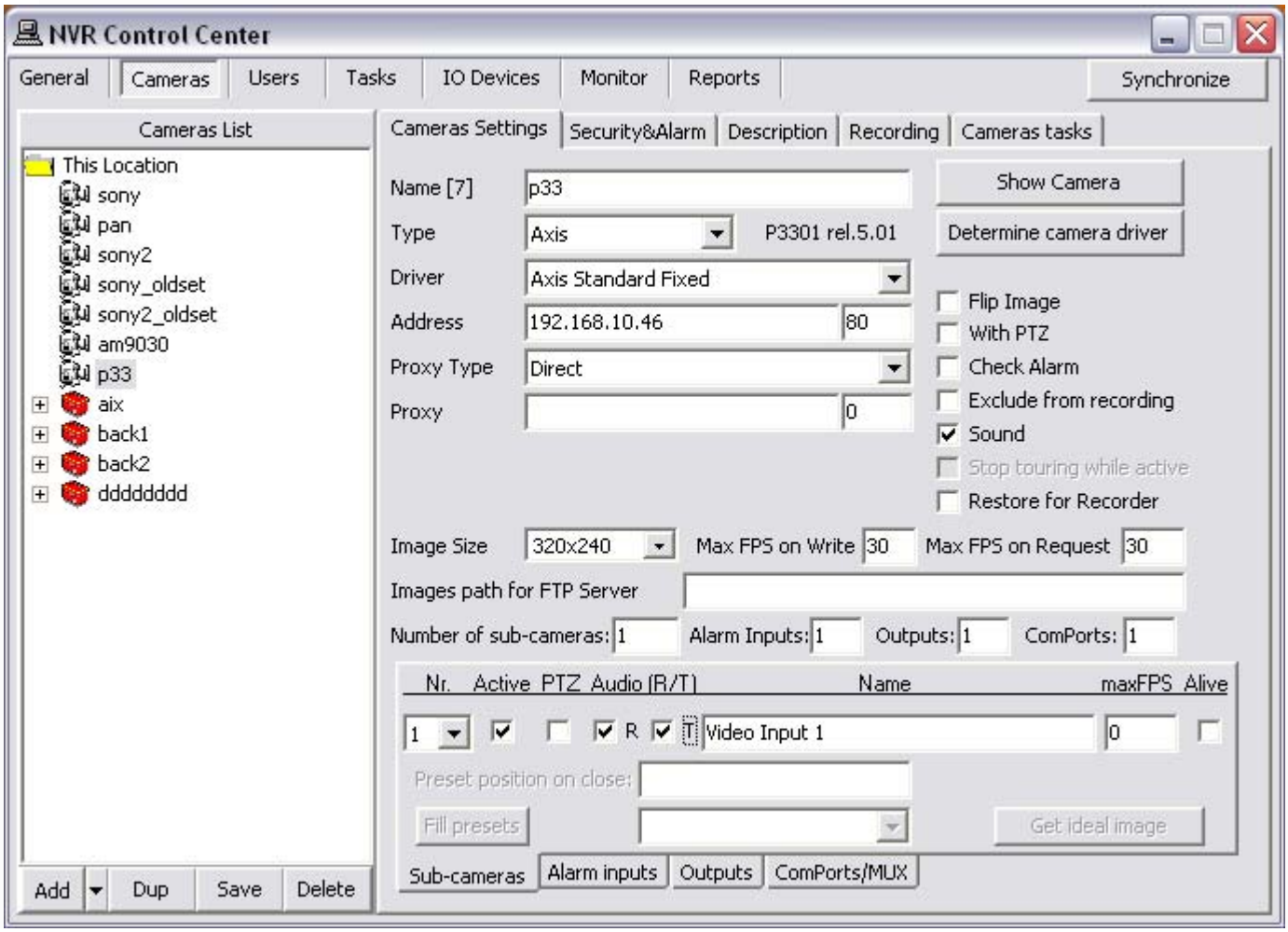


Fig 20. NVR Control Center — Cameras Settings
(Enable camera sound.)

To enable a camera sound (Fig 20) —

1. In the **NVR Control Center — Cameras** select the camera with audio support from the **Cameras List**.
2. In the **Camera Settings** **check** **Sound** checkbox.
3. Under the **Audio(R/T)** **check** **R** checkbox to receive audio from the camera and/or **check** **T** checkbox to transmit audio from the operator to the camera.

2. Configure User Sound Permission

Define which audio communication mode is **permitted** to the user —

1. In the **NVR Control Center — Users** select a user from the **Users List** (Fig 21).
2. In the **User Information** select a camera from the User Cameras to Interact list at the right.
3. Under the **Sound** select an audio communication mode by checking proper checkboxes —

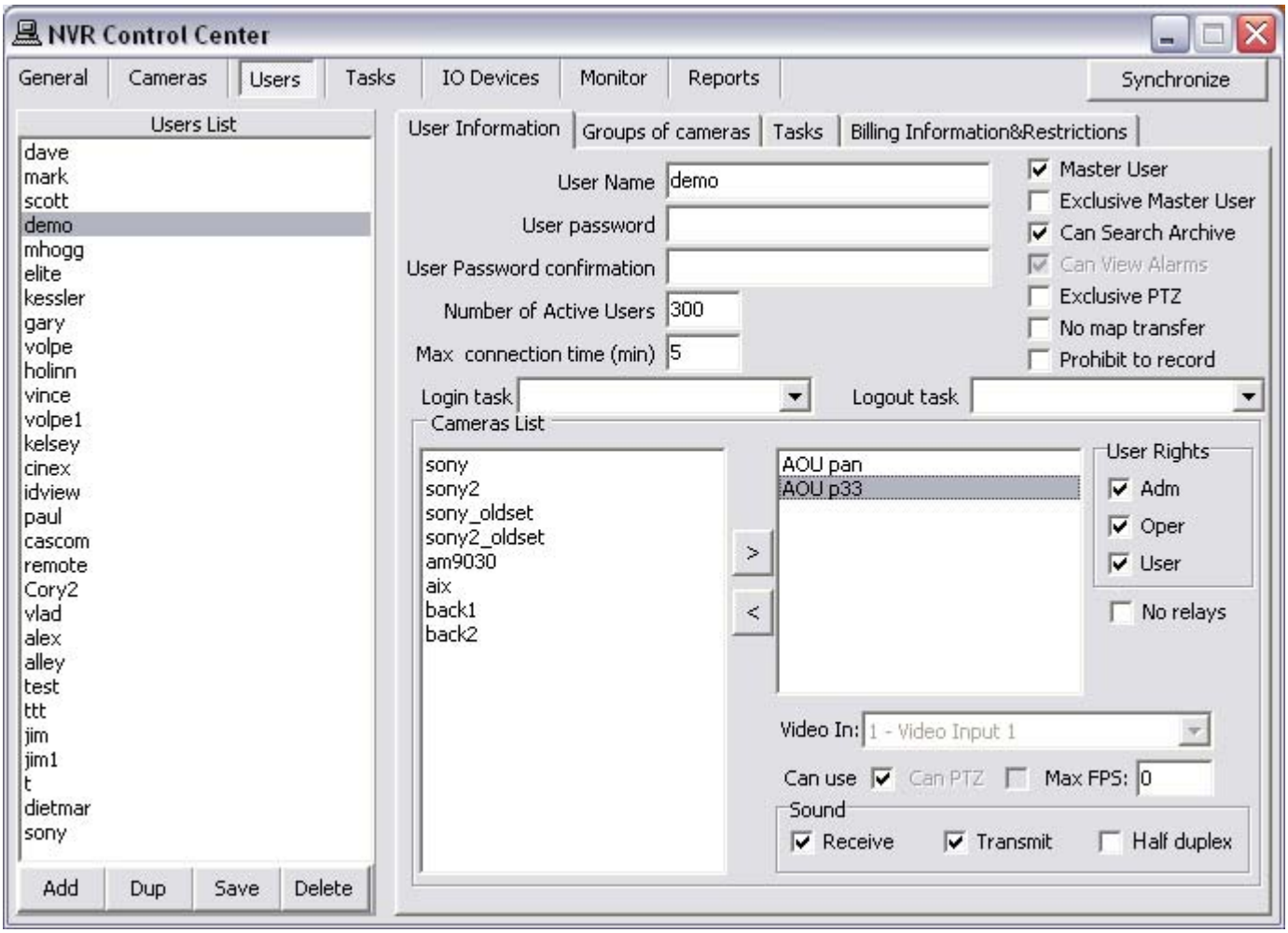


Fig 21. NVR Control Center — User — Users Information
(Configure user sound permission.)

✓ **Receive** checkbox **checked** — audio will be sent in one direction only by the camera to the operator *(simplex mode)*

- ✓ **Transmit** checkbox checked — audio will be sent in one direction only by the operator to the camera *(simplex mode)*
- ✓ Both **Receive** and **Transmit** checkboxes **checked** — audio will be sent to and from the operator simultaneously, similar to a telephone conversation (full duplex mode)
- ✓ **Receive**, **Transmit** and **Half duplex** checkboxes **checked** — audio will be sent in both directions, but only one party at a time can send, similar to a walkie-talkie *(half duplex mode)*

- ✓ If the checkboxes are not visible — sound was not enabled for the camera.
- ✓ If you intend running the audio module in full duplex mode, check that the sound card on your computer supports this.

3. Camera with Audio — Live View

Camera Live View (Simplex, Full Duplex Audio Mode)

When the camera (with audio) live view is launched on the Remote Client the camera starts to stream live video and audio over the Internet. Depending on audio settings one or two **additional checkboxes** will appear on the image top *(except for half duplex mode)* Fig22.

Fig 22. Remote DETEXI Client — Live View
(Simplex, Full Duplex Audio Mode.)

- ✓ Left checkbox **checked enables** receiving audio *(**unchecked disables** receiving)*
- ✓ Right checkbox **checked enables** transmitting audio *(**unchecked disables** transmitting)*
- ✓ The **Sound** button on the top allows to show/hide the checkboxes.

Camera Live View (Half Duplex Audio Mode)

When using the half duplex audio mode camera will normally send audio to the operator (Fig 23). To transmit audio from the operator to the camera press and hold the **Talk** button *(button state switches to the **Talking**.)*

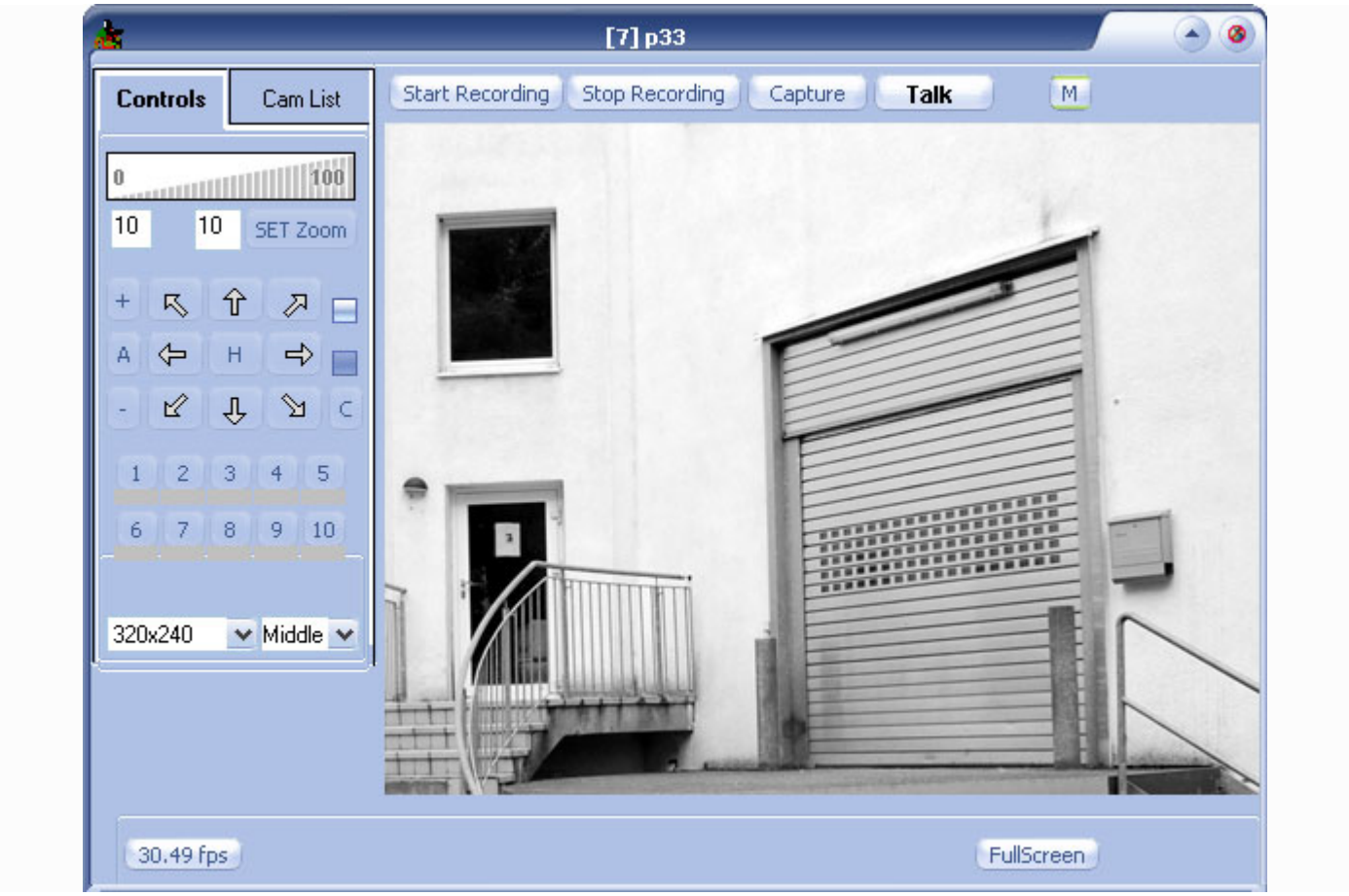


Fig 23. Remote DETEXI Client — Live View
(Half Duplex Audio Mode.)

4. Alarm Voice Setup

As a part of alarm management system an audio alert can be activated — all available operators could be notified of the alarm by playing alarm-specific WAV files or text-to-speech messages.

- ✓ When the video devices (cameras and/or video servers) are mostly defined in the NVR the default cameras alarm sound files should be generated.
- ✓ If more video devices than are added to the system new sound files will be generated automatically.

Generate alarm sound files for the cameras, defined in the system

1. In the **NVR Control Center — General — Voice Setup** click on **the Voice Setup** button to launch the **Alarm Server** to configure voice type, speed and sound file format (Fig 24).
2. Click the **Record** button to save voice settings and generate the default alarm sound files according to the settings.
3. By pressing the **Speak** button, you can hear the greeting message.

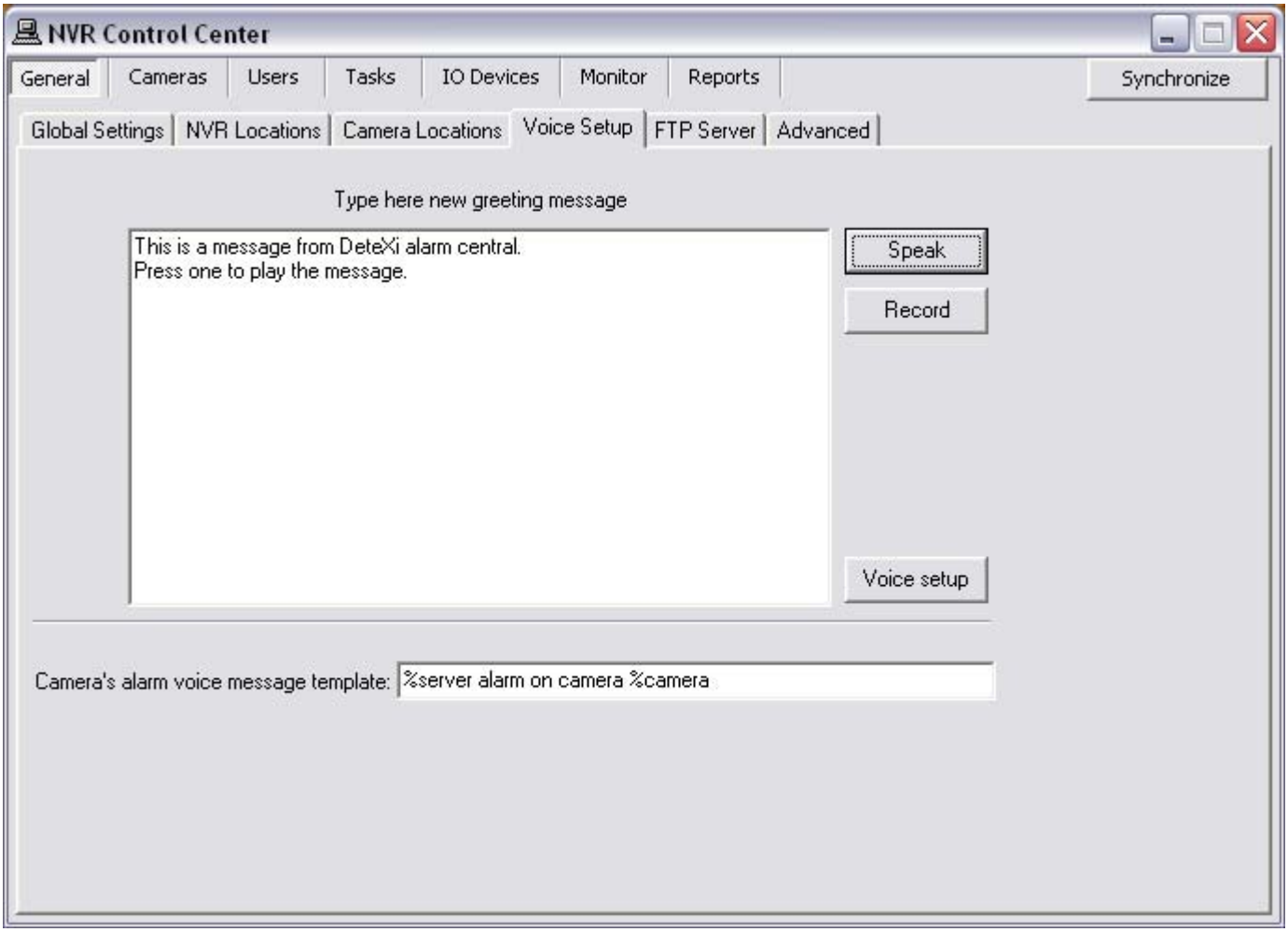


Fig 24. NVR Control Center — General — Voice Setup
(Generate alarm sound files for the cameras, defined in the system.)

- ✓ Sound files will be generated according to the **Camera's alarm voice message template**; the template can be changed
- ✓ The phone greeting message can be changed in the **Type here new greeting message** textbox
- ✓ By pressing the **Speak** button, you can hear the greeting message

Assign Voice Message to a Camera

The default alarm voice message is assigned to a camera automatically. To assign a specific message —

1. In the **NVR Control Center — Cameras** select a camera from the **Cameras List** and switch to the **Security & Alarm** (Fig 25).
2. Select a sub-camera from **Number of Sub-camera** list *(for video servers).*
3. Enter the **Location to Play Message From**, if provided *(for advanced users)*.
4. Check the **Play Alarm** checkbox to activate radio buttons below.
5. Select the **WAV File** radio button to activate the file directory.
6. Choose a sound file you want to play from the directory or select the **Message** radio button and enter a message to be played.

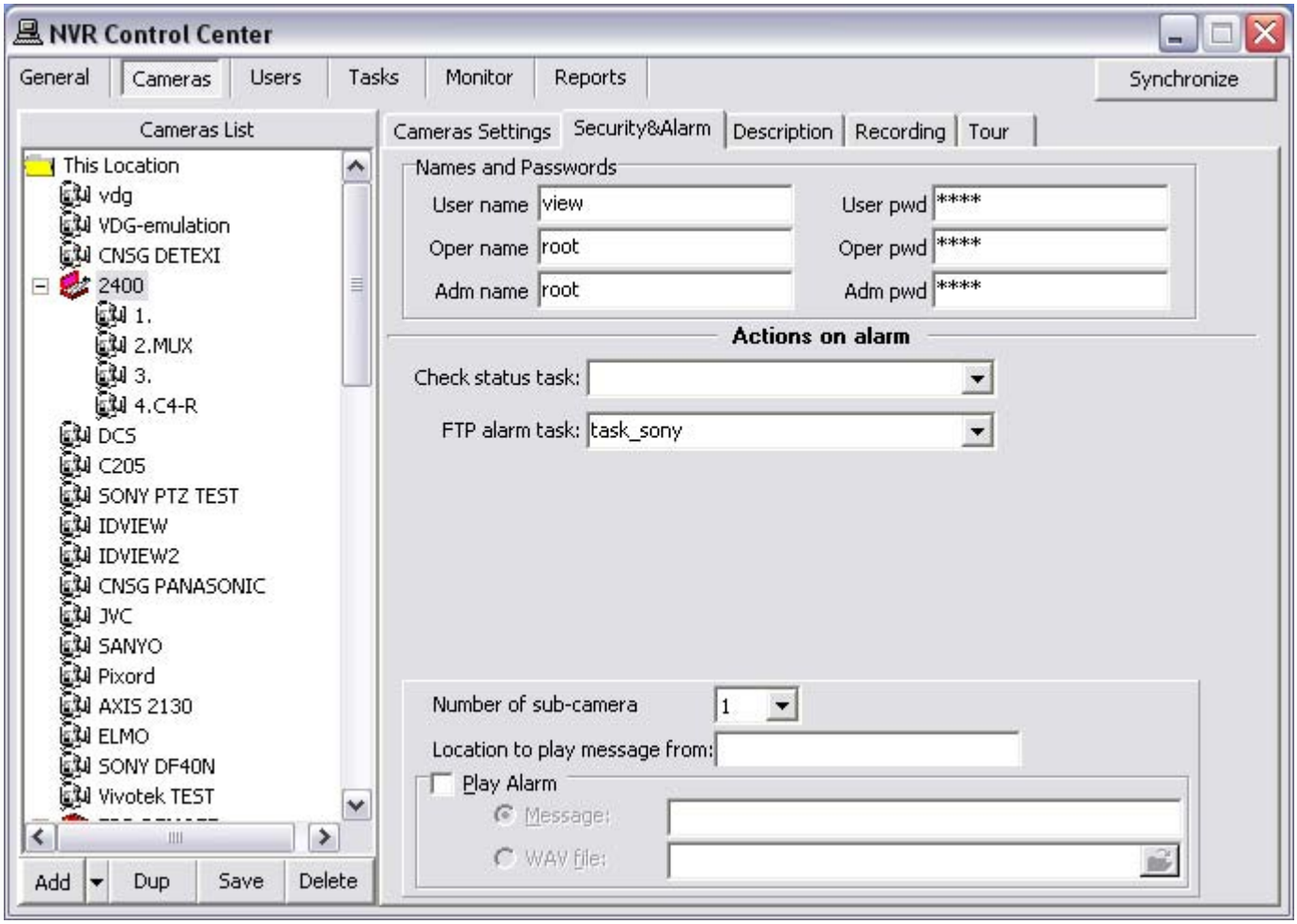


Fig 25. NVR Control Center — Cameras — Security & Alarm
(Assign Voice Message to a Camera.)

5. Configure Voice in Alarm Server Service

The **Alarm Server** service is responsible for raising alarms via the text-to-speech engine, telephone, and e-mail alert notifications; it must be and properly configured and running in order to send alert notifications.

✓ If the NVR is running the **Alarm Server** icon appears in the Windows taskbar tool tray. Double-click the icon to launch the Alarm Server interface. Switch to the **Voice**, or **Phone** configuration.

Voice Configuration

1. In the **Alarm Server — Voice Configuration** select **Voice Type** and **Speed** (Fig 26).
2. By pressing the **Test over speakers** button, you can hear the test message.
3. Select a **Format for writing Wave files** from the list.
4. If you want to change the default alarm message to your own, enter a new message in the **Information for recording to file** textbox and save the file.
5. A specific alarm voice message than can be assigned to a selected camera in the **NVR Control Center — Cameras —Security & Alarm** *(the default alarm message is assigned automatically).*
6. Save changes.

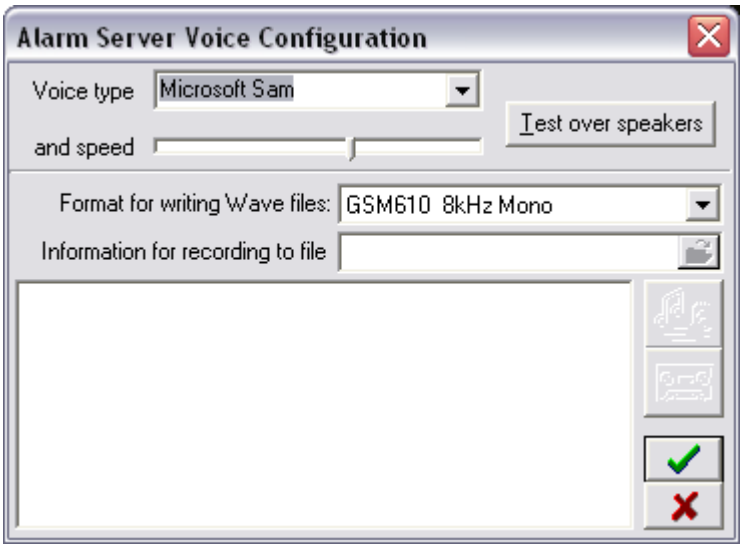


Fig 26. Alarm Server — Voice Configuration
(Configure Voice.)

Phone Configuration

1. Append voice modem hardware.
2. In the **Alarm Server — Phone Configuration** select appropriate sound files and **Waiting delay for answer**.

Fig 26. Alarm Server — Phones Configuration
(Configure Phone.)

Integration

1. Network Camera Input and Output Ports

A unique feature to network cameras and video encoders, in comparison with analog cameras, is their integrated input and output (I/O) ports. These ports enable a network video product to connect to external devices and enable the devices to be manageable over a network. The range of devices that can connect to a network video product's input port is almost infinite. The basic rule is that any device that can toggle between an open and closed circuit can be connected to a network camera or a video encoder. The main function of a network video product's output port is to trigger external devices, either automatically or by remote control from an operator or a software application.

The DETEXI NVR can be easily integrated with different mechanical and electronic security devices. For example, the DETEXI NVR can be instructed to receive video only when the sensor triggers; or a network camera or video encoder connected to an external alarm sensor via its input port can be instructed to FTP video out to the DETEXI NVR FTP Server.

✓ Network camera or video encoder inputs/outputs **must** be defined in the **NVR Control Center — Cameras — Cameras Settings** for the NVR to be aware of external devices connected to the IP device inputs/outputs.

Examples of External Devices That Can Be Connected To the Camera INPUT Port

Device Type	Description	Usage
Door contact	Simple magnetic switch that detects the opening of doors or windows	When the circuit is broken (door is opened), the NVR can take action by sending full-motion video and notifications
Passive infrared detector (PIR)	A sensor that detects motion based on heat emission	When motion is detected, the PIR breaks the circuit and the NVR can take action by sending full-motion video and notifications
Glass break detector	An active sensor that measures air pressure in a room and detects sudden pressure drops (the sensor can be powered by the camera)	When an air pressure drop is detected, the detector breaks the circuit and the NVR can take action by sending full-motion video and notifications

Examples of External Devices That Can Be Connected To the Camera OUTPUT Port

Device Type	Description	Usage
Door relay	A relay (solenoid) that controls the opening and closing of door locks	The locking/unlocking of an entrance door can be controlled by a remote operator (over a network) using Remote DETEXI Client
Siren	Alarm siren configured to sound when alarm is detected	The NVR can activate the siren when motion is detected either using the built-in VMD or using information from the digital input
Alarm/Intrusion system	An alarm security system that continuously monitors a normally closed or open alarm circuit	The network video product can act as an integrated part of the alarm system that serves as a sensor, enhancing the alarm system with event-triggered video transfers

2. Add-ons for the DETEXI NVR

In order to get the DETEXI NVR modules that integrate different mechanical and electronic security solutions such as access control devices, building management systems and industrial control systems an appropriate add-on **must** be installed on the DETEXI NVR — specific license should be purchased.

- **DETEXI NVR–ISONAS Bridge** (dtx-isonas base license) — integration of ISONAS IP proximity card reader-controllers solution
- **DETEXI IP Audio** (audio-gate base license) — integrated two way audio/gate control module
- **DETEXI ICM** (access-control base license) — integrated response to access control information (Paradox panel, I/O PCI Card, Game Port)

DETEXI NVR – ISONAS Bridge

ISONAS Security Systems manufacture panel-free PowerNet IP card reader-controllers bundled with Crystal Matrix Software, which puts real-time control of all door control functions in the hands of authorized security personnel via the convenience of a PC and standard network. DETEXI NVR-ISONAS Bridge module allows users to interact with both ISONAS and DETEXI NVR in order to show events collected from ISONAS system along with correspondent video clips from the DETEXI NVR.

INTERCOMS

DETEXI integrates Digital Acoustics push-to-talk intercoms to provide parking facility communications with remote video monitoring capabilities delivering the timely, accurate information required for effective response. DETEXI software enables multiple operators to simultaneously manage, monitor and communicate on groups of intercoms. Incoming calls are automatically managed based on integrated call queue.

SECURITY PANELS

DETEXI integrates Paradox security panels to provide real-time, automated transmission of the detected threat information (video, audio, data) on available networks to a central monitoring station.

SECURITY CARD READERS

RBH Access Technologies markets its products worldwide through an international network of security dealers and systems integrators. DETEXI integrates RBH security card reader into a single security management system for modern buildings.

Reliability System

The DETEXI IP-Surveillance is powered by the state-of-the-art software and the latest technology. There are many user manageable layers that the system has to rely upon. This makes the DETEXI system very scalable and easy to adjust for your own purposes, but on the other hand it exposes many potential network fail points if the system is not set up correctly. In the default setup the DETEXI NVR is working in an *unattended mode*, this means it is up to the local administrator to check the status of the programs and related hardware manually. However, in most cases a PC Server accommodating the DETEXI software is in a remote location with no local human interaction, therefore a designated person or persons should be aware of the DETEXI NVR status at any given time. You may not need the recorded video for weeks or even months, but if something happened (camera failure, power failure, network failure etc.) during that time it is possible that the NVR does not have some or any recorded video at all and the required evidence may be lost.

To address these issues and minimize the risk of system failure and associated down-time we have embedded the **DETEXI Reliability System** into our Network Video Management software.

1. Fail Points

There are two major areas where failures can occur — hardware and software failure.

Hardware components used by the DETEXI system include: DETEXI NVR computer by itself or a group of child NVRs in case of domain controller configuration, IP devices— network cameras/video servers, and network connections. All network connections can be classified by their functionality: camera network connections — connections between IP-cameras/video servers and DETEXI NVR; user connections — connections between user's software (Remote DETEXI Client or DETEXI Archive Viewer) and DETEXI

NVR; and Domain Controller connections — connections between the DETEXI NVR Domain Controller and child NVRs.

The DETEXI **software** consists of different modules/services — Monitor, Camera Server, Recorder, FTP Server, Check Drive, Check Alive, Check Alarm, Tour, Get Shots, Port Mapper, Port Listener, Alarm Server, Remote Server, Socket Server. Any of them could fail due to unforeseen events and therefore must be monitored and controlled.

Several areas should be checked constantly to insure that you have a healthy and functioning system:

- Is the NVR running at all (power is OFF or ON)
- Are all selected NVR components running
- Are all cameras with an active schedule functioning and being recorded
- Is there enough space to make a recording
- Are there enough system resources to make a recording
- Is the NVR Domain Controller network and all it's child NVRs healthy and running

2. Task Execution Engine

The DETEXI IP-Surveillance reliability checking is based on the **Task Execution Engine**. If something happens to the system, hardware or one of the DETEXI NVR components, certain task assigned to this event is executed.

What if something happens to the Task Execution Engine by itself?

The obvious conclusion is — you will never have any task executed at all and you will never know that something is wrong with the DETEXI NVR. To solve this issue we have developed a special **NVR Status Task** which (if assigned) is executed once a day at a time you can predefine by yourself. If this task HAS NOT BEEN executed at that time it means you have to check the system.

Tasks to be executed on check status/health consist of predefined tasks — network client notification, E-mail notification, phone notification, speak notification or Execute Program action. Read more in the Event Management section.

- ✓ **Alarm Server** service responsible for raising alarms via the text-to-speech engine, telephone, and e-mail **must** be running and configured in order to send alert notifications.
- ✓ From our point of view it is most likely user will initiate the E-mail notification task or Execute Program action.
- ✓ Before using the e-mail notifications task the necessary settings — **SMTP and e-mail account** settings must be setup in the Alarm Server.
- ✓ The **Execute Program** action allows user to execute any external program and is limited only by your imagination and the resources required to develop it.

Managing Cameras

Network Cameras, Video Servers

The core components of a network video system: the network camera, the video server (encoder) and video management software.
A network camera, often also called an IP camera, can be described as a camera and computer combined into one unit. It captures and sends live images directly over an IP network, enabling authorized users to locally or remotely view, store, and manage video over a standard IP-based network infrastructure.
A network camera has its own IP address. It is connected to a network and has a built-in Web server, FTP server, FTP client, e-mail client, alarm management, programmability, and much more. A network camera operates as an independent server on a network and can be placed wherever there is an IP network connection.

- ✓ In addition to video, a network camera also can support other functionalities such as audio, alarm activation via digital inputs and outputs, and serial communications.

Dome

1. Supported Network Cameras

DETEXI software supports a wide range of network cameras from the world's leading manufacturers and continues to expand the list. *

MANUFACTURER LIST

1.	**AXIS**	10.	**IVAS**
2.	**Convision**	11.	**JVC**
3.	**Detexi**	12.	**LINUDIX**
4.	**D-link**	13.	**MOBOTIX**
5.	**Elmo**	14.	**Panasonic**
6.	**Ernitec (DigiOP)**	15.	**Pixord**
7.	**EverFocus EDR series**	16.	**Sanyo**
8.	**IDView**	17.	**Sony**
9.	**IQinVision**	18.	**Vivotek**

* *Not all manufacturer models are supported. Contact us directly for the details.*

2. Video Servers (Encoders)

A video server (also called video encoder) makes it possible to integrate an analog camera into a network video system without having to discard existing analog equipment. A video server digitizes analog video signals and distributes digital images directly over an IP-based network, turning analog cameras into network cameras. It brings new functionalities to analog equipment and eliminates the need for dedicated equipment such as coaxial cabling, analog monitors and DVRs — the latter becoming unnecessary as video recording can be done using standard PC servers. A video server typically has between one and four analog ports for analog cameras to plug into, as well as an Ethernet port for connection to a network.

Like network cameras, a video encoder contains a built-in Web server, a compression chip, and an operating system so that incoming analog feeds can be converted into digital video, sent, and recorded over a computer network for easier accessibility and viewing.

- ✓ In addition to the video input, a video encoder can also support other functionalities such as audio, alarm activation via digital inputs and outputs, and the control of PTZ (pan, tilt, zoom) mechanisms through serial ports.
- ✓ A video encoder also can be connected to a wide variety of specialized cameras, such as a highly sensitive thermal camera, a miniature camera, or a microscope camera.

✓ Before live video can be viewed in the DETEXI Client a network camera/video server **must** be defined in the **NVR Control Center — Cameras**.

Define Camera / Video Server

The DETEXI NVR supports most network cameras as well as analog to IP video servers (encoders). Before recording can occur or live video can be viewed in the DETEXI Client network camera **must** be defined in the NVR Control Center.

1. In the **NVR Control Center** switch to the **Cameras — Cameras Settings** (Fig 27).
2. Below the **Cameras List** make sure that **Video Server** is chosen as add type from the drop-down list next to **Add** button, then click **Add** button to open blank **Cameras Settings** dialog;
   — or —
   Click **Dup** button to open a copy of selected camera settings for editing.
3. Enter a descriptive name for the camera/video server into the **Name** input field.
4. From the **Type** drop-down list, choose camera type.
5. Type camera IP address and port number into **Address** input fields.
6. If camera is already installed, click **Determine camera driver** button to allow the NVR auto-configure the driver to be used for communication.
7. If camera has Pan/Tilt/Zoom capabilities, **With PTZ** checkbox **must** be checked to enable them in the NVR and Client.

8. Switch to the **Security & Alarm** to setup security settings.
9. Click **Save** button to save camera settings.

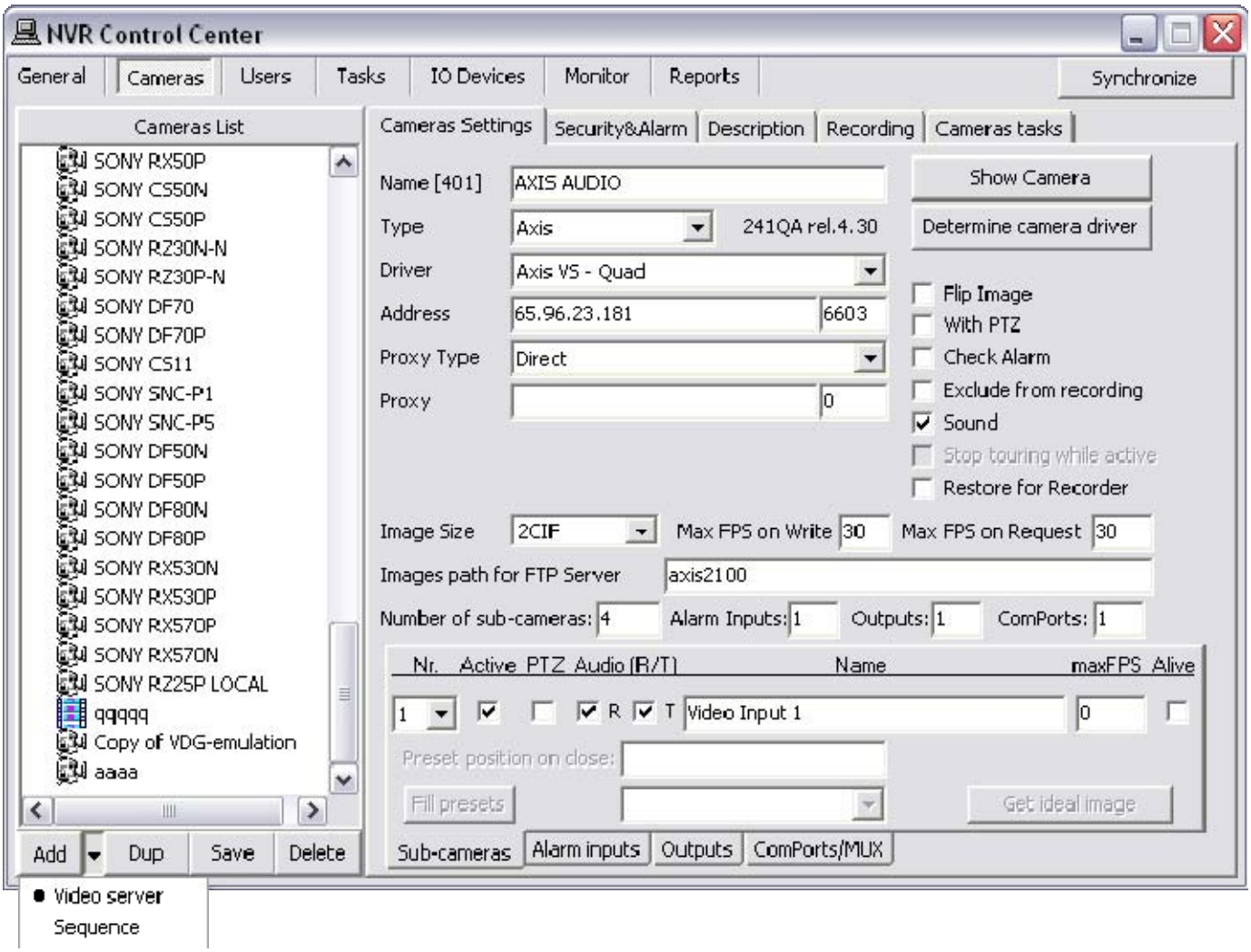


Fig 27. NVR Control Center — Cameras — Cameras Settings
(Define camera/video server in the DETEXI NVR.)

- ✓ Auto-configured camera driver gives the NVR **more specific** information about the camera enabling better resolution and bandwidth control. If you choose the driver from **Type** drop-down list, the resolution information will be more generic and bandwidth control will not be as efficient.
- ✓ There **must** be direct access to the network camera IP Address and Port from the NVR. Make sure any personal and hardware firewalls between them allow for **bi-directional** communications for this IP Address and Port.

Define Camera Security Settings

1. In the **NVR Control Center — Cameras** with the camera selected switch to the **Security & Alarm**.
2. Under the **Names and Passwords** enter usernames and passwords. They should match the users that are defined within the camera (Fig 28).
3. In most cases, camera will only have one username and password by default, with administrative privileges; in this case enter **Adm name** and **Adm pwd** accordingly.
4. Click **Save** button to save settings under the **Cameras List**.

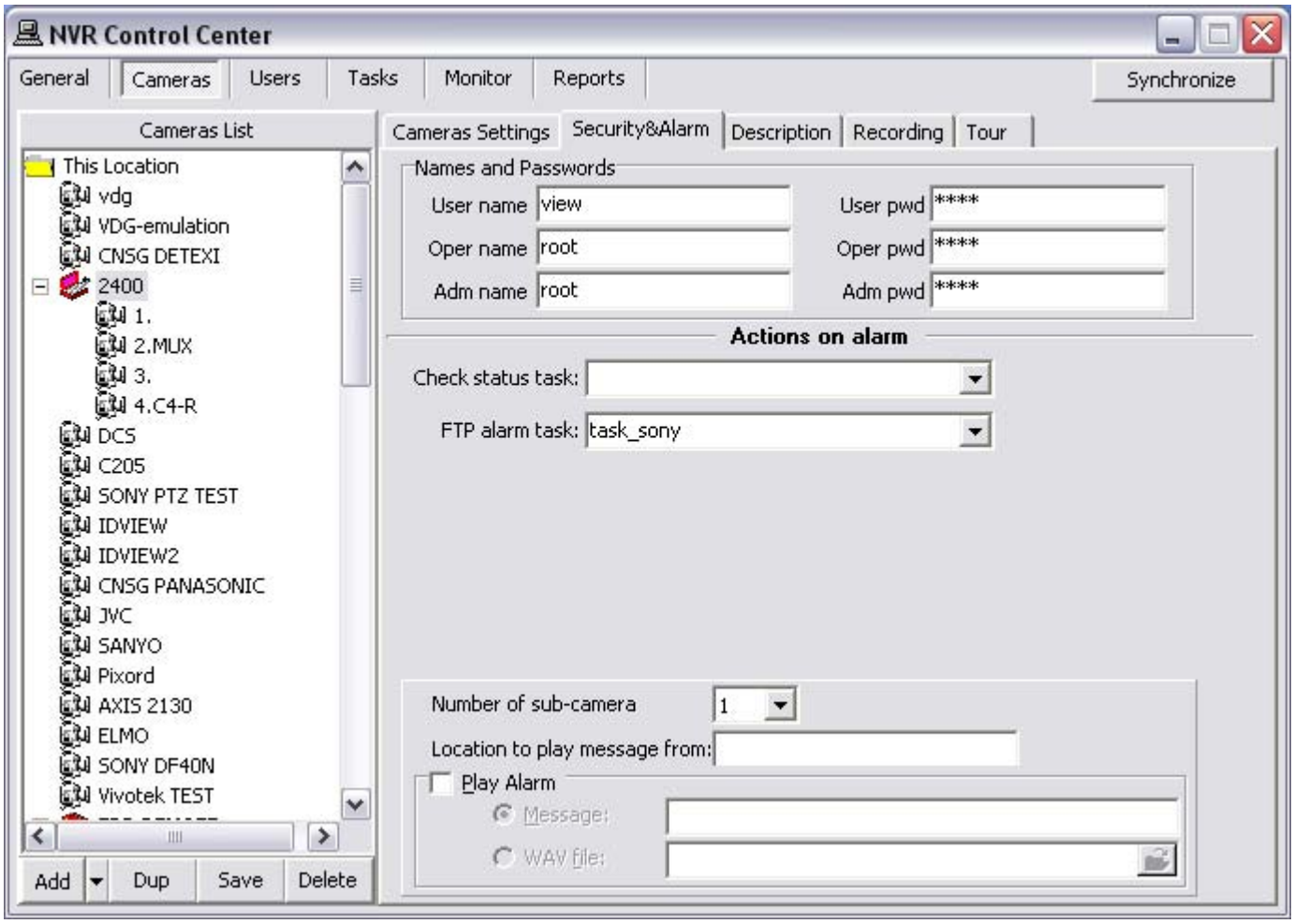


Fig 28. NVR Control Center — Cameras — Security & Alarm
(Camera security settings.)

- ✓ Usernames and passwords are **case sensitive**!
- ✓ In most cases, the cameras have only one username and password, with administrative privileges.

Camera Description

It is really important to give a camera full and meaningful description. When an alarm event occurs, the information will be used to provide specifics to a **real-time operator**.

1. In the **NVR Control Center — Cameras** with the camera selected switch to the **Description**.
2. Enter the required information (Fig 29).
3. Click **Save** button to save settings under the **Cameras List**.

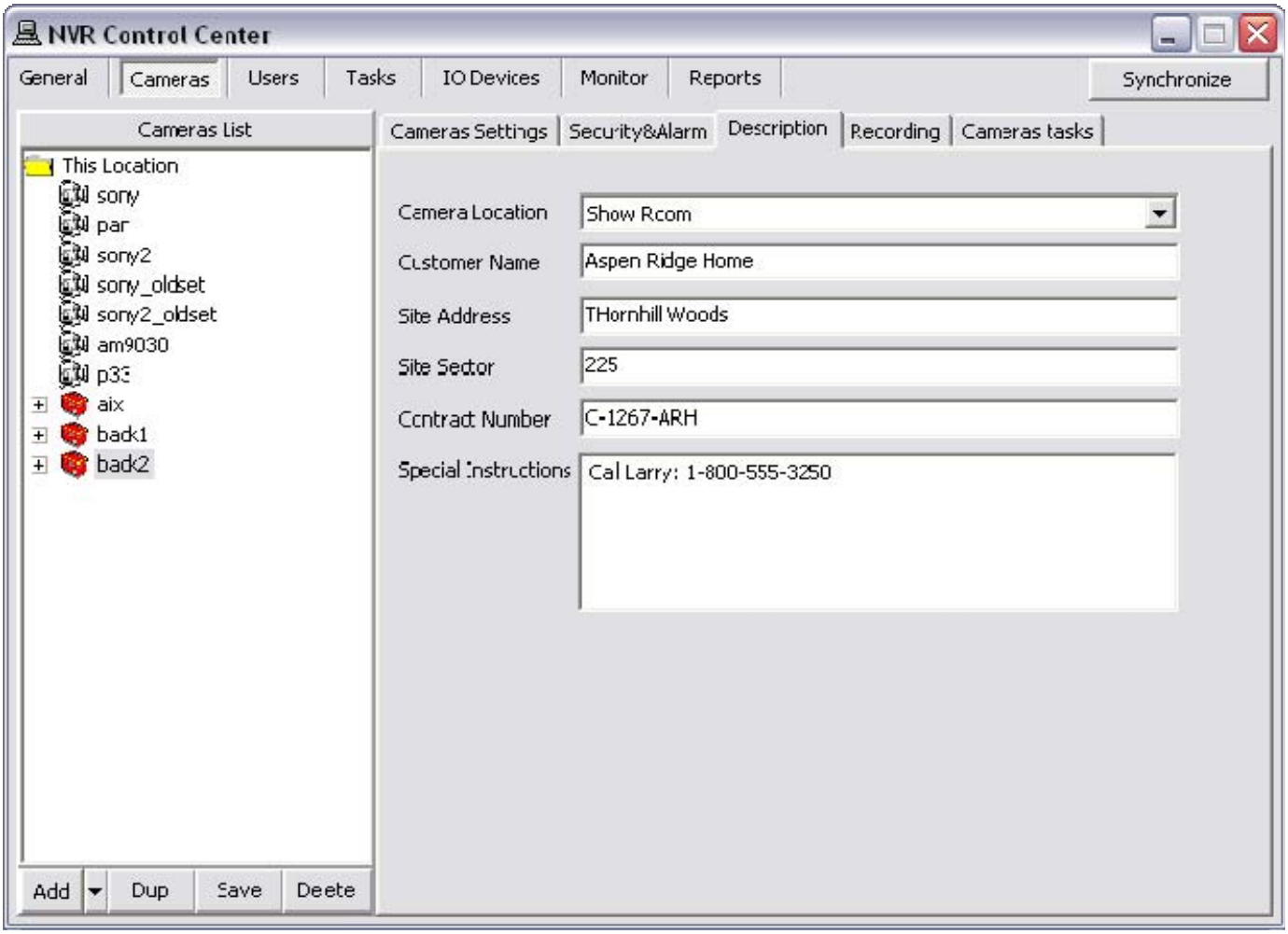


Fig 29. NVR Control Center — Cameras — Security & Alarm
(Camera Description.)

Sorting Cameras in the Cameras List

To sort the cameras in the Cameras List in your result set:

1. In the **NVR Control Center — Cameras** with the camera selected double-click on the top bar of the **Cameras List** — the bar will accommodate **Move Down**, **Save cameras order**, **Cancel** and **Move Up** buttons (Fig 30).
2. Select a camera to move and use **Move Down/Move Up** buttons to change the order.
3. Click **Save Cameras Order** button to save the order or **Cancel** to return to the previous order.

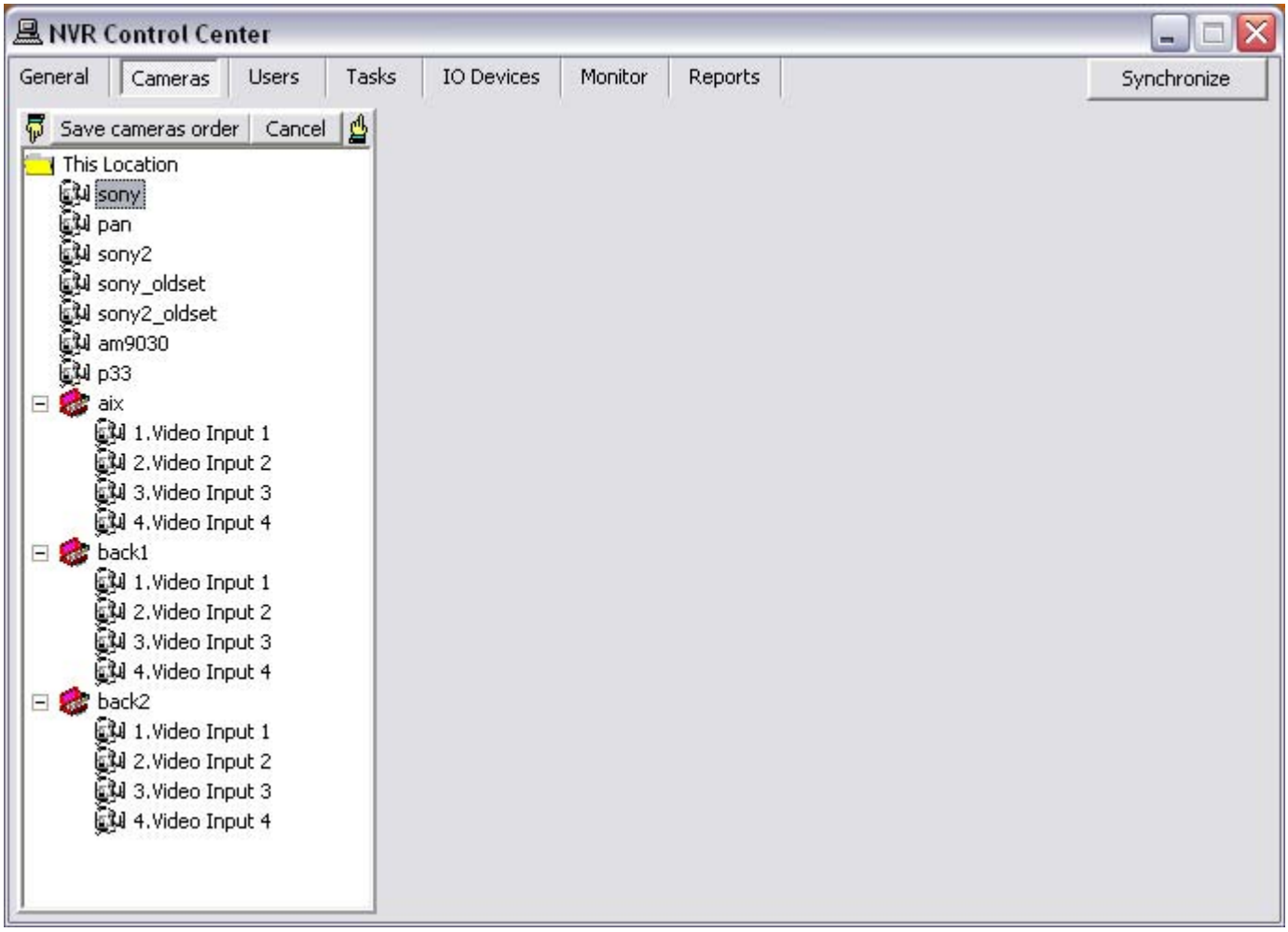


Fig 30. NVR Control Center — Cameras
(Sorting Cameras in the Cameras List.)

Camera Location Map

Additional NVR feature is camera location mapping, which overlays camera icons that represent the locations of cameras on a map of a building or area. To easily select a camera, camera icons will be placed on a map that is imported into the NVR. Using a mapping functionality, finding the right camera becomes very intuitive.

1. Create New Camera Location

1. In the **NVR Control Center — General — Camera Locations** click **Add** button under the **Cameras Locations** list (Fig 31).
2. Enter a new **Location Name** and click **Load Map Image** button to choose a map file.
3. When the location map file is selected — **Set Map Elements** button appears. Click the button to place cameras icons on the map.

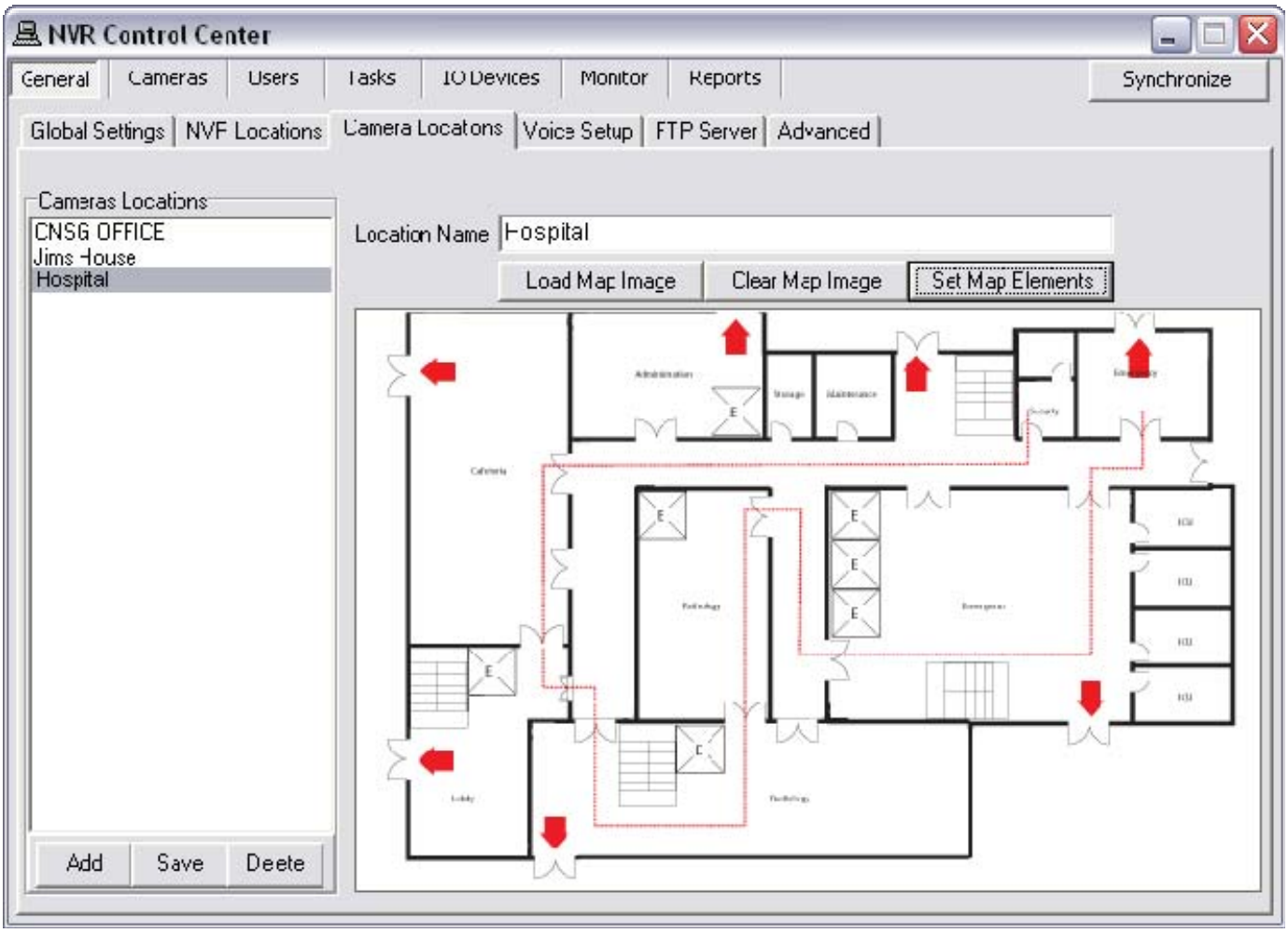


Fig 31. NVR Control Center — General — Camera Locations
(Add Cameras Location.)

✓ The map file can be a photo or a drawing in a standard image format such as JPG, GIF, or PNG.

2. Set Map Elements

Clicking the **Set Map Elements** button launches the **Map** page allowing for users to select a camera from the NVR **Cameras List** and place a camera icon anywhere on the selected map (Fig 32).

1. Drag and drop on the map a *camera name* from the list — a camera icon will appear on the map.
   - ✓ The selected camera excludes from the available cameras list.
   - ✓ To change camera icon to one of 4 available images select Image from the **right-click menu**.
   - ✓ To change icon size select Image Size from the **right-click menu**.
   - ✓ Click **Show** Info to show camera name next to the icon.
2. Click **Save&Close** button to save cameras location map and close the **Map** page.
3. Click **Save** button under the **Cameras Locations** list.

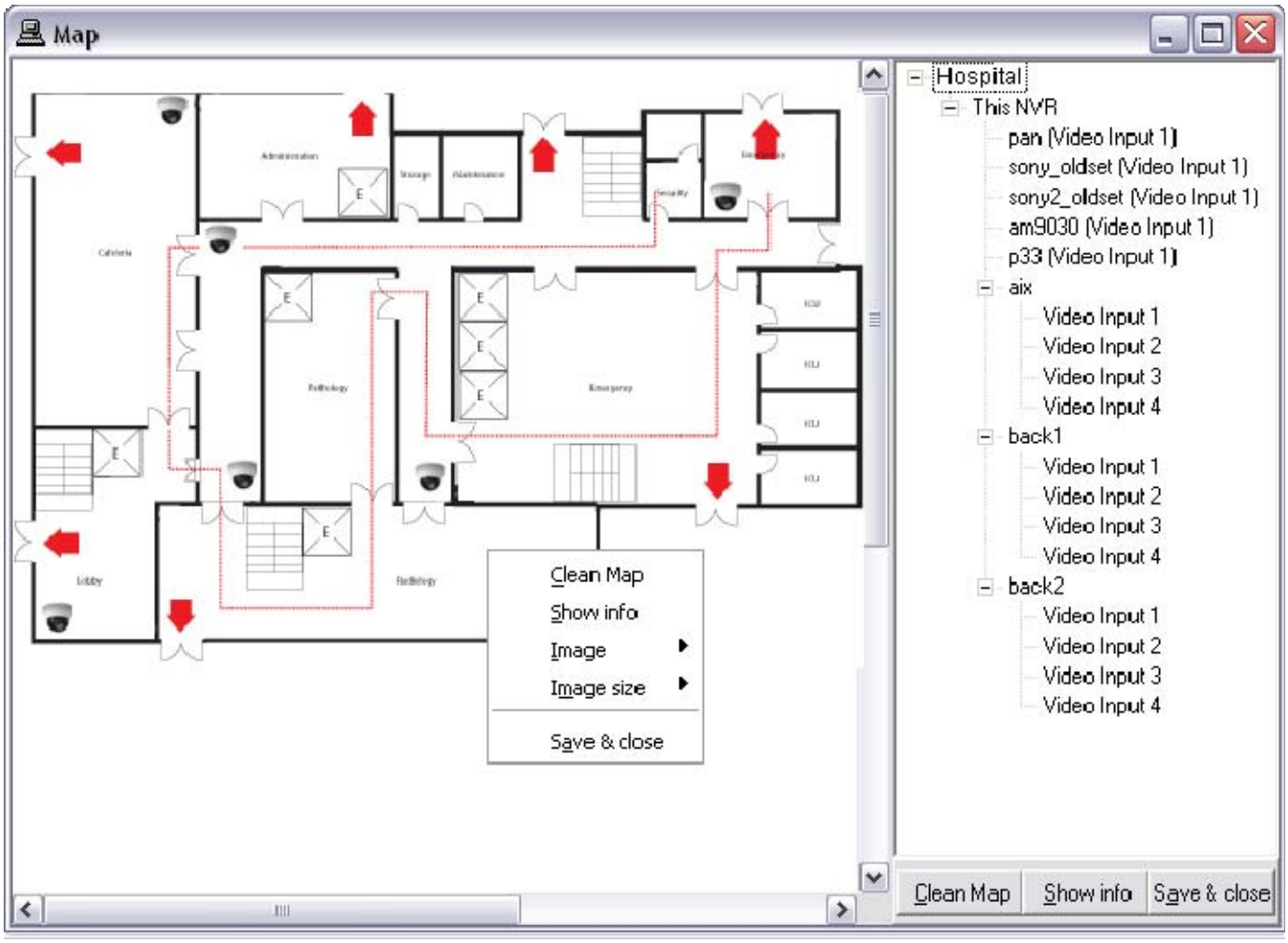


Fig 32. NVR Control Center — General — Camera Locations
(Set Map Elements.)

3. Select Camera Using Location Map

To easily select a camera, camera icons are placed on a map that is imported into the NVR. Using a mapping functionality, finding the right camera becomes very intuitive.

Launch Map Page

1. On the DETEXI Client Start Page click **Map** button to launch a MAP page allowing for users to browse and select cameras by location on one or more maps (Fig 33).

- ✓ The button is only visible if at least one map location is configured in the NVR with at least one camera assigned to it.
- ✓ In the Remote Client cameras **available** in the cameras list and/or maps will depend upon the user logged in **permissions**.

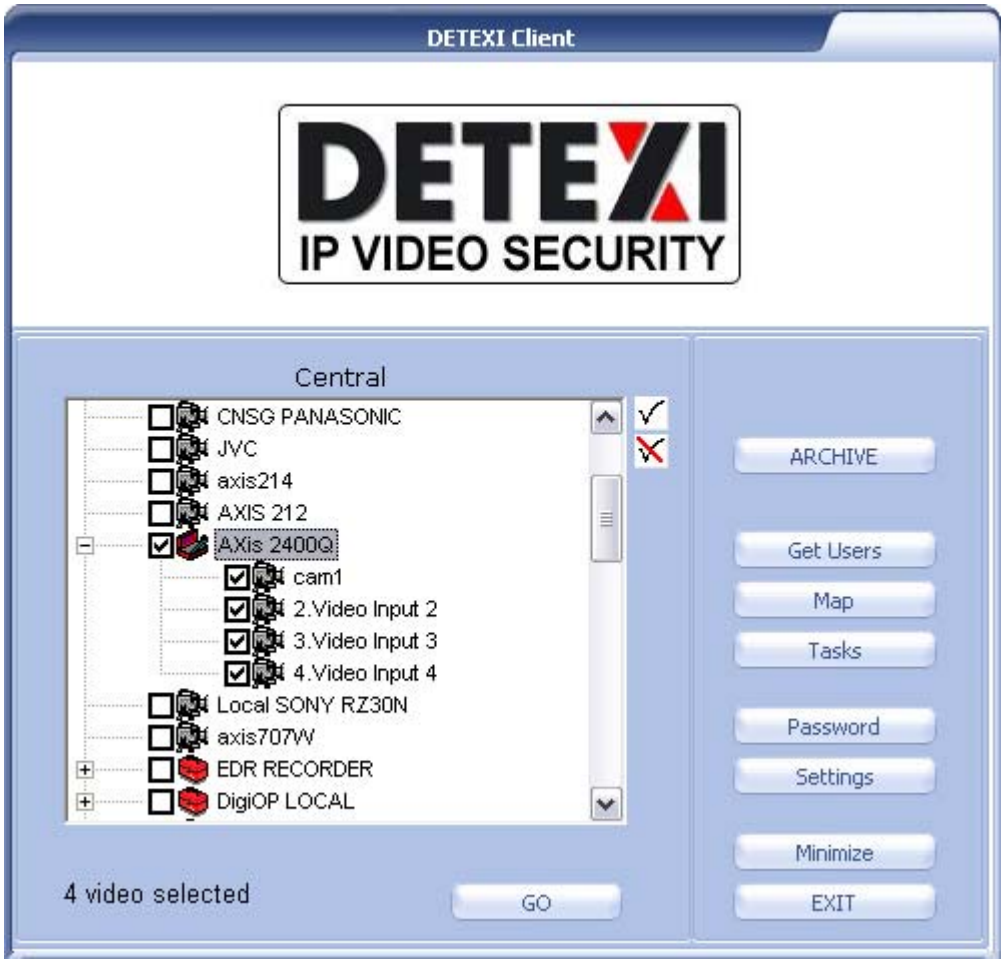


Fig 33. DETEXI Client — Start page
(Map Button.)

Select Camera(s)

2. Select a location map from the **top right** list. The **Cameras** list is also provided *(cameras, positioned on the selected map)* (Fig 34).
3. To launch a single camera live view — click on a camera on the map.
4. To launch multi-cameras live view — holding **Ctrl** key click on any number of cameras on the map to select/deselect multiple cameras.
5. Then click **Launch selected cameras** button below the **Cameras** list.

- ✓ Holding **Ctrl** key multiple cameras from the list can be selected.
- ✓ Multiple cameras from the map and from the Cameras list can be selected **simultaneously**.

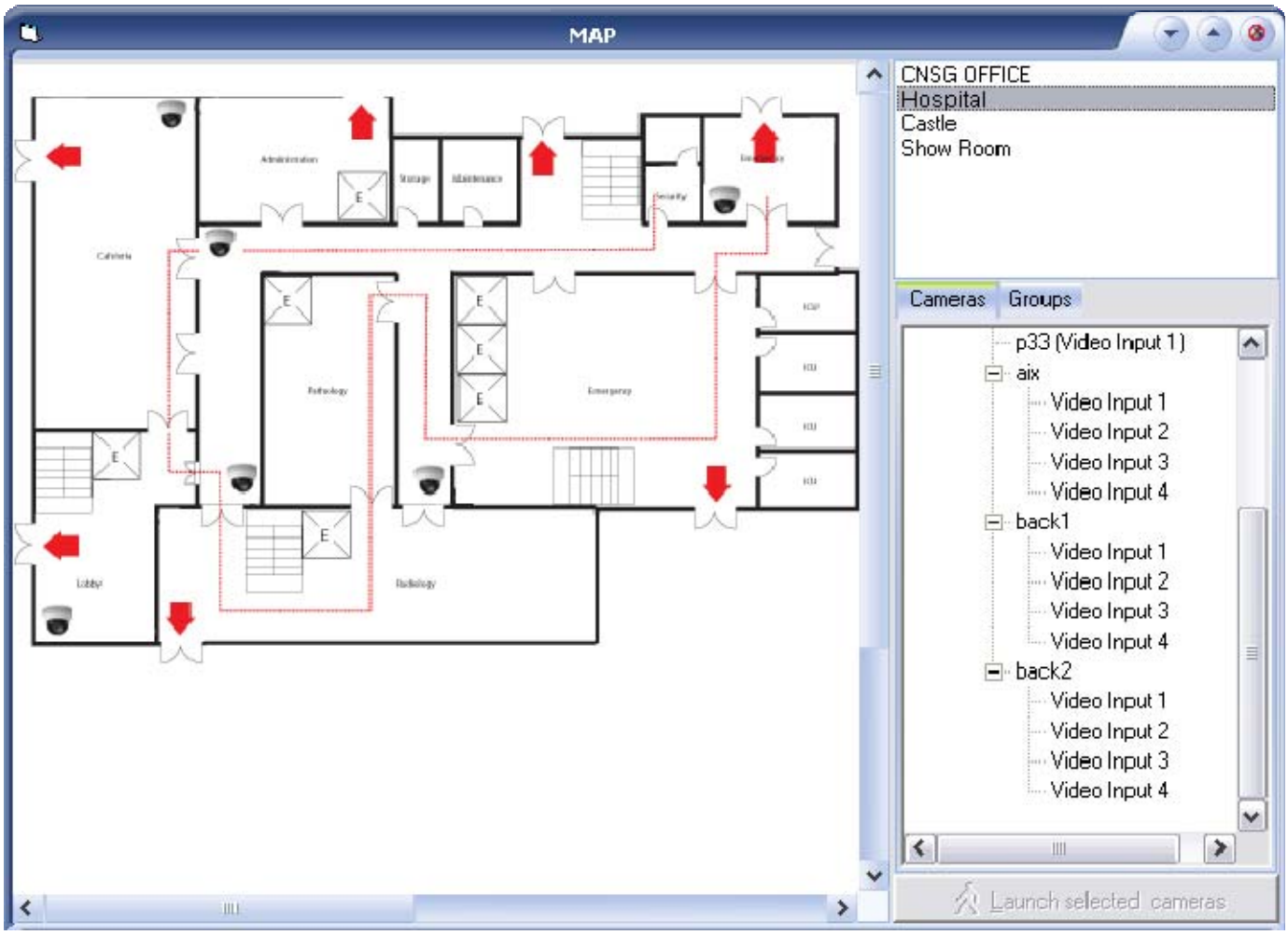


Fig 34. DETEXI Client — Map Page
(Select Cameras.)

Configure Camera Tour

A tour enables PTZ camera to automatically move from one pre-configured position to the next in a predetermined order. The viewing time between one position and the next is configurable. Different tours also can be set up and activated during different times of the day.

1. Add Tour to PTZ Camera Configuration Settings

1. In the **NVR Control Center — Cameras** select a PTZ camera from the **Cameras List** and switch to the **Tour — Setup Tour** — connection will be established (Fig 35).
   - ✓ This connection is temporary and allows the camera's tour settings to be configured and tested. If connection failed reconnect by clicking the **Reconnect** button.
2. **Show Locally** checkbox can be check to connect to the camera using local IP address and port number *(during configuration time only)*.
   - ✓ **Show Locally** checkbox is only visible if camera has both an internal and external connections configured in the **NVR Control Center — Cameras — Cameras Settings**.
   - ✓ Press **Add** button below the tours list and enter **Tour Name** when asked — the name appears in the list.

3. In order to change the camera position you can —
   - ✓ Click anywhere on the image to pan, tilt camera
   - ✓ Enter **Zoom** value and press **Zoom** button to zoom camera in/out
   - ✓ Press **Home** button to set camera in a home position
   - ✓ Enter **Pan**, **Tilt**, and **Zoom** values or select a preset position from **Preset** drop-down list and press **Goto Preset/PTZ** button (no value equal 0).
4. To add a new position to the tour — click the **Add** button below the positions list and enter **Stay in this position for (sec)** when asked — the name appears in the list *(position will be named based on the defined settings).*
5. If more than 2 positions were added the **Build Loop** button activates. Click the **Build Loop** button to add a backward camera positions to the tour.
6. Click the **Test Tour/Stop Tour** toggle button to test new tour *(click once more to stop)*.
7. Press **Save** button below the tours list to save the tour.

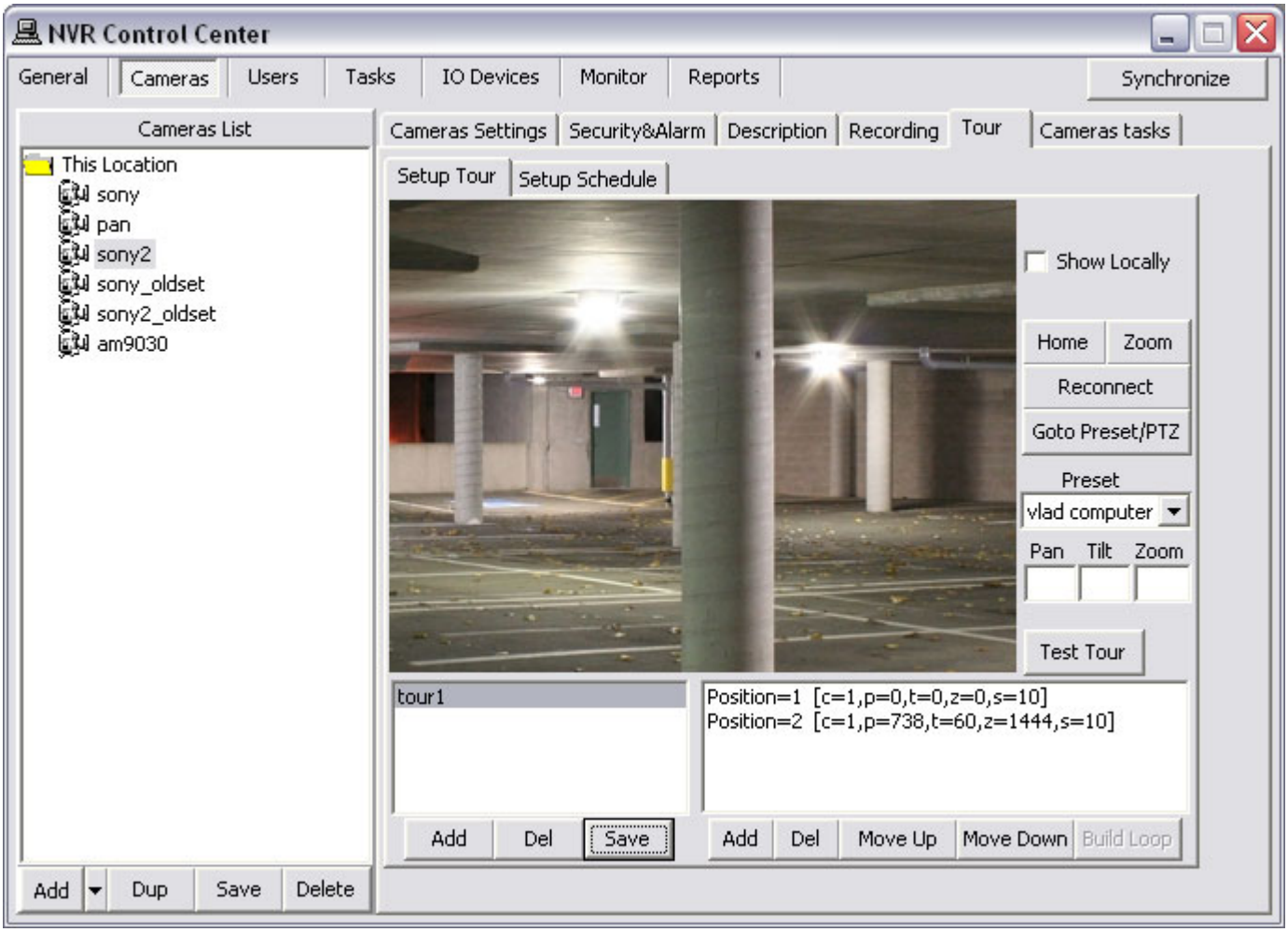


Fig 35. NVR Control Center — Cameras — Tour
(Configure Tour.)

2. Setup Tour Schedule

After one or more tours were configured for the camera you can also schedule what tours (if any) should be activated during different days of the week and times of the day.

1. In the **NVR Control Center — Cameras** select a PTZ camera from the **Cameras List** and switch to the **Tour — Setup Schedule** (Fig 36).
2. Press **Add** button below the schedules list to add a new schedule.
3. Leave **No Time Restrictions** radio button **selected**, and leave all days of the week checkboxes **checked** to configure a 24/7 continuous touring;
   — OR —
   Select the **Restricted Between** radio button and define a time range **FROM - TO** and leave proper days of the week **checked** to have the tour repeated these days only.
4. Select a predefined tour from the **Tour** drop-down list the schedule will be applied to.
5. **Check** **Use locally (without Proxy)** checkbox to connect to the camera using local IP address/port number during touring *(optional)*.
   - ✓ The checkbox is only visible if the camera has **both** an internal and external connections configured in the **NVR Control Center — Cameras — Cameras Settings**.
6. Press **Save** button below the schedules list to save the schedule.
7. Repeat the steps to add more schedules and save.

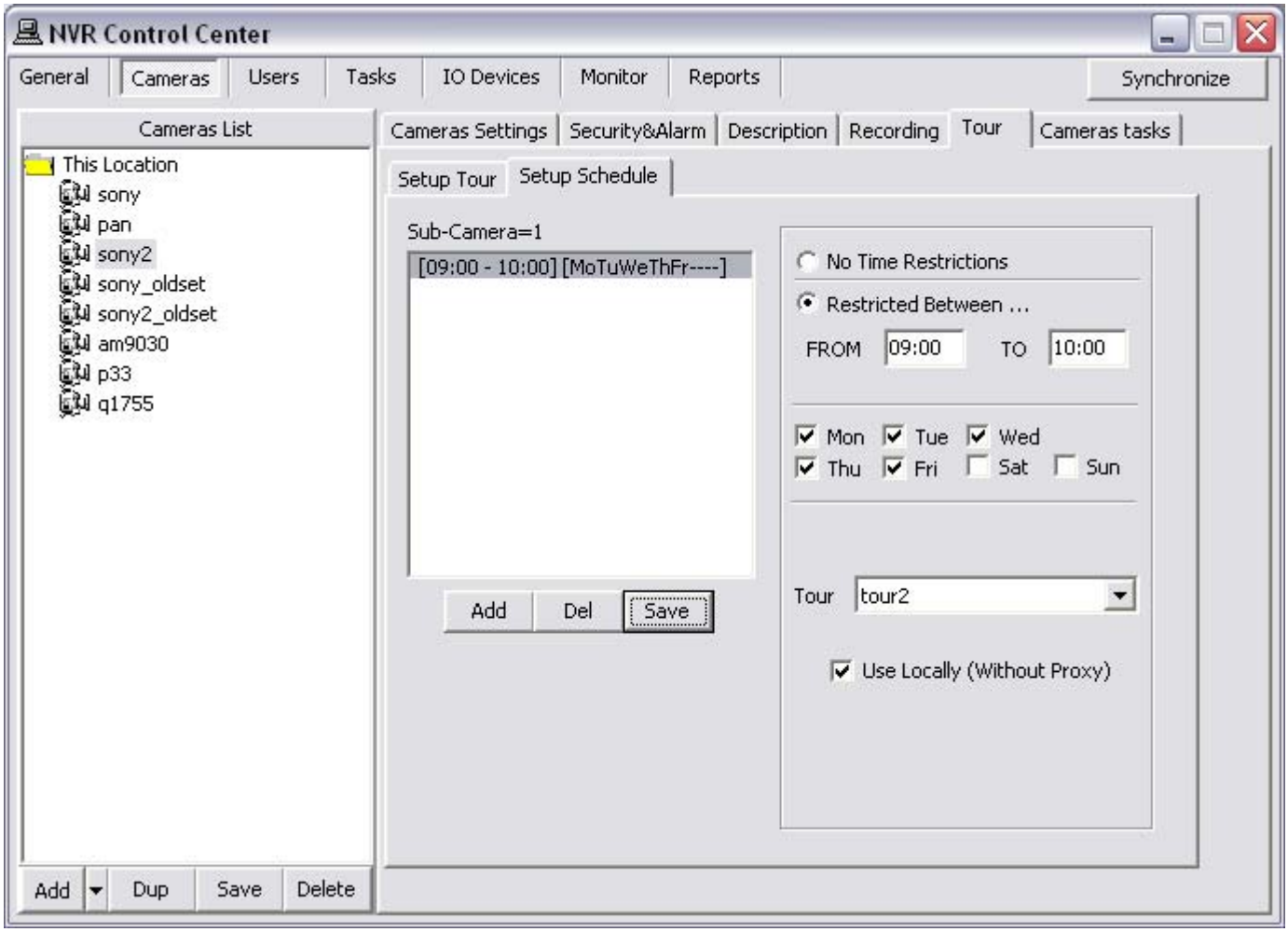


Fig 36. NVR Control Center — Cameras — Tour
(Configure Tour.)

- ✓ The DETEXI NVR **Tour** service should be running and monitored by the Monitor service in order to enable cameras touring. All NVR services are visible and configurable in the NVR Control Center — Monitor.
- ✓ Tour service moves PTZ cameras through a predefined series of locations according to defined schedules or on alarms or events.
- ✓ Saved schedule will be **named** based on the settings defined within it.

Group of Cameras

1. Setup Group of Cameras

Each user can organize the cameras this user has access to into meaningful groups for more effective camera selection.

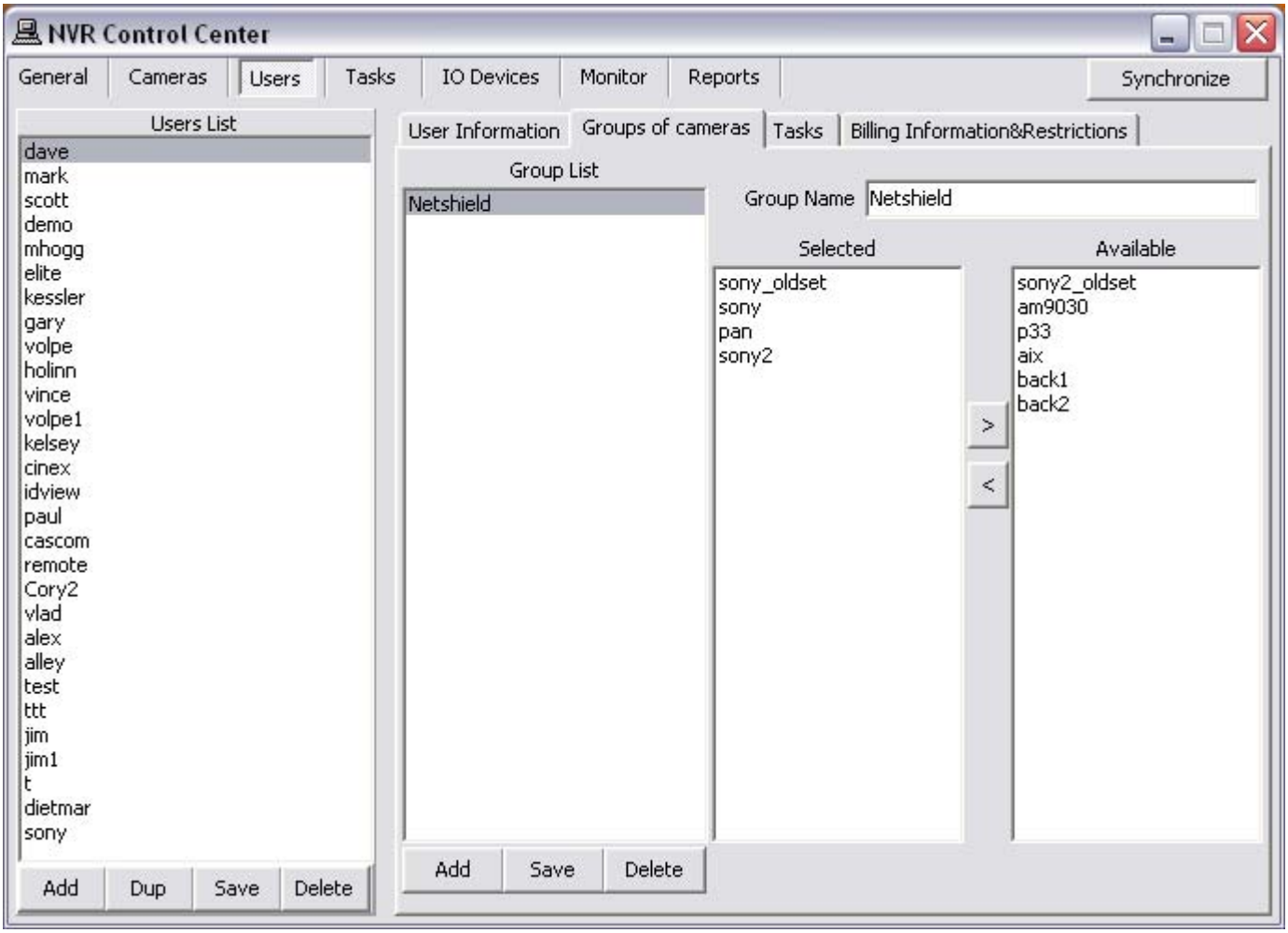


Fig 37. NVR Control Center — Users — Groups of Cameras
(Setup Group of Cameras.)

1. In the **NVR Control Center — Users** select a user from the **Users List** and switch to the **Groups of Cameras** (Fig 37).

2. Press **Add** button below the **Group List** and enter **Group Name** — the name appears in the list.
3. Select a camera from the **Available** cameras list and click "**<**" button to add the camera to the **Selected** cameras list.
4. Press **Save** button below the **Group List** to save the group.

2. Select Group of Cameras

In many cases where there is a cameras list the groups list will also be provided, for example, in the DETEXI Client start page.

Fig 38. DETEXI Client — Start Page
(Select Group of Cameras.)

1. In the **DETEXI Client — Start Page** select a group from the top list to see the cameras from this group only (Fig 38).
2. Select a camera from the cameras list.
   - ✓ In the Remote Client the cameras available in the start page cameras list will depend upon the user logged in **permissions**.
3. Click **GO** button to launch the camera live view.

Configure Sequence of Cameras

Sequence can be considered as a virtual IP-device video input that consists of sequence of multiple video inputs with configurable order and execution. Any sequence is created by compiling IP-devices' video inputs configured within the DETEXI NVR into a series of positions. Each position can contain one or more video inputs, splitting the screen if necessary to show all chosen video streams at once. Sequence can be used in any way that a normal IP-device can —

- Sequences will show in the **Cameras List** for selection like a normal camera/ video server.
- Sequences can be viewed in the Live View (Single or Multi-camera).
- Sequence can be used as a carousel feature with the 1+5 or 1+11 multi-camera view, with the sequence in the hot spot cycling through the rest of the cameras organized around the large spot.

1. Add New Sequence

1. In the **NVR Control Center** switch to the **Cameras** (Fig 39).
2. Below the **Cameras List** make sure that **Sequence** is chosen as add type from the drop-down list next to the **Add** button, then click **Add** button to open a blank **Cameras Settings** dialog.

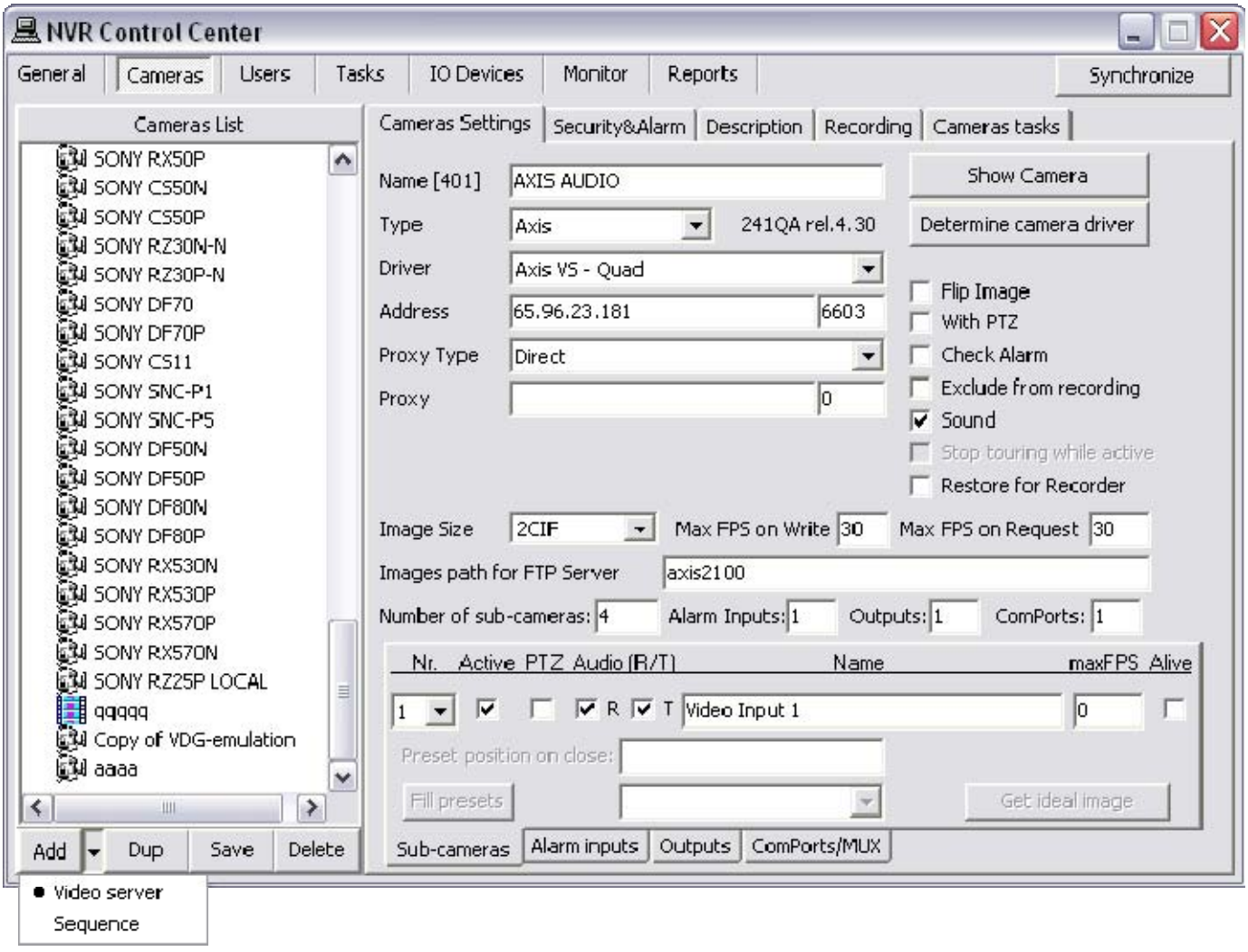


Fig 39. NVR Control Center — Cameras — Cameras Settings
(Add a New Sequence.)

2. Name Sequence, Add Position

1. In the **Cameras Settings enter** the sequence **Name** (Fig 40).
2. Check **Repeat** checkbox to **loop** the sequence. **Leave time(s)** as **0** for the sequence to loop infinitely. You may also want to define **with FPS** for the video streams to be displayed at.
3. Right-click in the white box and choose **Add Position** to add the first position in the sequence. Define a **Dwell time**, as how long this position will be displayed before moving on to the next.

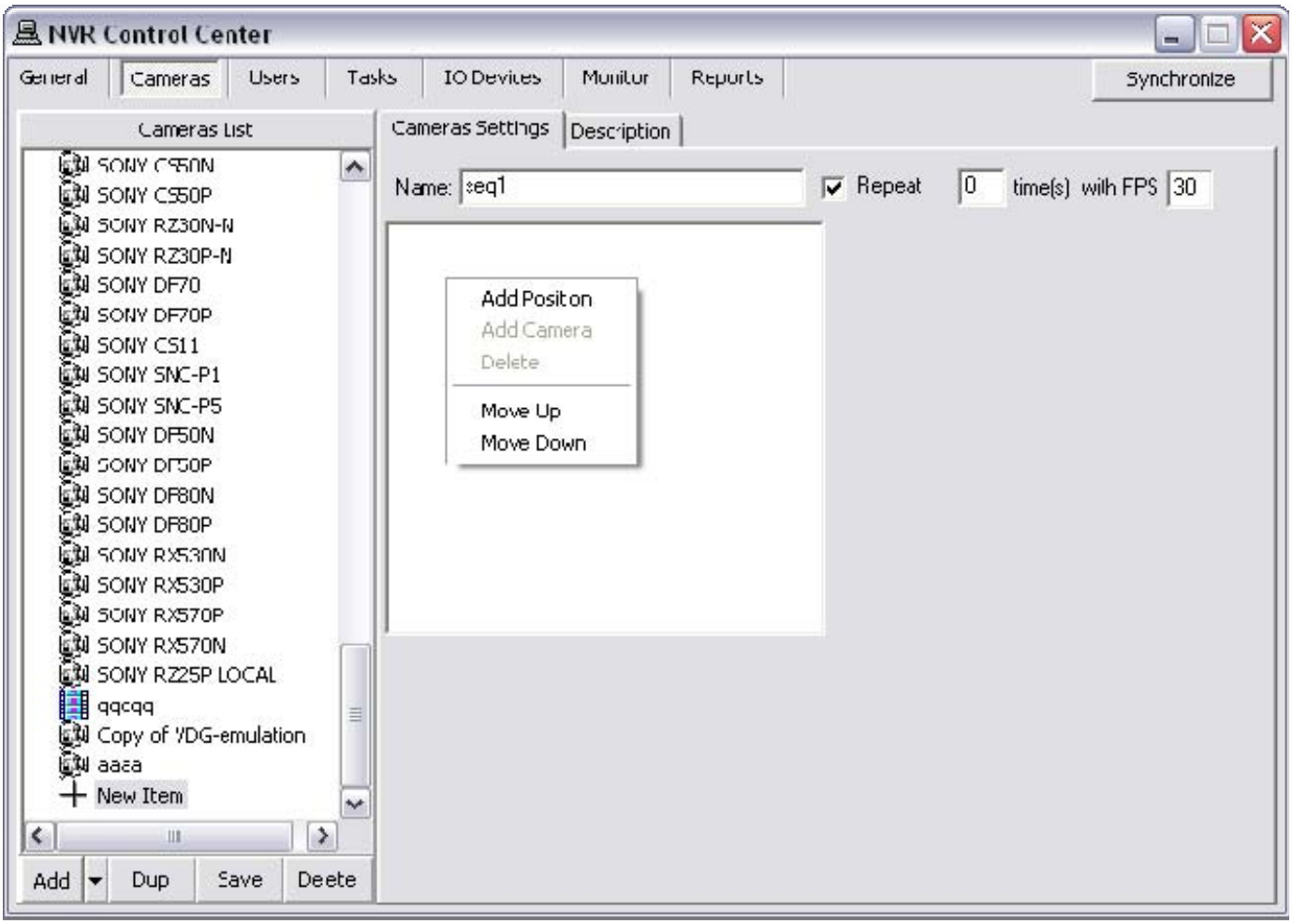


Fig 40. NVR Control Center — Cameras — Cameras Settings
(Name, Add a New Position.)

3. Define Cameras

3. **Right-click** on the position item and choose **Add Camera** to add a video stream to the sequence position (Fig 41).
4. Choose a desired camera from the list, and define image quality.
   - ✓ If the camera is PTZ, you may define PTZ coordinates to move the camera to when it loads.
   - ✓ If you would like to choose a predefined preset, click the **Connect** button to the right to populate the preset list. This would also bring live video in from the camera. .

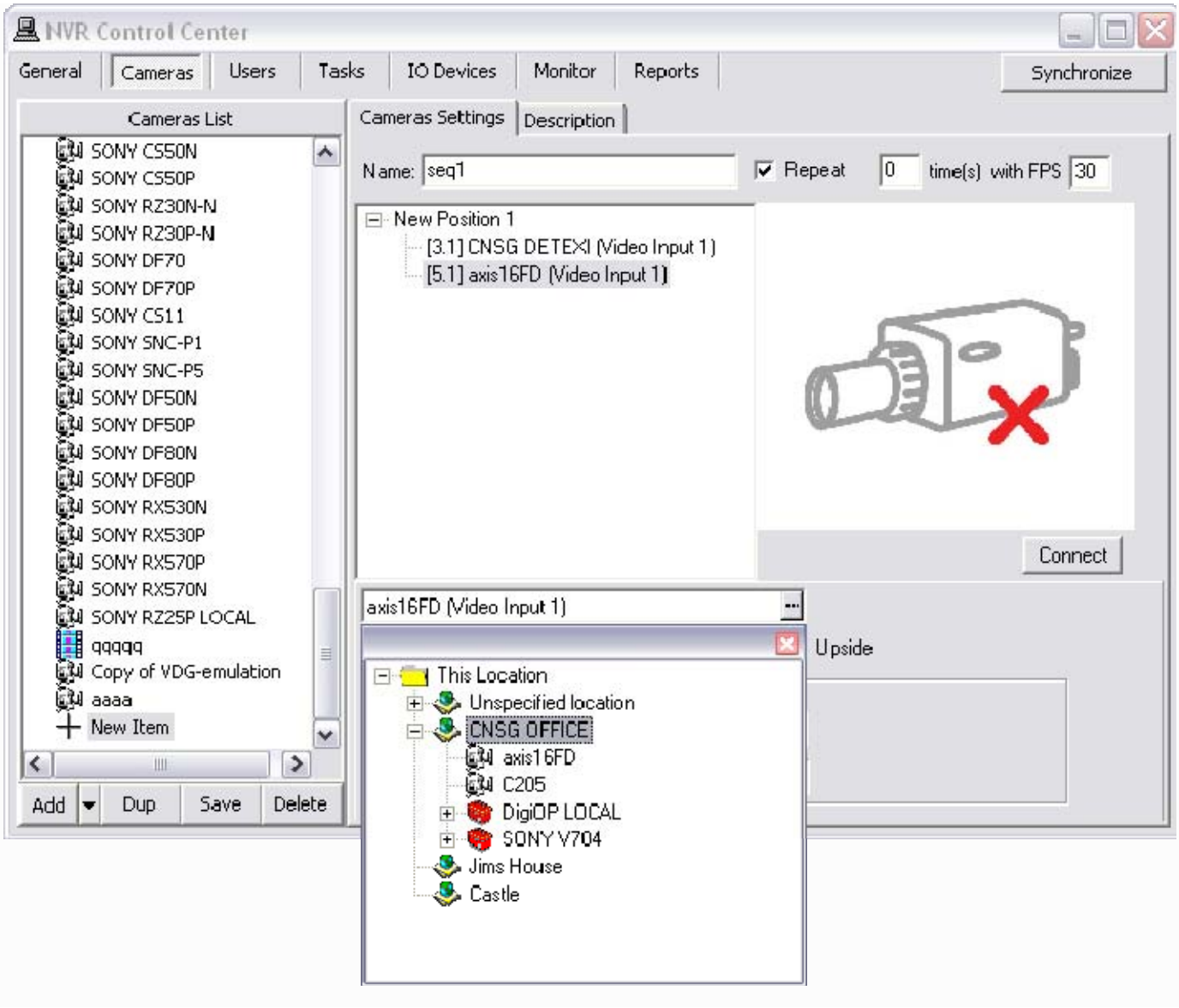


Fig 41. NVR Control Center — Cameras — Cameras Settings
(Define Camera.)

✓ Click **Connect** button to connect to the selected camera. This connection is temporary and allows the camera's sequence settings to be configured and tested.

4. Add More Cameras / Positions

5. Add more cameras to the sequence position if necessary — repeat steps 6-7 (Fig 42).
6. Add more positions to the sequence — repeat steps 5-8 until all desired positions are created.
7. Click **Save** button below the **Cameras List** to save new sequence.

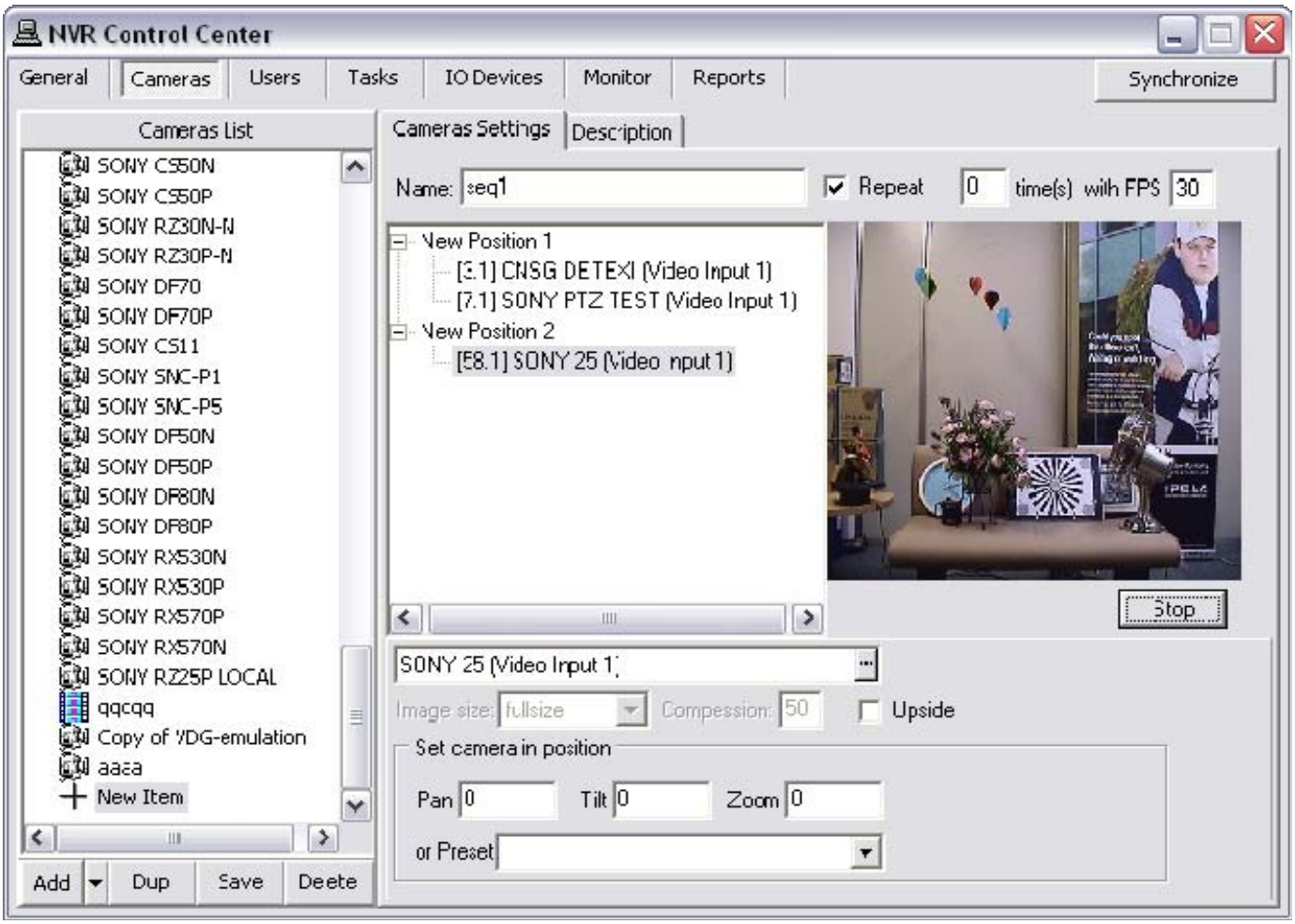


Fig 42. NVR Control Center — Cameras — Cameras Settings
(Add More Cameras / Positions.)

5. Assign Permissions

When the sequence is created the next step is to define which users will have access to this sequence in the Remote DETEXI Client. Permissions for a sequence are set exactly as they are for camera/video server.

1. In the **NVR Control Center — Users** select a user from the **Users List** (Fig 43).
2. In the **User Information** select a sequence from the **Cameras List** **at the left** and click "**>**" button to add the permission to the user — the sequence name appears in the selected cameras list **at the right**.
3. Select the sequence in the selected cameras list at the right.
4. Check proper checkbox under the **User Rights** to pass the previously configured camera authentication settings — **Adm**, **Oper** or **User**.
5. **Check** **Can PTZ** checkbox below the selected cameras list to give the user PTZ permission on the selected camera. This setting is **enabled by default** if the camera has PTZ capabilities when assigned to the user.
6. Click **Save** button below the Users List to save user settings.

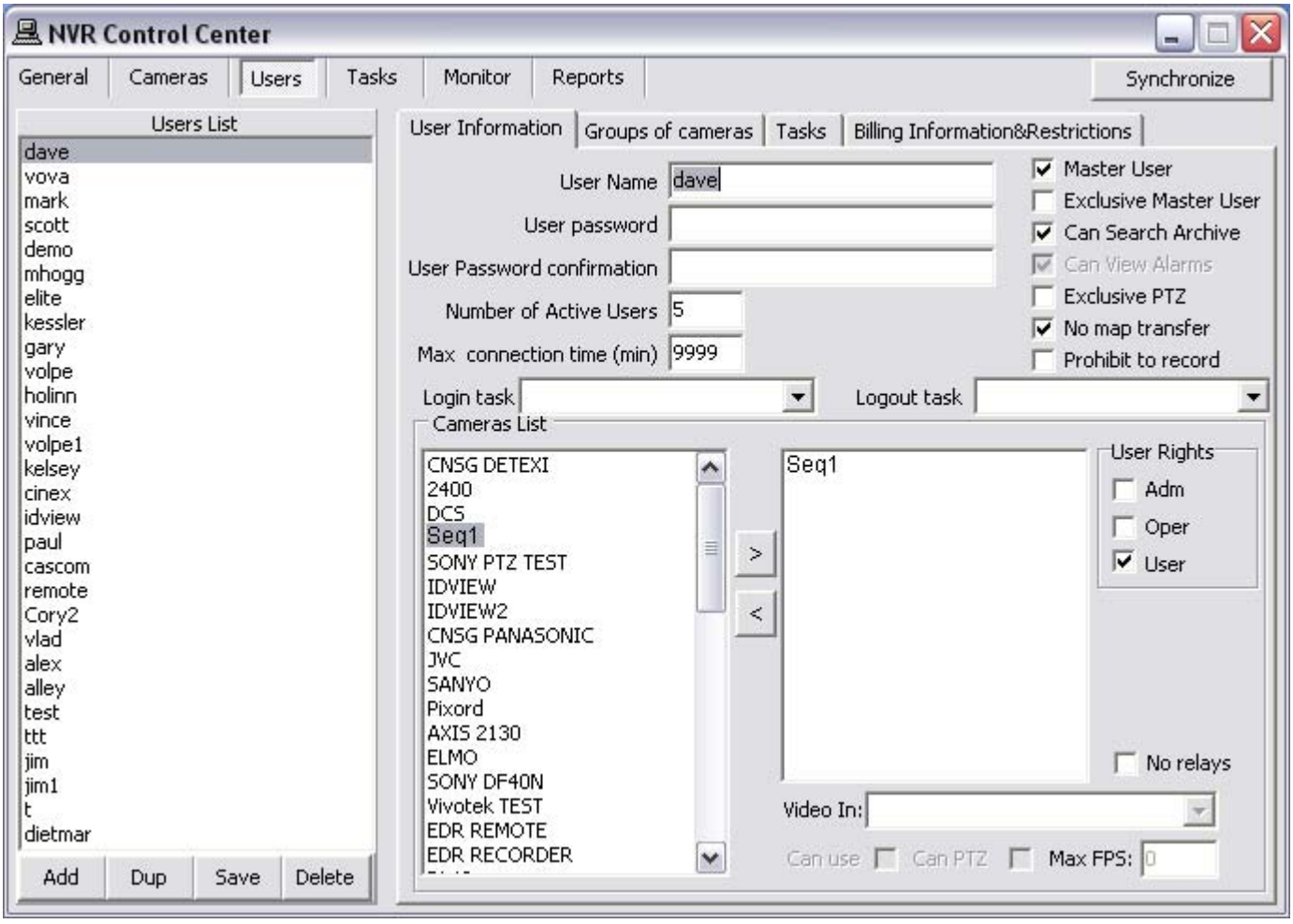


Fig 43. NVR Control Center — Users — User Information
(Assign Permissions.)

- ✓ Be sure that **User Rights (Adm/Oper/User)** settings make sense considering the authentication settings in the **Security & Alarm**.
- ✓ The **User Rights** chosen for the first sequence configured will automatically be assigned to each camera after that unless manually changed.
- ✓ PTZ permission is defined on a per-camera basis, and is enabled by default if the camera has PTZ capabilities when assigned to the user.

Enable Recording

Before setting up any type of recording ensure first that recording is enabled for the selected camera. After the camera was generally defined in the NVR it has recording **enabled by default** — the **Exclude from recording** checkbox is **unchecked**.

- Turning on recording requires **at least one schedule** to be added and configured for the camera; type of recording, and motion settings (if appropriate) defined.
- To optimize performance **disable** recording for the cameras that are not intended for recording. Thus the **Recorder** will ignore those cameras completely, freeing resources for other tasks.

1. Disable Recording

1. In the **NVR Control Center — Cameras** select a camera from the **Cameras List** (Fig 44).
2. In the **Cameras Settings** **check** **Exclude from recording** checkbox to disable recording for the camera.
3. Click **Save** button below the **Cameras List** to save changes.

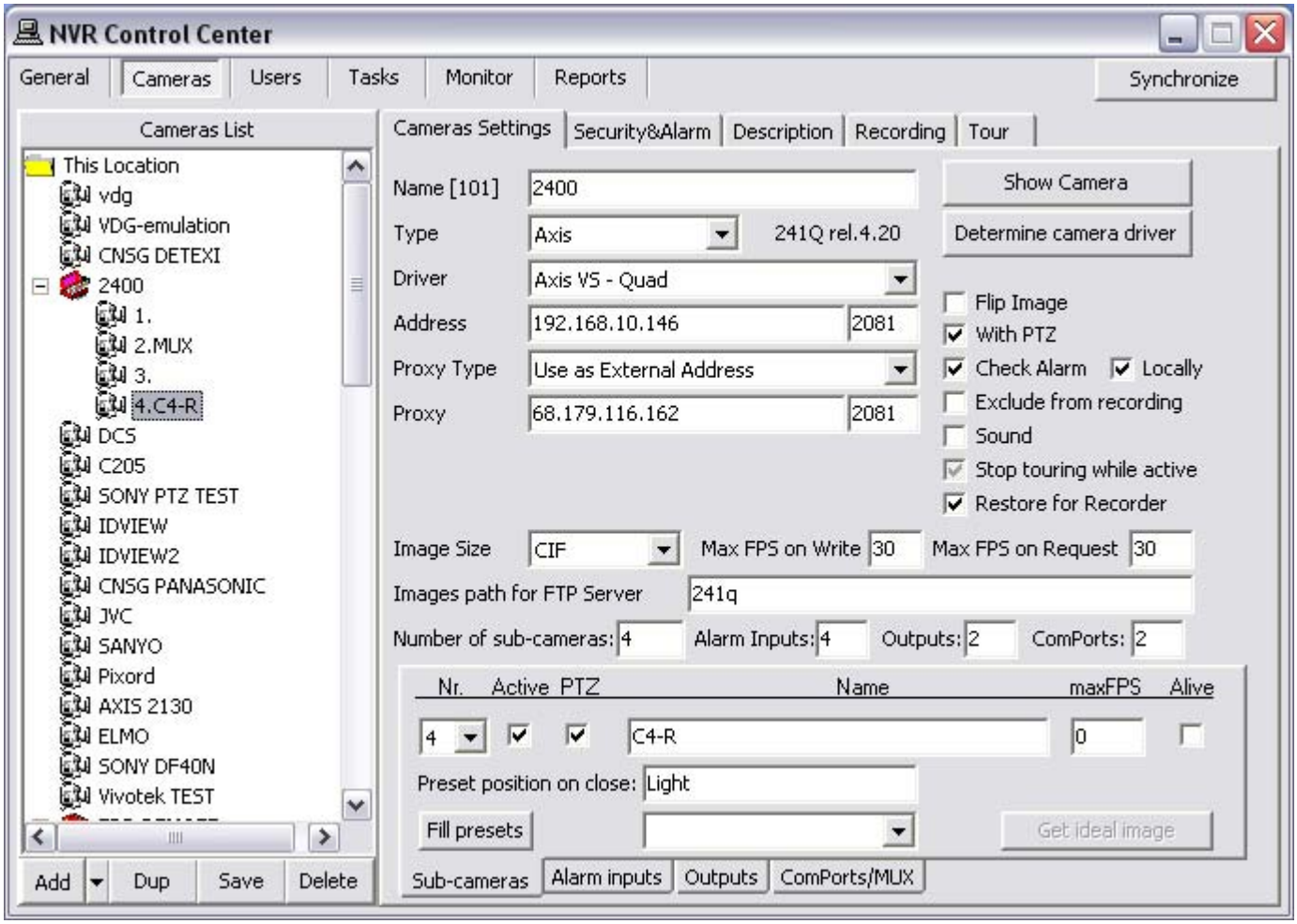


Fig 44. NVR Control Center — Cameras — Cameras Settings
(Enable Recording.)

✓ Recording can be temporarily disabled for a camera without removing recording schedules and configurations by using **Exclude from recording** checkbox. If recording is enabled again later (the checkbox is unchecked again), all previous recording schedules and configurations will be restored.

2. Setting Up Camera Recording Instructions

In the DETEXI NVR video can be recorded **on schedule** *(24/7 or other)* with or without motion detection and **on trigger**.

- Scheduled recording can combine both continuous and triggered recording instructions *(within schedule)*.
- An alarm-triggered recording can be activated by, for example, video motion detection or an external input through a camera's input port.
- With scheduled recordings, timetables for both continuous and alarm or motion recordings can be set.

After setting up the type of recording method, the **quality of the recordings** can be determined by selecting the video resolution, and level of image compression. The number of frames per second can be set in all recording modes.

- These parameters will affect the amount of bandwidth used as well as the size of storage space required.

Any type of recording can be configured for the selected camera in the **NVR Control Center — Cameras — Recording** (Fig 45). Learn the details in the Setup Recording section.

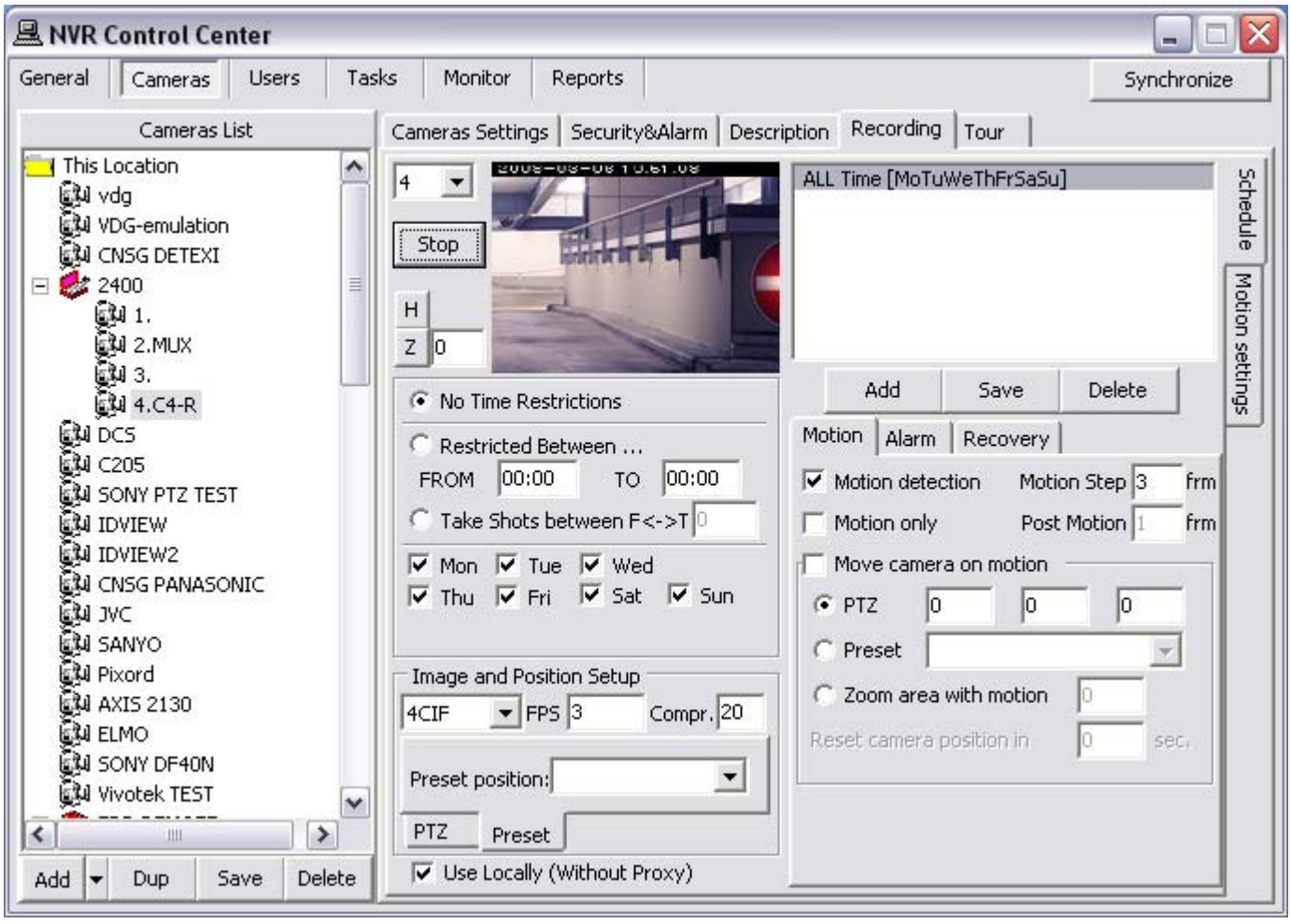


Fig 45. NVR Control Center — Cameras — Recording — Schedule
(Setup Recording Instructions.)

- ✓ Learning the DETEXI NVR motion detection and event management system should allow a better understanding of how to configure system settings including recording rules.
- ✓ All NVR services are visible and configurable in the **NVR Control Center — Monitor**.

3. Start or Synchronize Recording Services

There are two NVR services that should be running and monitored by the **Monitor** service in order to record — **Recorder** and **Check Drive**.

- **Recorder** service records information and images from each video input into the NVR archive, according to the configured schedules, preferences, alarms and events.
- **Check Drive** service monitors the condition of the storage path and device to confirm existence and available space for new video being recorded to the archive.

The DETEXI NVR recording services support runtime configurations. This means that changes in the cameras recording settings can be made **without stopping** the NVR services. When you are ready for your recording settings to take effect, start the **Recorder** and **Check Drive** services from the **NVR Control Center — Monitor** or if the services were running and monitored during the configuration just click the **Synchronize** button to activate the new configurations.

- ✓ The **Synchronize** button is found in the upper right corner of any NVR Control Center page.

4. Check Alarm Service

If Recording on Input Alarm method is setup in a camera/video server schedule, the **Check Alarm** service responsible for watching the status of IP device inputs should also be running and monitored.

- **Check Alarm** service monitors the hard inputs of connected video devices, and raises alarms when defined changes are seen on such inputs.

Video Motion Detection

Video motion detection (VMD) is the original, most basic and prevalent intelligent video analysis in video surveillance. Video motion detection is a key function in the DETEXI NVR. It is a way of defining activity in a scene by analyzing image data and differences in a series of images.

- Using the NVR motion detection functionality alleviates the workload for any recording devices in the system. It also reduces the use of bandwidth, in addition to storage space, and makes event-driven surveillance possible because no video (or only low-frame-rate video) is sent to the operator or recording system unless activity is detected in a scene.
- The NVR provides the video motion detection functionality even to the network cameras that do not have this as a built-in feature. This means that a network camera will send video to the NVR software for analysis. Motion can be detected in any area of an image. In addition, users may be able to set different motion detection sensitivities.

- Using VMD helps in prioritizing recordings, and making searching for events easier. Motion detected data can be included in a video stream to simplify activity searches in the recorded material (scheduled with motion detection type of recording).
- Once motion is detected, the NVR can trigger an external device (such as a door to open or close, a light to turn on or off), initiate recordings from selected cameras, and send e-mail alerts. Alerts also can be triggered if motion stops.

1. Adjust Motion Settings

Motion can be detected in any area of an image. In addition, users may be able to set different motion detection sensitivities. When a recording schedule has motion detection **enabled**, the Motion Settings become available to the user. These settings are not required, but can be used to optimize motion detection for each individual camera and its environment.

- Motion settings apply only to the currently selected recording schedule, allowing different motion settings to be applied to different times of day and levels of light.
- A set of motion settings can be defined as the **default**, which will automatically apply to all new schedules created for that camera.

Motion Indicator Graph / Roughness and Sensitivity

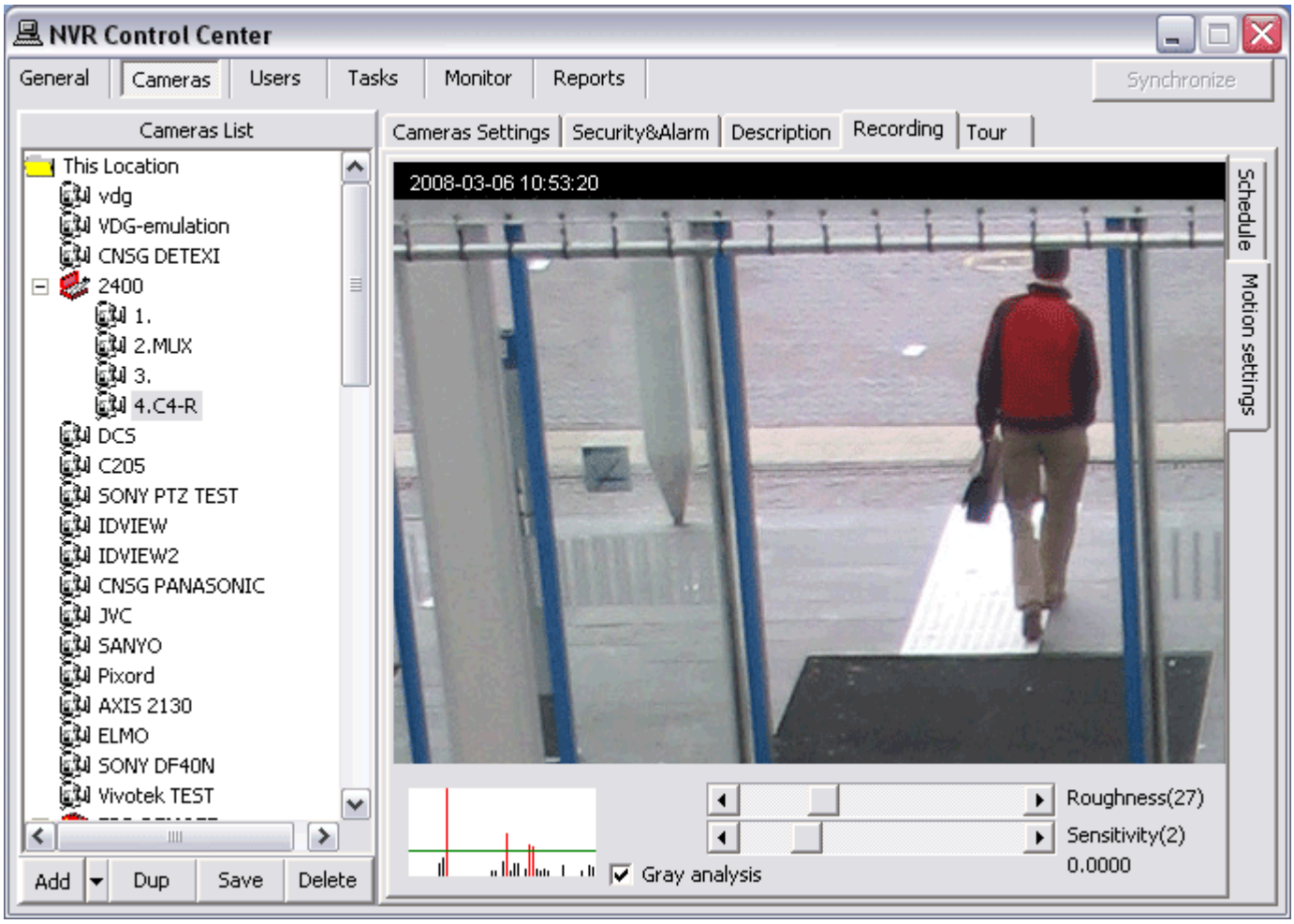


Fig 46. NVR Control Center — Cameras — Recording — Motion Settings
(Adjust Motion Settings.)

Video motion detection defines activity by analyzing data and differences in a series of images. Software algorithms continually compare images from a video stream to detect changes in an image. The **motion indicator graph** *(at bottom left) i*ndicates the motion detected (Fig 46).

- ✓ Each vertical line in the graph indicates motion detected; the height of the line shows how much motion was detected at the moment.
- ✓ When a vertical line passes above the green horizontal line it turns red, indicating that motion detected will trigger the system reaction.

Two parameters are available for fine-tuning the system. These parameters include the **Roughness** for how large an object should be for the system to trigger, and **Sensitivity** for how much an image can change before the system reacts. Finding the right balance between these settings will directly impact the number of false alarms the system will give and whether all relevant motion in the scene is detected.

Region of Interest (ROI)

Region of interest (ROI) defines the region of the camera's view that should be analyzed for motion. Regions that will be analyzed show red, while motion in unpainted regions will be ignored. The ROI grid can be resized and moved, and each box within the grid can be turned on or off individually. If no ROI is defined, the entire view will be analyzed for motion.

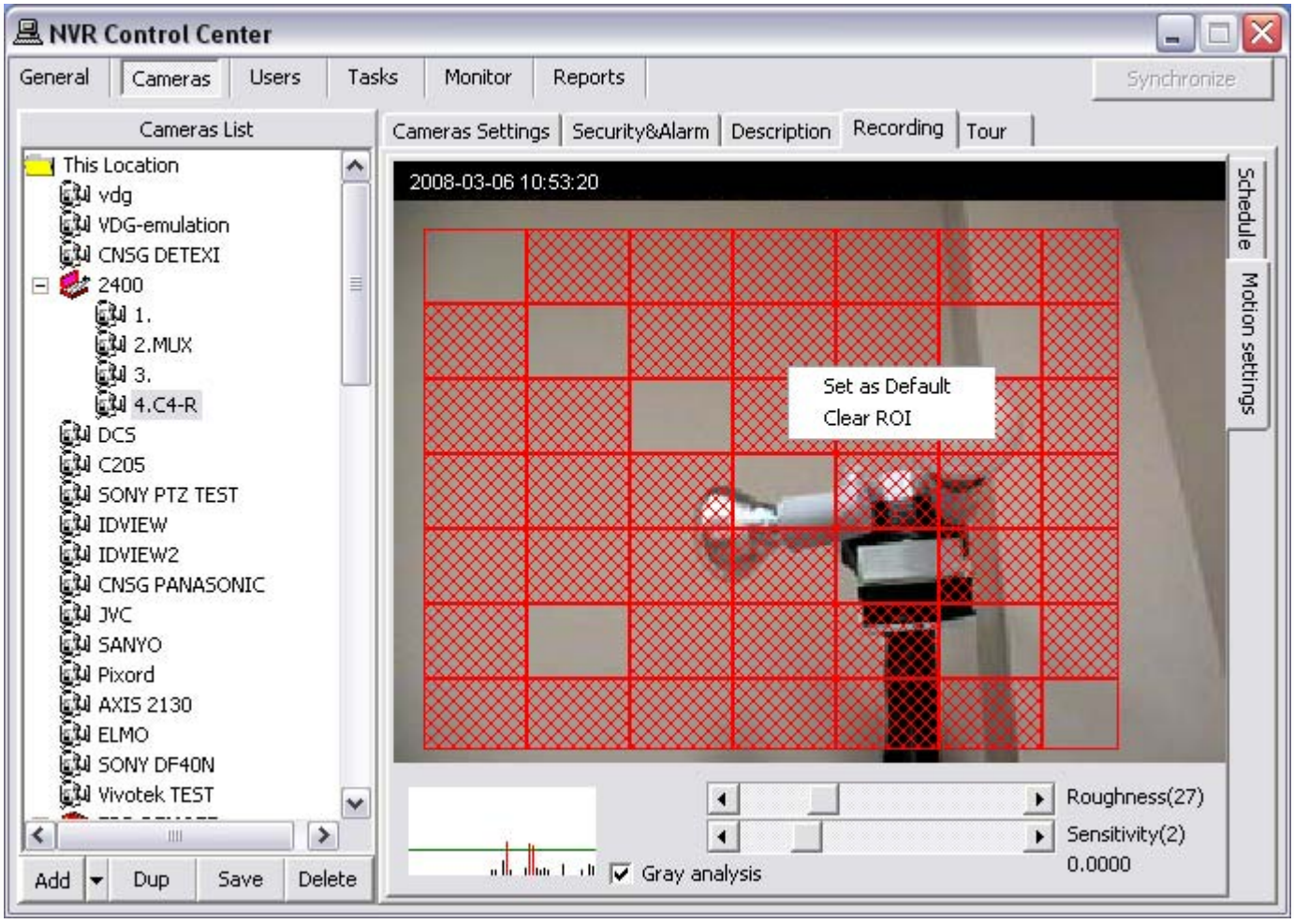


Fig 47. NVR Control Center — Cameras — Recording — Motion Settings
(Region of Interest.)

To create a Region of Interest (ROI) for an existing recording schedule (Fig 47):

1. In the **NVR Control Center — Cameras** select camera to configure from the **Cameras List** and switch to **Recording**.
2. Select a recording schedule with motion detection and switch to **Motion Settings** right side tab.
3. Draw a ROI by left-clicking and dragging from the upper left corner to the bottom right corner of the image — a red grid will be drawn, indicating where the ROI is.
   - ✓ To resize ROI select the bottom right corner and drag it.
   - ✓ To move ROI left-click and drag it to a new place.
   - ✓ To deselect/select a section of the ROI click on the section holding **Ctrl** key.
   - ✓ To clear ROI right-click and select **Clear ROI**.

Setup Recording

Recording Options

Recording in the DETEXI NVR is either schedule based or event based (triggered), and many recording options are available.

1. Schedule Based Recording

Schedule based recording can be set up as continuous (24/7 or other schedule) with or without motion detection or triggered. An alarm-triggered recording can be activated by, for example, video motion detection or an external input through a camera's input port. Scheduled recording can combine both continuous and triggered recording instructions *(within schedule)*.

- Recording **without Motion Detection** — video is recorded constantly while on schedule, without motion analysis being done.
- Recording **with Motion Detection** — video is recorded constantly while on schedule, the video is analyzed and encoded with markers when motion is detected for faster and smarter replay.
- Recording **on Motion Only** — video is analyzed constantly while on schedule, but only recorded when motion is detected.
- Recording **on Motion Alarm** — video is analyzed constantly while on schedule; the alarm raises when motion is detected starting the alarm video recording and execution of assigned task. An assigned task must NOT include the Record Camera action because a video stream is already initiated.
- Recording **on Input Alarm** — the hard input(s) of the camera are monitored while on schedule; when an alarm is detected the execution of assigned task starts. Recording of alarm video occurs IF ONLY the assigned task includes the Record Camera action that initiates a video stream from the camera.

2. Event Based Recording

Recording **on NVR event** — video is recorded for any defined camera when a chosen event occurs in the NVR. The NVR response configuration is based on the NVR Task Execution Engine. In the NVR trigger is a set of criteria that, when met, starts the execution of assigned task. When an event is triggered, some of the common responses can occur, if configured. Recording occurs if assigned task includes the Record Camera action.

- ✓ **Record Camera** action records alarm video for a user-defined camera or for the camera associated with the event that triggered it. The length, picture quality, and camera position of the recording can be defined if desired. An alarm snapshot can also be taken by this task.
- ✓ Learning the NVR event management system should allow a better understanding of how to configure system settings including recording instructions.

3. What is Important to Remember

- Before any recording can occur an IP device (network camera or video encoder) **must be defined** in the **NVR Control Center**.
- Before setting up any type of recording ensure first that **recording is enabled** for the IP device.
- Turning on continuous recording requires **at least one schedule** to be added and configured for the IP device.
- Scheduled recording can combine **both** continuous and alarm-triggered recording instructions *(within schedule)*.
- Recording can be triggered by any event in the NVR by including **Record Camera** action in the assigned task.
- If recording **on Input Alarm** method is setup, the IP device **inputs must be defined** in the cameras settings for the NVR to be aware of external devices connected to the inputs and the **Check Alarm** service responsible for watching the status of IP device inputs should be **running and monitored**.
- When you are ready for your recording settings to take effect, start the **Recorder** and **Check Drive** services from the **NVR Control Center — Monitor** or if the services were running during the configuration just click the **Synchronize** button to activate the new configurations.

Setup Schedule, Video Quality

1. In the **NVR Control Center — Cameras** select a camera from the **Cameras List** (Fig 48).
2. Ensure that recording is enabled and switch to the **Recording**.
3. Click **Add** button under the blank **Schedule** list to add a new recording schedule.
4. Leave **No Time Restrictions** radio button **selected**, and leave all days of the week checkboxes **checked** to configure a 24/7 continuous schedule;

   — OR —

   Select the **Restricted Between** radio button and define a time range **FROM - TO** and leave proper days of the week checked to have the schedule repeated these days only.
5. To setup video quality under the **Image and Position Setup** —

- ✓ Select **Resolution** from the drop-down list the video will be recorded at. *Higher resolution means better image quality, and larger file size (4CIF on the sample).*
- ✓ Enter **FPS** — the number of frames per second that will be archived. *Higher FPS means more fluid motion, and larger file size (3 on the sample).*
- ✓ Enter **Compression %** which will be applied to the video before it is archived. *Lower compression percentage means better image quality, and larger file size (20 on the sample).*

6. For a PTZ camera setup initial position on starting scheduled recording.
7. For recording **without** motion detection on the **Motion** tab **Motion Detection** checkbox should be **unchecked** *(motion detection is set by default)*.
8. Click **Save** button below the **Schedule** list to save the schedule.

   — OR —

   For setting up recording **with** motion detection continue to **Setup Motion Detection**.

   — OR —

   For setting up **alarm-triggered** recording continue to **Setup Alarm-triggered Recording**.

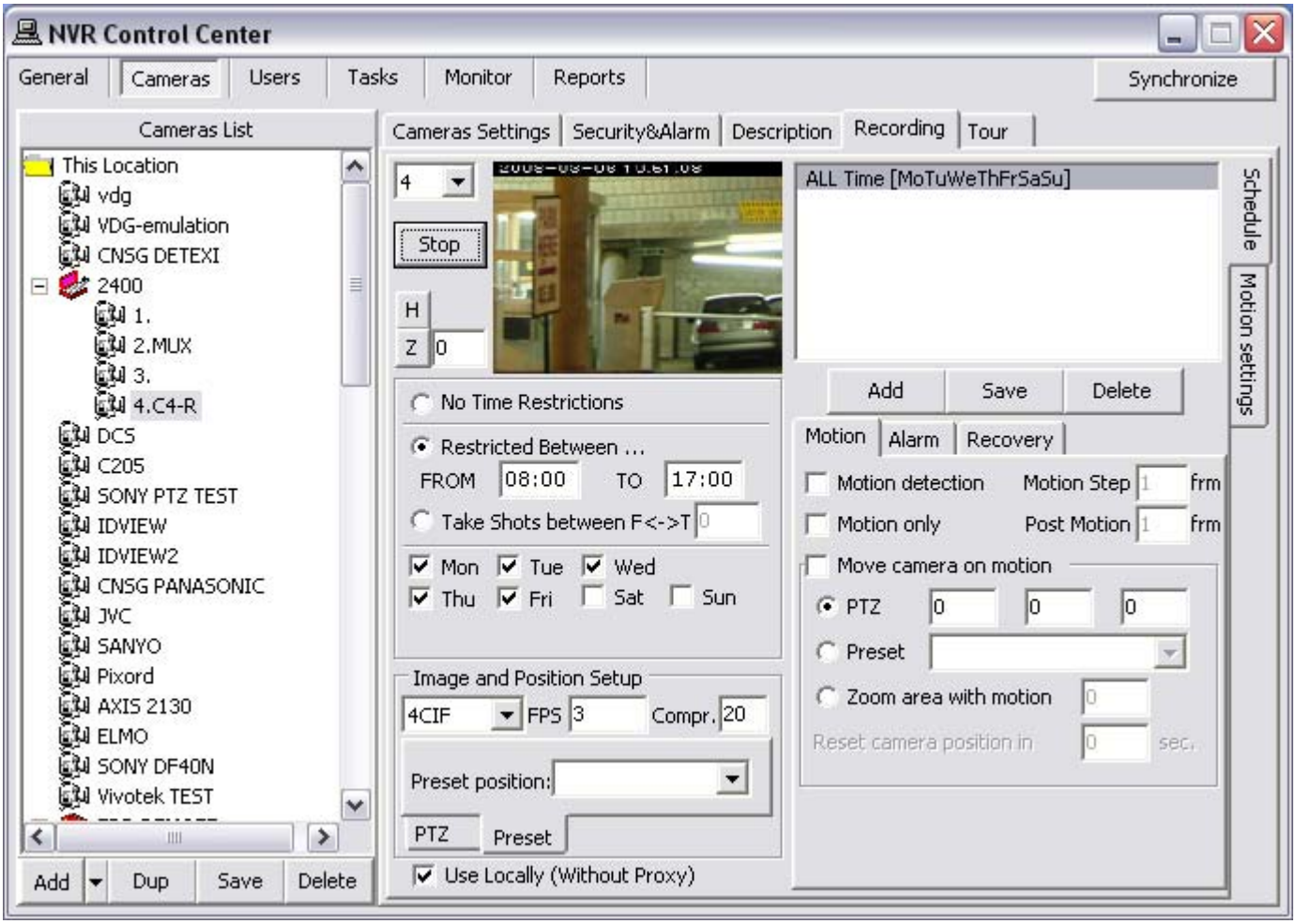


Fig 48. NVR Control Center — Cameras — Recording — Schedule

(Setup Recording Schedule, Video Quality.)

- ✓ Recording is enabled for the selected camera if the **Exclude from recording** checkbox is **unchecked** in the **Camera Settings**.
- ✓ After saving the schedule, it will be named based on the settings defined within it.
- ✓ Video quality settings apply only to the currently selected recording schedule, allowing different video quality to be applied to different situations.
- ✓ Defining a recording schedule at a specific resolution, FPS and compression may affect live video streams from this camera — depending on whether the camera supports simultaneous video streams with different parameters such as this. Check the specifications of the camera in use.

Setup PTZ Camera Initial Position

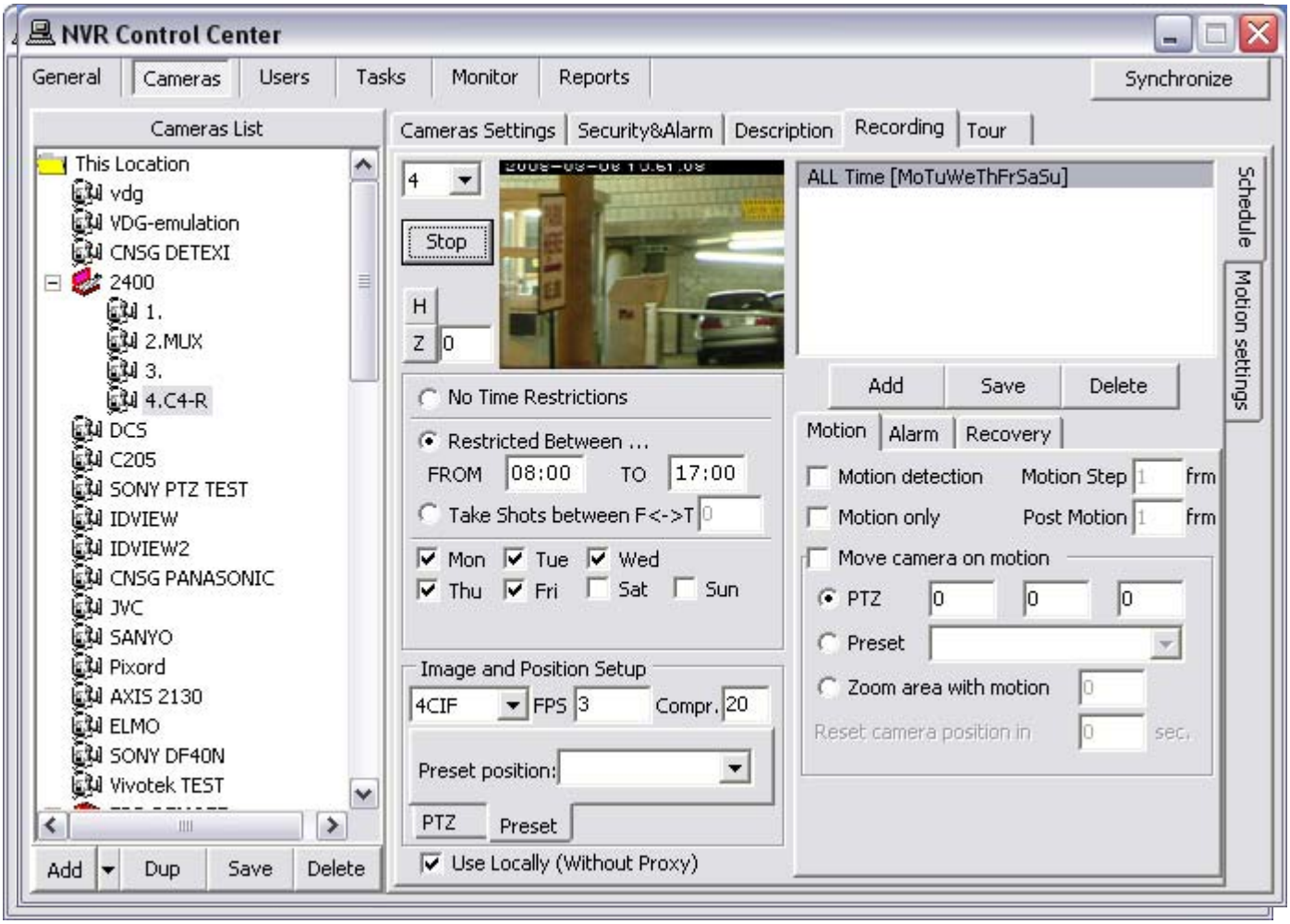


Fig 49. NVR Control Center — Cameras — Recording — Schedule

(Setup PTZ camera Initial Position.)

To setup a PTZ camera initial position on starting scheduled recording (Fig 49) —

1. When camera is selected, click on the **Connect/Stop** toggle-button in order to connect to the selected camera *(click again to disconnect)*. On successful connection live video from the camera will appear.

- ✓ If **Connect camera immediately** checkbox in the **NVR Control Center — General** is **checked** the connection will be established immediately and the Connect/Stop toggle-button will not be available.
- ✓ This connection is temporary and allows the camera's settings to be configured and checked.
- ✓ A PTZ camera preset positions are only available if the connection is established.
- ✓ **Show Locally** checkbox can be **checked** to connect to the camera using local IP address and port number *(during configuration time only)*. The checkbox is only activated if camera has both an internal and external connections configured in the **NVR Control Center — Cameras — Cameras Settings**.

2. Under the **Image and Position Setup** enter **Pan**, **Tilt**, **Zoom** parameters or select a preset position from **Preset** drop-down list.
   - ✓ Getting PTZ values of the current camera position click on the **Get PTZ** button.

Setup Recording with Motion Detection

Recording **with Motion Detection** — video is recorded constantly while on schedule. The video is analyzed and encoded with markers when motion is detected for faster and smarter replay.

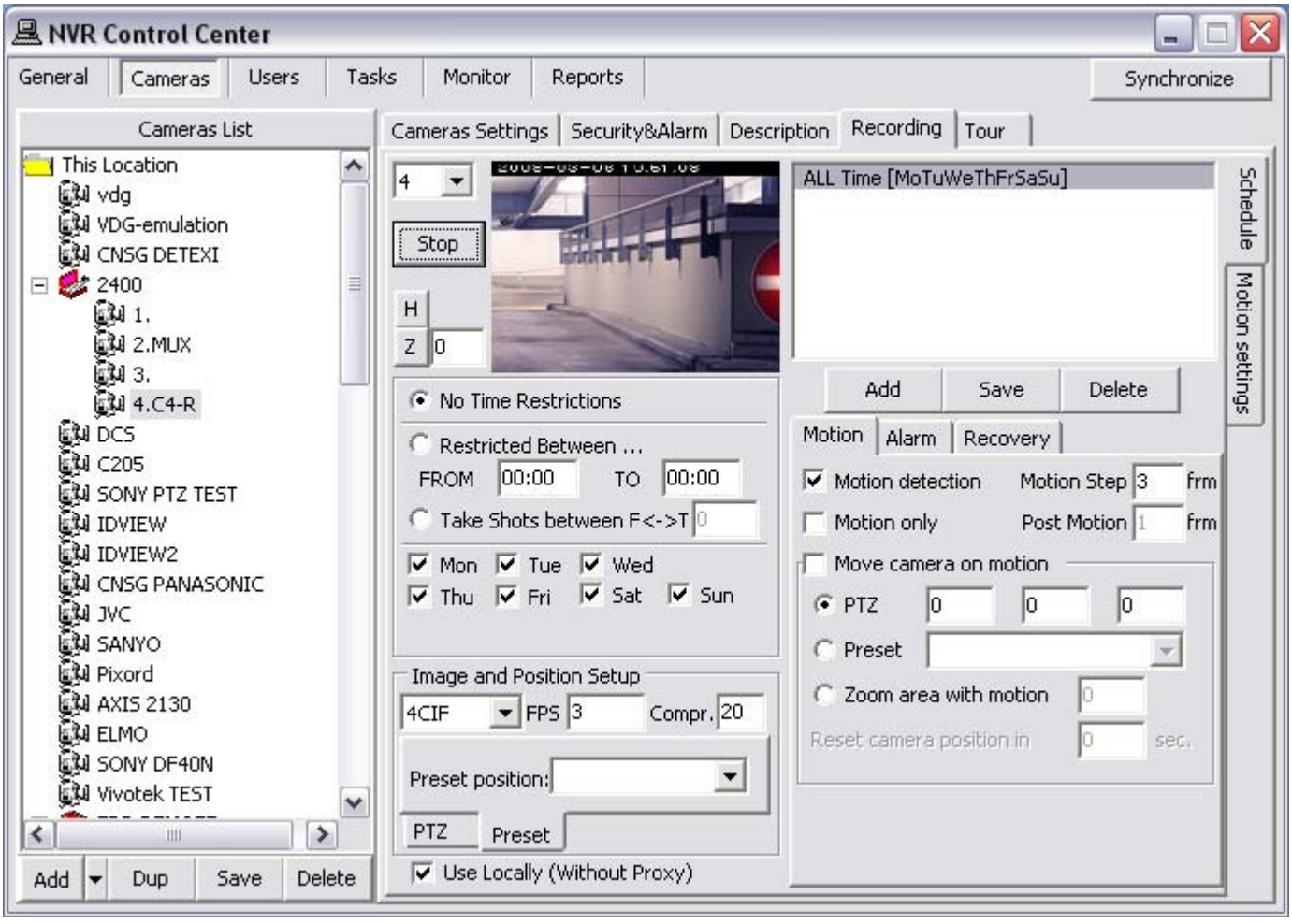


Fig 50. NVR Control Center — Cameras — Recording — Schedule

(Recording with Motion Detection.)

1. With a selected camera schedule, on the **Motion** tab **check Motion detection** checkbox.
2. Set the **Motion Step** — the sample rate for motion analysis (Fig 50).
   ✓ *With a motion step of 1, every frame will be analyzed. With a motion step of 3, every third frame will be analyzed and so on.*
3. If necessary, switch to the **Motion Settings** right side tab to adjust motion settings — **roughness**, **sensitivity**, **region of interest (ROI)** and return to the **Schedule**.
4. Click **Save** button below the **Schedule** list to save the schedule settings
   — OR —
   For setting up **alarm-triggered recording** continue to **Setup Alarm-triggered Recording**.
5. Add more schedules for the camera or switch to the **Camera Settings** to save new settings, than you can select another camera to configure.

✓ The actual time between frames compared for motion detection will depend upon the FPS defined in the schedule.

Setup Recording on Motion Only

Recording **on motion only** — video is analyzed constantly while on schedule, but only archived when motion is detected.

1. With a selected camera schedule, on the **Motion** tab c**heck** the **Motion Only** checkbox.
2. Set the **Motion Step** — the sample rate for motion analysis.
3. If necessary, switch to the **Motion Settings** right side tab to adjust the motion settings.
4. Click **Save** button below the **Schedule** list to save the schedule settings
   — OR —
   For setting up **alarm-triggered recording** continue to **Setup Alarm-triggered Recording**.
5. Add more schedules for the camera or switch to the **Camera Settings** to save new settings, than you can select another camera to configure.

Setup Alarm-triggered Recording

1. Recording on Motion Alarm

Recording **on Motion Alarm** — video is analyzed constantly while on schedule; the alarm raises when motion is detected starting the alarm video recording and execution of assigned task. An assigned task must not include the Record Camera action because a video stream is already initiated.

1. With a selected camera schedule switch to the **Alarm** tab below the schedule list (Fig 51).
2. Check the **Alarm on Motion** checkbox.
3. Select an appropriate predefined task from the **Execute task** drop-down list below the checkbox. The assigned task **must not** include the **Record Camera** action because a video stream is already initiated.

4. Enter a quantity of **Pre Alarm** and **Post Alarm** recording frames.
5. Enter a **Dwell time** to prevent for this time an alarm recording from being interrupted by a new soft-alarm.
6. Click **Save** button below the schedule list to save settings.

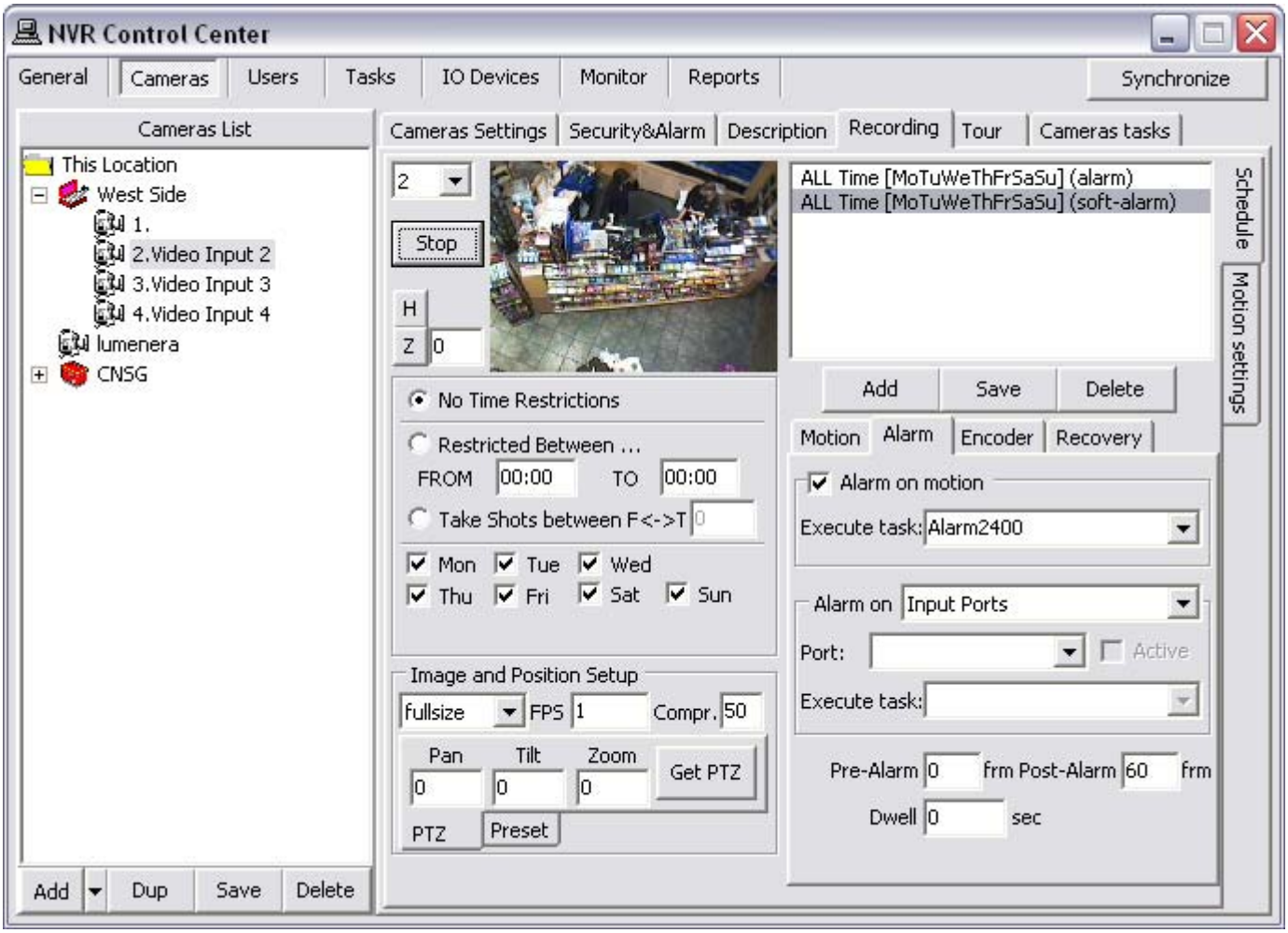


Fig 51. NVR Control Center — Cameras — Recording — Schedule — Alarm
(Recording on Motion Alarm.)

✓ When motion is detected the alarm video recording starts even if the task to be executed hasn't been assigned (**Pre-Alarm** + **Post-Alarm** number of frames specified).

2. Recording on Input Alarm

Recording **on Input Alarm** — the hard input(s) of the camera are monitored while on schedule; when an alarm is detected the execution of assigned task starts. Recording of alarm video occurs if only an assigned task includes the Record Camera action that initiates a video stream from the camera.

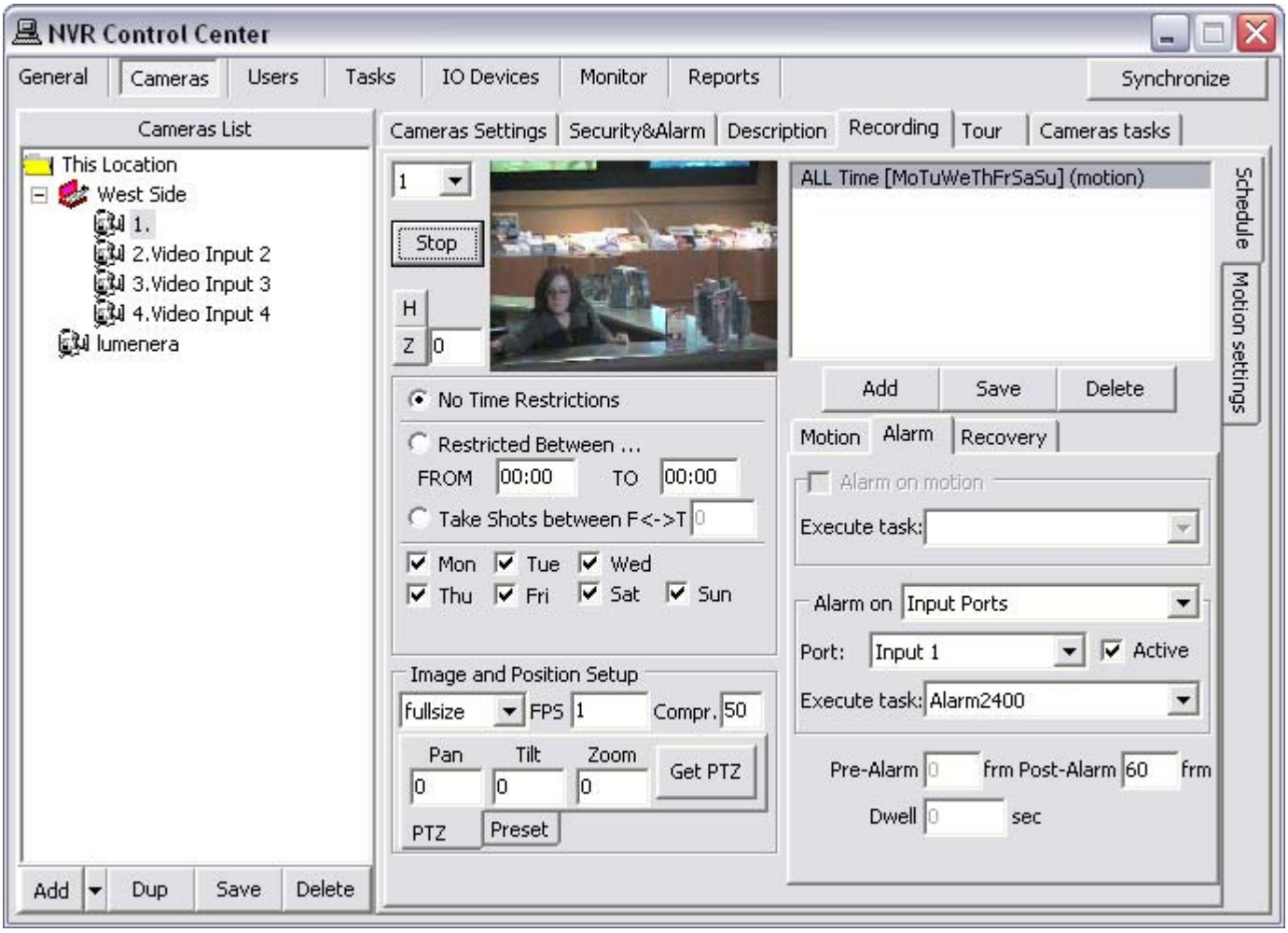


Fig 52. NVR Control Center — Cameras — Recording — Schedule — Alarm
(Setup Recording on Input Alarm.)

1. With a selected camera schedule switch to the **Alarm** tab below the schedule list (Fig 52).
2. Select **Input Ports** from the **Alarm** on drop-down list.
   - ✓ The **on Events** selection is for intelligent IVAS cameras only.
3. Select an appropriate predefined task from the **Execute task** drop-down list below.
   - ✓ Recording of alarm video occurs if only an assigned task includes the Record Camera action that initiates a video stream from the camera.
4. Enter a quantity of **Post Alarm** recording frames.
5. Click **Save** button below the **Schedule** list to save settings.

- ✓ If Recording on Input Alarm method is setup, the IP device inputs must be defined in the cameras settings for the NVR to be aware of external devices connected to the inputs and the Check Alarm service responsible for watching the status of IP device inputs should be running and monitored. (**Pre-Alarm** + **Post-Alarm** number of frames specified).

Configure Camera Inputs/Outputs

The range of external devices that can connect to a network video product's input / output ports is almost infinite. The basic rule is that any device that can toggle between an open and closed circuit can be connected to a network camera or a video encoder. The main function of a network video product's output port is to trigger external devices, either automatically or by remote control from an operator or a software application.

✓ Network camera or video encoder inputs/outputs **must** be defined in the **NVR Control Center — Cameras — Cameras Settings** for the NVR to be aware of external devices connected to the IP device inputs/outputs.

1. Configure Camera Inputs

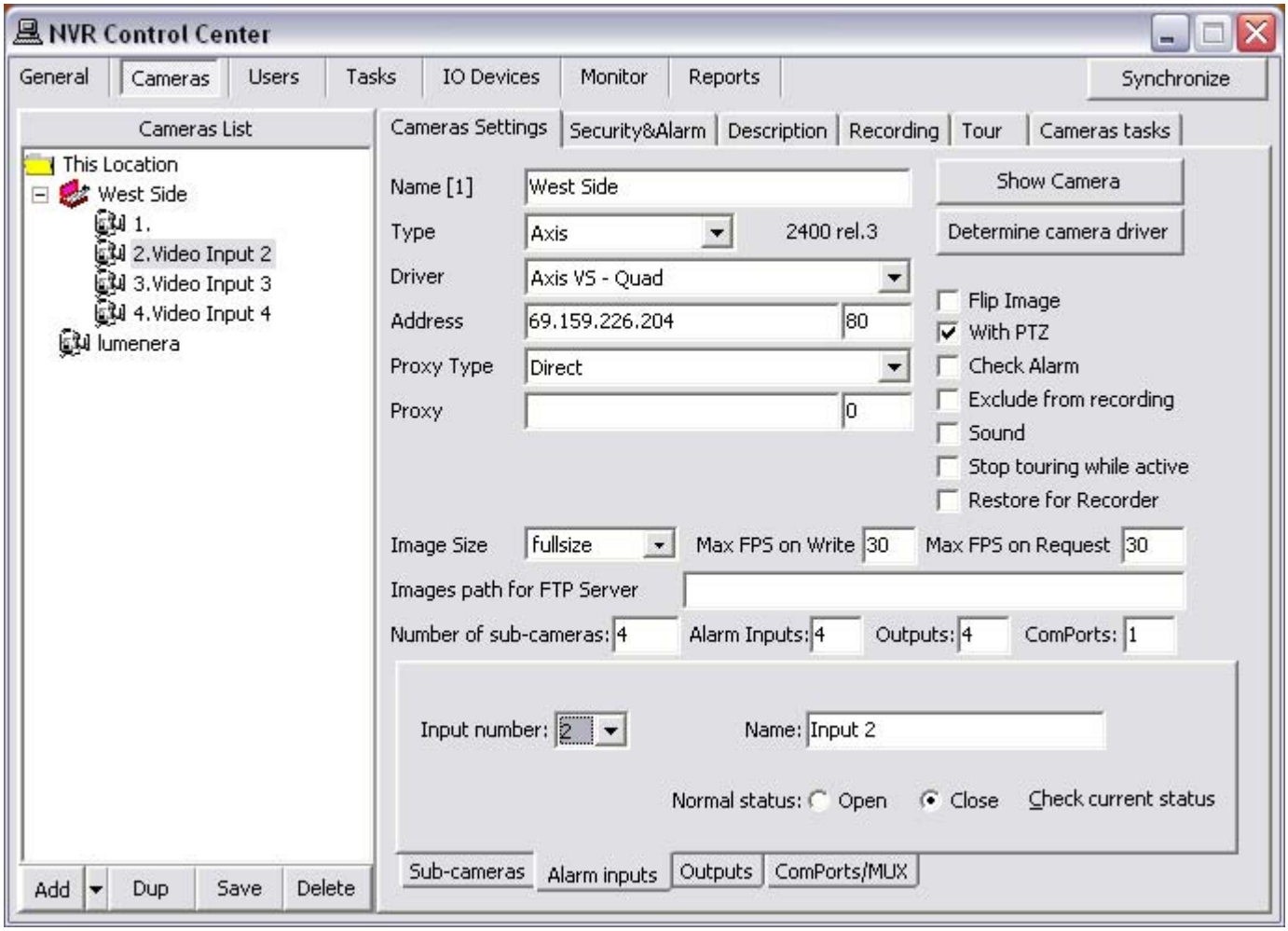


Fig 53. NVR Control Center — Cameras Settings — Alarm Inputs
(Configure Camera Inputs.)

To configure camera inputs connected to external devices (Fig 53):

1. In the **NVR Control Center — Cameras** select camera to configure from the **Cameras List**.
2. In the **Cameras Settings** enter the number of connected inputs in the **Alarm Inputs** field.
3. Switch to the **Alarm Inputs** bottom tab — the **Input Number** drop-down list will automatically be populated with the number of inputs defined.
4. Select the **Input Number** from the list to configure the device connected to this input.

5. Enter a descriptive **Name**.
6. Select a **Normal Status** radio button — **Open** or **Closed** — indicating whether the input is connected as normally open or normally closed.
7. If you are not sure, click the **Check Current Status** to query the status of the input port.
   - ✓ If, for instance, the status returns as **Open**, and the device is not in the alarm state, then the normal status should be set to **Open**.
8. Repeat steps 4-7 to configure all external devices connected to the camera or video server input ports.

- ✓ Check the documentation of the camera or video server for information on which ports on the terminal block are associated with which inputs.
- ✓ Be sure that the NVR input settings make sense considering the IP device specification.

2. Configure Camera Outputs

IP-device outputs can be configured with toggle and/or momentary behavior.

- With toggle behavior, the state is simply switched indefinitely (i.e. unlock door strike, lock door strike).
- With momentary behavior, the output is set to the non-normal state for a period of time before being returned to the normal state (i.e. unlock door strike for 3 seconds; then return to locked).
- If both options are configured, either action can be taken by the operator or task — each will have their own action button in the DETEXI Client.

To configure camera outputs connected to external devices *(relays)* (Fig 54):

1. In the **NVR Control Center — Cameras** select a camera to configure from the **Cameras List**.
2. In the **Cameras Settings** enter the number of connected outputs in the **Outputs** field.
3. Switch to the **Outputs** bottom tab — the **Output Number** drop-down list will automatically be populated with the number of outputs defined.
4. Select **Output Number** from the list to configure the device connected to this output.
5. Enter a descriptive **Name**.
6. Select a **Normal Status** radio button — **OFF** or **ON** indicating whether the output is connected as normally OFF or normally ON.
7. To select a relay type under the **Behavior** **check** the **Toggle** and/or **Momentary** checkbox. The selected relay type **Action** button activates.
   - ✓ If, for instance, similar relay **Action** buttons will be available on the DETEXI Client's camera live view allowing for external devices (relays) to be triggered.
   - ✓ To customize a relay **Action** button click on it to launch the **Relay Types** dialog.
   - ✓ The default off-delay for momentary behavior is 3 seconds.
8. Repeat steps 4-7 to configure all external devices connected to the camera or video server input ports. Under the State on Close check proper checkbox — **Unchanged** , **ON** or **OFF**.
   - ✓ For instance, if the device is a door strike that should always **stay locked**, the state on close **OFF** may be desired to prevent from accidentally leaving the door open.
9. Repeat steps 4-8 to configure all external devices connected to the camera or video server output ports.

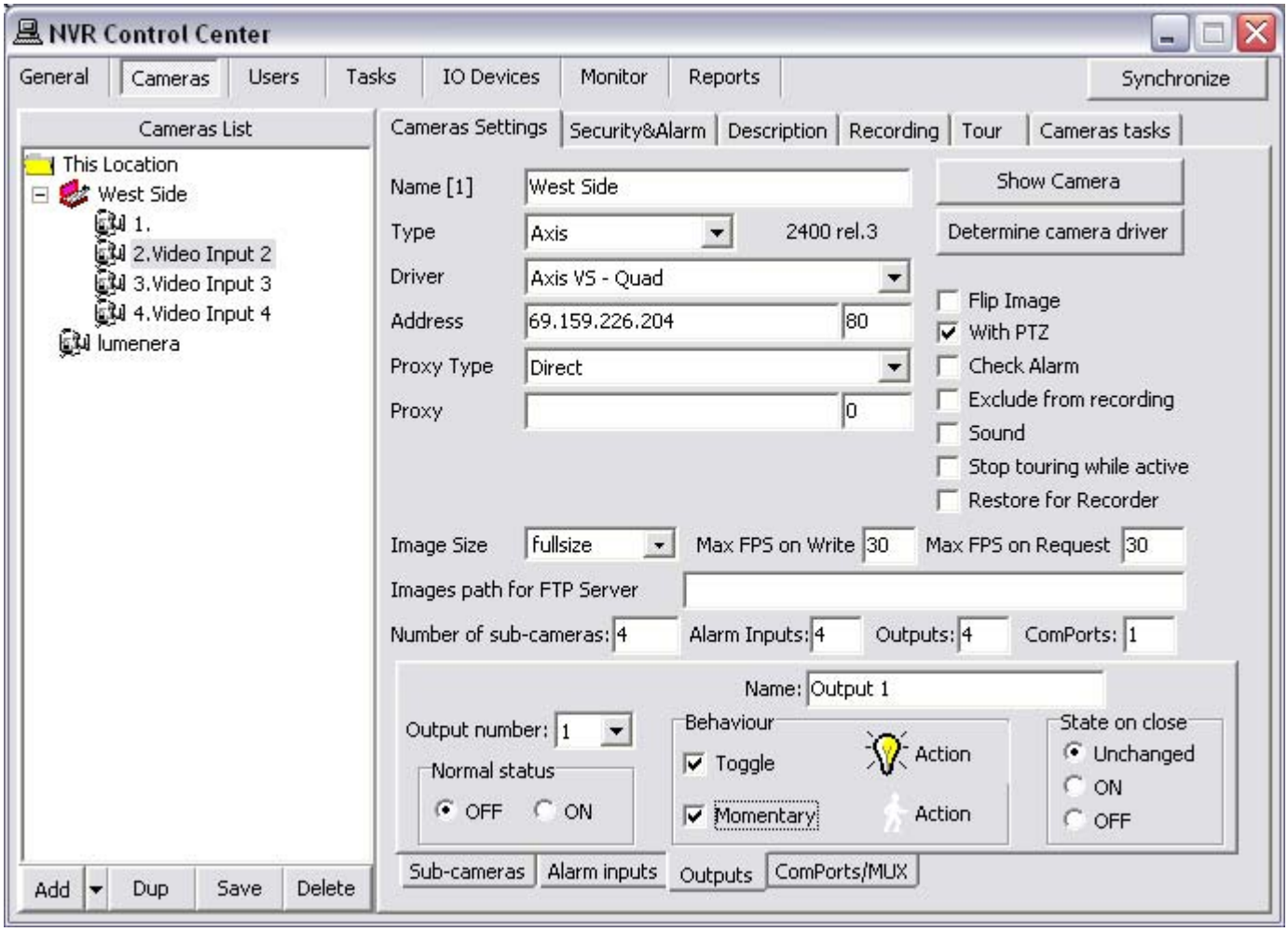


Fig 54. NVR Control Center — Cameras Settings — Outputs
(Configure Camera Outputs.)

- ✓ Check the documentation of the camera or video server for information on which ports on the terminal block are associated with which outputs.
- ✓ Be sure that the NVR output settings make sense considering the IP device specification.

3. Customize Relay Action Button

IP-device outputs can Customized relay action buttons are important for systems using many different types of external devices connected to cameras and/or video servers outputs: door strikes may work best with 8 second activation, where alarm sounding devices (horns or bells for instance) should be activated for only 3 seconds perhaps.

- Customized relay action buttons allow also for intuitive control for users.

How to configure a customized relay action button —

1. In the **Relay Types** click the **Add** button to add a new relay action button (Fig 55).
2. Enter a descriptive **Nam**.
3. Click **Load** buttons to download images for the normal and down positions of the button.

- ✓ Images must be either 24 x 24 px BITMAP files (24-bit) or 16 x 16 px ICO files.
- ✓ A few icons of this type are available on the installation CD in the Utilities/NVR Output Icons directory.

4. **Check** the **Transparent** checkbox to convert BITMAP image to have a transparent background.
   - ✓ Top-left pixel color is considered as a background.
5. For momentary relay types, define a custom **momentary delay** before the output is turned back off.
6. Click **Save** button to save a new relay action button.
7. Select a relay action button for use from the list and click **Select** button.
   - ✓ Click **Cancel** button to return without changes.
   - ✓ Click **Default** button to return to default settings.

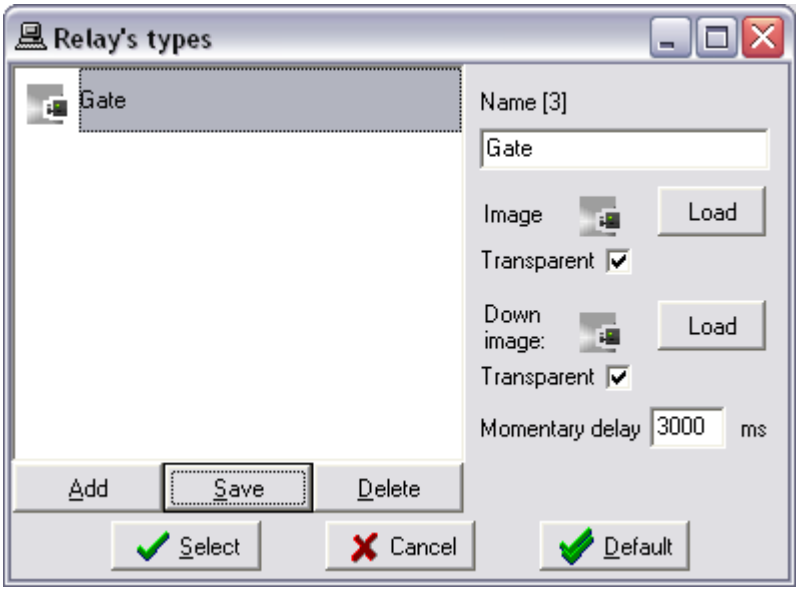


Fig 55. NVR Control Center — Cameras Settings — Outputs
(To customize a relay Action button click on it to launch Relay Types dialog.)

4. Control Relay

After an IP device outputs were defined in the NVR Control Center — Cameras — Cameras Settings they are ready for use in tasks triggered by alarms/events, or manually by operators in the DETEXI Client.

- ✓ Relay **Action** buttons will be available on the DETEXI Client's camera live view allowing for external devices *(relays)* to be triggered (Fig 56).

- ✓ The momentary relay only has been enabled for the output — only one relay action button is visible.
- ✓ If multiple outputs are connected to and configured on the camera, a drop-down list to choose the output number from will be available. When an output number is chosen, the configured control buttons will be displayed for use.

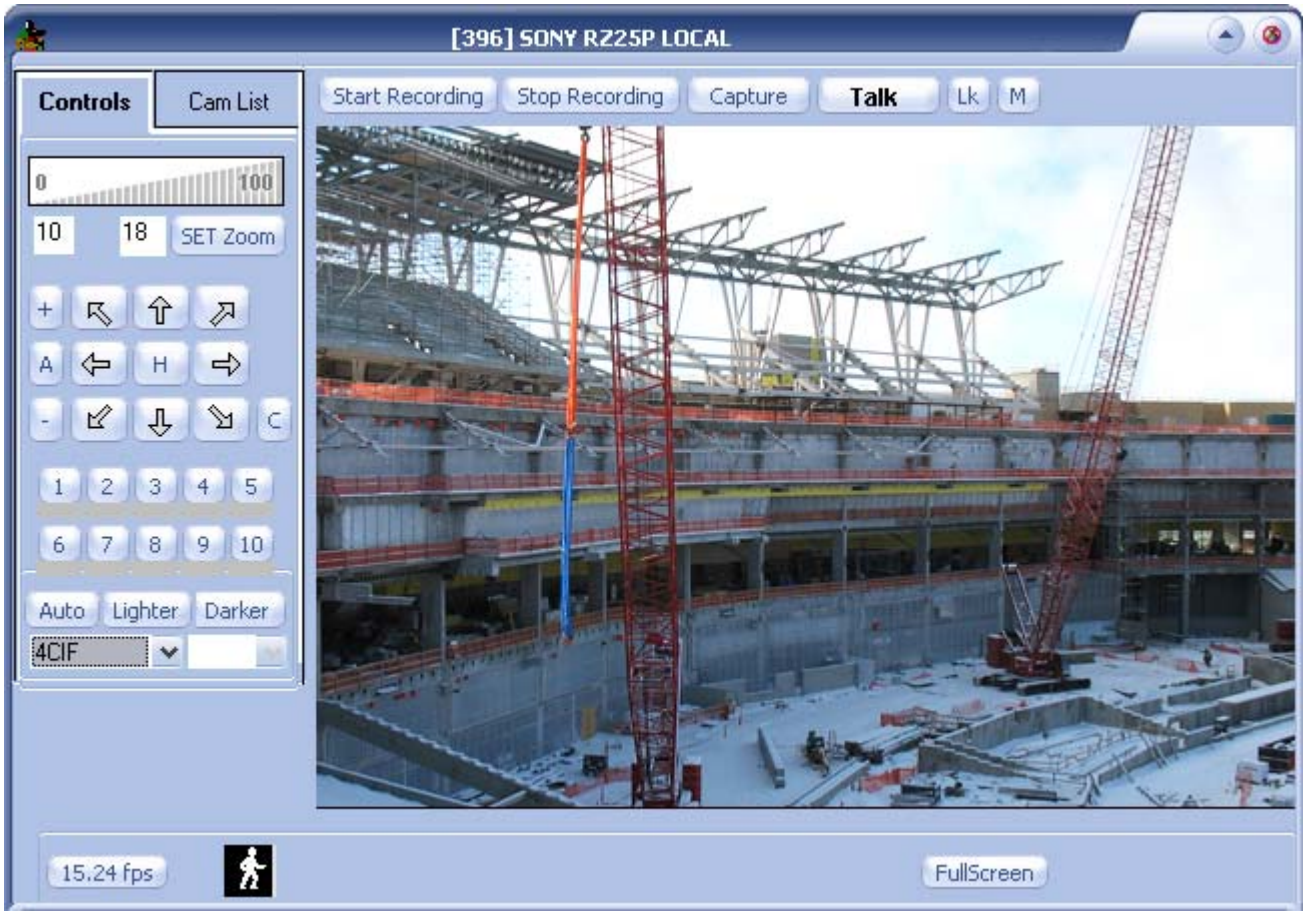
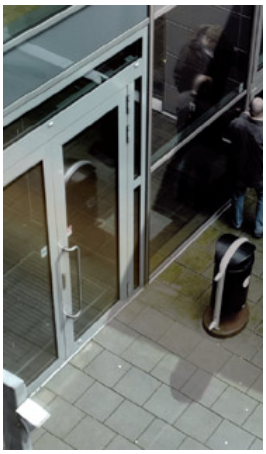


Fig 56. DETEXI Client — Camera Live View
(Control Reley Using Action Button.)

Setup FTP Pushed Video



A network camera has its own IP address. It is connected to a network and has a built-in Web server, FTP server, FTP client, e-mail client, alarm management, programmability, and much more. A network camera operates as an independent server on a network and can be placed wherever there is an IP network connection.

The **File Transfer Protocol (FTP)** is a network protocol for data transmission via TCP/IP. It primarily is used to transmit files from a server to a client (download) or from a client to a server (upload).

1. FTP Client — FTP Server Event-based Connection

Network cameras or video encoders (video servers) can use FTP to transmit JPEG images or MPEG-4 video sequences to an FTP server for archiving purposes. In such a case, the network camera acts as an FTP client and establishes an event-based connection to the FTP server. It then transmits multiple JPEG images to the server and stores them to a specific directory using different file names. The DETEXI NVR has its own FTP server and can receive these images and incorporate them into the Archive just like any streamed recording.

- Allowing the alarm processing to be done on the camera, removes the need to constantly stream video to the NVR.
- With such "bursts" of high quality video triggered by alarms low bandwidth networks such as wireless radios can be successfully used.
- A secure communication with network cameras is created by providing some kind of identity — through a username and password to the camera and the DETEXI NVR. If authentication authorized and accepted, that is, verifying whether the device has the authority to operate as requested, the device is fully connected and operational in the system. This allows protecting the camera from an attacker who knows camera's IP address.
- To configure a network camera on detecting an alarm or event to deliver images sequentially to an FTP server the set-up wizard in the product should be used.
- The NVR **FTP Server** service should run and be monitored. FTP Server service receives images from cameras via FTP and writes them into the NVR archive. It also raises an alarm when such images are received from a camera, and can also be used for FTP notification of IP address changes from the camera to the NVR.

2. Setup NVR FTP Server

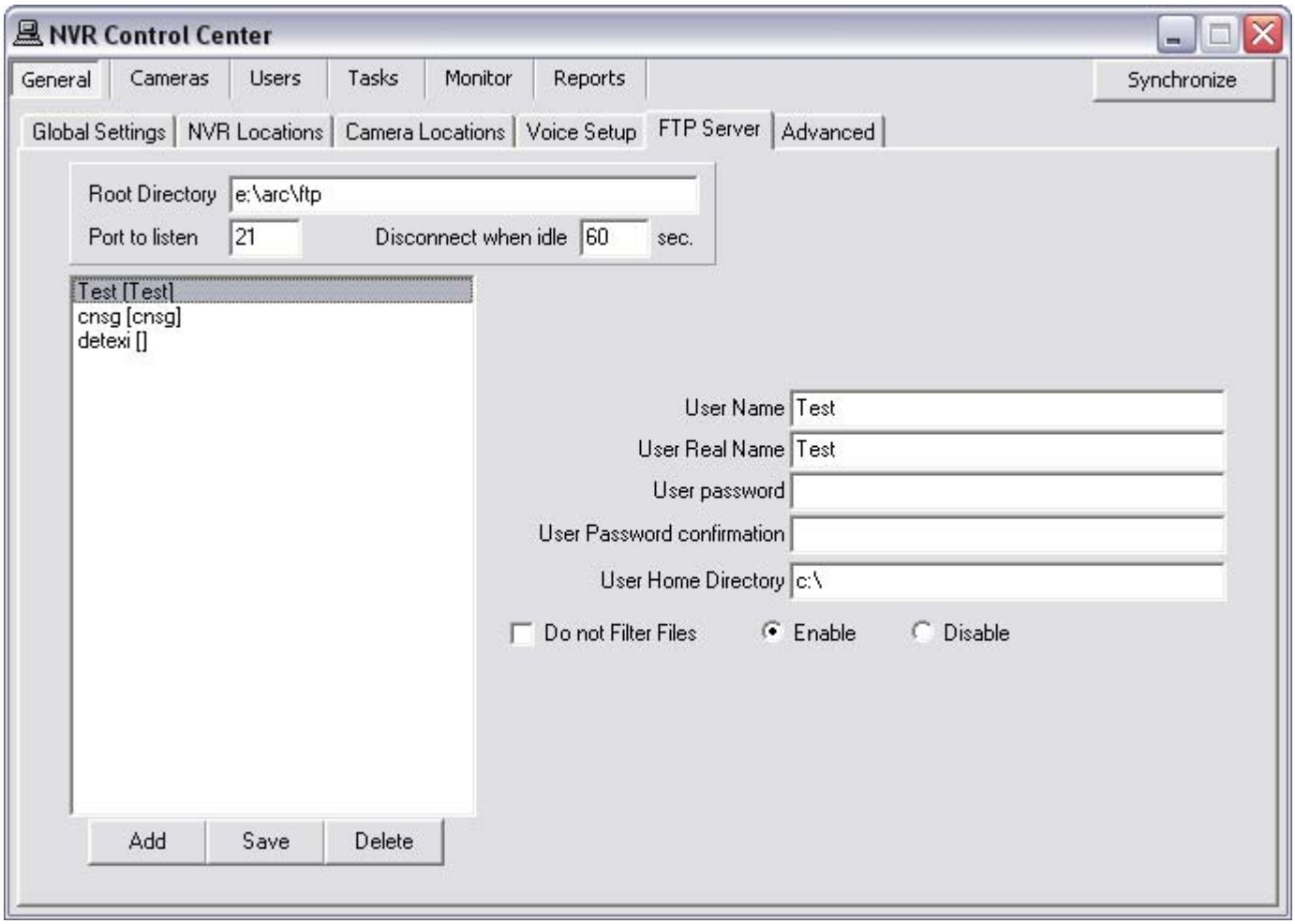


Fig 57. NVR Control Center — Genera — FTP Server

(Setup DETEXI NVR FTP Server.)

1. In the **NVR Control Center** go to the **General — FTP Server** (Fig 57).

2. Define the **Root Directory** on the NVR **FTP Server**.
3. Enter **Port to listen** number and specify **Disconnect when idle** time.
4. Click the **Add** button below the users list to create a new user.
5. Enter **User Name** and **Password** — for the camera's FTP connection authentication.
   - ✓ Even though a specific username/password can be used for each network camera, the same username/password can also be used for all of them.
   - ✓ Proper authentication information must be provided to the cameras.
6. Leave the **User Home Directory** *(standard FTP Server setting)* **blank** — images from each camera will be saved in a subfolder, named based on the **Images path for the FTP Server** camera's setting.
7. During normal operation the **Do not Filter Files** checkbox **must be unchecked**.
8. Any user from the users list could be temporarily disabled by selecting **Disable** radio button.

Camera FTP Setting in the NVR

To define where the images FTP'ed from an IP device will be stored when uploaded —

1. In the **NVR Control Center — Cameras** select a camera from the **Cameras List** and switch to the **Recording** (Fig 58).
2. Enter the **Images path for FTP Server**; the images FTP'ed from the camera will be saved in this folder in the FTP Server **Root Directory**, specified in the NVR Control Center — General — FTP Server.
   - ✓ The same path **must** be setup in the IP device built-in FTP Client for the FTP'ed files upload path.

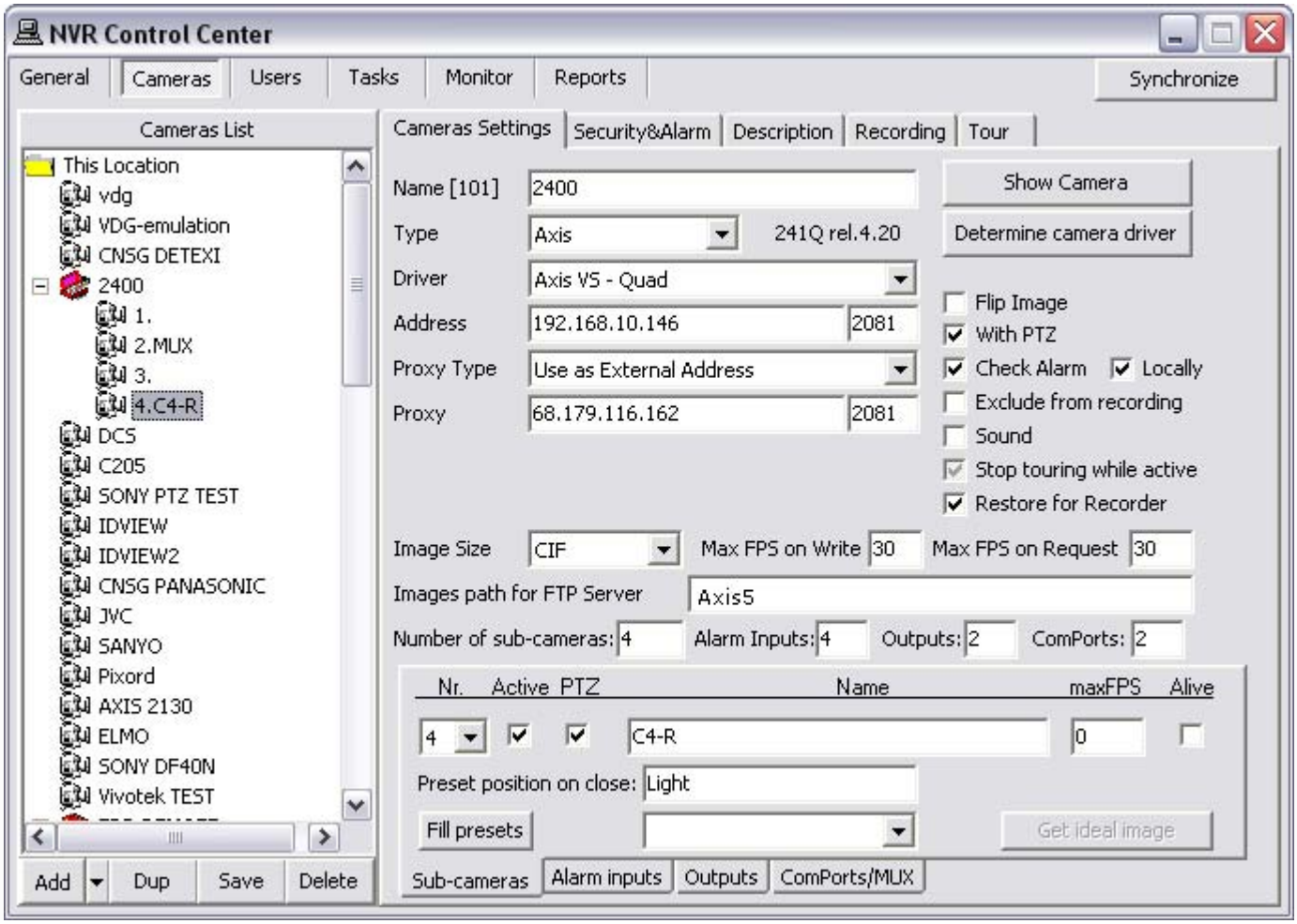


Fig 58. NVR Control Center — Camera Settings

(Define Images Path for NVR FTP Server.)

File Filtering

1. In the **NVR Control Center** go to the **General — FTP Server** during normal operation the **Do not Filter Files** checkbox **must be unchecked** (Fig 58).
   - ✓ In this case, when the images are uploaded and saved in the **Root Directory** subfolders the NVR immediately filters those files to determine weather they belong in the NVR Archive based on their file names. If any file name does not make sense to the NVR, the file will be thrown out rather than integrated into the archive.
   - ✓ The IP device FTP Client should be setup for proper file naming. The file names must be of the correct format, which the NVR understands.
   - ✓ File filtering can be temporarily disabled, allowing you to ensure that files are being uploaded to the NVR FTP Server properly.
2. To temporarily disable file filtering **check** the **Do not Filter Files** checkbox.
   - ✓ Be sure to turn the file filtering back on, or images will not be recorded to the NVR Archive.

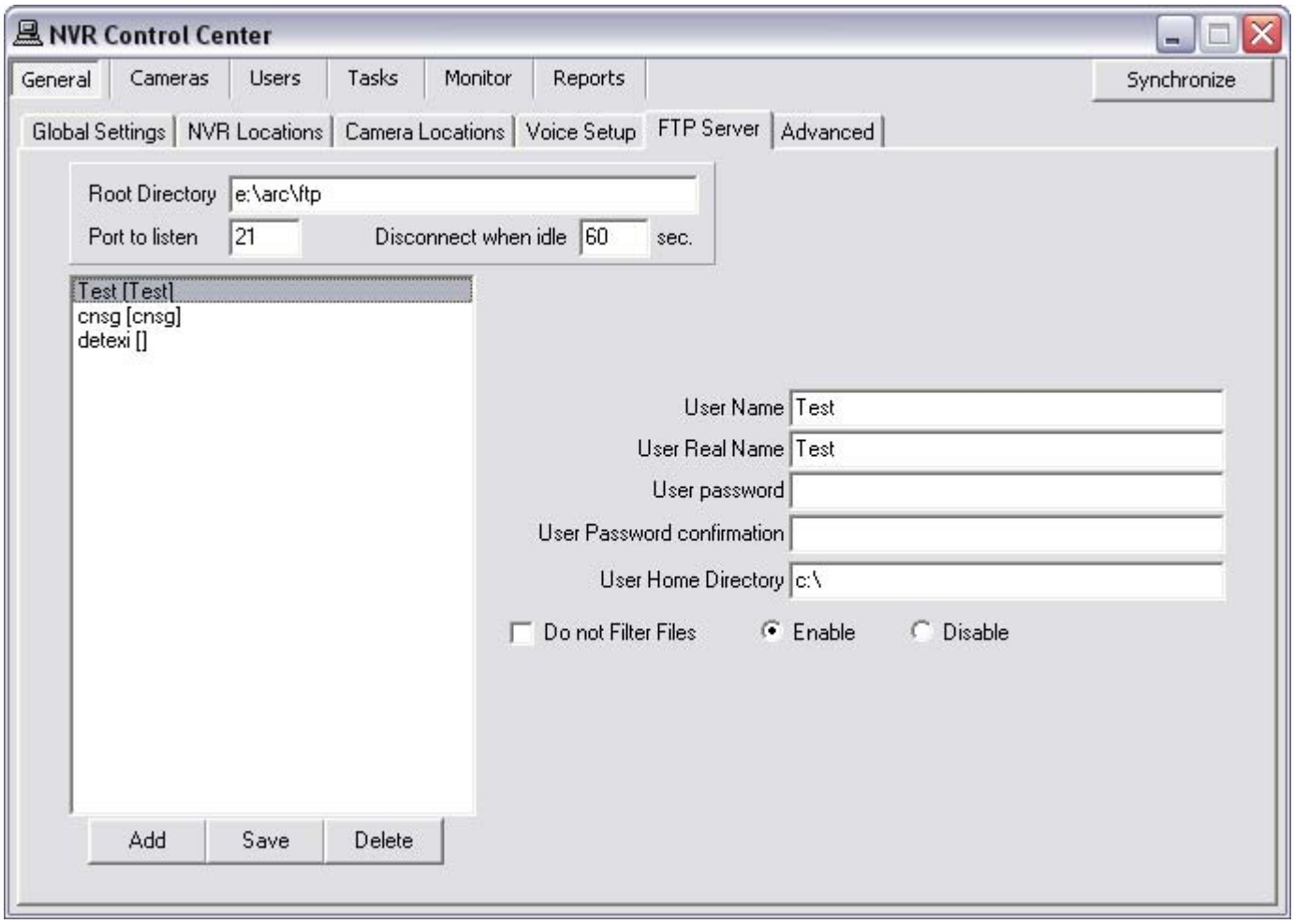


Fig 58. NVR Control Center — Genera — FTP Server
(File Filtering.)

4. Setup Action on FTP Alarm

In some wireless configurations, and other environments where constant streaming is not possible, video can be uploaded via FTP based on decision making within the IP-device. When video is uploaded to the DETEXI NVR FTP Server, the video is merged into the archive as alarm video, and the FTP Alarm event is raised. To setup an action to be executed on the FTP Alarm a previously created task should be assigned to the event.

1. In the **NVR Control Center — Cameras** select a camera to configure from the **Cameras List** and switch to the **Security & Alarm** (Fig 59).
2. Under the **Actions on Alarm** select an appropriate predefined task from the **FTP Alarm Task** drop-down list.
3. Click **Save** button below the **Cameras List** to save settings.

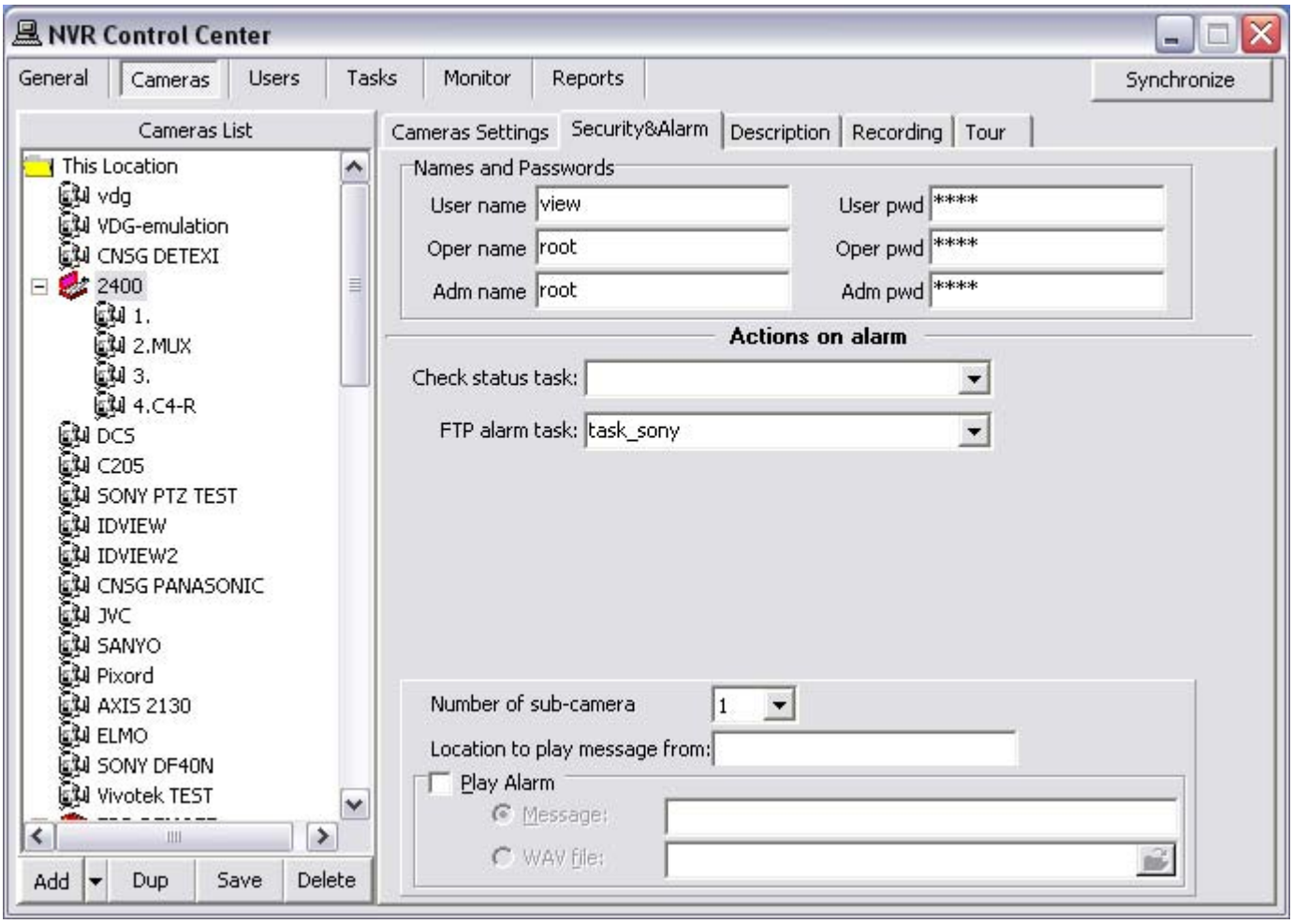


Fig 59. NVR Control Center — Cameras— Security & Alarm
(Setup Action on FTP Alarm.)

- ✓ Each individual event can only have **one** task assigned to it.
- ✓ Any task can include one or more actions/notifications, allowing for **multiple** things to happen when a single alarm or event is raised.
- ✓ An event can also have a **composite task** assigned to it. Any composite task consists of several predefined tasks of the user's choice.

5. Setup Camera Built-in FTP Client

Network cameras or video encoders can use FTP to transmit images to the FTP server. In such a case, the network camera acts as an FTP Client and establishes an event-based connection to the NVR FTP Server. To setup camera built-in FTP Client follow the instructions in the **manual specific to the type of camera**.

- Proper `authentication` information **must** be provided to the cameras as it was setup in the **NVR Control Center — General — FTP Server**.
- The same path **must** be setup for the FTP'ed files upload path in the IP device built-in FTP Client that was specified in the **Images path for FTP Server** camera setting in the **NVR Control Center — Cameras — Recording**.
- Even though some cameras can have up to 4 I/O ports, only **one particular port** can be associated with the FTP.

Since the network cameras do not have a standard format for the FTP sequence file names, different names for the different camera types **must** be setup as provided in the following table to make sense to the DETEXI NVR.

CAMERA TYPE	FTP SEQUENCE FILE NAME (BASE)
AXIS 2120	`alarm_cam1`
AXIS 2130	`alarm`
AXIS 2400	`alarm` `alarm_cam[X]` *for firmware older than 2.20*
AXIS 2401	`alarm_cam1`
AXIS *firmware release from 4.00 and higher*	`alarm_cam[X]_%y%m%d_%H%M%S_#s.jpg` *([X] — port number for the device)*
SONY	`asony`
JVC	`alarm_jvc`
Panasonic KX-HCM280	`alarm_pan1_` *(with date/time suffix and path:* `/Panason/alarm_pan1_` *in prefix)*
IQeye	`alarm_IQ_$SD.$ST.$FN` *(under the Trigger Settings)*
Lumenera	`alarm_cam1_%Y_%m%d_%H%M%S_%%04i.jpg` *(under the Alarms — Path Settings)*

- ✓ Panasonic and AXIS cameras **must** be set for 24H in the `Time Settings`.
- ✓ Instead of `alarm`, it could be `raise` string in `Base File Name` settings. In this case FTP server acts like **IOListener** letting **Recorder** know that alarm is raised on the camera.
- ✓ If the NVR FTP Server receives two or more ftp sequences from the same camera within one minute, the alarm will be raised only once, nevertheless all ftp sequences will be saved properly.

6. Enable FTP Server Log Files

To provide assistance for testing and troubleshooting the NVR FTP Server log files should be enabled.

- **Error.log** file will only be created if there are errors to report.
- **Debug.log** file will contain basic alarm information for each upload.
- **Trace.log** file will contain verbose logging information for the FTP Server, including user activity as well as every file uploaded.

By default, the DETEXI NVR components and files are installed in the `C:/Program Files/CamServer` folder. All configuration databases, media, programs and log files are stored here.

Enable FTP Server Log Files

The **FTP Server** service should be `running and monitored` in order to upload the files FTP-ed from the network cameras. When the service is running the NVR FTP Server icon will appear in the `System Tool Tray`.

1. Double-click the NVR FTP Server icon — the NVR FTP Server interface will launch (Fig 60).
2. Switch to the **Tools — Active Logs** and select log files to be written.

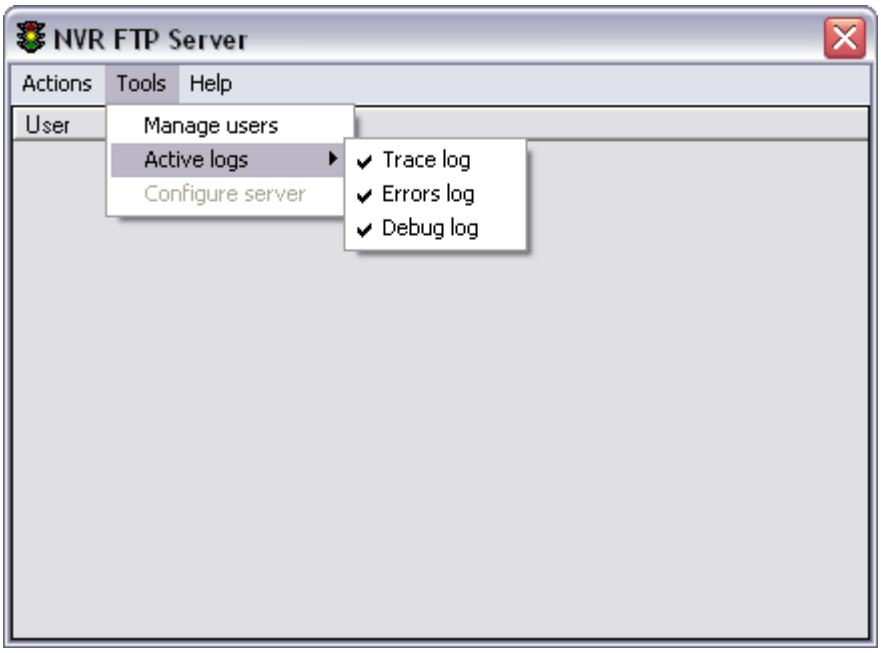


Fig 60. NVR FTP Server — Tools — Active Logs

(Enable FTP Server Log Files.)

View User Info

To view the information about users in the NVR network (Fig 61):

1. Double-click the NVR FTP Server icon in the `System Tool Tray` — the **NVR FTP Server** interface will launch.
2. Switch to the **Tools — Manage Users** to view users list.
3. Click **Close** button to close the window.

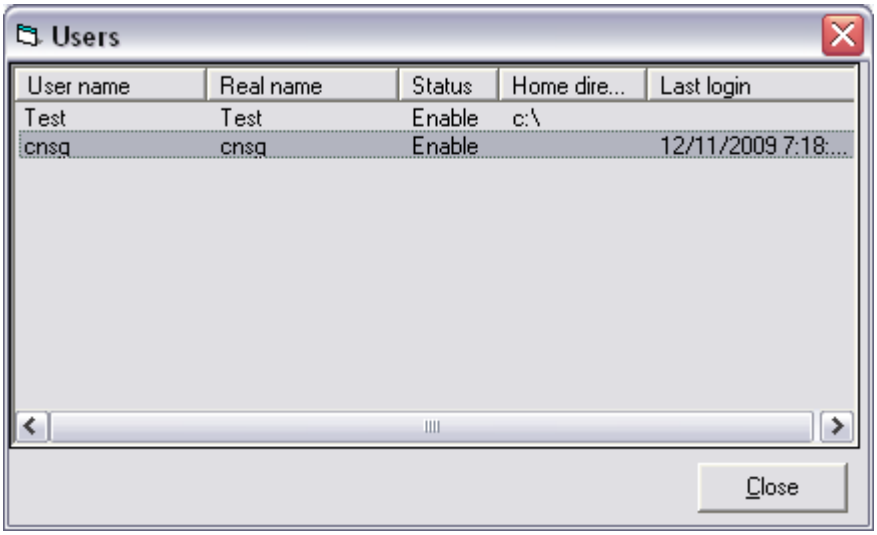


Fig 61. NVR FTP Server — Tools — Manage Users

(View User Info.)

NVR Input / Output Devices

In order to get the DETEXI NVR modules that integrate different mechanical and electronic security solutions such as access control devices, building management systems and industrial control systems specific licenses should be purchased and appropriate **add-ons must be installed** on the DETEXI NVR.

DETEXI NVR ADD-ONs Integrating I/O devices

License	Module	Description
dtx-isonas base	**DETEXI NVR–ISONAS Bridge**	Integration of ISONAS IP proximity card reader-controllers solution
audio-gate base	**DETEXI IP Audio**	Integrated two way audio/gate control module
access-control base	**DETEXI ICM**	Integrated response to access control information (Paradox panel, I/O PCI Card, Game Port)

If you have an appropriate licenses acquired and proper add-ons installed you will see **IO Devices** tab In the **NVR Control Center** and will be able to setup and work with (Fig 62):

1. Gameport
2. IOBoard ET-PCI16IO
3. Paradox Spectra device

Task can be assigned to any event the device could create. On receiving signal from the device an appropriate task will be executed.

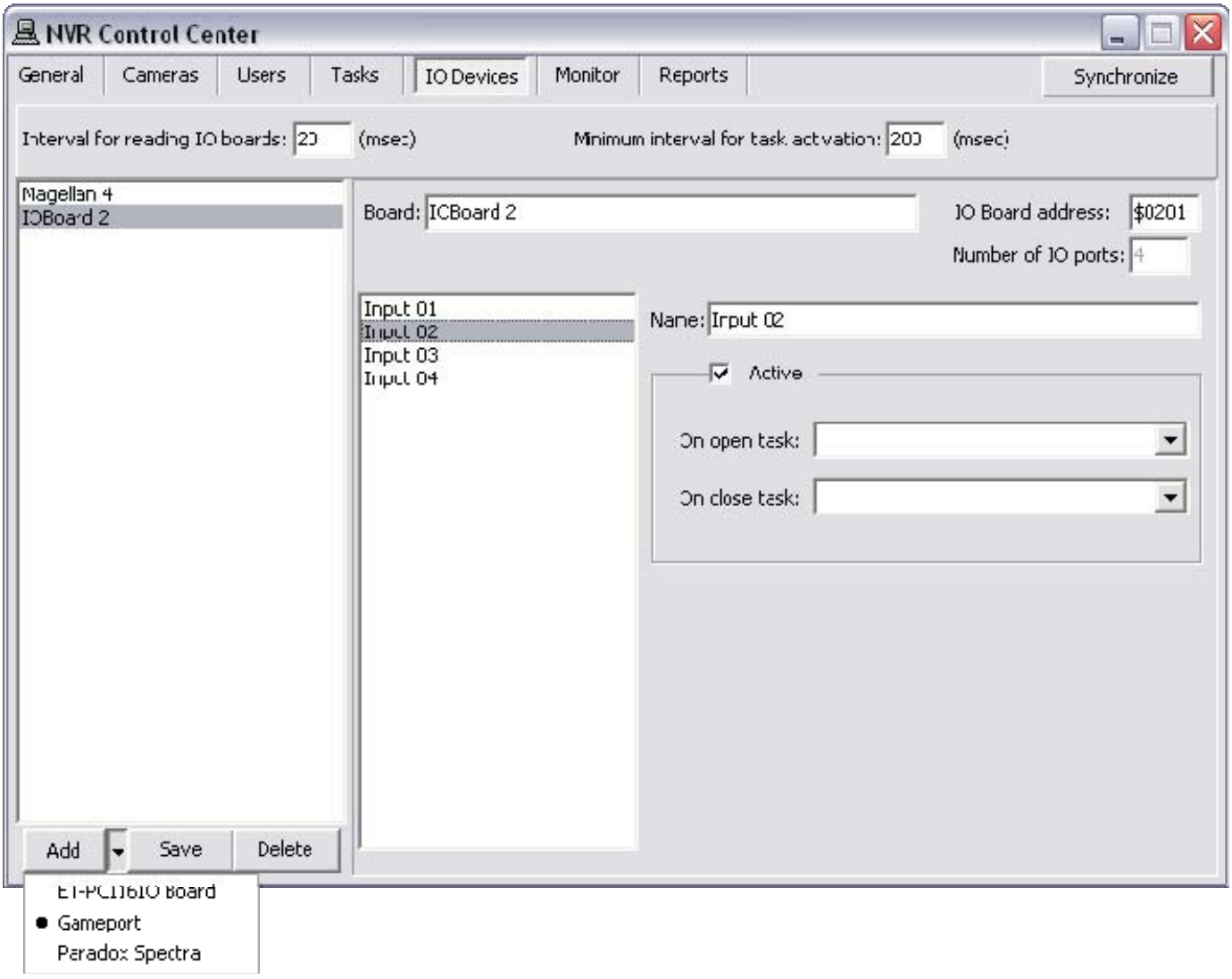


Fig 62. NVR Control Center — I/O Devices

(Add IO Device to the DETEXI NVR.)

- ✓ Each individual event can only have **one** task assigned to it.
- ✓ Any task can include one or more actions/notifications, allowing for **multiple** things to happen when a single alarm or event is raised.
- ✓ An event can also have a **composite task** assigned to it. Any composite task consists of several predefined tasks of the user's choice.

Event Management

The DETEXI NVR has the ability to receive, process, and associate events from different systems. Events can be received from access control, the software, and the network video products themselves. Once an event is triggered, the NVR register the event, associate it with a video clip from a nearby camera, and alert an operator, or investigator by sending a notification or by having a window with streaming video pop up on a viewing terminal, or respond any other configured way. This allows remote monitoring stations (Remote DETEXI Clients) to become immediately aware of a change in a monitored environment and response to things that occur.

- Having event management functions in the NVR provides tremendous benefits. It enables more efficient use of bandwidth and storage space because there is no need for a network camera or video encoder to send any video for viewing or recording unless an event takes place.
- In addition, live monitoring of cameras is not required all the time. When an event takes place, alerts and notifications can be sent, and all configured responses (actions) can be activated automatically.
- Event management, which includes alarm handling, involves defining an event that activates a network video product to perform certain actions. An event can be scheduled or triggered

Events can be triggered by, for example:

Input port(s) — the input ports on a network camera or video encoder can be connected to external devices such as a motion sensor or a door switch.

Manual trigger — an operator can make use of buttons to manually trigger an event.

Video motion detection — when the NVR detects certain movement in a camera's video, an event can be triggered.

Responses

The DETEXI NVR can be configured to respond to events all the time or at certain set times. The system response configuration is based on the NVR Task Execution Engine. When an event is triggered, some of the common responses can be configured include the following:

- Upload images for recording at specified locations and at a certain frame rate using a specified compression type and level during the course of an event.
- Activate output port: the output ports on a network camera or video encoder can be connected to external devices such as alarms or a door switch.
- Execute an external program on the DETEXI NVR, with user-defined parameters if desired.
- Send e-mail notification: this notifies users that an event has occurred. An image of the first frame of the alarm video also can be attached in the e-mail.

- Call a user-defined phone or pager and play alarm-specific or a user-defined WAV file or text-to-speech message. Has the ability to attempt multiple times on failure.
- Go to a PTZ preset: this feature may be available with PTZ or dome cameras and enables the camera to point to a specified position, such as a window, when an event takes place.
- Activate an audio alert — plays alarm-specific or a user-defined WAV file or text-to-speech message over the NVR Server soundcard.
- Enable on-screen pop-up in the DETEXI Client, showing alive video from a camera where an event has been activated.
- Show procedures that the operator should follow — send a user-defined message to be displayed on the operator's computer.

✓ In addition, pre-alarm (for soft motion detection) and post-alarm (for I/O alarms or motion detection) image buffers can be set in the DETEXI NVR, enabling a network video product to send a set length and frame rate of video captured before and after an event is triggered. This can be beneficial in helping provide a more complete picture of an event.

Configure Alarm Server Service

The **Alarm Server** service is responsible for raising alarms via the text-to-speech engine, telephone, e-mail and should be running in order to send the following alert notifications —

- **Phone** notification calls a user-defined phone or pager and plays alarm-specific or a user-defined WAV file or text-to-speech message. Has the ability to attempt multiple times on failure.
- **Email** notification sends an alarm-specific or user-defined email to one or more user-defined email addresses. Has the ability to attempt multiple times on failure.
- **Speak** notification plays alarm-specific or a user-defined WAV file or text-to-speech message over the NVR Server soundcard.

1. Launch Alarm Server Interface

If the NVR is running the **Alarm Server** icon appears in the Windows taskbar tool tray. Double-click the icon to launch the Alarm Server interface (Fig 63). Switch to the **Voice**, **Phone** or **Mail** configuration.

Fig 63. Alarm Server Start Page
(Configure Voice, Phone or Email.)

2. Voice Configuration

1. In the **Alarm Server — Voice Configuration** select **Voice Type** and **Speed** (Fig 64).
2. By pressing the **Test over speakers** button, you can hear the test message.
3. Select a **Format for writing Wave files** from the list.
4. If you want to change the default alarm message to your own, enter a new message in the **Information for recording to file** textbox and save the file.
5. A specific alarm voice message than can be assigned to a selected camera in the **NVR Control Center — Cameras —Security & Alarm** *(the default alarm message is assigned automatically).*
6. Save changes.

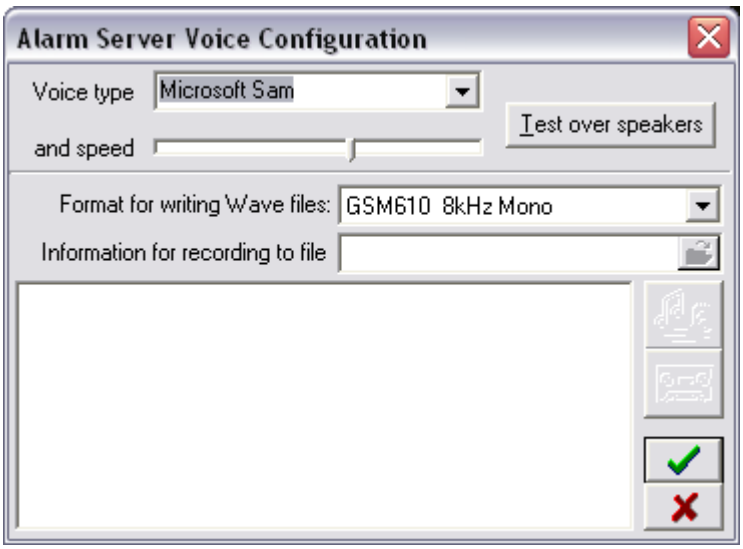


Fig 64. Alarm Server — Voice Configuration
(Configure Voice.)

3. Phone Configuration

1. Append voice modem hardware.
2. In the **Alarm Server — Phone Configuration** select appropriate sound files and **Waiting delay for answer** (Fig 65).

Fig 65. Alarm Server — Phones Configuration
(Configure Phone.)

4. Email Configuration

You must correctly configure the Internet e-mail information service to send messages in the NVR.
To do this, you must configure specific information about your e-mail account in the Alarm Server .

1. In the **Alarm Server — Outgoing mail configuration** select appropriate sound files and **Waiting delay for answer** (Fig 66).

Fig 66. Alarm Server — Phones Configuration
(Configure Phone.)

Tasks

The DETEXI system has the ability to complete different kind of actions at many different stages of video recording and viewing. This allows for immediate response to things that occur — turn on/off lights, start recording alarm video, open/close security gates, and even inform personnel via phone or other means. These and other capabilities of the DETEXI system make it more than just a video recording tool. Software motion detection, alarm detection, other events, and the actions that can be taken on these alarms and events make the **DETEXI** an **Intelligent Network Video Management System**.

Actions/notifications triggered by alarms or events raised in the system are called **tasks**. Each task is a list of preconfigured actions and/or notifications that define what is to happen. Tasks execution is triggered on events that occur in the system if configured in the DETEXI NVR. Any task can include one or more actions/notifications, allowing for multiple things to happen when a single alarm or event is raised.

1. Action Types

The following types of actions are available for configuration in a task —

- **Record Camera** — records alarm video for a user-defined camera or for the camera associated with the event that triggered it. The length, picture quality, and camera position of the recording can be

defined if desired. An alarm snapshot can also be taken by this task.

- **Move Camera** — for PTZ cameras, moves a user-defined camera to a user-defined position or preset, and can dwell for a user-defined length of time before returning to another defined position if desired.
- **Video Popup** — launches specified camera's live view video streaming on the defined DETEXI Client computer. The Client must already be running on the defined computer.
- **Control Relay** — controls the output relay of a specified camera — turns on, turns off, or activate for a user-defined length of time.
- **Control Tour** — starts or stops a pre-configured tour on a specified camera for a user-defined period of time if desired.
- **Execute Program** — executes an external program on the NVR Server, with user-defined parameters if desired.

2. Notification Types

The following types of notifications are available for configuration in a task —

- **Network Client —** launches the camera in alarm (when applicable) live video stream along with alarm information and alarm video access, to the defined DETEXI Client computer. Alternatively, sends a user-defined message to be displayed on this computer, disregarding any alarm-specific information.
- **Phone —** calls a user-defined phone or pager and plays alarm-specific or a user-defined WAV file or text-to-speech message. Has the ability to attempt multiple times on failure.
- **eMail —** sends an alarm-specific or user-defined email to one or more user-defined email addresses. Has the ability to attempt multiple times on failure.
- **Speak —** plays alarm-specific or a user-defined WAV file or text-to-speech message over the NVR Server soundcard.

3. Define New Task

Before any task could be assigned to a specific alarm/event it should be defined in the NVR. Each task is a list of preconfigured actions and/or notifications that define what is to happen.

Add New Task

1. In the **NVR Control Center — Tasks** click **Add** button under the **Task** list to add a new task.
2. Enter the **Task Name** and **Description** (Fig 67).
3. Press **Save** button to save new task.
   - ✓ When defining a task, users have the option to assign an execution schedule to that task. Schedules are not required, but are another way to trigger tasks.
   - ✓ Task schedules can execute task repeatedly within a time frame, or at a specific time.
   - ✓ Tasks are not limited to being assigned to a schedule, an alarm or event; in fact, a single task can be assigned to execute based on a schedule as well as several different alarms and/or events for several different cameras if appropriate.
4. With the new task selected in the **Task** list, right-click and choose **New — Action** or **New — Notification** option to configure action or notification in the task accordingly.
   — OR —
   Choose **New — Task** option to configure a composite task.

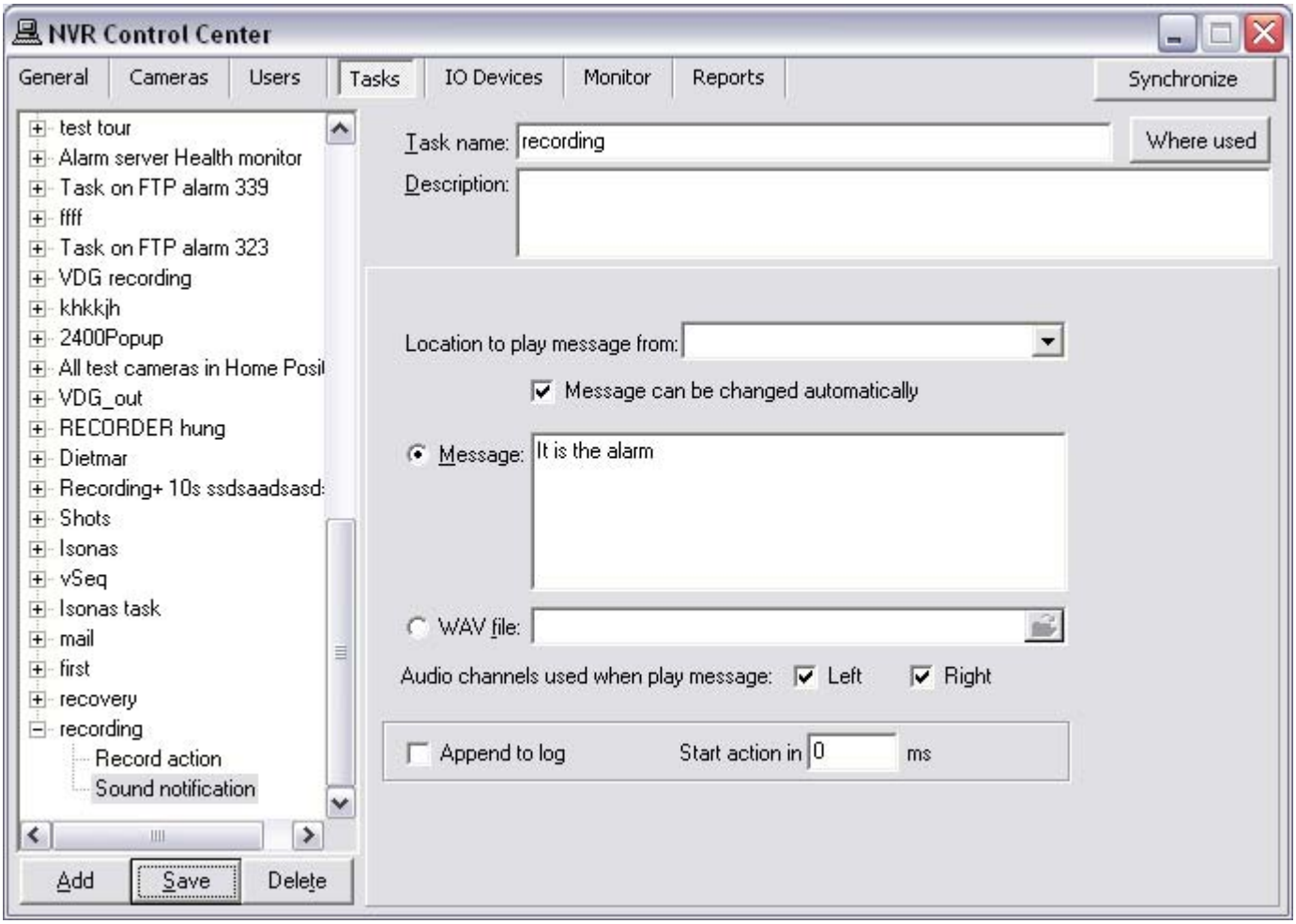


Fig 67. NVR Control Center — Tasks
(Add New Task.)

- ✓ Each individual event can only have **one** task assigned to it.
- ✓ Any task can include one or more actions/notifications, allowing for **multiple** things to happen when a single alarm or event is raised.
- ✓ An event can also have a **composite task** assigned to it. Any composite task consists of several predefined tasks of the user's choice.

Add New Action to the Selected Task

1. In the **NVR Control Center — Tasks** select a task in the **Tasks** list, right-click and select **New — Action** the action's menu appears (Fig 68).
2. Select the action to configure — **Record Camera**, **Move Camera**, **Video Popup**, **Control Relay**, **Control Tour** or **Execute Program** — right panel will be populated with configuration settings specific to this action.
3. Configure the selected action and click **Save** button under the **Task** list to save the task configuration.

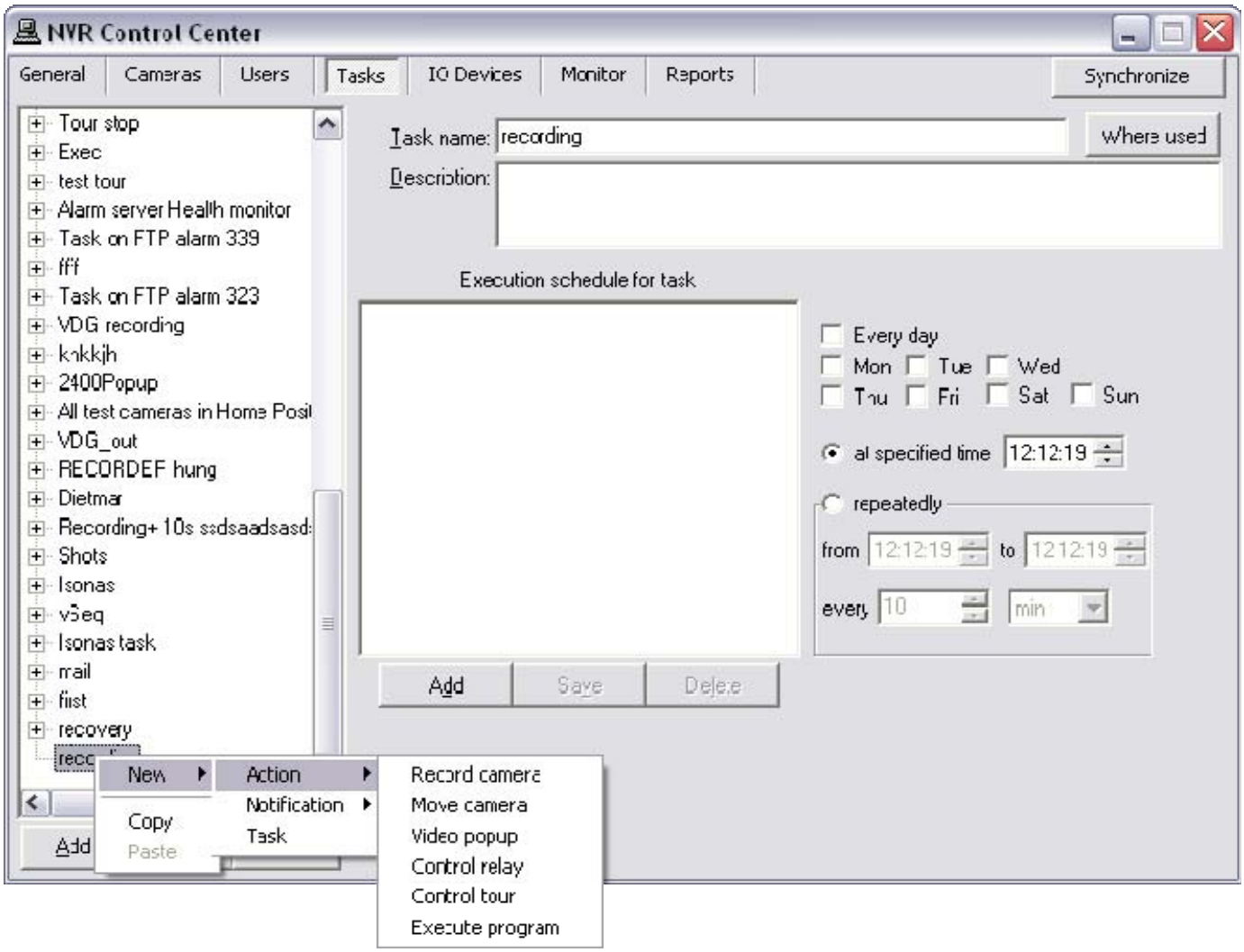


Fig 68. NVR Control Center — Tasks
(Add Action to the Selected Task.)

✓ To add more actions/notifications to the task — with the same task selected, right-click and choose **New — Action** or **New — Notification** option to add one more action/ notification to that task.

Add New Notification to the Selected Task

1. In the **NVR Control Center — Tasks** select a task in the **Tasks** list, right-click and select **New — Notification** the notification's menu appears (Fig 69).
2. Select a notification to configure — **Network Client**, **Phone**, **eMail** or **Speak** — right panel will be populated with configuration settings specific to this notification.
3. Configure the selected action and click **Save** button under the **Task** list to save the task configuration.

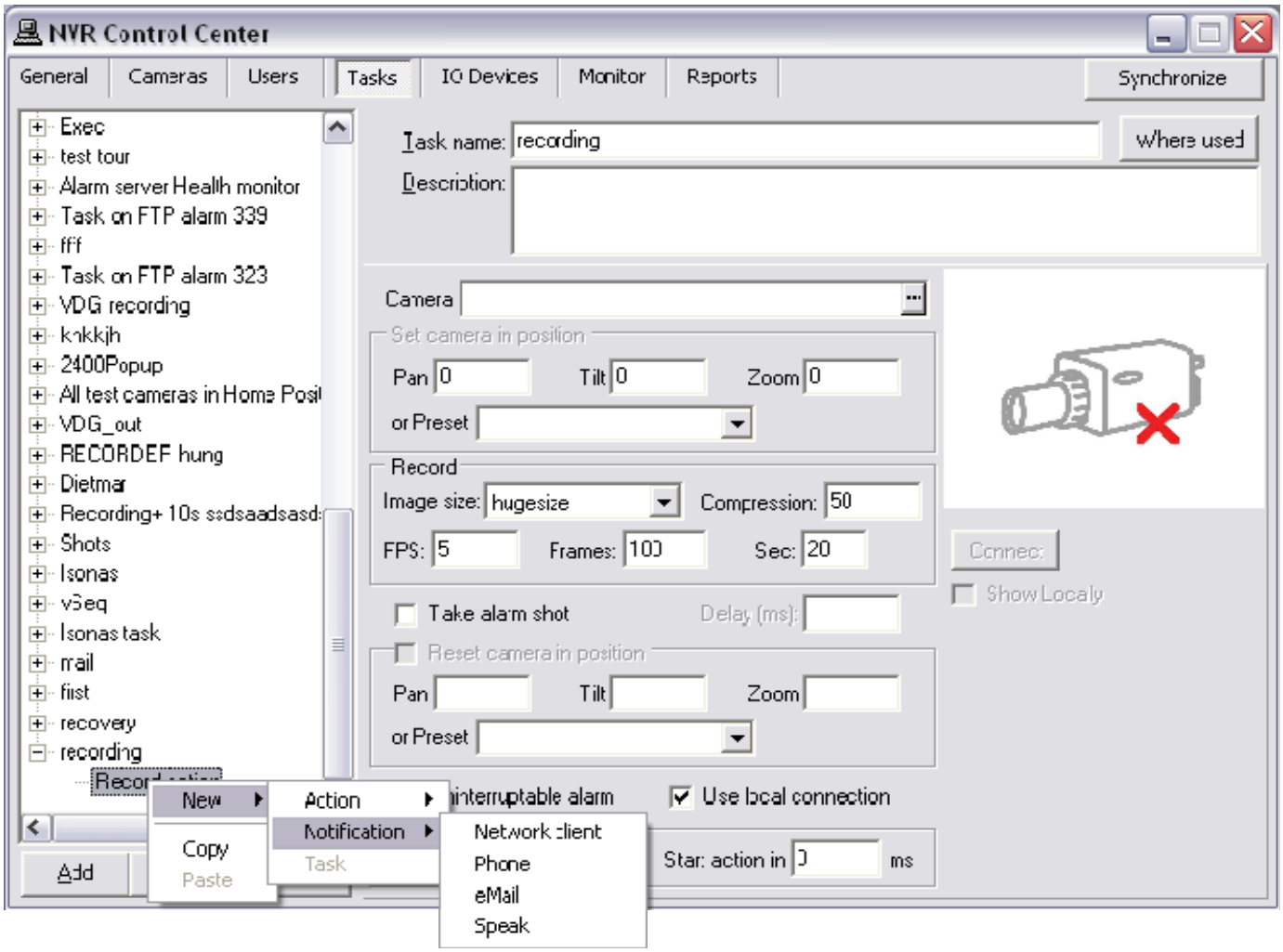


Fig 69. NVR Control Center — Tasks
(Add Notification to the Selected Task.)

4. Composite Task

An event can have a composite task assigned to it. Any composite task consists of several predefined tasks of the user's choice. And what is more, a composite task has embedded schedule for each task included.

1. If **New — Task** option was selected, the **Task** drop down list activates.
2. Select a task from the list and configure a schedule for this task (Fig 70).

   ✓ To add more tasks to the composite task — with the same task selected in the **Task** list, right-click and choose **New — Task** option.

   ✓ Composite tasks are red colored in the list.

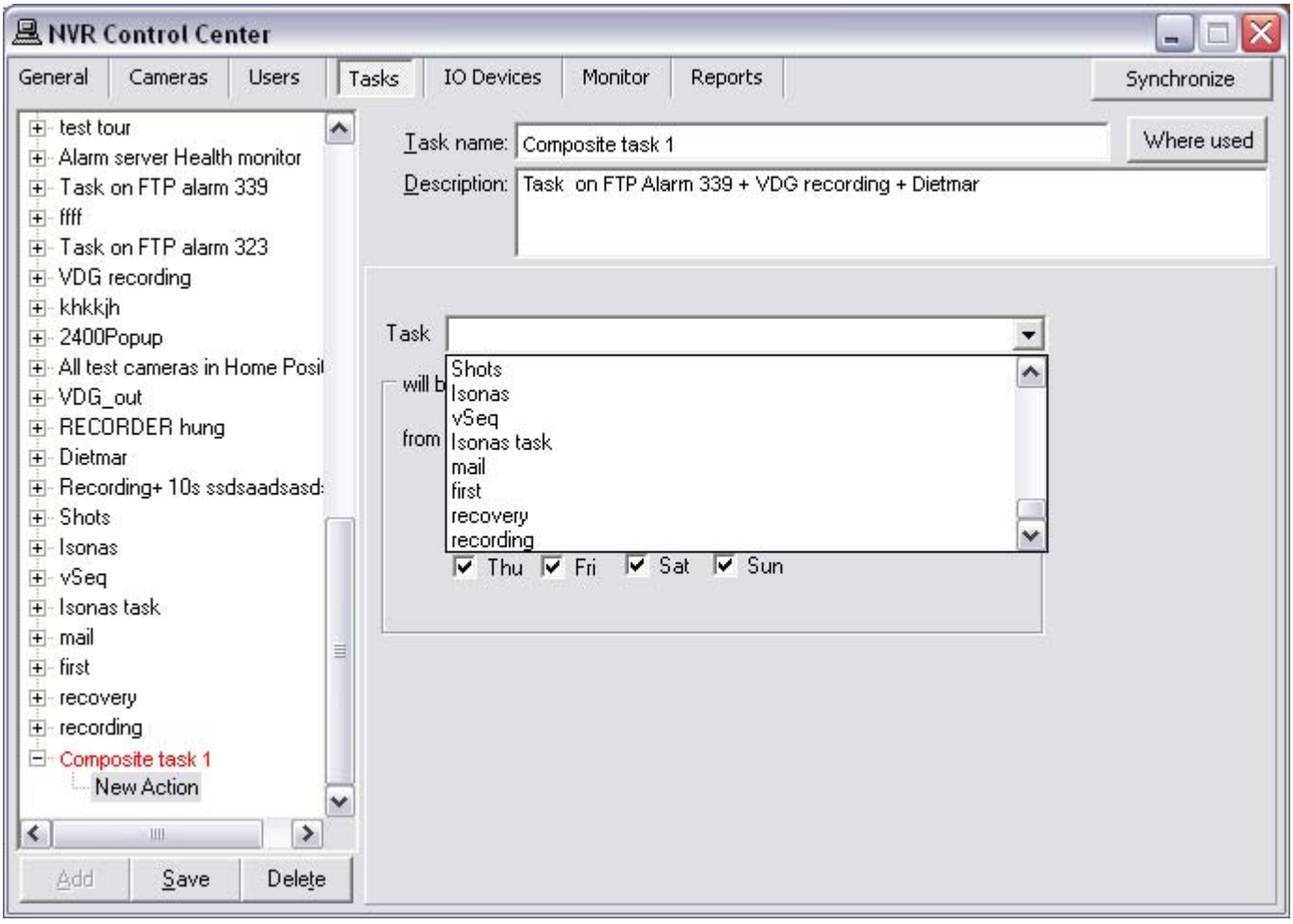


Fig 70. NVR Control Center — Tasks
(Composite Task.)

5. Task Usage Info

To keep track of the events and assigned tasks launch **Information About Task Usage** page.

1. In the **NVR Control Center — Tasks** click on **Where Used** button at the top-right — **Information About Task Usage** page appears (Fig 71).
2. Once on the page, select any **Task** from the list on the left — all events that the task is assigned to will be listed in the right pane.

✓ The **Information About Task Usage** page can also be launched from any page or pane in the **NVR Control Center** by pressing **CTRL+T** keys

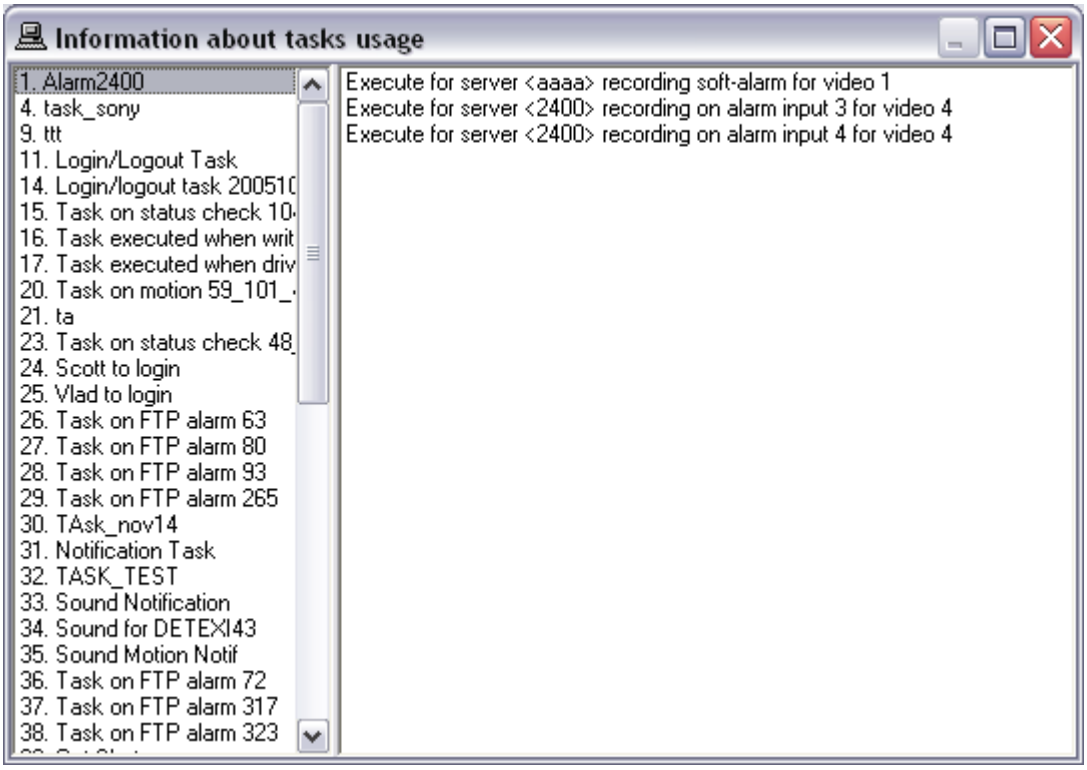


Fig 71. NVR Control Center
(Information About Task Usage.)

Configure Action

Before any task could be assigned to a specific alarm/event it should be defined in the NVR. Each task is a list of preconfigured actions and/or notifications that define what is to happen.

1. Record Camera

Record Camera action records `alarm video` for a user-defined camera or for the camera associated with the event that triggered it. The length, picture quality, and camera position of the recording can be defined if desired. An alarm snapshot can also be taken by this task.

When **New — Action — Record Camera** is selected the right panel will be populated with configuration settings specific to the action. To configure the action:

1) Define Camera

1. Choose camera to configure from the **Camera** drop-down list (Fig 72).
2. When camera is selected, click on the **Connect/Stop** toggle-button in order to connect to the selected camera *(click again to disconnect)*. On successful connection live video from the camera will appear.
   - ✓ This connection is temporary and allows the camera's settings to be configured and checked.
   - ✓ PTZ camera preset positions are only available if the connection is established.

3. **Show Locally** checkbox can be check to connect to the camera using local IP address and port number *(during configuration time only)*.

   ✓ **Show Locally** checkbox is only visible if camera has both an internal and external connections configured in the **NVR Control Center — Cameras — Cameras Settings**.

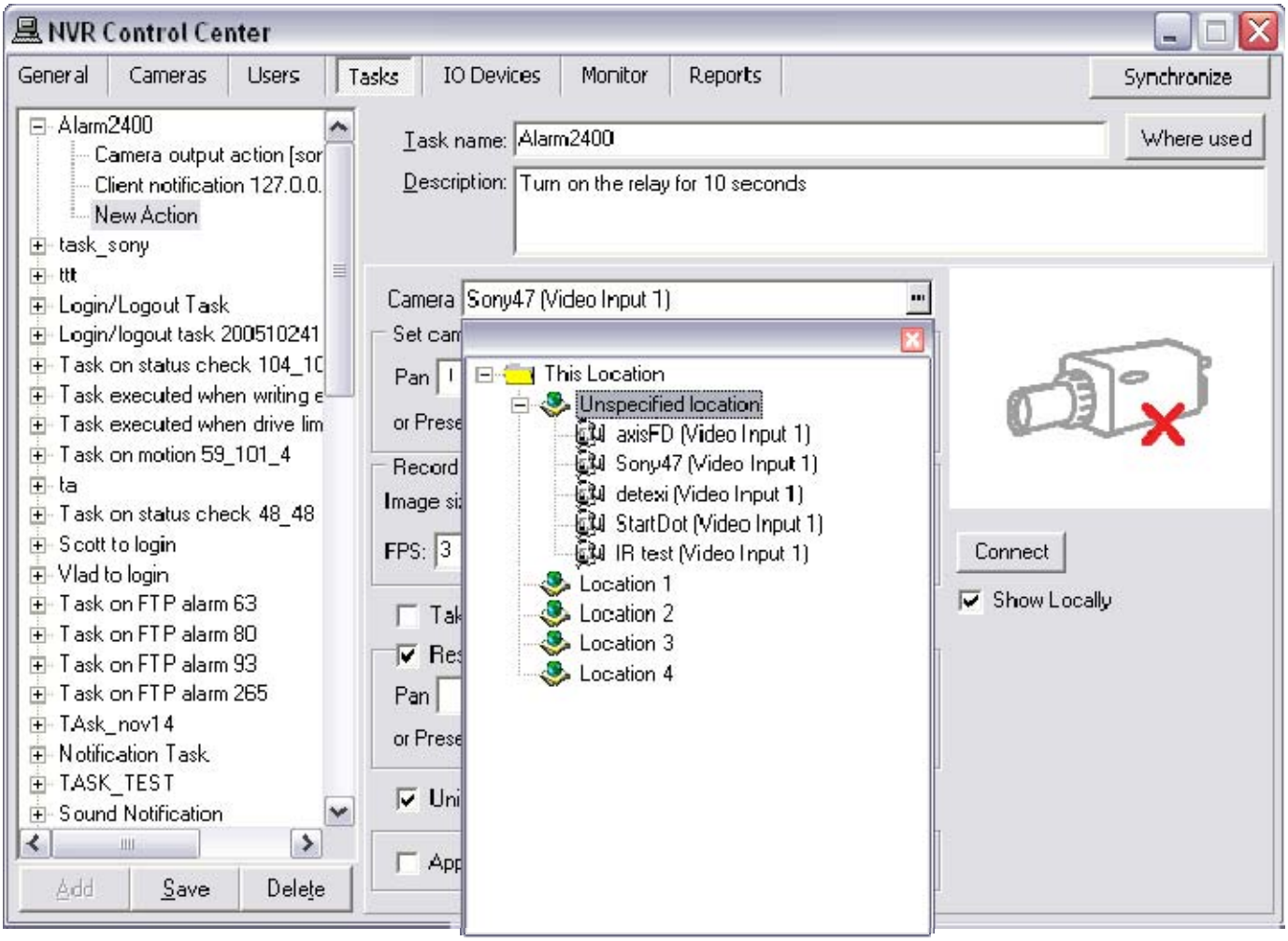


Fig 72. NVR Control Center — Tasks
(Configure Action — Record Camera — Define Camera.)

✓ There are two NVR services that should be running and monitored by the **Monitor** service in order to record video — **Recorder** and **Check Drive**. All NVR services are visible and configurable in the **NVR Control Center — Monitor**

✓ **Recorder** service records information and images from each video input into the NVR storage, according to the configured schedules, preferences, alarms and events.

✓ **Check Drive** service monitors the condition of the storage path and device to confirm existence and available space for new video being recorded to the archive.

2) Setup PTZ Camera Recording Position

When alarm condition is detected a PTZ camera can move in a predefined position to record alarm video and than return to any other position if necessary. Both positions should be configured.

1. To setup camera recording position under the **Set camera in position** enter **Pan**, **Tilt**, **Zoom** parameters or select a preset position from **Preset** drop-down list (Fig 73).
2. If required to move camera to another position after the alarm video is recorded — **check Reset camera in position** checkbox and enter **Pan**, **Tilt**, **Zoom** parameters or select a preset position from Preset drop-down list below.

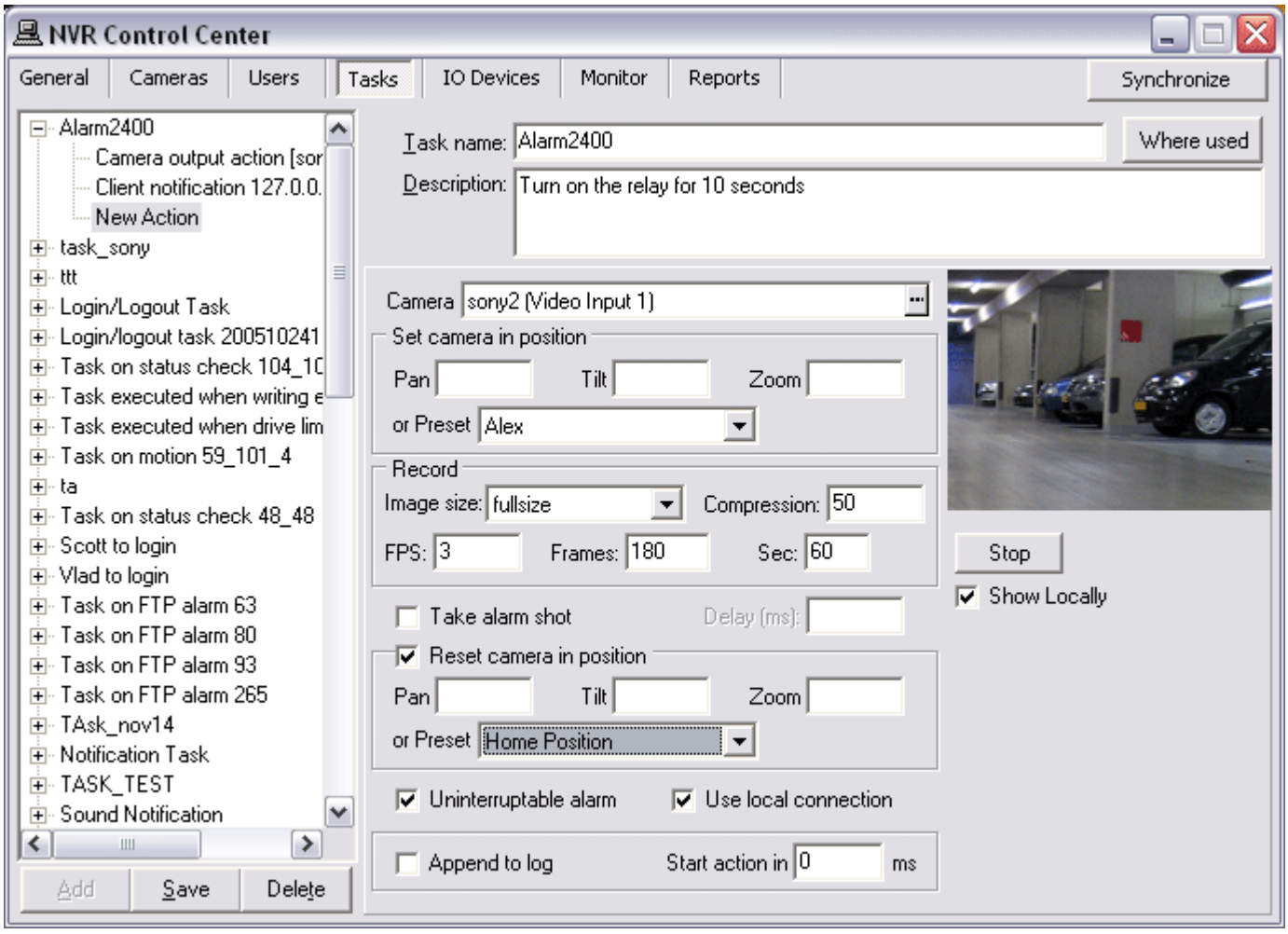


Fig 73. NVR Control Center — Tasks
(Configure Action — Record Camera — Setup PTZ Camera Recording Position.)

3) Check Camera Position with PTZ Control

1. To bring up a PTZ control — roll over the image and click on the button in the bottom right corner.
2. Getting PTZ values of the current position of the camera click on **Get PTZ** (Fig 74).
3. Change camera PTZ values —
   - ✓ Or enter **Pan**, **Tilt**, **Zoom** values.
   - ✓ Use **Zoom in/Zoom out** buttons on the right of **Zoom** field.
   - ✓ Click on **Set PTZ** to set camera in a configured position.
4. Use direction buttons and **Home** button on the left.

5. Or select a preset position from drop-down list and click **Go to Preset** to set camera in the selected position.

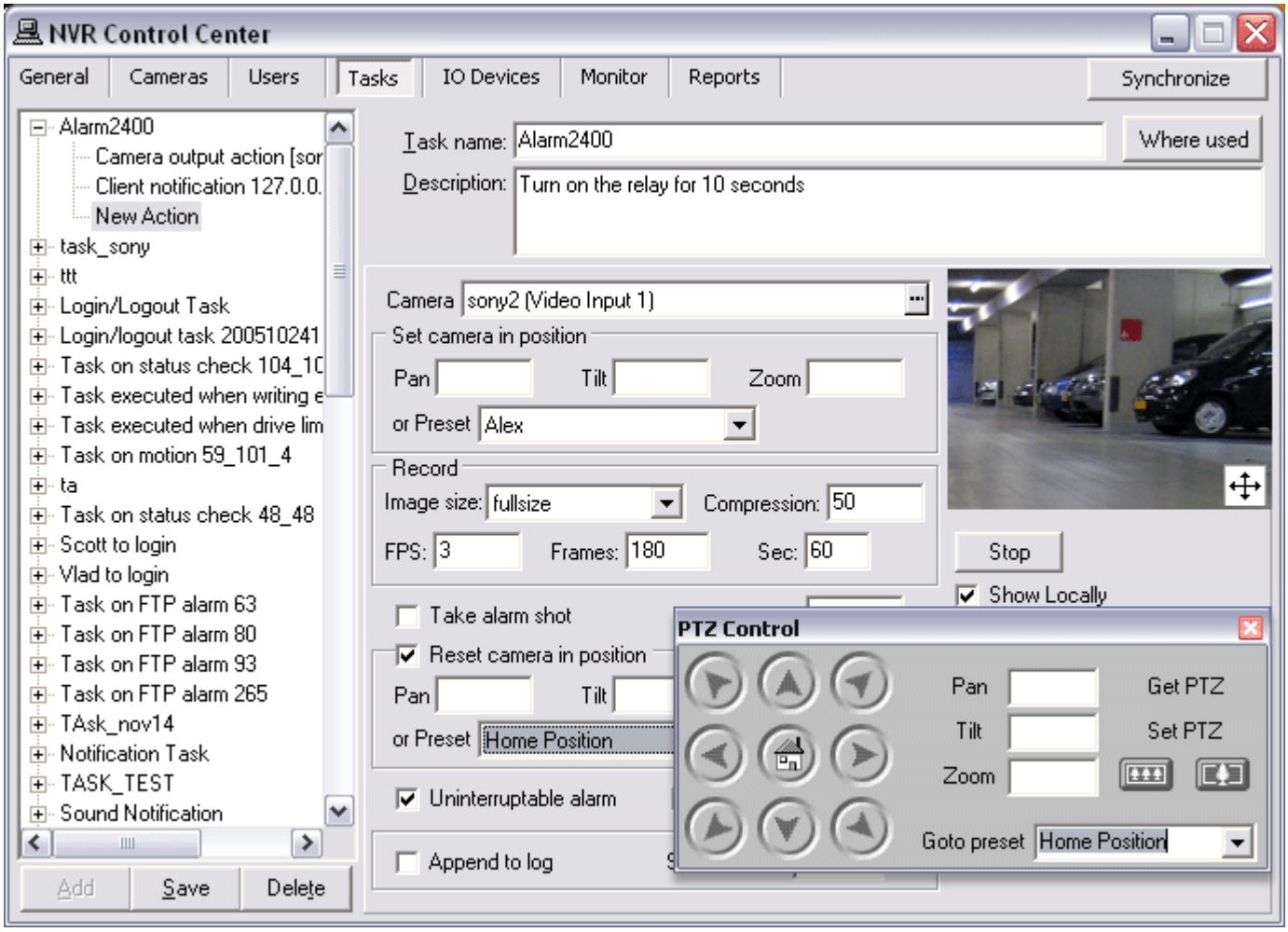


Fig 74. NVR Control Center — Tasks
(Configure Action — Record Camera — Check Camera Position.)

4) Setup Recording

1. In the **Record** section setup alarm video quality and duration (Fig 75) —
   - ✓ Select **Image size** from the drop-down list; enter **FPS** and **Compression %**
   - ✓ Enter video duration in **Frames** or **Sec** *(other parameter will be recalculated based on configured FPS)*
2. **Check** **Take alarm shot** checkbox to take an alarm shot *(optional)*.
   - ✓ If necessary, set a **Delay** (ms) time between alarm detection and camera alarm shot to allow a PTZ camera to move in the alarm recording position.
3. **Check** **Uninterruptible alarm** checkbox to prevent an alarm recording from the interruption by a new alarm *(optional)*.
4. **Check** **Use local connection** checkbox to connect to the camera using local IP address/port number during Record Camera action.
   - ✓ The checkbox is only visible if the camera has both an internal and external connections configured in the **NVR Control Center — Cameras — Cameras Settings**.
5. **Check** **Append to log** checkbox to append action specific information to the existing log file each

time when the Record Camera action is initiated.

6. If necessary, enter a **Start action in time(**ms) — a delay between alarm detection and action initialization.

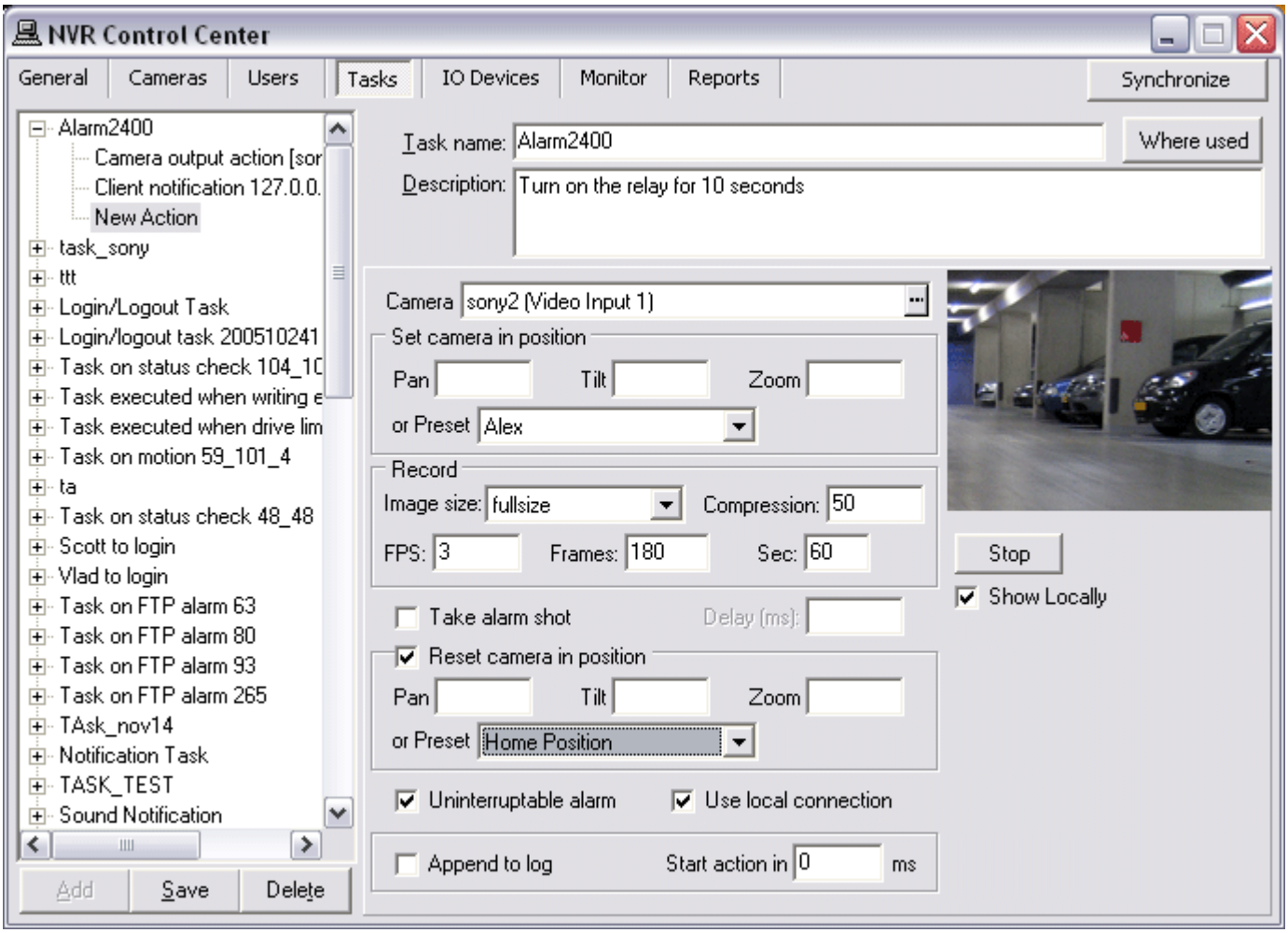


Fig 75. NVR Control Center — Tasks
(Configure Action — Record Camera — Setup Recording.)

2. Move Camera

Move Camera action moves a user-defined PTZ camera to a user-defined position or preset, and can dwell for a user-defined length of time before returning to another defined position if desired.
When **New — Action — Move Camera** is selected the right panel will be populated with configuration settings specific to the action. To configure the action:

1) Define Camera

1. Choose camera to configure from the **Camera** drop-down list (Fig 76).
2. When camera is selected, click on the **Connect/Stop** toggle-button in order to connect to the selected camera *(click again to disconnect)*. On successful connection live video from the camera will appear.
   - ✓ This connection is temporary and allows the camera's settings to be configured and checked.
   - ✓ PTZ camera preset positions are only available if the connection is established.

3. **Show Locally** checkbox can be check to connect to the camera using local IP address and port number *(during configuration time only)*.

   ✓ **Show Locally** checkbox is only visible if camera has both an internal and external connections configured in the **NVR Control Center — Cameras — Cameras Settings**.

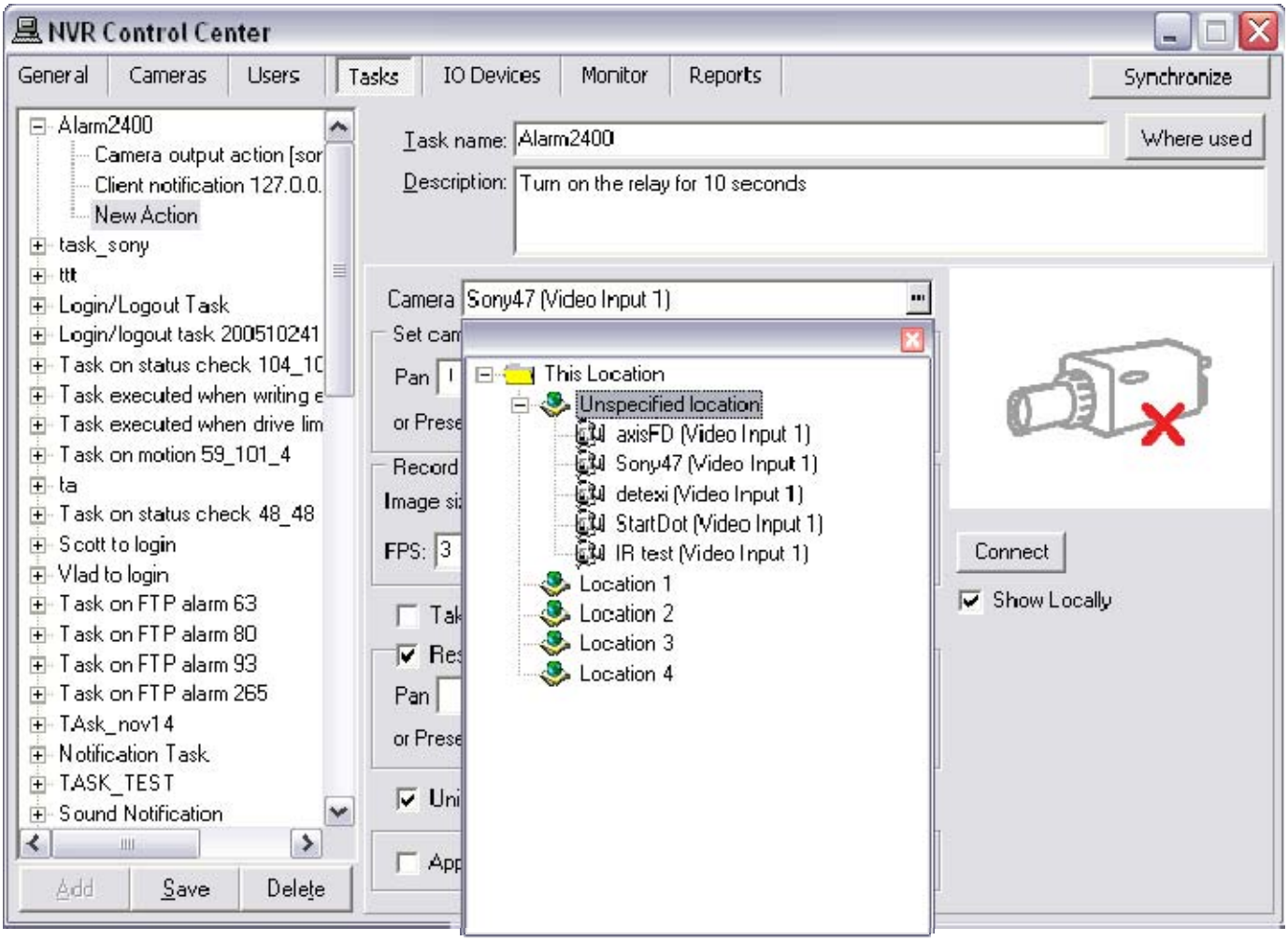


Fig 76. NVR Control Center — Tasks
(Configure Action — Move Camera — Define Camera.)

2) Setup PTZ Camera Move Position

When alarm condition is detected a PTZ camera can move in a predefined position, dwell a certain period of time and than return to any other position if necessary. Both positions should be configured.

1. To setup camera recording position under the **Set camera in position** enter **Pan**, **Tilt**, **Zoom** parameters or select a preset position from **Preset** drop-down list (Fig 77).
2. Enter **Dwell time** (s).
3. To move camera to another position after the alarm — **check** **Reset camera in position** checkbox and enter **Pan**, **Tilt**, **Zoom** parameters or select a preset position from **Preset** drop-down list below *(optional)*.

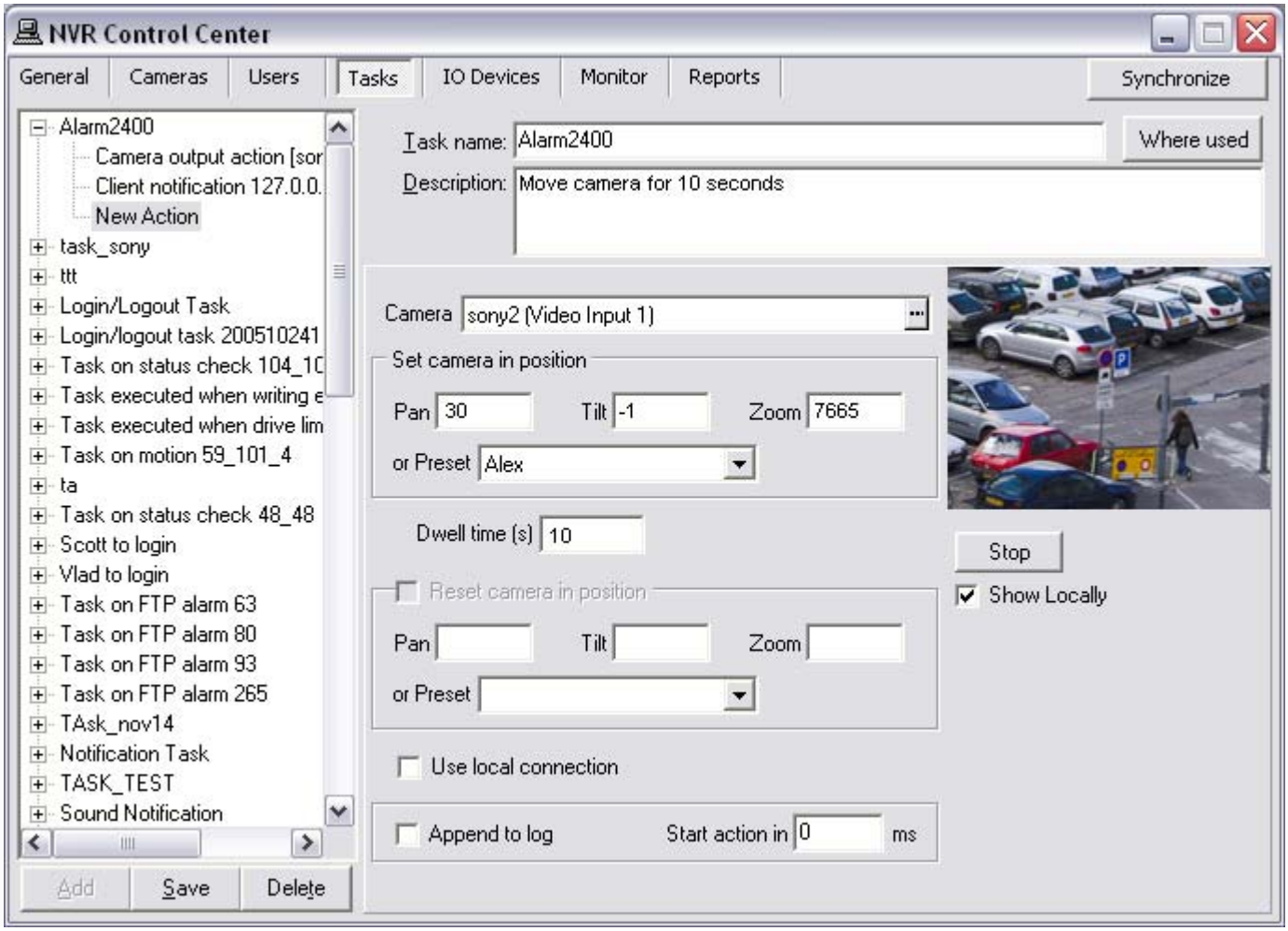


Fig 77. NVR Control Center — Tasks
(Configure Action — Move Camera — Setup Move Position.)

3) Check Camera Position with PTZ Control

1. To bring up a PTZ control — roll over the image and click on the button in the bottom right corner.
2. Getting PTZ values of the current position of the camera click on **Get PTZ** (Fig 78).
3. Change camera PTZ values —
   - ✓ Or enter **Pan**, **Tilt**, **Zoom** values.
   - ✓ Use **Zoom in/Zoom out** buttons on the right of **Zoom** field.
   - ✓ Click on **Set PTZ** to set camera in a configured position.
4. Use direction buttons and **Home** button on the left.
5. Or select a preset position from drop-down list and click **Go to Preset** to set camera in the selected position.

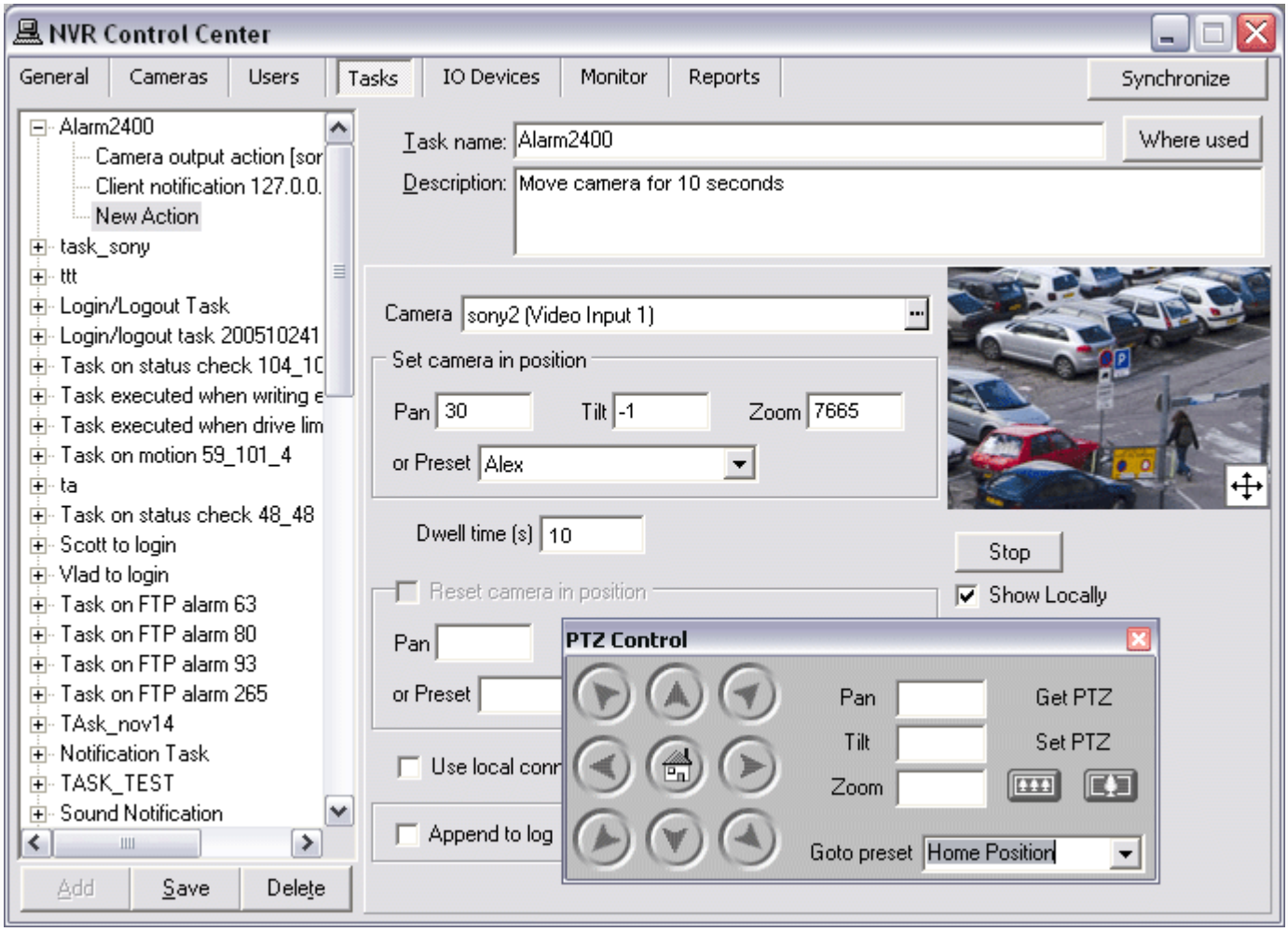


Fig 78. NVR Control Center — Tasks
(Configure Action — Move Camera — Check Camera Position.)

d) Other Parameters

1. **Check** **Use local connection** checkbox to connect to the camera using local IP address/port number during Move Camera action (Fig 79).
   - ✓ The checkbox is only visible if the camera has both an internal and external connections configured in the **NVR Control Center — Cameras — Cameras Settings**.
2. **Check** **Append to log** checkbox to append action specific information to the existing log file each time when Move Camera action is initiated *(optional)*.
3. If necessary, enter a **Start action in time** (ms) — a delay between alarm detection and action initialization.

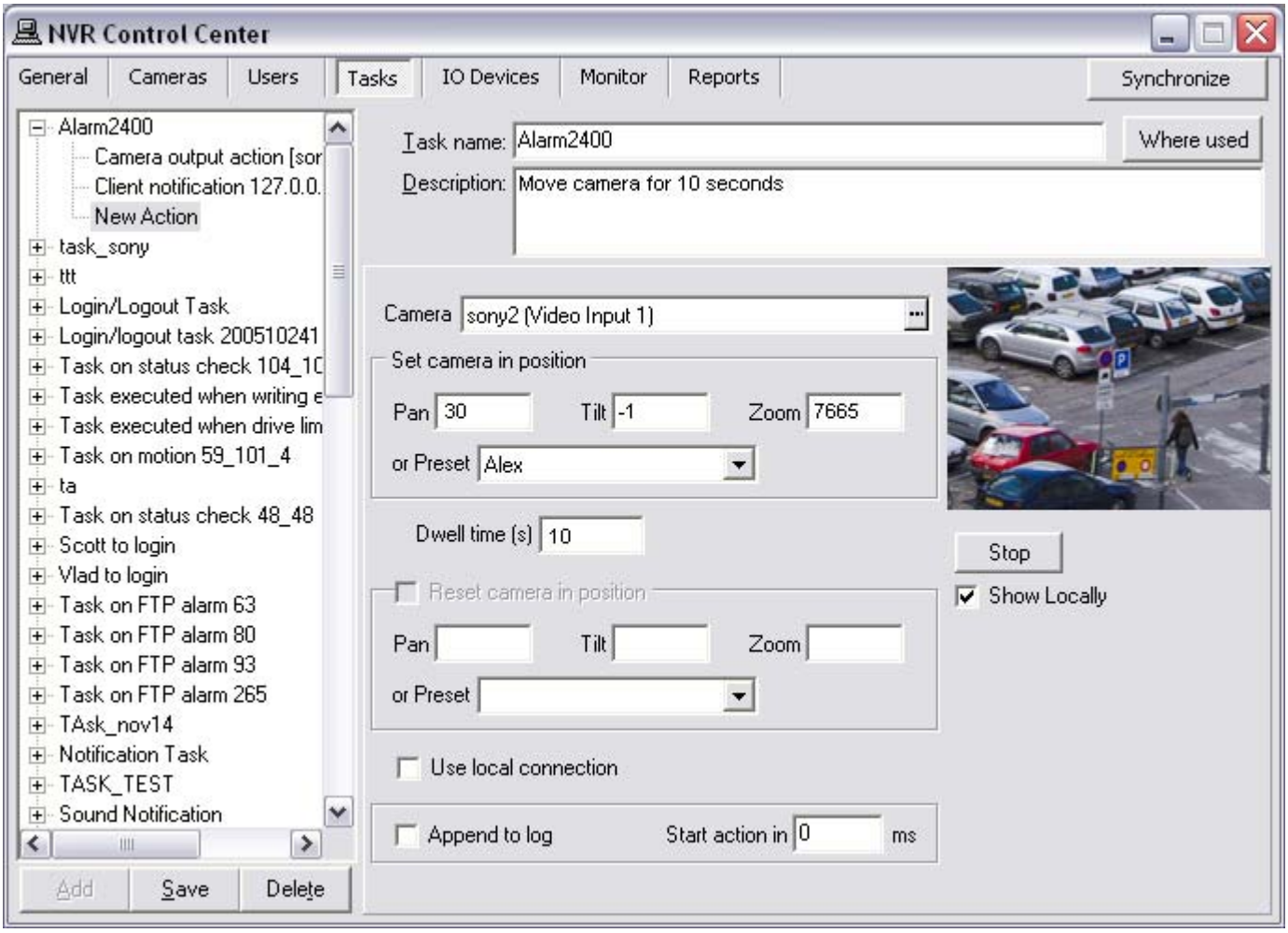


Fig 79. NVR Control Center — Tasks
(Configure Action — Move Camera — Parameters.)

✓ In order to provide access control and activity (audit) logging the information about any action or notification initiated in the system can be appended to the system log.

3. Video Popup

Video Popup action launches specified camera's live view video streaming on the defined DETEXI Client computer. The Client must already be running on the defined computer.
When **New — Action —Video Popup** is selected the right panel will be populated with configuration settings specific to the action. To configure the action:

1) Define Camera

1. Choose camera to configure from the **Camera** drop-down list (Fig 80).
2. When camera is selected, click on the **Connect/Stop** toggle-button in order to connect to the selected camera *(click again to disconnect)*. On successful connection live video from the camera will appear.

- ✓ This connection is temporary and allows the camera's settings to be configured and checked.
- ✓ PTZ camera preset positions are only available if the connection is established.

3. **Show Locally** checkbox can be check to connect to the camera using local IP address and port number *(during configuration time only)*.
   - ✓ **Show Locally** checkbox is only visible if camera has both an internal and external connections configured in the **NVR Control Center — Cameras — Cameras Settings**.

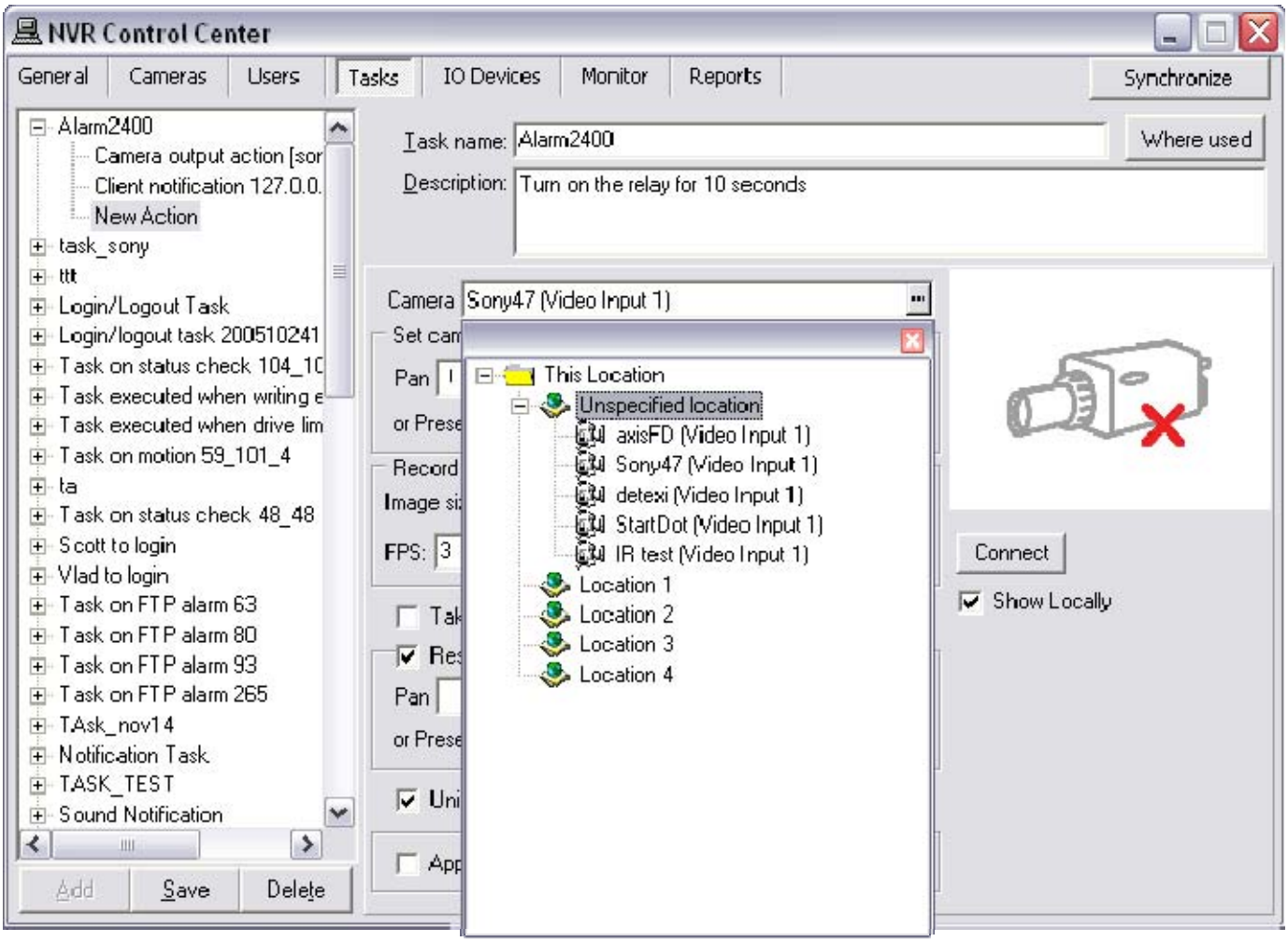


Fig 80. NVR Control Center — Tasks
(Configure Action — Video Popup — Define Camera.)

2) Define Remote Client

When the trigger condition is met a **Video Popup** action alerts an operator by having a window with streaming video popup on a viewing terminal. A viewing terminal running the Remote DETEXI Client should be configured in the action.

1. Setup a viewing terminal **Address** and **Port number** (Fig 81).
2. Setup also **Proxy Address** and **Proxy Port** if necessary.
3. **Check Can Be Rejected** checkbox to allow operator to reject a video popup window *(optional)*.
   - ✓ **Yes/no** question window. Continue based on answer.

4. To ask for a confirmation enter a waiting time in the **Confirmation required in** field *(optional)*.
   - ✓ **OK** confirmation window. If not confirmed will be closed in configured time, information about missing confirmation recorded in a specific log, video popup will not appear.
5. **Check Append to log** checkbox to append action specific information to the existing log file each time when Video Popup action is initiated *(optional)*.
6. If necessary, enter a **Start action in time** (ms) — a delay between trigger condition detection and action initialization.

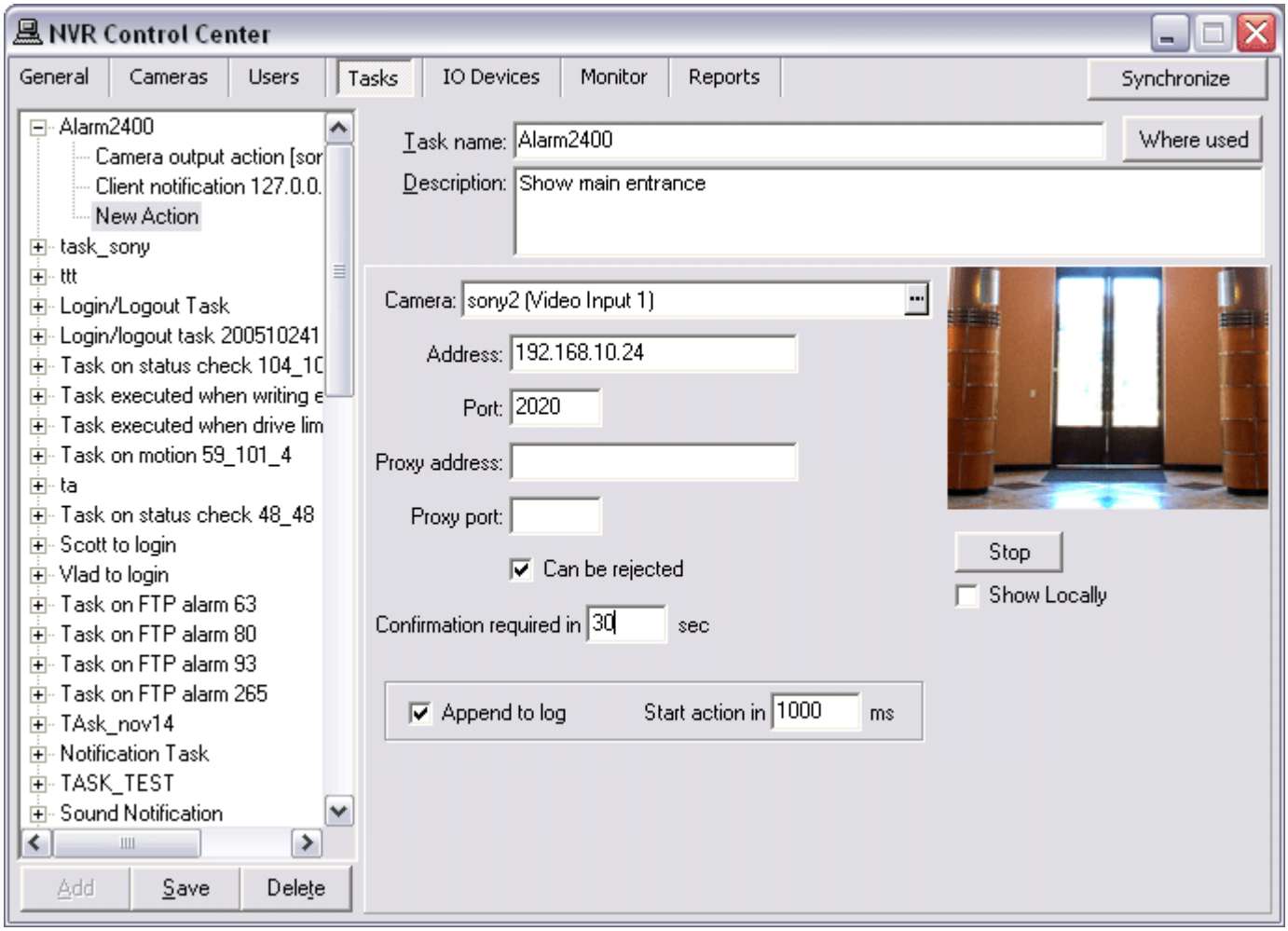


Fig 81. NVR Control Center — Tasks
(Configure Action — Video Popup— Define Remote Client.)

3) Video Popup on the DETEXI Client

Video Popup window is identical to the DETEXI Client single camera live view and has the same navigation and other capabilities as if the operator launched this view (Fig 82).

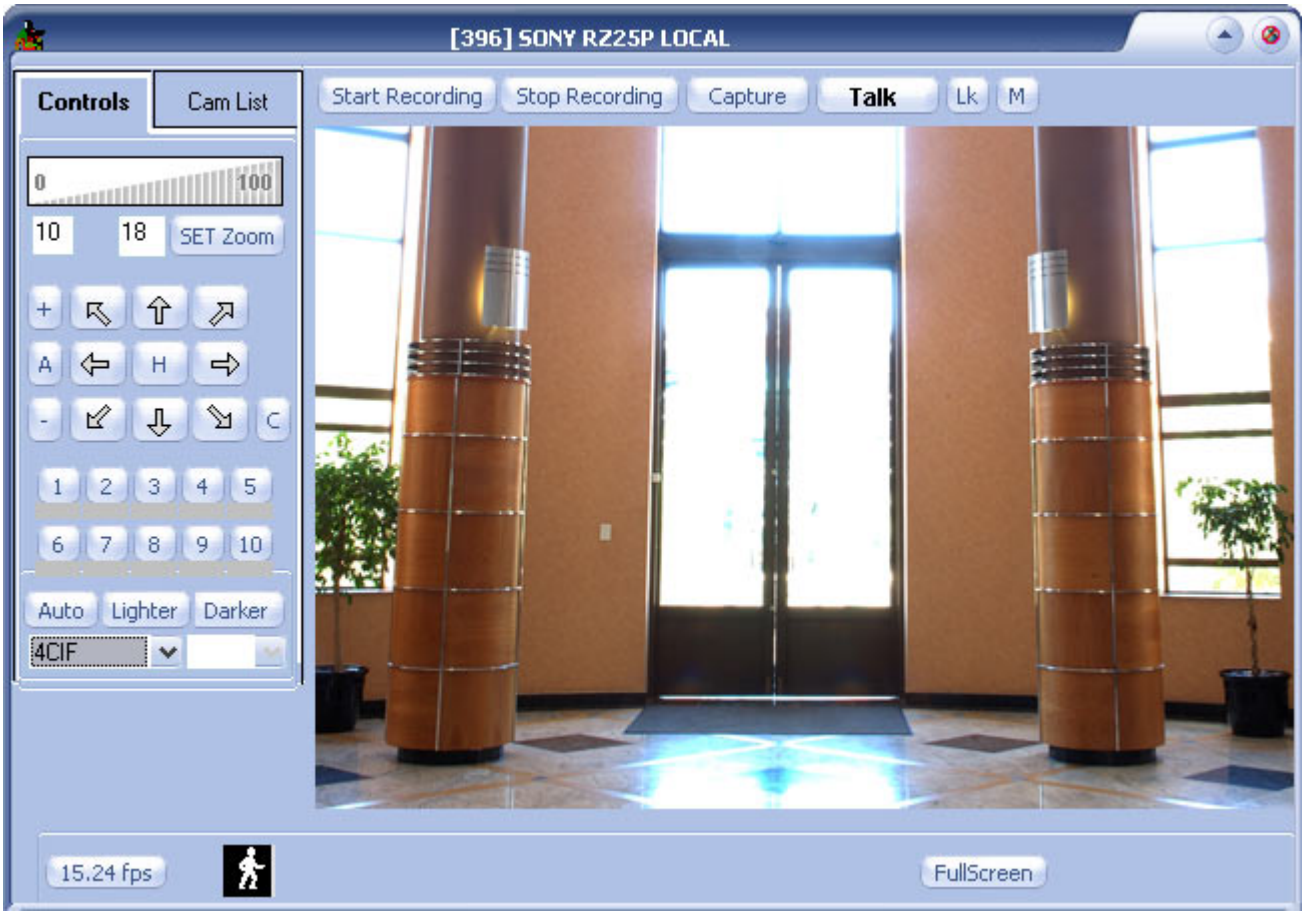


Fig 82. Remote DETEXI Client — Video Popup
(Identical to the Client Single Camera Live View.)

4. Control Relay

Any device that can toggle between an open and closed circuit can be connected to a network camera or a video encoder. **Control Relay** action allows controlling the output relay of a specified camera — turning on, turning off, or activating for a user-defined length of time.
When **New — Action —Control Relay** is selected the right panel will be populated with configuration settings specific to the action. To configure the action:

1) Define Relay

1. Select a relay to trigger *(external device connected to the camera output port)* from the **Relay** drop-down list. (Fig 83).
   - ✓ IP device outputs are only available for the selection if previously configured in the **NVR Control Center — Cameras — Cameras Settings — Outputs**.

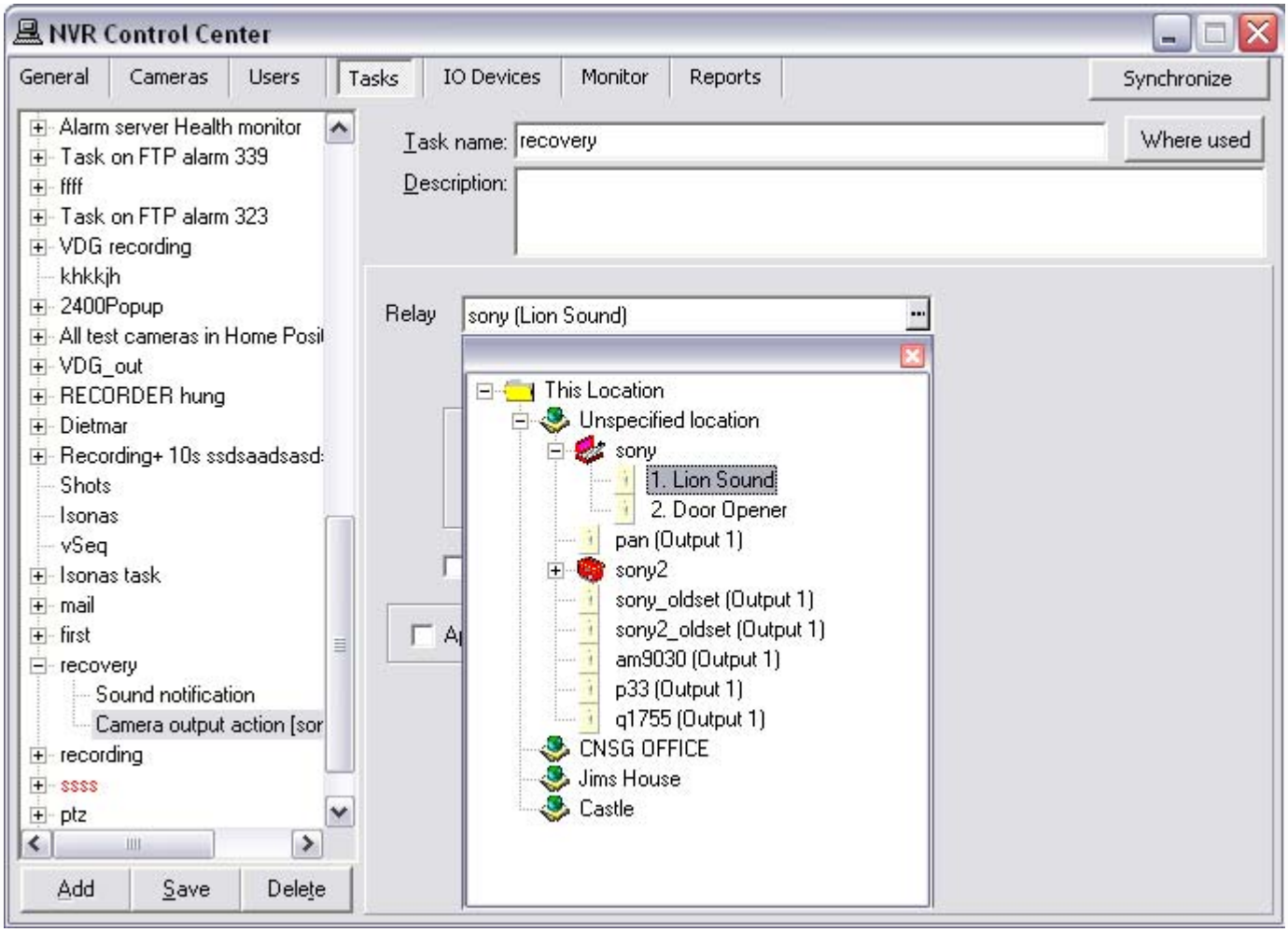


Fig 83. NVR Control Center — Tasks
(Configure Action — Control Relay — Define Relay.)

2) Define Camera

Toggle behavior settings (Fig 84) —

1. **Turn On** — toggle the output to the ON state.
2. **Turn On — Dwell — Reset Relay** — toggle the output to the ON, wait for defined dwell time, than reset the output to previous state (before task was executed).
3. **Turn On — Dwell — Turn Off** — toggle the output to the ON, wait for defined dwell time, than reset the output to OFF *(regardless of previous state)*.
4. **Turn Off** — toggle the output to the OFF state.
5. **Turn Off — Dwell — Reset Relay** — toggle the output to the OFF, wait for defined dwell time, than reset the output to previous state (before task was executed).
6. **Turn Off — Dwell — Turn On** — toggle the output to the OFF, wait for defined dwell time, than reset the output to ON (regardless of previous state).

Momentary behavior settings —

7. **Activate** — activate the momentary behavior defined for the camera output (turn on for defined period of time before turning back OFF).

Other parameters —

8. **Check Use local connection** checkbox to connect to the camera using local IP address/port number during Control Relay action *(optional)*.
   ✓ The checkbox is only visible if the camera has both an internal and external connections configured in the **NVR Control Center — Cameras — Cameras Settings**.
9. **Check Append to log** checkbox to append action specific information to the existing log file each time when Video popup action is initiated (optional).
10. If necessary, enter a **Start action in time** (ms) — a delay between trigger condition detection and action initialization.

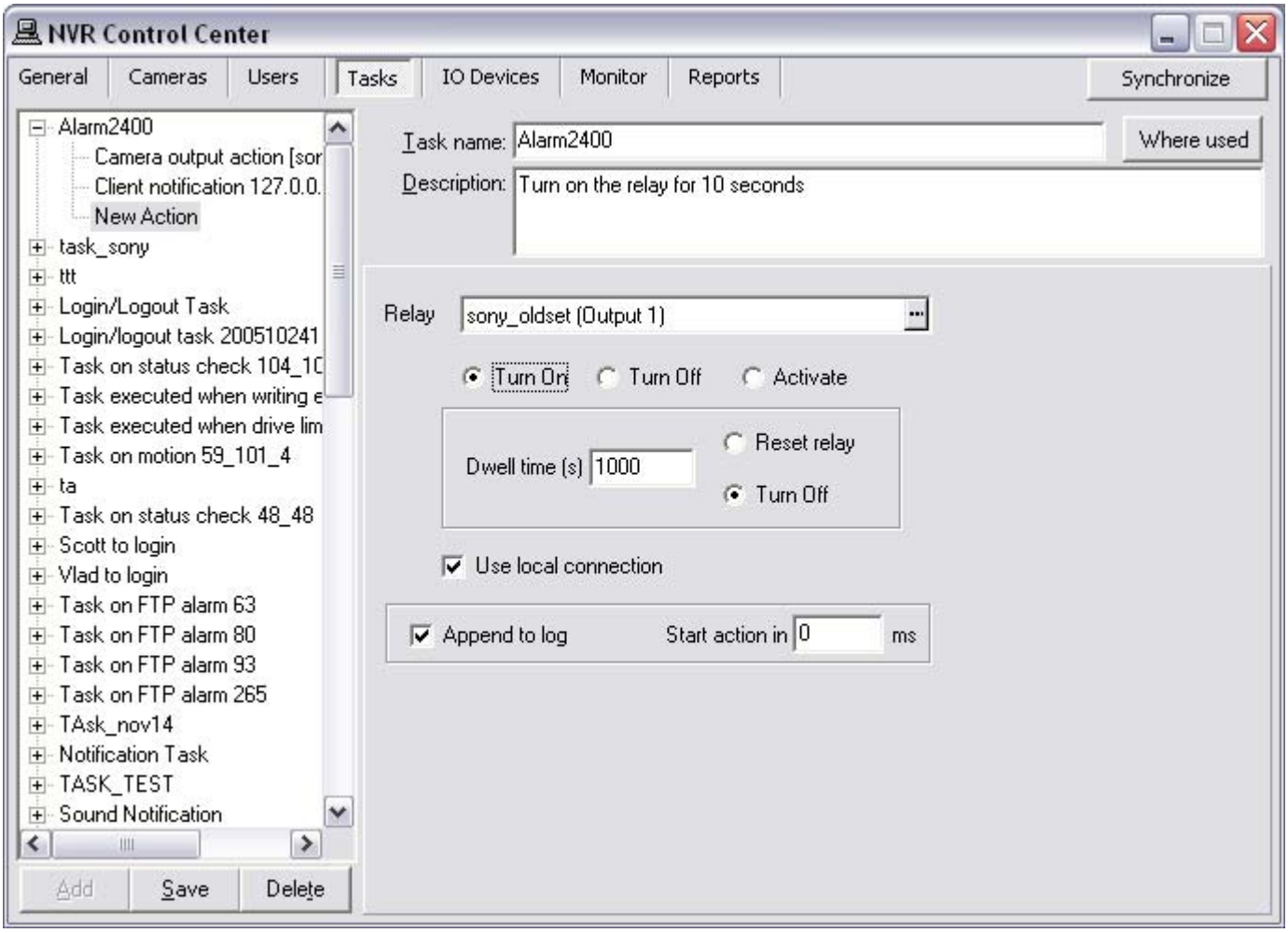


Fig 84. NVR Control Center — Tasks
(Configure Action — Control Relay — Set Parameters.)

3) Configure Camera Outputs

IP device outputs are only available for the selection if previously configured for the camera in the **NVR Control Center — Cameras — Cameras Settings — Outputs** (Fig 85).

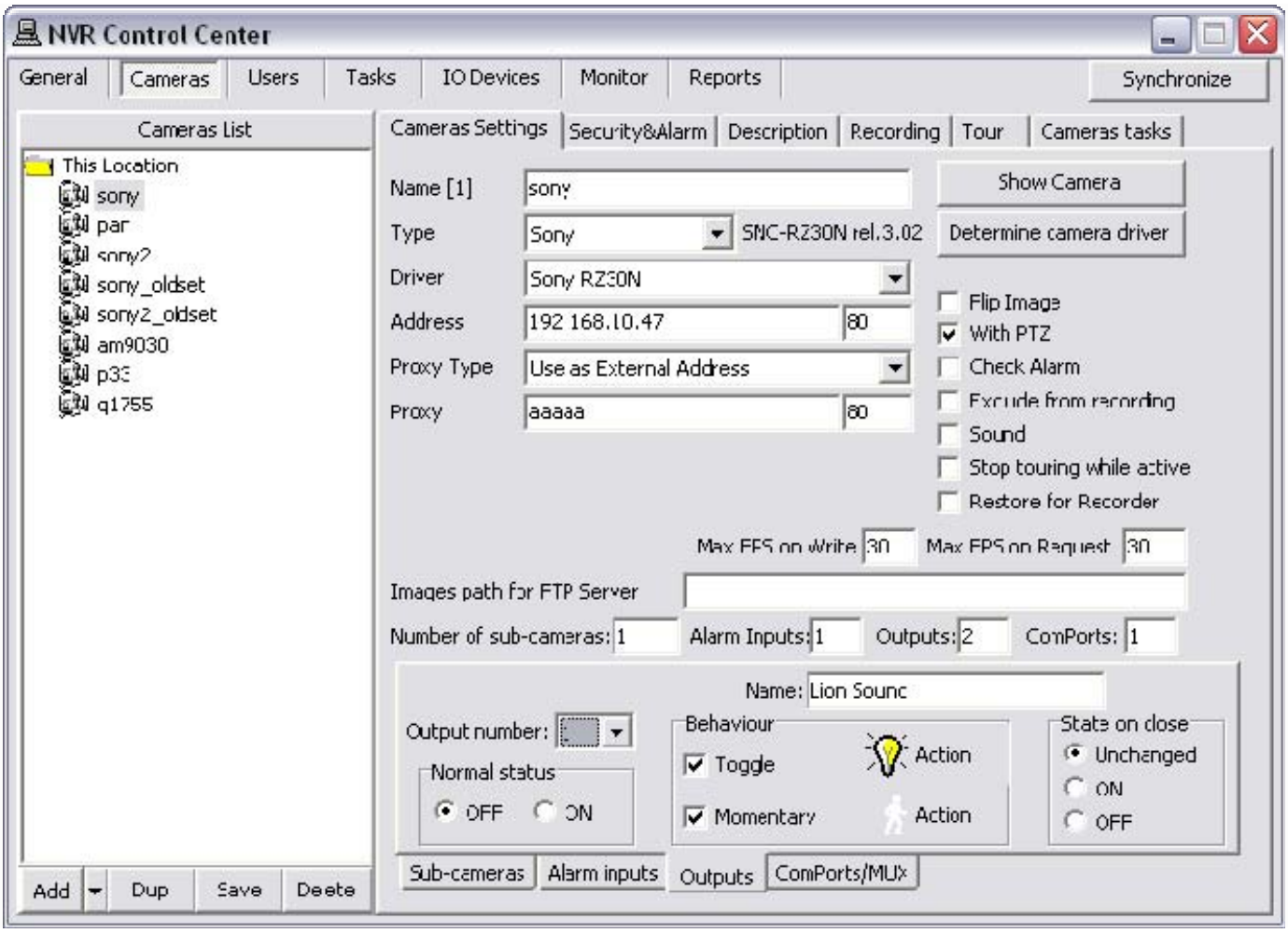


Fig 85. NVR Control Center — Cameras — Cameras Settings
(Configure Camera Outputs.)

✓ For more information, refer to the **NVR — Managing Cameras — Configure I/O** section.

4) Control Relay from DETEXI Client

After an IP device outputs were defined in the **NVR Control Center — Cameras — Cameras Settings** they are ready for use in tasks triggered by alarms/events, or manually by operators in the **DETEXI Client**.

Relay Action buttons will be available on the DETEXI Client's camera live view allowing for external devices *(relays)* to be triggered (Fig 86).

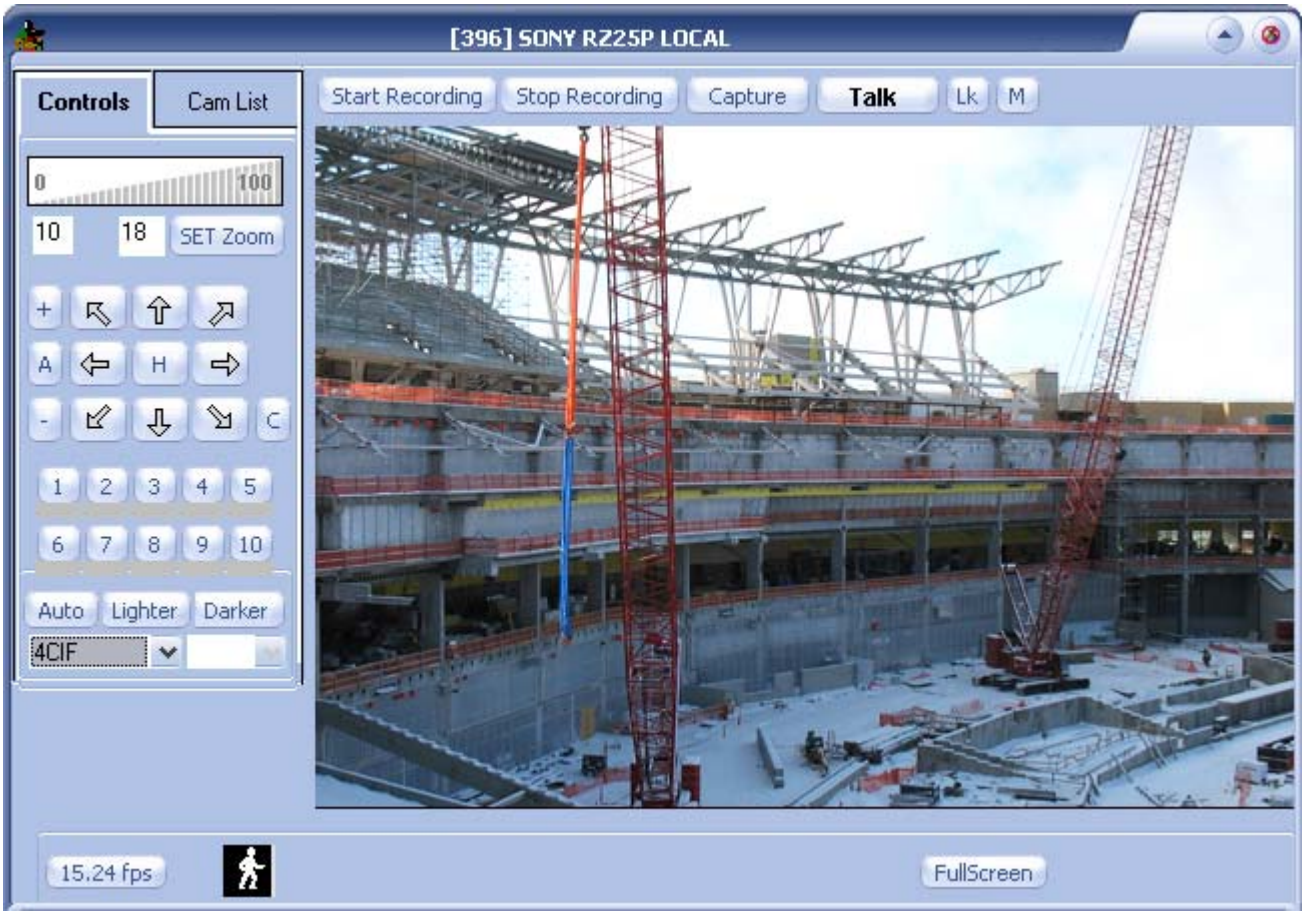


Fig 86. DETEXI Client — Single Camera Live View
(Control Relay.)

- ✓ On Fig 85 the momentary relay only has been enabled for the output — only one relay action button is visible.
- ✓ If multiple outputs are connected to and configured on the camera, a drop-down list to choose the output number from will be available. When an output number is chosen, the configured control buttons will be displayed for use.

5. Control Tour

A tour enables PTZ camera to automatically move from one pre-configured position to the next in a predetermined order. The viewing time between one position and the next is configurable.
Control Tour action starts or stops a pre-configured tour on a specified camera for a user-defined period of time if desired.
When **New — Action — Control Tour** is selected the right panel will be populated with configuration settings specific to the action. To configure the action:

1) Define Tour

1. Select a **Start Tour** or **Stop Tour on Camera** radio button to configure an appropriate Control Tour action (Fig 87).
2. Select camera's pre-defined tour from the active drop down list.
   - ✓ A PTZ camera tours are only available for the selection if previously configured for the camera in the **NVR Control Center — Tour — Setup Tour**.

3. When tour is selected, click on the **Connect/Stop** **toggle-button** in order to connect to the selected camera *(click again to disconnect)*. On successful connection live video from the camera will appear.

   ✓ This connection is `temporary` and allows the camera's tour settings to be configured and tested.

4. **Show Locally** checkbox can be **checked** to connect to the camera using local IP address and port number *(during configuration time only)*.

   ✓ **Show Locally** checkbox is only visible if camera has both an internal and external connections configured in the **NVR Control Center — Cameras — Cameras Settings**.

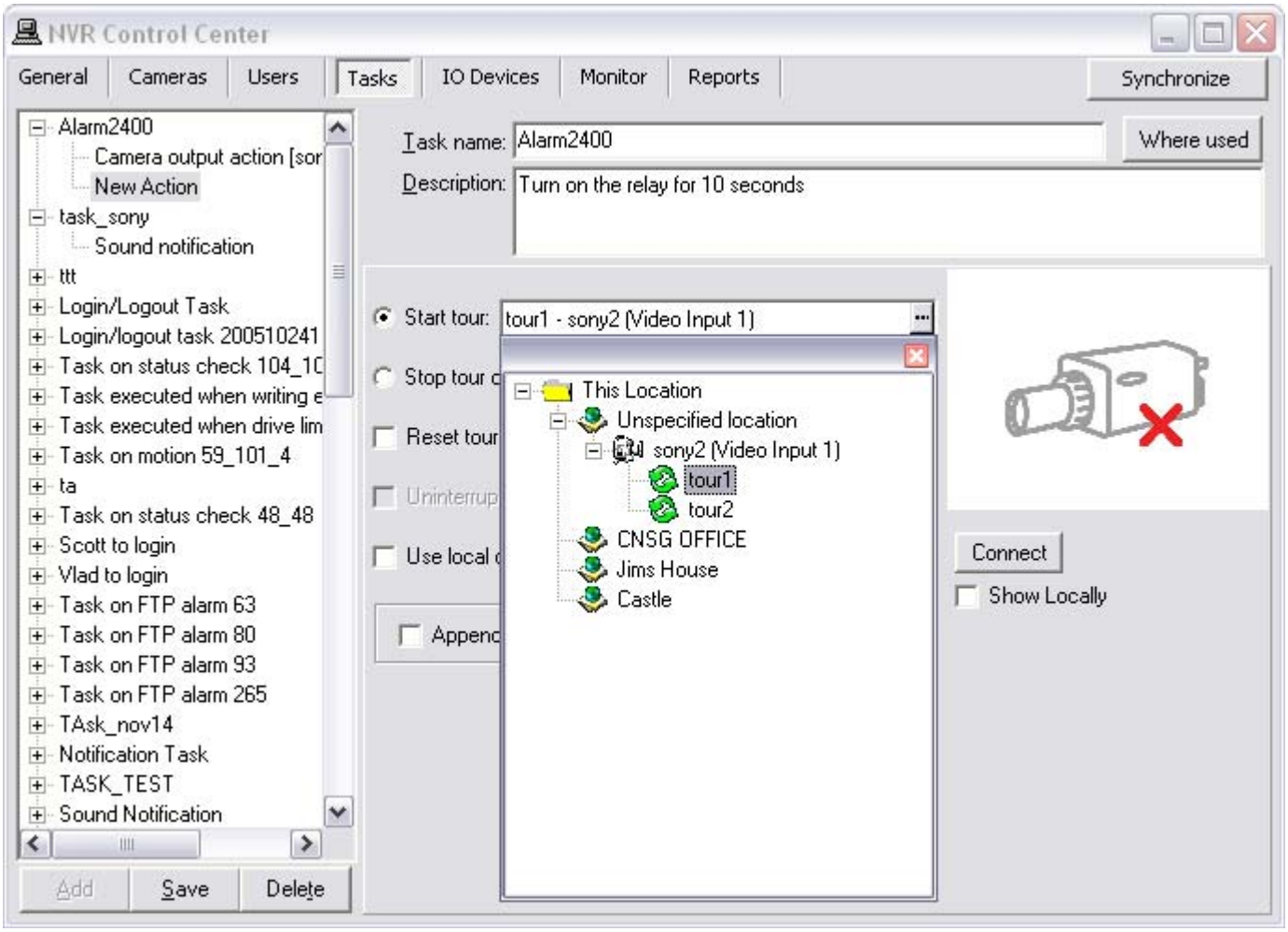


Fig 87. NVR Control Center — Tasks
(Configure Action — Control Tour — Define Tour.)

✓ The NVR **Tour** service should be running and monitored by the **Monitor** service in order to enable cameras touring. All NVR services are visible and configurable in the **NVR Control Center — Monitor**

✓ **Tour** service moves PTZ cameras through a predefined series of locations according to defined schedules or on alarms or events.

2) Start Tour

If **Start Tour** is configured — when the trigger event is met the camera starts touring from one pre-configured position to the next in a predetermined order.

Start tour settings (Fig 88) —

1. Select a **Start Tour** radio button and camera's pre-defined tour from the active drop down list.
2. Setup **Reset touring after** (sec) time to reset camera position according to the normal schedule when time expires *(optional)*.
   - ✓ If reset time is configured the **Uninterruptible tour action** checkbox can be **checked** to prevent an alarm tour from the interruption by a new alarm.

Other parameters —

3. **Check Use local connection** checkbox to connect to the camera using local IP address/port number during Control Tour action *(optional)*.
   - ✓ The checkbox is only visible if the camera has both an internal and external connections configured in the NVR Control Center — Cameras — Cameras Settings.
4. **Check Append to log** checkbox to append action specific information to the existing log file each time when Control Tour action is initiated *(optional)*.
5. If necessary, enter a **Start action in time** (ms) — a delay between trigger condition detection and action initialization.

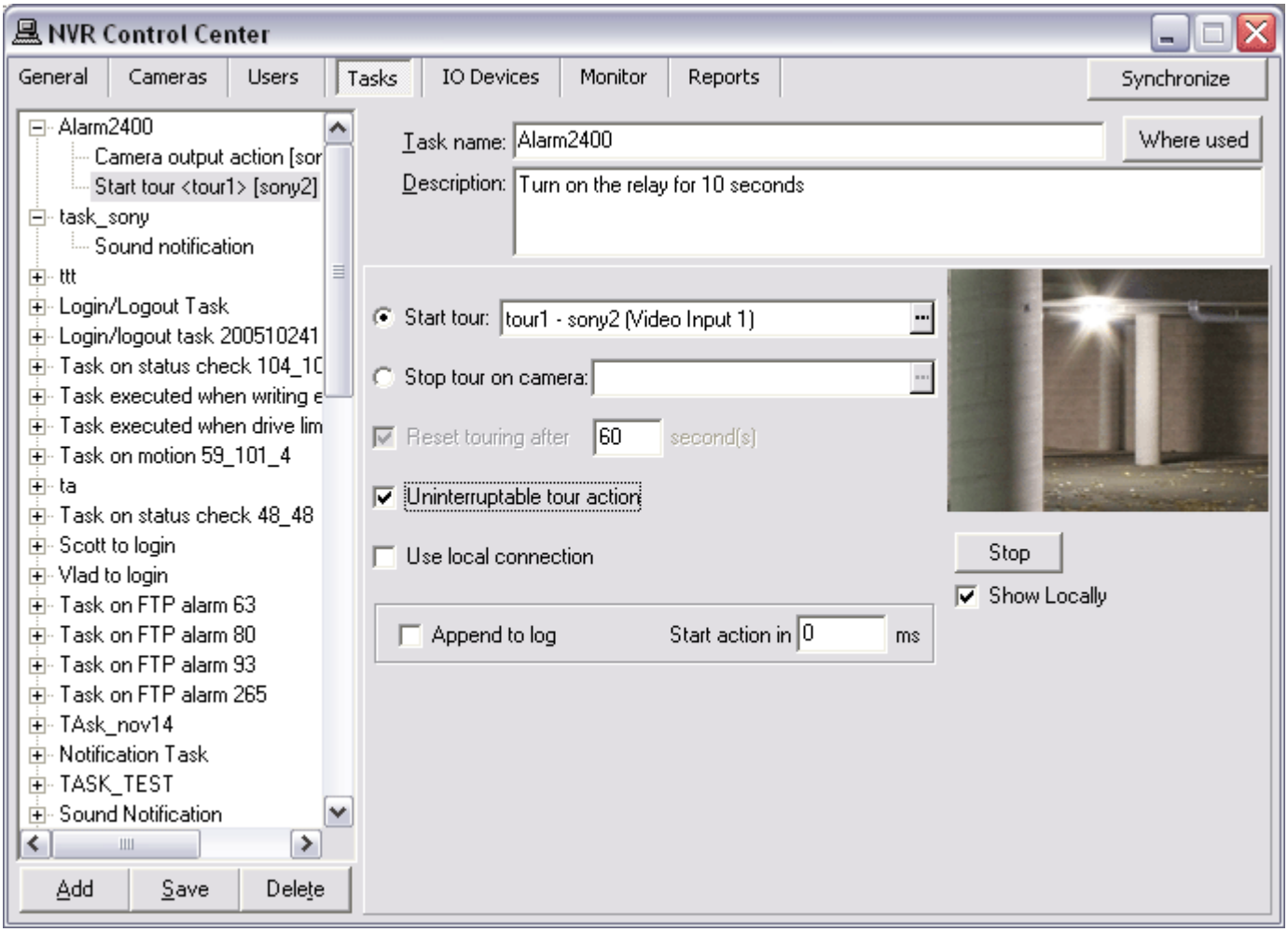


Fig 88. NVR Control Center — Tasks
(Configure Action — Control Tour — Start Tour.)

3) Stop Tour

If **Stop Tour** is configured — when the trigger event is met the camera stops in the current position until new alarms/events occur.

`Stop tour` settings (Fig 89) —

1. Select **Stop Tour on Camera** radio button and camera's pre-defined tour from the `active` drop down list.
   - ✓ The **Uninterruptible tour action** checkbox can be **checked** to prevent a camera stop position being changed by the new alarms/events before specified time expires.

Other parameters —

2. **Check Use local connection** checkbox to connect to the camera using local IP address/port number during Control Tour action *(optional)*.
   - ✓ The checkbox is only visible if the camera has both an internal and external connections configured in the **NVR Control Center — Cameras — Cameras Settings**.
3. **Check Append to log** checkbox to append action specific information to the existing log file each time when Control Tour action is initiated *(optional)*.
4. If necessary, enter a **Start action in time** (ms) — a delay between trigger condition detection and action initialization.

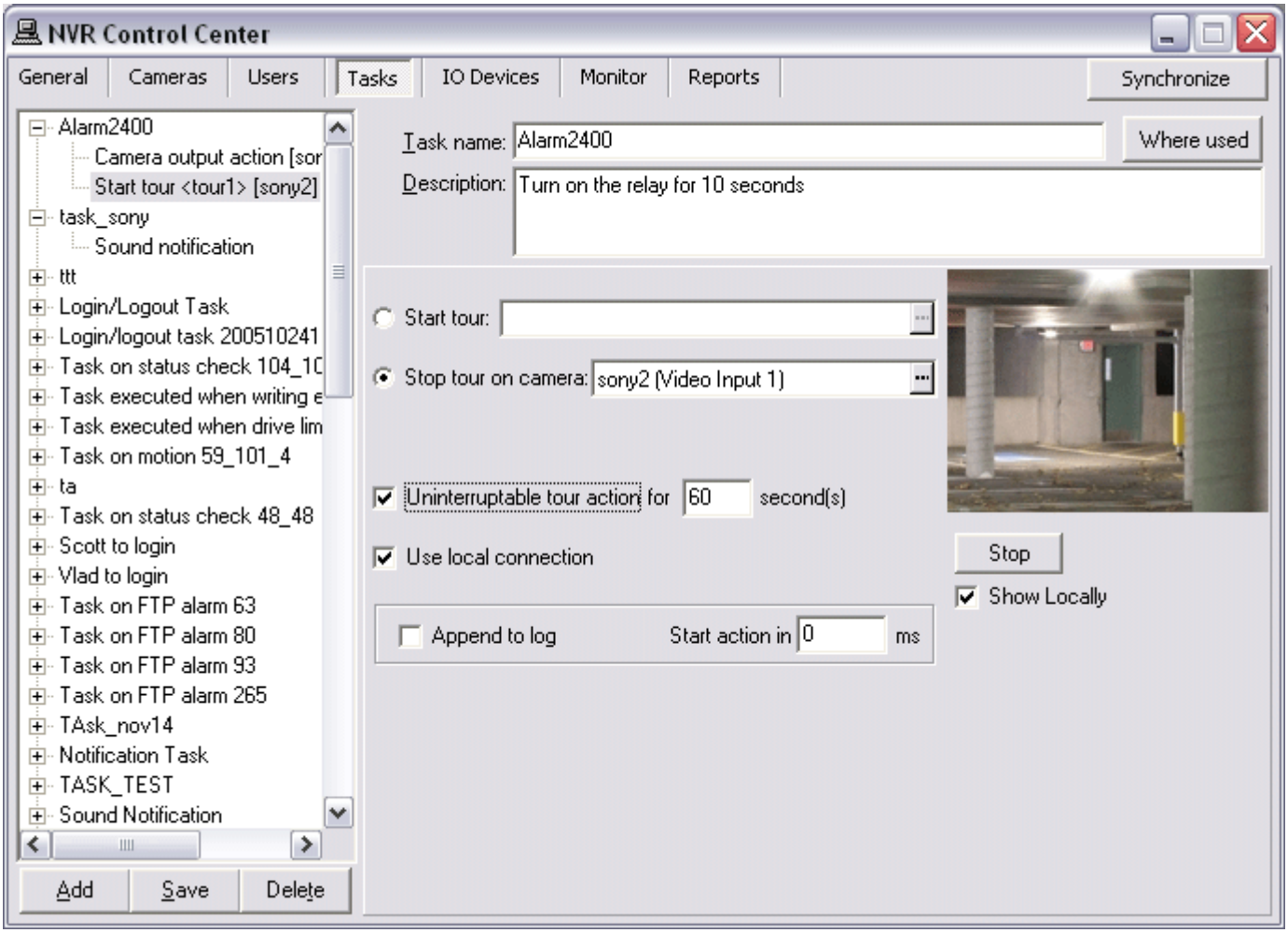


Fig 89. NVR Control Center — Tasks
(Configure Action — Control Tour — Stop Tour.)

4) Setup Tour

A PTZ camera tours are only available for the selection if previously configured for the camera in the **NVR Control Center — Tour — Setup Tour**.

Relay Action buttons will be available on the DETEXI Client's camera live view allowing for external devices *(relays)* to be triggered (Fig 90).

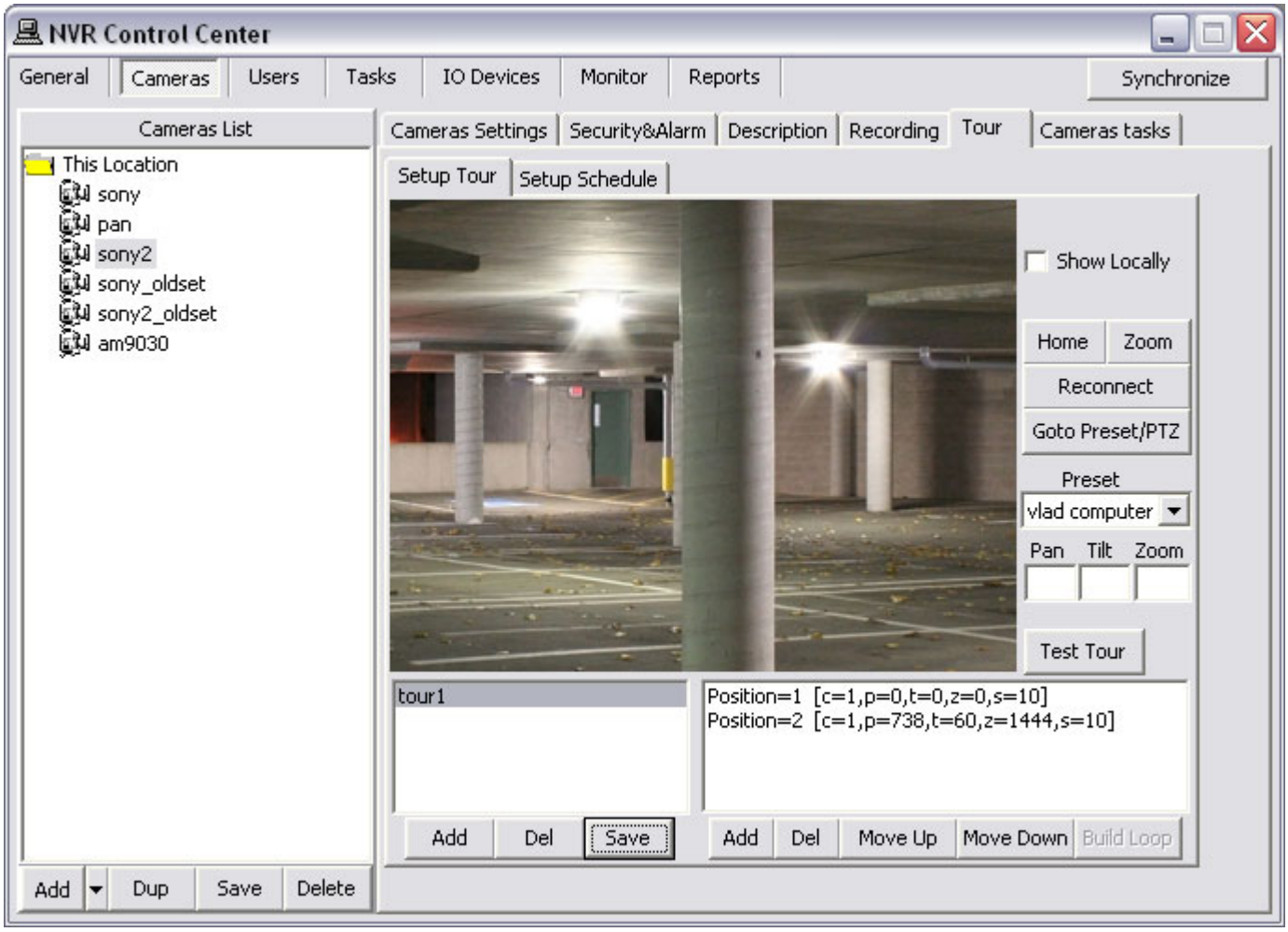


Fig 90. NVR Control Center — Cameras — Tour
(Configure Action — Control Tour — Setup Tour.)

✓ For more information, refer to the **NVR — Managing Cameras — Configure Tour** section.

6. Execute Program

The **Execute Program** action allows you to execute any external program to do whatever you want and is limited only by your imagination and the resources required to develop it. The Execute Program action executes an external program on the NVR Server, with user-defined parameters if desired.
When **New — Action — Execute Program** is selected the right panel will be populated with configuration

settings specific to the action. To configure the action:

1) Define Program to Execute

When the trigger condition is met an **Execute Program** action starts a defined program execution. The input parameters **must** be provided if necessary.

1. Enter the program name in the **File to Execute** or press the browse button and browse to the directory containing the file (Fig 91).
2. Enter space-separated input parameters *(if any)* in the **Parameters**.
3. Under the **Task's Window Visibility** select **Hide**, **Show minimized**, **Show normal** or **Show maximized** option.
4. **Check Append to log** checkbox to append action specific information to the existing log file each time when Execute Program action is initiated *(optional)*.
5. If necessary, enter a **Start action in time** (ms) — a delay between trigger condition detection and action initialization.

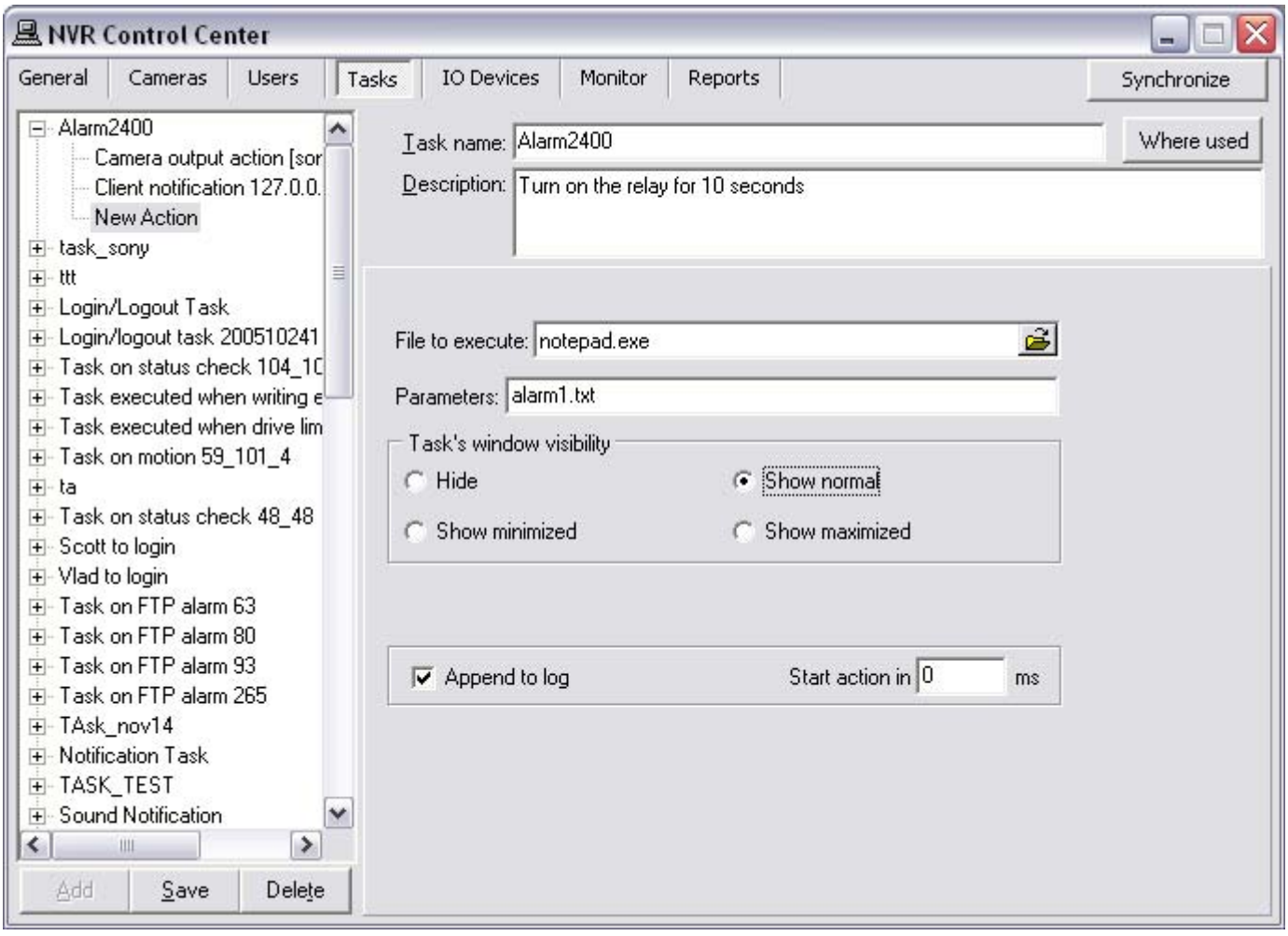


Fig 91. NVR Control Center — Tasks
(Configure Action — Control Relay — Define Relay.)

Configure Notification

Before any task could be assigned to a specific alarm/event it should be defined in the NVR. Each task is a list of preconfigured actions and/or notifications that define what is to happen.

1. Network Client

Network Client notification launches the camera in alarm *(when applicable)* video stream along with alarm information and alarm video access, to the defined **DETEXI Client** computer. Alternatively, sends a user-defined message to be displayed on this computer, disregarding any alarm-specific information.
When **New — Notification — Network Client** is selected the right panel will be populated with configuration settings specific to the notification. To configure the notification:

1) Configure Network Client

When the trigger condition is met a **Network Client** notification alerts the operator on the defined **DETEXI Client** computer by two different ways:

- If the **Message can be changed automatically** checkbox is **checked** — launches the camera in alarm video stream along with alarm information and alarm video access (if alarm video recording was configured in the task).
- If the **Message can be changed automatically** checkbox is **unchecked** — sends a user-defined message to be displayed.

To configure the Network Client notification —

1. Setup an operator terminal **Address** and **Port number** (Fig 92).
2. Setup also **Proxy Address** and **Proxy Port** if necessary.
3. The **Send always** checkbox can be **checked**.
   - ✓ Multiple Network Client notifications can be created under one task.
   - ✓ If the **Send always** checkbox is **checked** the notification always initiates, if not — just in case the checked notification failed.
   - ✓ At least one **Send always** checkbox **must be checked** in a task notifications.
4. **Check** the **Priority alarm** checkbox to add new alarm information on the top of the **Alarms** list otherwise it will be appended to the bottom.
5. Enter a message to the **Message** text box.
6. Depending on the response you desire the **Message** can be changed automatically checkbox can be checked or unchecked.
7. **Check** **Append to log** checkbox to append notification specific information to the existing log file each time when Network Client notification is initiated (optional).
8. If necessary, enter a **Start action in time** (ms) — a delay between trigger condition detection and action initialization.

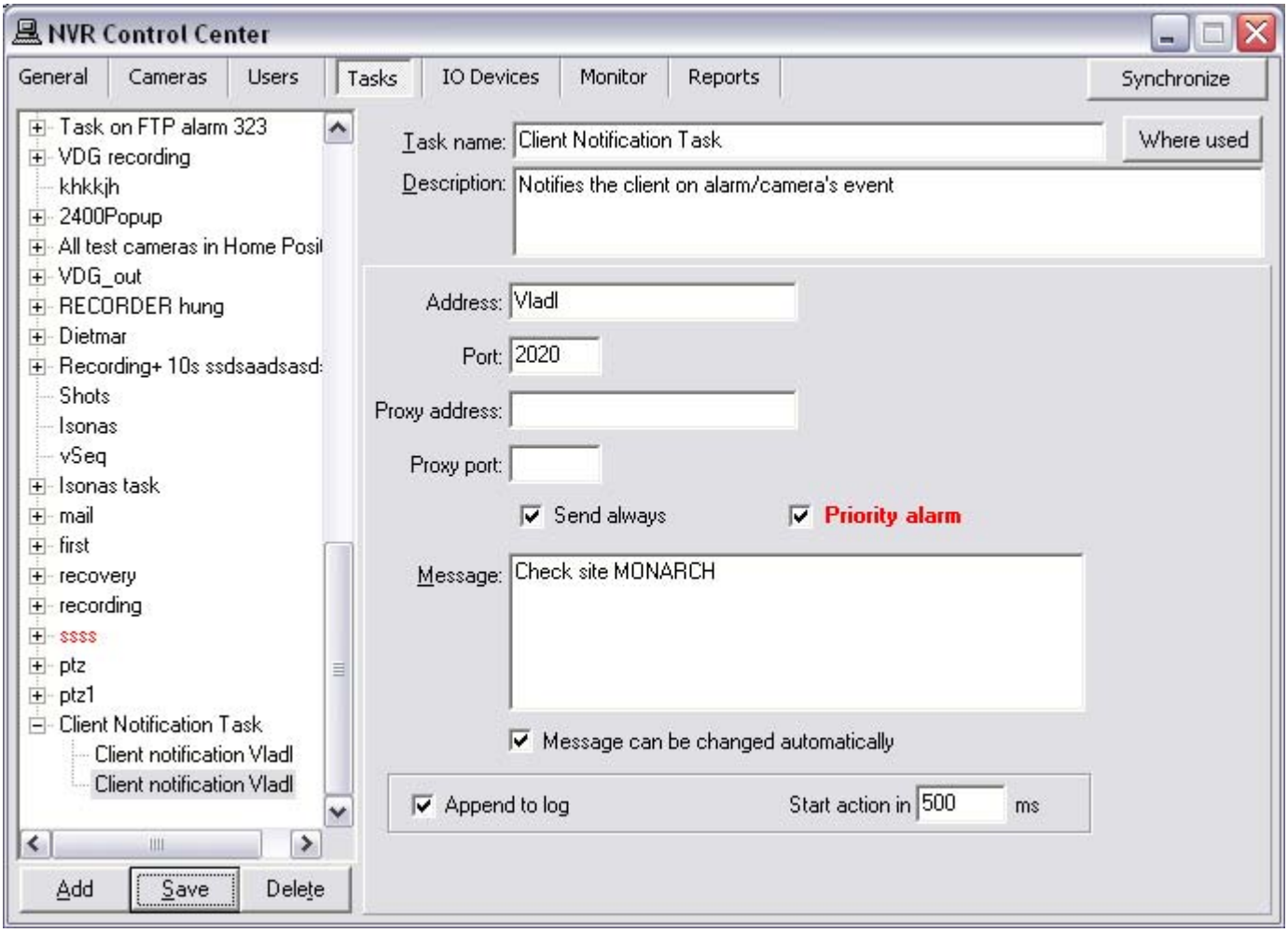


Fig 92. NVR Control Center — Tasks

(Configure Notification — Network Client — Define Network Client.)

2) Message

If the **Message can be changed automatically** checkbox was **unchecked** — the Network Client notification alerts an operator on the defined Remote DETEXI Client computer by sending a user-defined message, disregarding any alarm-specific information (Fig 93).

Fig 93. Remote Detexi Client

(Network Client Alert Notification — Message.)

3) Video Popup

If the **Message can be changed automatically** checkbox was **checked** —
the Network Client notification alerts operator on the defined Remote DETEXI Client computer (Fig 94):

- Launches the camera in alarm video stream. **Video Popup window** is identical to the DETEXI Client single camera live view and has the same navigation and other capabilities as if operator launched this view.
- Pops up alarm-specific information window and speaks the information.
- Adds alarm information to the **Alarms List** and pops up the list.
- Provides access to the recorded alarm video (**Get Alarm** button). If alarm video recording was configured in the task (Record Video action), recording starts immediately at the moment alarm was detected.

This allows remote monitoring stations (Remote DETEXI Clients) to become immediately aware of a change in a monitored environment and respond to things that occur.

Fig 94. Remote DETEXI Client
(Network Client Alert Notification — Video Popup.)

4) Alarm List

To launch a **live video popup** from the **Alarm List** (Fig 95) —

1. Select a camera from the cameras drop-down list at the bottom.
2. Click the **Get Site** button.

To launch an alarm video from the **Alarm List** —

1. Select an alarm from the **Alarms** list.

2. Click the **Get Alarm** button.

   ✓ When Network Client notification adds new alarm information to the **Alarms List** it goes to the top of the list if the **Priority alarm** checkbox was **checked**, otherwise it will be appended to the bottom.

   ✓ Verified alarms could be **check marked**. A check marked alarm gets "resolved" status *(useful for the operators and managers)*.

   ✓ The **Delete** button deletes any selected alarm from the alarms list disregarding status.

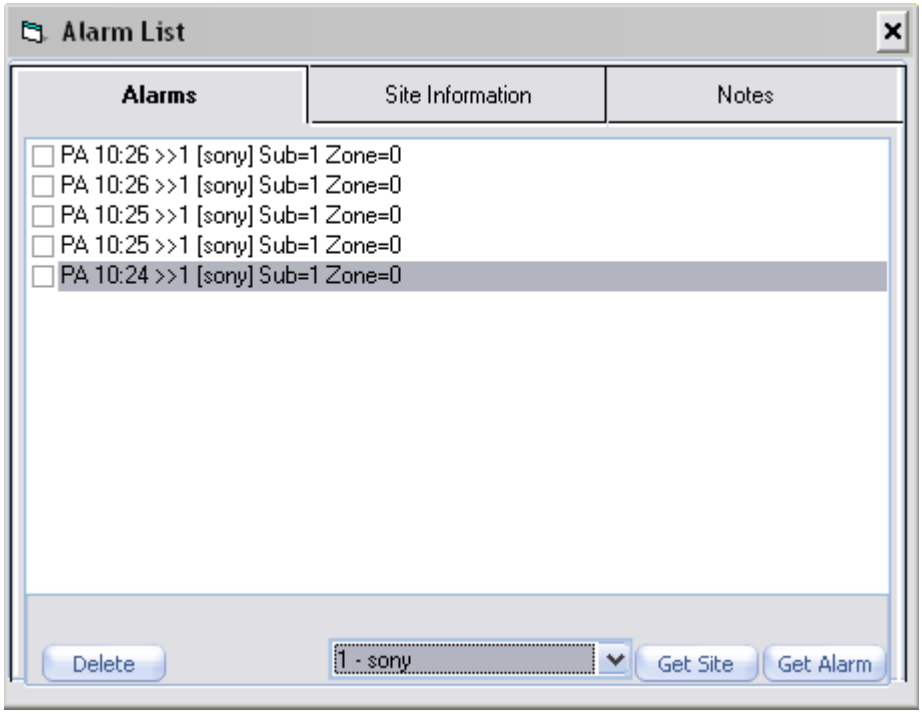


Fig 95. Remote DETEXI Client

(Network Client Alert Notification — Alarm List.)

5) Get Alarm Video

Clicking the **Get Alarm** button from the video popup window or alarms window launches the DETEXI **Archive Viewer** playing the recorded alarm video (Fig 96).

✓ If alarm video recording was configured in the task *(Record Video action)*, recording starts immediately at the moment alarm was detected.

✓ For more information, refer to the **Recorded Video Viewing, Retrieval, and Export** section.

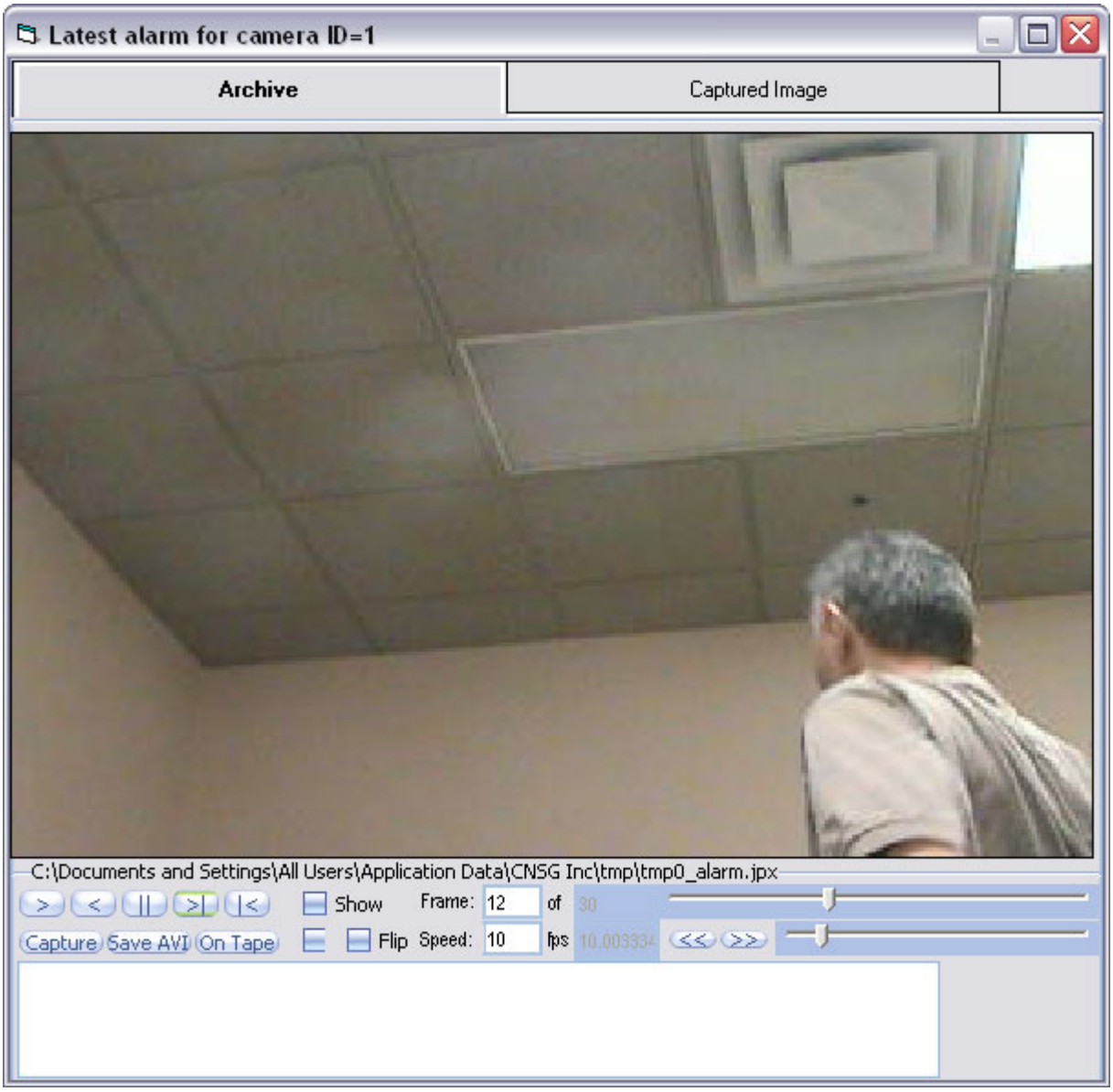


Fig 96. Remote DETEXI Client
(Network Client Alert Notification — Get Alarm Video.)

6) Client Settings

The DETEXI Client priority alarm popup settings allow the operator on the DETEXI Client computer to change the way the Network Client notifications alert the operator *(for this Client only)*.
In the **DETEXI Client — Advanced Settings** (Fig 97) under the **ALARM POPUP SETTINGS** check/uncheck the following checkboxes:

1. **Check** the **Advanced** checkbox — the alarm popup information *(including live and recorded alarm video)* shows up on the screen in a fixed full screen layout *(eliminates windows overlapping)*.
2. If the **No Alarm List** checkbox is **checked**, the **Alarms List** will not pop up on alarms.
3. If the **Close only empty list** checkbox is **checked**, the **Alarms List** will be prevented from closing until all alarms in the list are **check marked** as "resolved" or deleted.

4. **Check** the **Mute sound** checkbox — speak a message will be prohibited.
5. If the **Write on Alarm** checkbox is **checked** — recording starts locally *(on the Client computer)* immediately at the moment alarm was detected until defined time expires.
6. **Check** the **No popup on alarm** checkbox — alarm popup will be prohibited.
7. If the **Write on Alarm** checkbox is **checked** — recording starts locally (on the Client computer) immediately at the moment alarm was detected until defined time expires.
   - ✓ If a recording time was not defined (0), the recording will continue until the **Stop Recording** button on the video pop is pressed.
8. If the **Deja Vu** checkbox is **checked** — the DETEXI Archive Viewer playing the recorded `alarm video` will be launched automatically.
9. If the **Overwrite in List** checkbox is **checked** — a new alarm from the same camera will overwrite previous in the Alarms List.
10. Check the Log-Alarm checkbox to keep track of all Network Client notification alerts received by the Client. Local log file will be created.

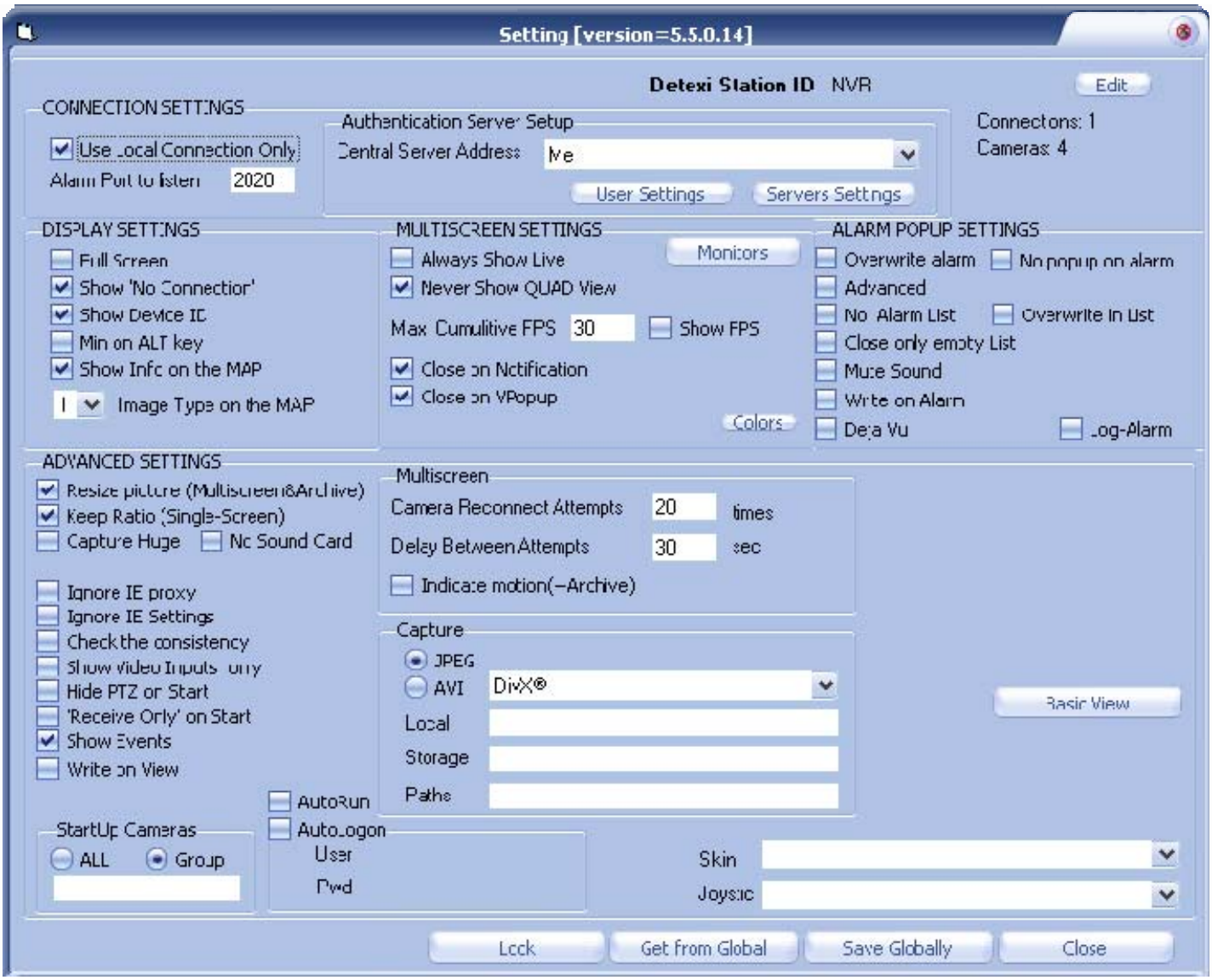


Fig 97. Remote DETEXI Client — Advanced Settings
(Configure Notification — Network Client — Client Settings.)

2. Phone

When the trigger condition is met **Phone notification** calls a user-defined phone or pager and plays `alarm-specific` or a user-defined *WAV* file or `text-to-speech` message *(has the ability to attempt multiple times on failure)*.

When **New — Notification — Phone** is selected the right panel will be populated with configuration settings specific to the Phone notification.

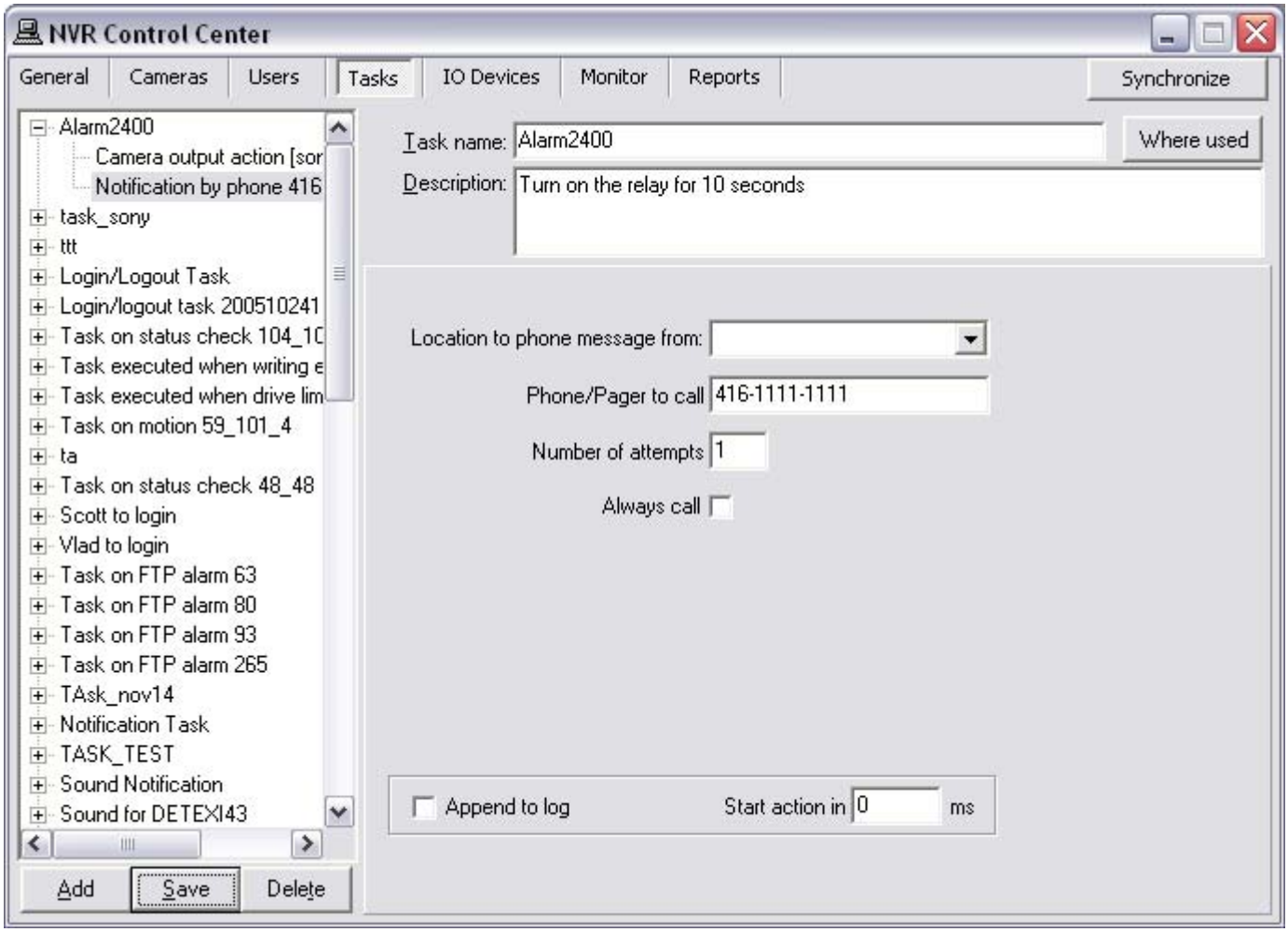


Fig 98. NVR Control Center — Tasks
(Configure Notification — Phone.)

To configure the notification (Fig 98):

1. Select a location from the **Location to phone message from:** drop-down list if provided *(for advanced users).*
   - ✓ The NVR **Alarm Central** service can run on any computer without the DETEXI NVR.
   - ✓ If there is more than one location running the **Alarm Central** service the **Location to phone message from** list will be provided for the selection.
   - ✓ By default *(if not other location is selected)* the message will be phoned from the **NVR Server**.
2. Enter a required **Phone/pager to call** number.
3. Enter **Number of attempts**.

4. The **Send always** checkbox can be **checked**.
   - ✓ Multiple Phone notifications can be created under one task. At least one **Send always** checkbox **must be checked**.
5. **Check Append to log** checkbox to append `notification specific` information to the existing log file each time when Phone notification is initiated *(optional)*.
6. If necessary, enter a **Start action in time** (ms) — a delay between trigger condition detection and action initialization.

3. Email

When the trigger condition is met **Email notification** sends alarm-specific or user-defined emails to one or more user-defined email addresses (*has the ability to attempt multiple times on failure)*.
When **New — Notification — Email** is selected the right panel will be populated with configuration settings specific to the Email notification.

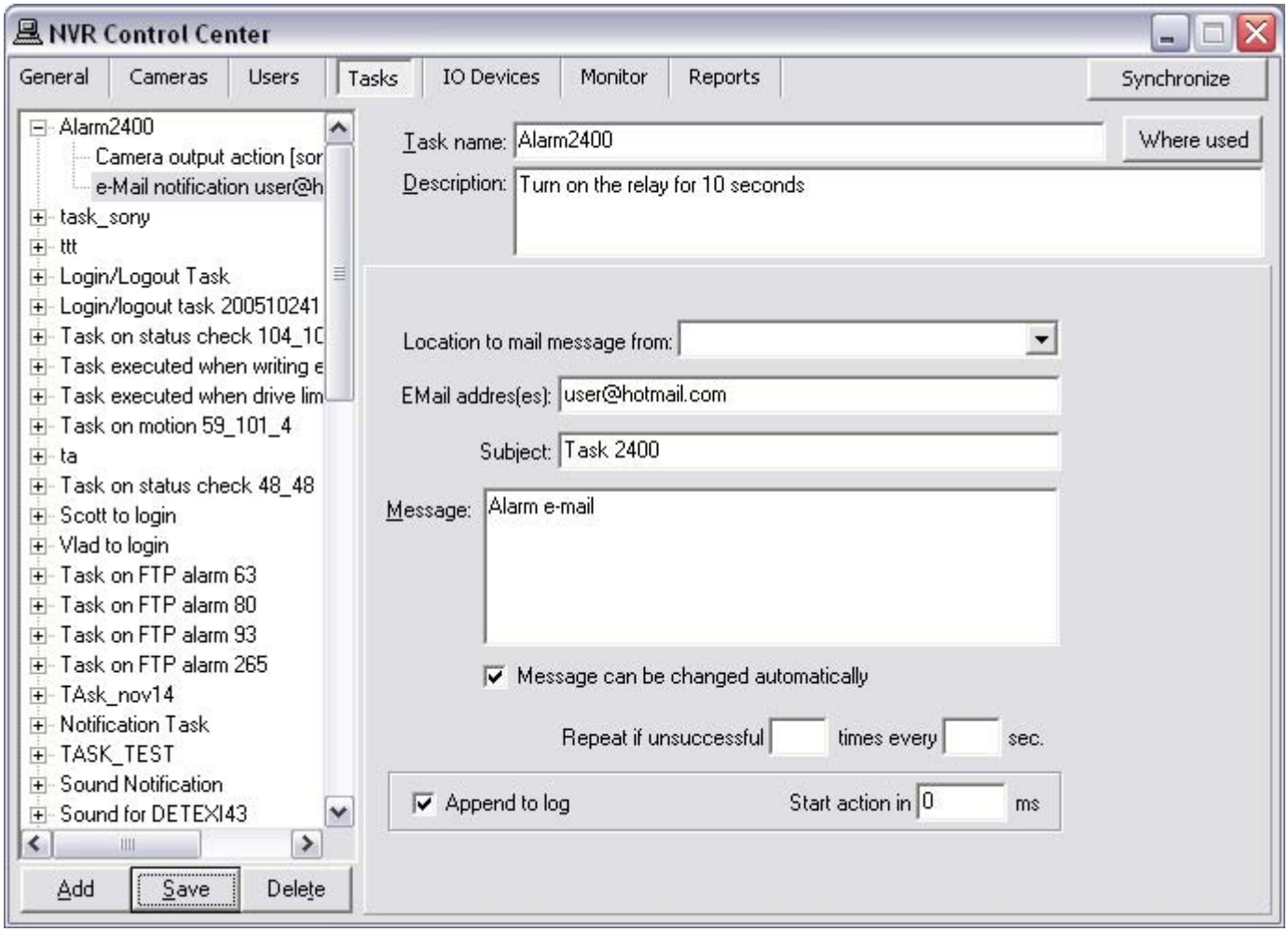


Fig 99. NVR Control Center — Tasks
(Configure Notification — Email.)

To configure the notification (Fig 99):

1. Select a location from the **Location to mail message from** drop-down list if provided *(for advanced users)*.
   - ✓ The NVR **Alarm Central** service can run on any computer without the DETEXI NVR.

- ✓ If there is more than one location running the **Alarm Central** service the **Location to mail message from** list will be provided for the selection.
- ✓ By default *(if not other location is selected)* the message will be mailed from the NVR Server.

2. Enter a required **Subject line** and **Message**.
3. Check the **Message can be checked automatically** checkbox to allow a user-defined message to be replaced to the automatic alarm specific message *(optional)*.
4. Enter a number of attempts and the retry attempt interval in the **Repeat if unsuccessful**.
5. **Check Append to log** checkbox to append notification specific information to the existing log file each time when Email notification is initiated *(optional)*.
6. If necessary, enter **Start action in time** (ms) — a delay between trigger condition detection and action initialization.

- ✓ Before using the e-mail notification task — SMTP settings and e-mail account settings **must** be setup in the NVR **Alarm Listener**.

4. Speak

When the trigger condition is met **Speak notification** plays alarm-specific or a user-defined WAV file or text-to-speech message on the NVR Server or any other computer running the NVR Alarm Central service. When **New — Notification — Speak** is selected the right panel will be populated with configuration settings specific to the Speak notification. To configure the notification (Fig 100):

1. Select a location from the **Location to play message from** drop-down list if provided *(for advanced users)*.
   - ✓ The NVR **Alarm Central** service can run on any computer without the DETEXI NVR.
   - ✓ If there is more than one location running the **Alarm Central** service the **Location to mail message from** list will be provided for the selection.
   - ✓ By default *(if not other location is selected)* the message will be mailed from the NVR Server.
2. Select a **Message** radio button and enter a message to speak;

   — OR —

   select a **WAV file:** radio button and enter the wav file name *(or press the browse button and browse to the directory containing the file to select it)*.
3. **Check** the **Message can be checked automatically** checkbox to allow a user-defined message to be replaced to the automatic alarm specific message *(optional)*.
4. Specify **Audio channels used when playing message** — check **Left**, **Right** or **both** checkboxes.
5. **Check Append to log** checkbox to append notification specific information to the existing log file each time when Speak notification is initiated *(optional)*.

6. If necessary, enter a **Start action in time** (ms) — a delay between trigger condition detection and action initialization.

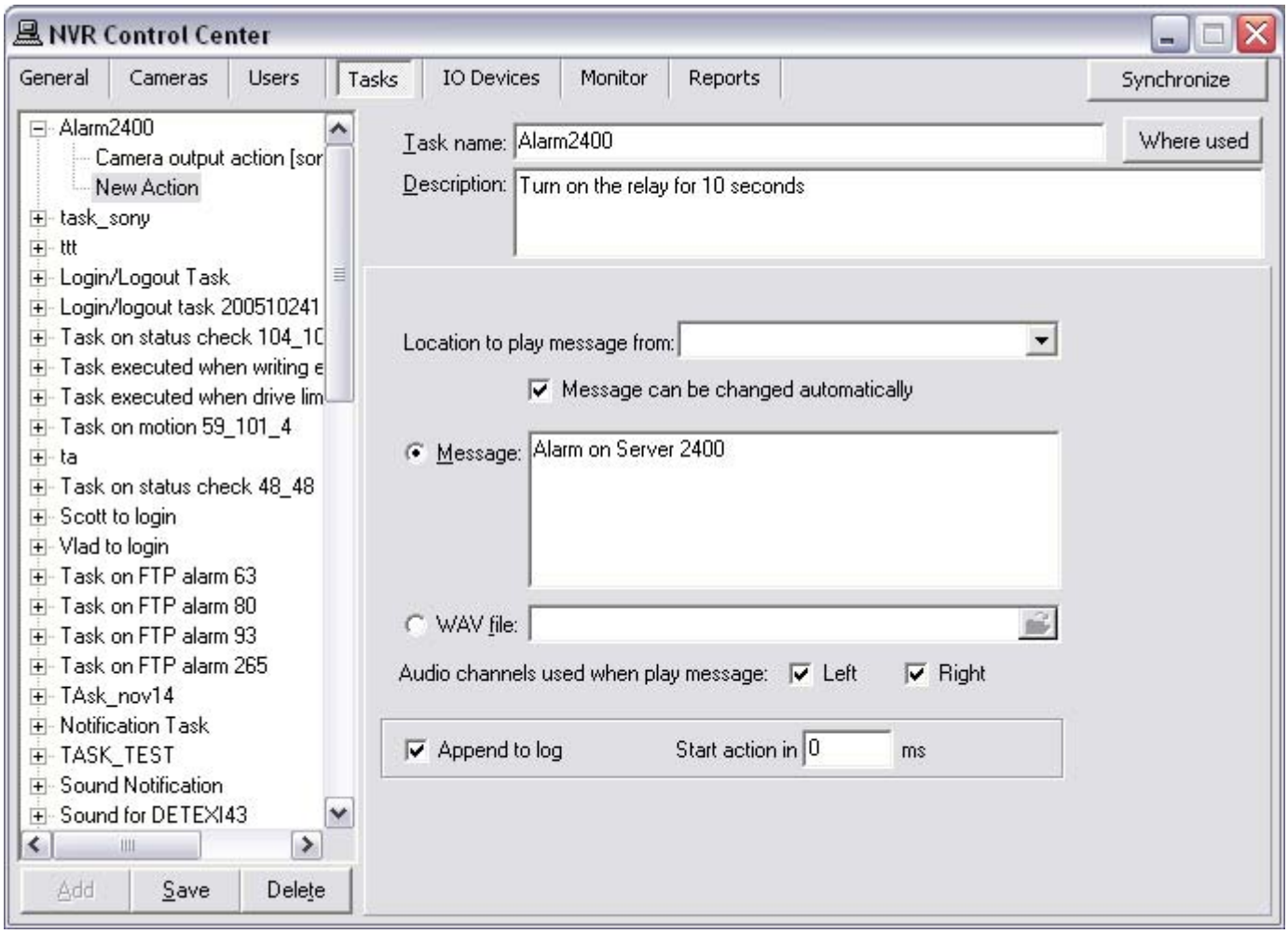


Fig 100. NVR Control Center — Tasks
(Configure Notification —Speak.)

Task Triggers — NVR Events and Alarms

In the NVR a trigger is a set of criteria that, when met, starts the execution of a predefined task. In order to get advantage of receiving a notification and/or executing action defined in the task this task should be assigned to a specific alarm/event in the NVR Control Center.
The following alarms/events can be raised in the NVR and start execution of assigned tasks:

System Health Alarms/Events

General

NVR Status Task — (if assigned) is executed once a day at a time you can predefine by yourself. If this task HAS NOT BEEN executed at that time it means you have to check the system.

NVR Service Health Status — when any of the individual NVR Services encounter problems, this event is raised.

NVR Storage Errors

Archive Storage Writing Error — when video cannot be stored to the designated archive path due to a writing error, such as insufficient permissions to write to the drive or if the path is invalid, this event is raised.

Archive Storage Drive Limit Reached — when the drive limit defined in the If free space is less than [XX] MB parameter is reached, and the Stop Saving option is set, this event is raised. This alarm automatically causes the recording service to **stop**. User intervention is required to restart the service when appropriate resources are available.

IP-Device Status

Check Alive service task — the **Check Status Task** can be triggered if the IP-device fails to answer on the Check Alive service request.

Recovery Procedure tasks — when NVR loses connection to a camera it is scheduled to record, it enters into a recovery procedure. Tasks can be executed at different points within the procedure.

Task on First Error can be triggered when NVR first loses connection;
Task on Recovery Procedure Failure — initiates if all the attempts of recovery have failed;
Task on Restore initiates in case the IP-device comes back online.

NVR Network (Domain) Alarms

When NVR does not respond — the task should be setup for each **child NVR** in the NVR network (domain) to be aware weather a child NVRs are alive and properly respond to the NVR Domain Controller.

Log In/Out Events

General User Login/Logout

Login/Logout Task — when any user logs in or logs out, the event is raised with information indicating the user and the action (login/logout).

Specific User Login/Logout

Login Task — indicates that a specific user has logged in. Used instead of or along with the general login/logout event, allows different tasks to be assigned individually to users of interest.

Logout Task — indicates that a specific user has logged out. Used instead of or along with the general login/logout event, allows different tasks to be assigned individually to users of interest.

IP-Device Alarms/Events

IP-Device Status (Part of System Health Monitoring Alarms/Events)

Check Alive service task — the **Check Status Task** can be triggered if the IP-device fails to answer on the Check Alive service request.

Recovery Procedure tasks — when NVR loses connection to a camera it is scheduled to record, it enters into a recovery procedure. Tasks can be executed at different points within it:

Task on First Error can be triggered when NVR first loses connection;
Task on Recovery Procedure Failure — initiates if all the attempts of recovery have failed;
Task on Restore initiates in case the IP-device comes back online.

FTP Alarm

FTP Alarm— in some wireless configurations and other environments where constant streaming is not possible, video can be uploaded via FTP based on decision making within the IP-device. When video is uploaded to the DETEXI NVR FTP Server, the video is merged into the archives as alarm video, and this event is raised.

Alarm on Motion

Input Alarm — if an IP-device supports external I/O, the Check Alarm (IO Listener) service can monitor the status of the camera's inputs. This event is raised when an IP-device's defined input is in an active (non-normal) state. A separate event is raised for each IP-device input that has this feature enabled.

Soft Motion Alarm — when motion detection is enabled in the IP-device recording schedule, an event is raised each time motion is detected on an IP-device by the DETEXI software. A separate event is raised for each IP-device recording schedule if Alarm on Motion is configured.

User Triggered Task

User Triggered Task— task execution can be added to a user's permissions, by assigning users the specific tasks they are allowed to trigger manually from the Remote DETEXI Client.

Configure System Health Monitoring Tasks

1. Assign NVR Status Task

DETEXI IP-Surveillance reliability checking is based on the Task Execution Engine. If something happens to the system, hardware or one of the DETEXI NVR components, certain task assigned to this event is executed.

But what if something happens to the Task Execution Engine by itself?

The obvious conclusion is — you will never have any task executed at all and you will never know that something is wrong with the DETEXI NVR. To solve this issue a special NVR Status Task was developed which *(if assigned)* is executed once a day at a time you can predefine by yourself. If this task HAS NOT BEEN executed at that time it means **you have to check the system**.

The main purpose of the **NVR Status task** is to send out the **current status** of the NVR components at predefined time. It is initiated once a day at a predefined time and provides the user a list of the NVR components being monitored and their status.

To assign NVR status task (Fig 101).

1. In the **NVR Control Center** switch to the **General — Global Setting**.
2. Select an appropriate predefined task from the **NVR status task** drop-down list.
3. Set a desired time.

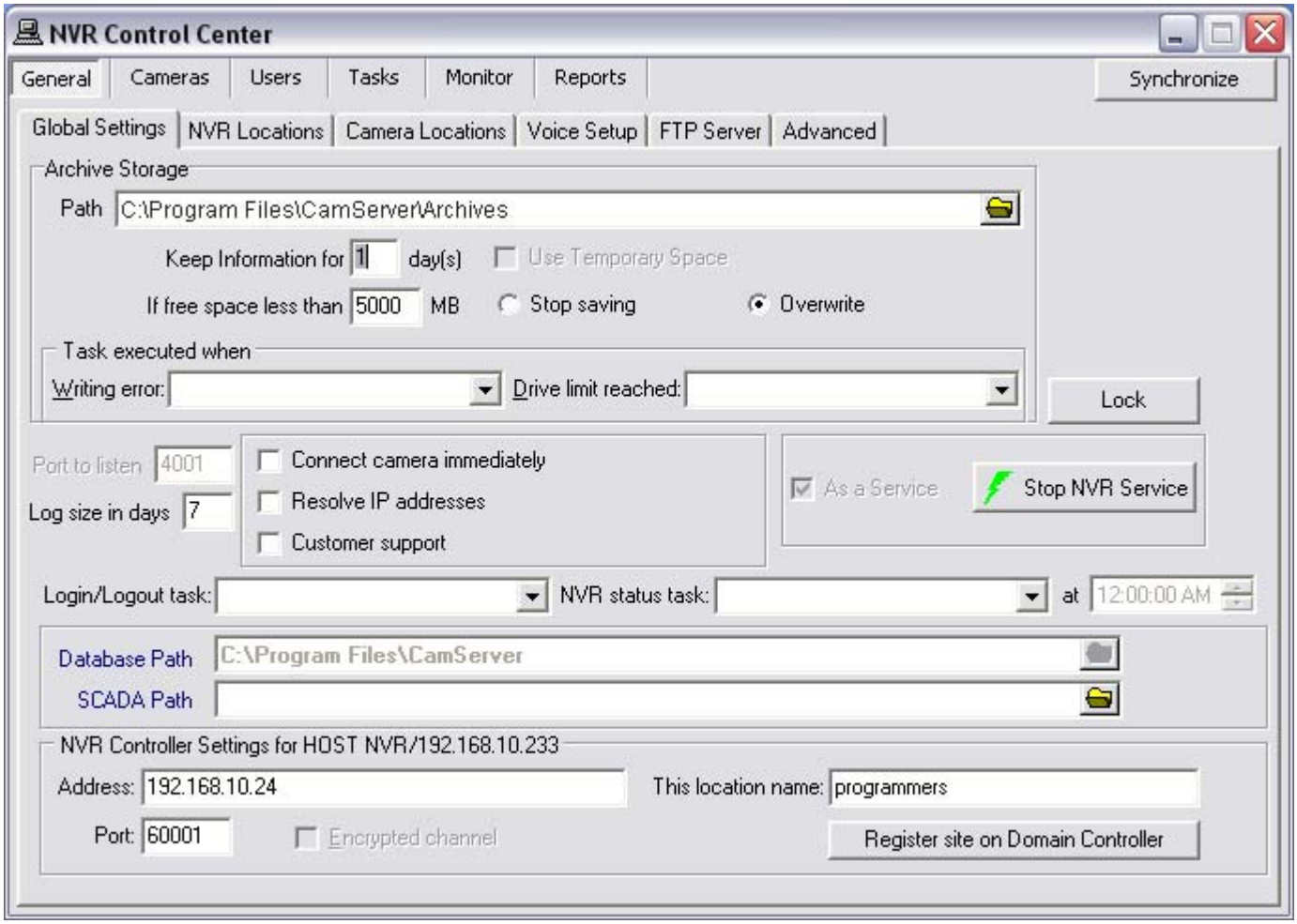


Fig 101. NVR Control Center — General — Global Settings
(Assign NVR status task.)

✓ If you want to setup your own schedule with a different time interval (twice a day or once a week or whatever you want) to send out notification that the NVR is alive, you should create a Scheduled Task and use it for checking if the Reliability System is functioning properly.

2. Assign NVR Storage Errors Tasks

There are some problems that should not be tolerated. If the tasks associated with them are initiated you have to seriously reconsider your NVR settings and/or the hardware you are using.

Writing error task initiates when the **Recorder** fails to record streaming data on the hard drive. It could be because of a hard drive error, a Windows error or the Recorder could not do its job because of lack of resources *(usually an underpowered CPU)*.

Drive limit reached task initiates in case of free space for the system files or free space necessary for NVR functioning becomes too low. In some circumstances the **Recorder** service could even be stopped because the NVR cannot manage the given amount of information due to a lack of system resources. In this case you should reconsider your IP-devices recording schedule settings and /or **Keep information for** parameter and/or your hardware configuration.

In order to get advantage of getting a notification/action in case of any of the catastrophic errors occurs you **must setup** the Writing error and Drive limit reached tasks —

1. In the **NVR Control Center** switch to the **General — Global Settings**.
2. In the **Tasks executed when** section select an appropriate predefined task from the **Writing error** drop-down list (Fig 102) and the **Drive limit reached** drop-down list.

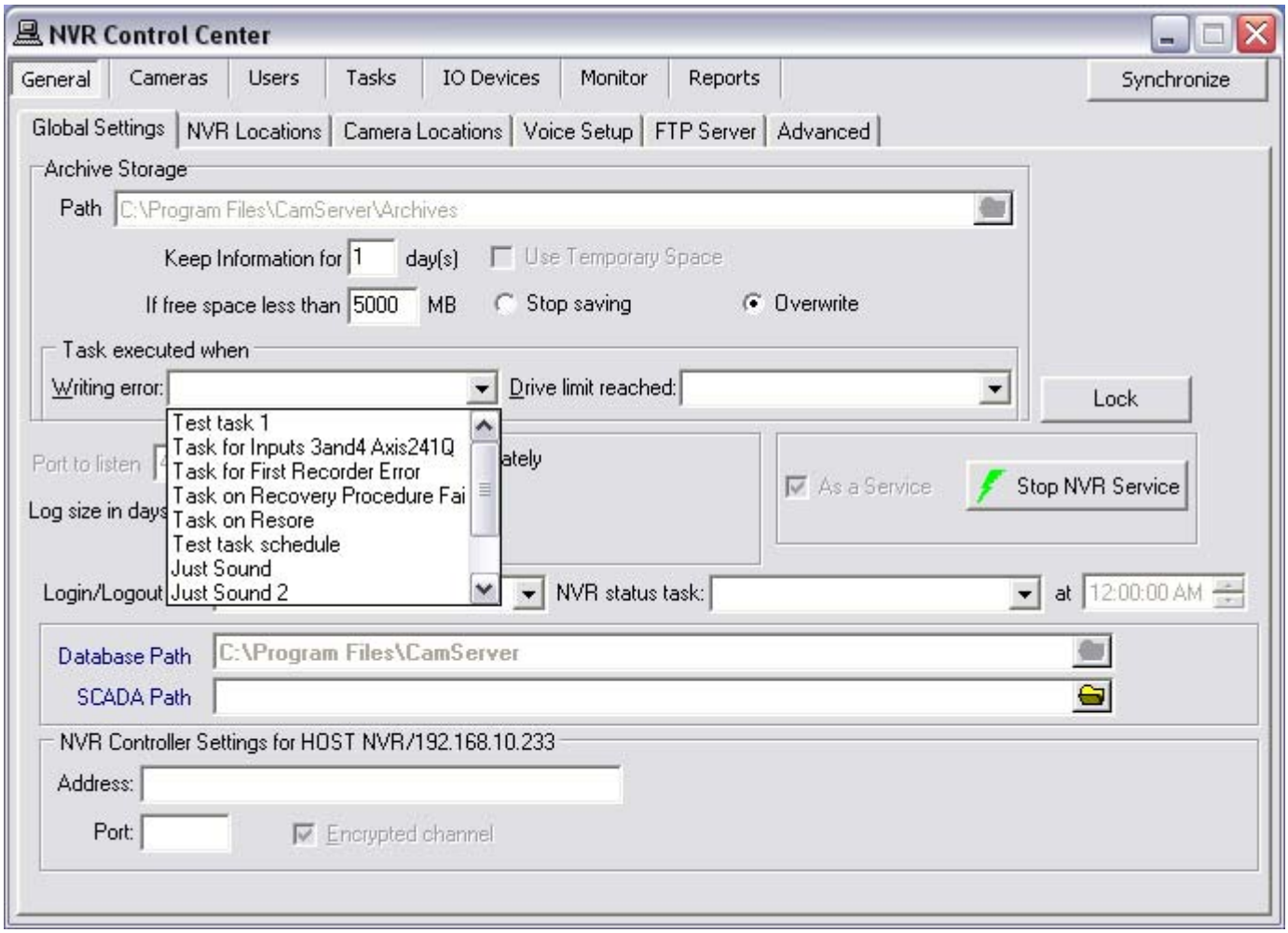


Fig 102. NVR Control Center — General — Global Settings
(Assign NVR storage errors tasks.)

3. Assign NVR Service Health Monitoring Tasks

NVR Service Health alarm is raised when any of the individual NVR services encounter problems. To monitor the health of the DETEXI software components (services) you need to assign a predefined task that will be executed in a case of failure to **each** component you wish to monitor (Fig 103).

1. In the **NVR Control Center** go to the **Monitor**.
2. Press blue Health monitor On/Off toggle button in the **bottom right** corner — the system health monitor **No answer task** panel appears.
3. To assign a task to the component — select previously created task from the drop-down list next to the component.
4. Assign the task to **each** system component you wish to monitor.

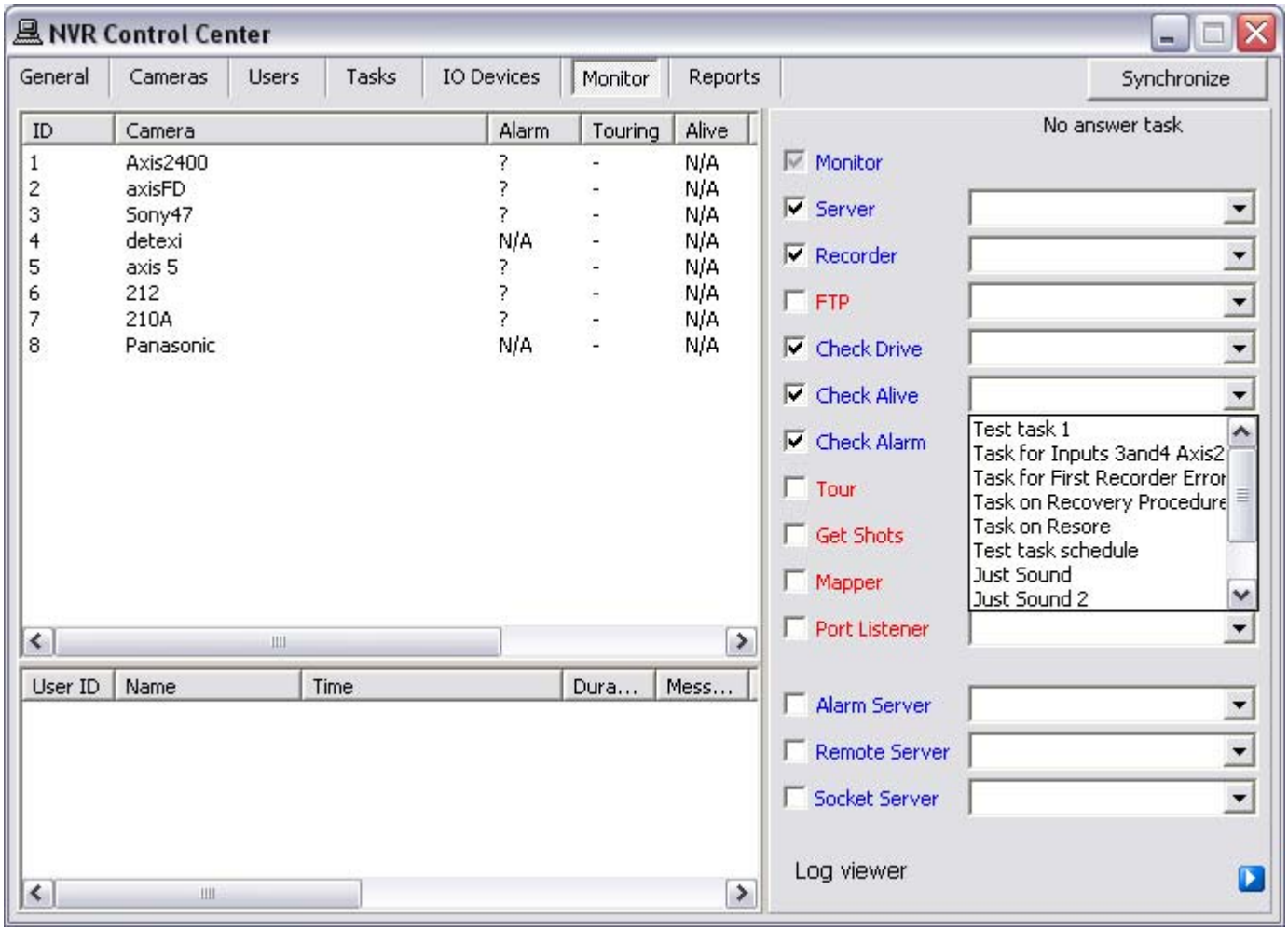


Fig 103. NVR Control Center — Monitor
(Assign a predefined task to each service.)

- ✓ Component failure if any will be detected within 3 minutes and the assigned task will be executed.
- ✓ System will check status **only** for the components with the **checkbox** checked.
- ✓ To learn more about NVR Services refer to NVR General Settings — NVR Services.

4. Assign IP-Device Status Tasks

The DETEXI NVR streaming and records video information from the IP-cameras/video servers, which are complex devices by themselves and can often be the source of problems.

There are two methods to deal with IP-devices errors —

1. Using a **Check Alive** service — the **Check Status** task can be triggered if the IP-device fails to answer on the Check Alive service request.
2. Using a **Recovery Procedure** in the IP-device recording schedule — when NVR loses connection to a camera it is scheduled to record, it enters into a recovery procedure. Tasks can be executed at different points within the procedure. **Task on First Error** can be triggered when NVR first loses connection; **Task on Recovery Procedure Failure** — initiates if all the attempts of recovery procedure have failed; **Task on Restore** initiates in case the IP-device comes back online.

1) Assign Check Status Task for the camera using Check Alive service

The Check Alive service is relatively heavy on NVR resources and it should be used only in the case of recording on I/O ports when the recorder is off and starts to record when the signal from I/O port is received. First ensure that Check Alive service in the NVR Control Center — Monitor is **checked**.

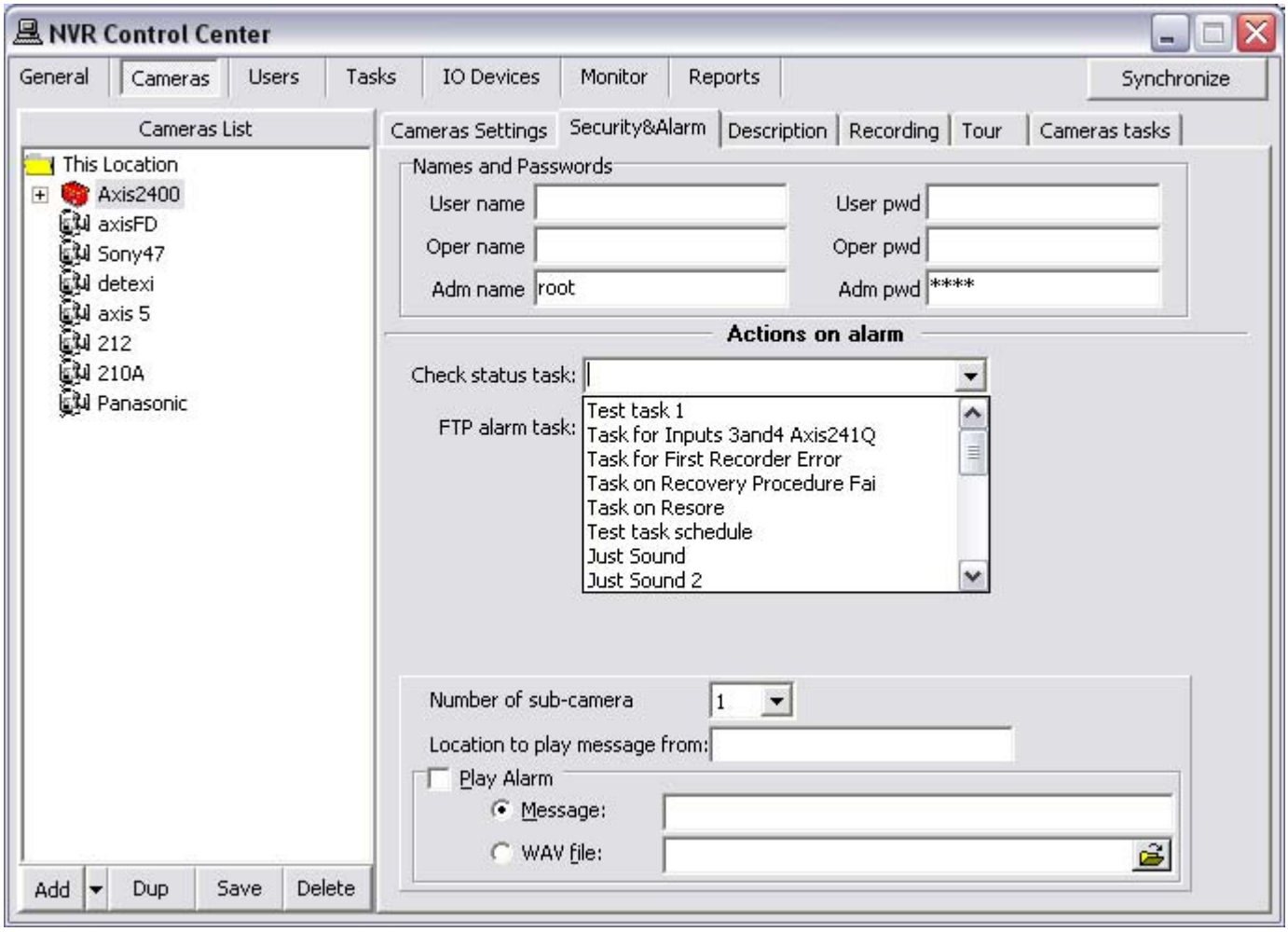


Fig 104. NVR Control Center — Cameras — Security & Alarm
(Assign Check Status Task.)

1. In the **NVR Control Center** select a camera from the **Cameras List**.
2. Go to the **Cameras — Security & Alarm** (Fig 104).
3. Under the **Actions on alarm** select an appropriate predefined task from the **Check status task** drop-down list. Task initiates if the IP-device fails to answer on Check Alive request.
4. Repeat steps 1-3 for any camera from the **Cameras List** to setup actions on alarm.

✓ It must be clear that if a device fails to answer this does not necessarily mean that there is a physical device failure. It could be a connection (network) error. From the NVR reliability point of view it is irrelevant as to why there is no video stream but from the point of view of the technician (who has to fix the problem) there is a big difference.

2) Setup Recovery Procedure in a camera recording schedule

Another method to deal with IP-devices errors is to setup Recovery Procedure inside a camera recording schedule. The Recovery Procedure fully describes how the Recorder will deal with the faulty camera.

1. In the **NVR Control Center — Cameras** select camera from the **Cameras List** and go to the **Recording — Schedule** (Fig 105).
2. Select a schedule from the schedules list to **update** existing schedule or press **Add** button below the list to create a **new** schedule.

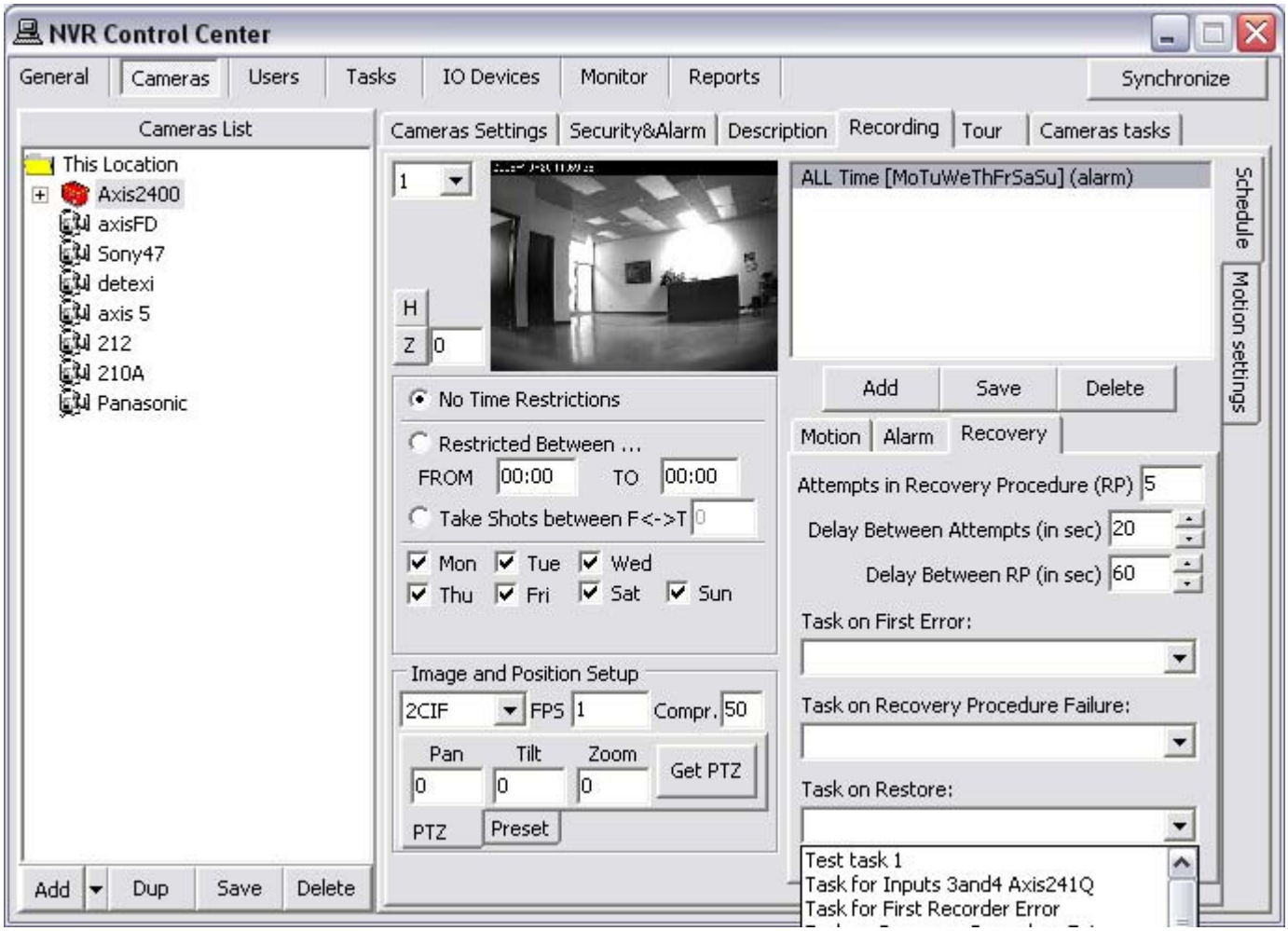


Fig 105. NVR Control Center — Cameras — Recording — Schedule — Recovery *(Setup Recovery Procedure.)*

1. Switch to the **Recovery** tab to setup a recovery procedure parameters:
   - ✓ **Attempts in Recovery Procedure (RP)**
   - ✓ **Delay Between Attempts (in sec)**
   - ✓ **Delay Between RP (in sec)**
2. Select predefined tasks for events you are going to track *(in any combination)*—
   - ✓ **Task on First Error** — *(if assigned)* the Recorder initiates the corresponding task immediately on the video stream failure;
   - ✓ **Task on Recovery Procedure Failure** — *(if assigned)* task initiates if all the attempts of Recovery Procedure have failed;
   - ✓ **Task on Restore** — *(if assigned)* task initiates in case the IP-device comes back online.

3. Press **Save** button below the schedules list.
4. Repeat for the other schedules.

✓ Setting up a Recovery Procedure for many cameras with complicated recording schedules could be time consuming. To make it easier use the recovery settings **template**.

3) The Recovery Procedure Recommended Settings

Attempts in Recovery Procedure (RP) — 5

Delay Between Attempts (in sec) — 30

Delay Between RP (in sec) — 600

Task on First Error — assigned

Task on Restore — assigned

According to the recommended settings the **Recorder** initiates the **Task on First Error** when the video stream failure occurs. Than makes up to **5** attempts with **30** s interval to recover the stream. If any of the attempts succeeds the **Task on Restore** will be initiated; if not — the next round of attempts to connect to the faulty camera starts in 10min (**600** s).

4) Create Template for Setting a Recovery Procedure

Setting up a Recovery Procedure for many cameras with complicated recording schedules could be time consuming. To make it easier **—** a template enforcing particular settings in newly created schedules can be created (Fig 106).

1. In the **NVR Control Center** go to the **General — Advanced**.
2. Under the **Recorder Recovery Settings Template** setup Recovery Procedure settings —
   - ✓ **Attempts in Recovery Procedure**
   - ✓ **Delay Between Attempts**
   - ✓ **Delay Between RP (in sec)**
3. Select predefined tasks for events you are going to track (in any combination)—
   - ✓ **Task on First Error** — the Recorder initiates the corresponding task immediately on the video stream failure;
   - ✓ **Task on Recovery Procedure Failure** — task initiates if all the attempts of Recovery Procedure have failed;
   - ✓ **Task on Restore** — task initiates in case the IP-device comes back online.

The Recovery Procedure settings from this template will be forced in to each **newly created** cameras recording schedule and could be changed.

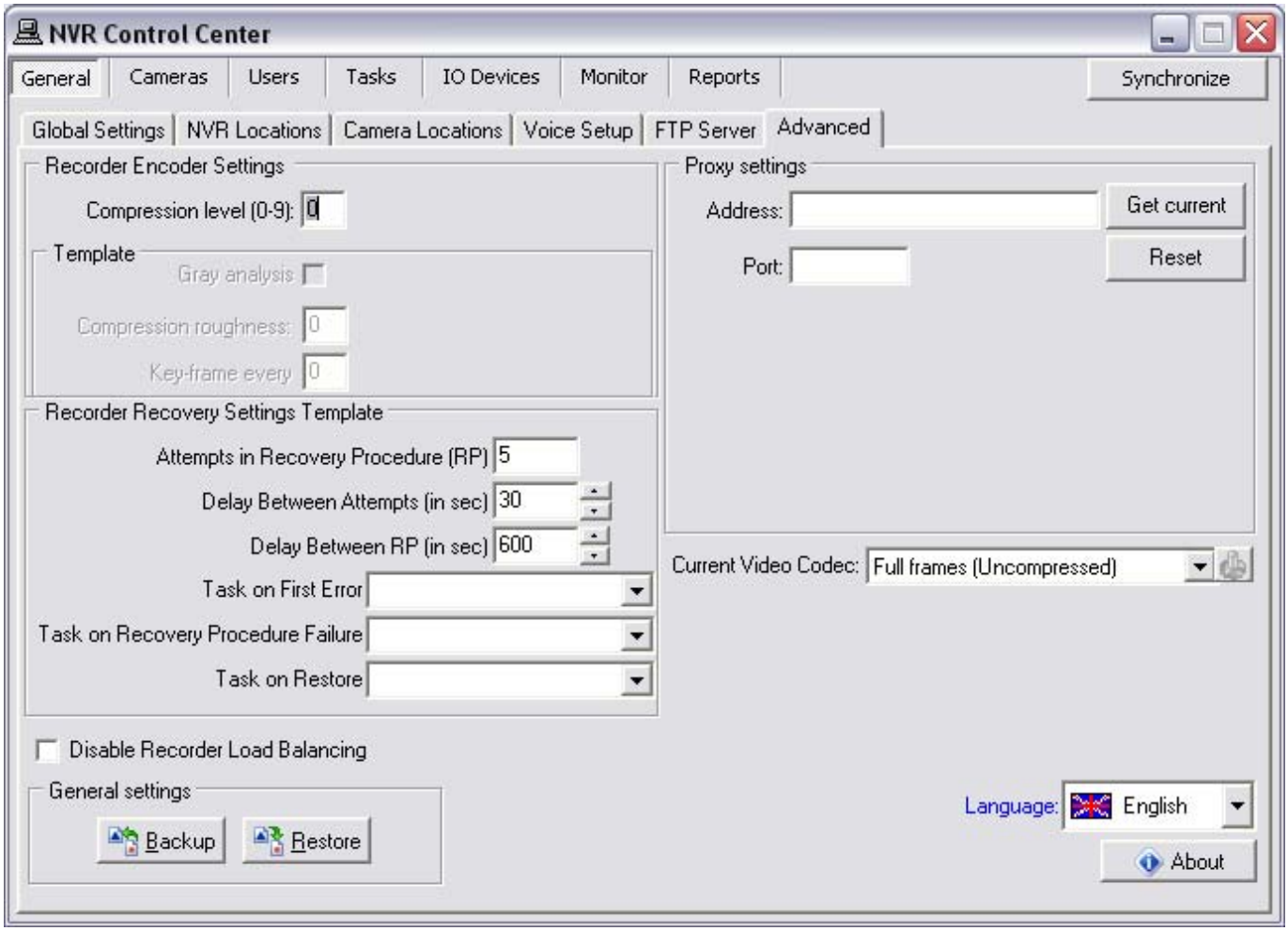


Fig 106. NVR Control Center — General — Advanced
(Create Recorder Recovery Settings Template.)

✓ If the Recovery Procedure template was created a newly created schedule will use the template parameters as **default**.

5. Assign Child NVR Status Tasks in the NVR Domain (Network)

Although every NVR in the **NVR Domain Controller** configuration should have its **own** reliability settings there is a new intercommunication layer between the NVR Domain Controller and a child NVR, which could also fail and therefore the system administrator **must** be able to check its status.
To be aware weather a child NVRs are alive and properly respond to the NVR Domain Controller you should setup the **Task when NVR does not respond** for **each** child NVR in the NVR network (domain).

To assign child NVR Status task do the following steps (Fig 107):

1. In the Domain Controller **NVR Control Center** go to the **General — NVR Locations**.
2. Select a child NVR from the **Servers Locations** list.
3. In the **NVR Locations** switch to the **Monitoring** tab and input your setting to define
   - ✓ **Interval for monitoring**
   - ✓ **Number** of **Attempts**
   - ✓ **Interval** between attempts **Each**
4. Select an appropriate predefined task from the **Task when NVR does not respond** list.
5. **Check** **Check alive** check box.

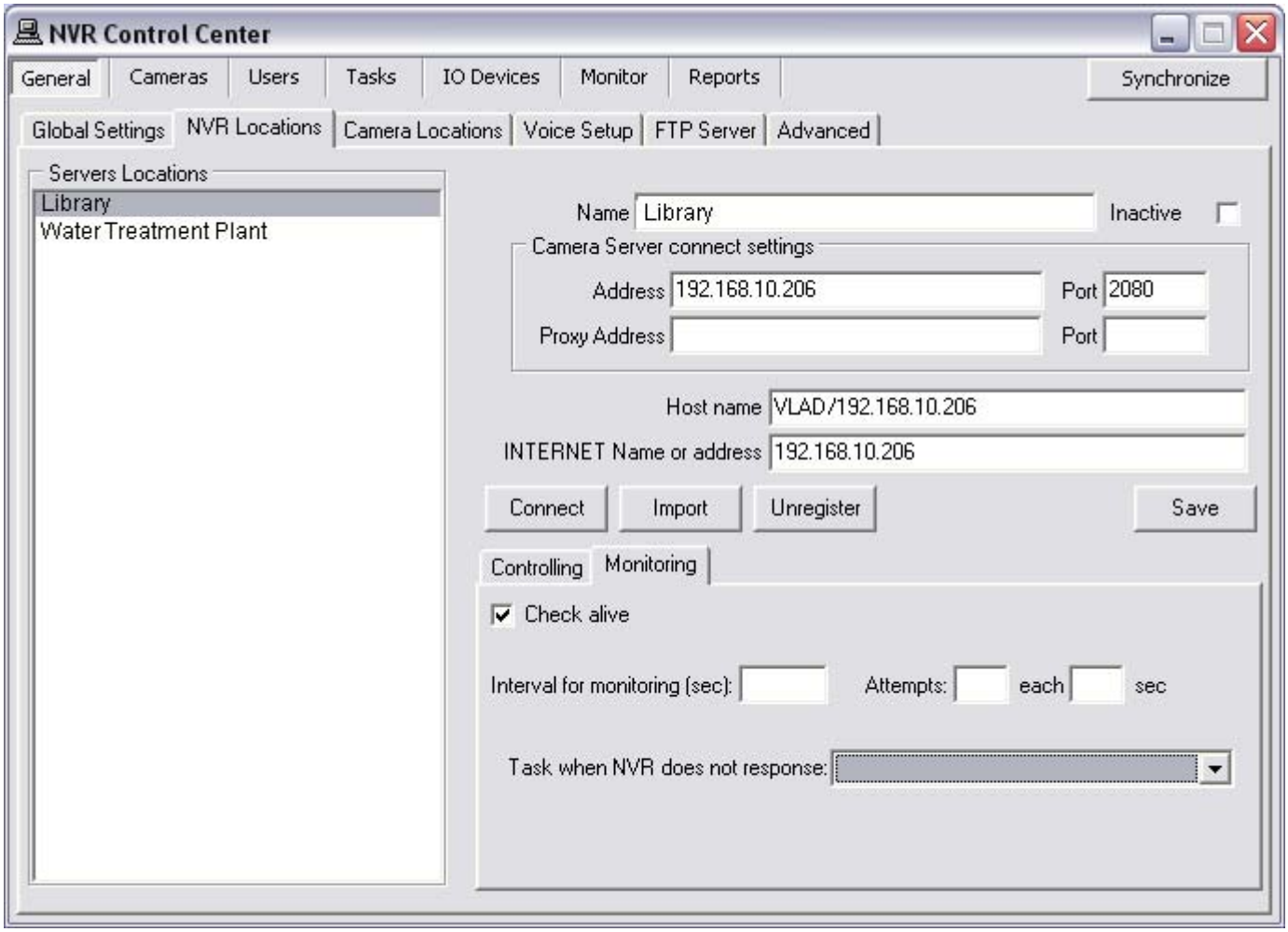


Fig 107. NVR Control Center — General — NVR Locations
(Assign Task When NVR Does Not Respond.)

✓ If you know for a fact that the site is **temporary down** for maintenance or other issues, simply **uncheck** the **Check Alive** check box. In this case the system will NOT initiate unnecessary tasks for a known problem and will return to monitoring only after you check the box again.

Configure Login/Logout Tasks

1. Assign General User Login/Logout Task

Login/Logout Task — when any user logs in or logs out, the event is raised with information indicating the user and the action (login/logout).

To assign General User Login/Logout task (Fig 108) —

1. In the **NVR Control Center** go to the **General — Global Settings**.
2. Select an appropriate predefined task from the **Login/Logout Task** drop-down list.

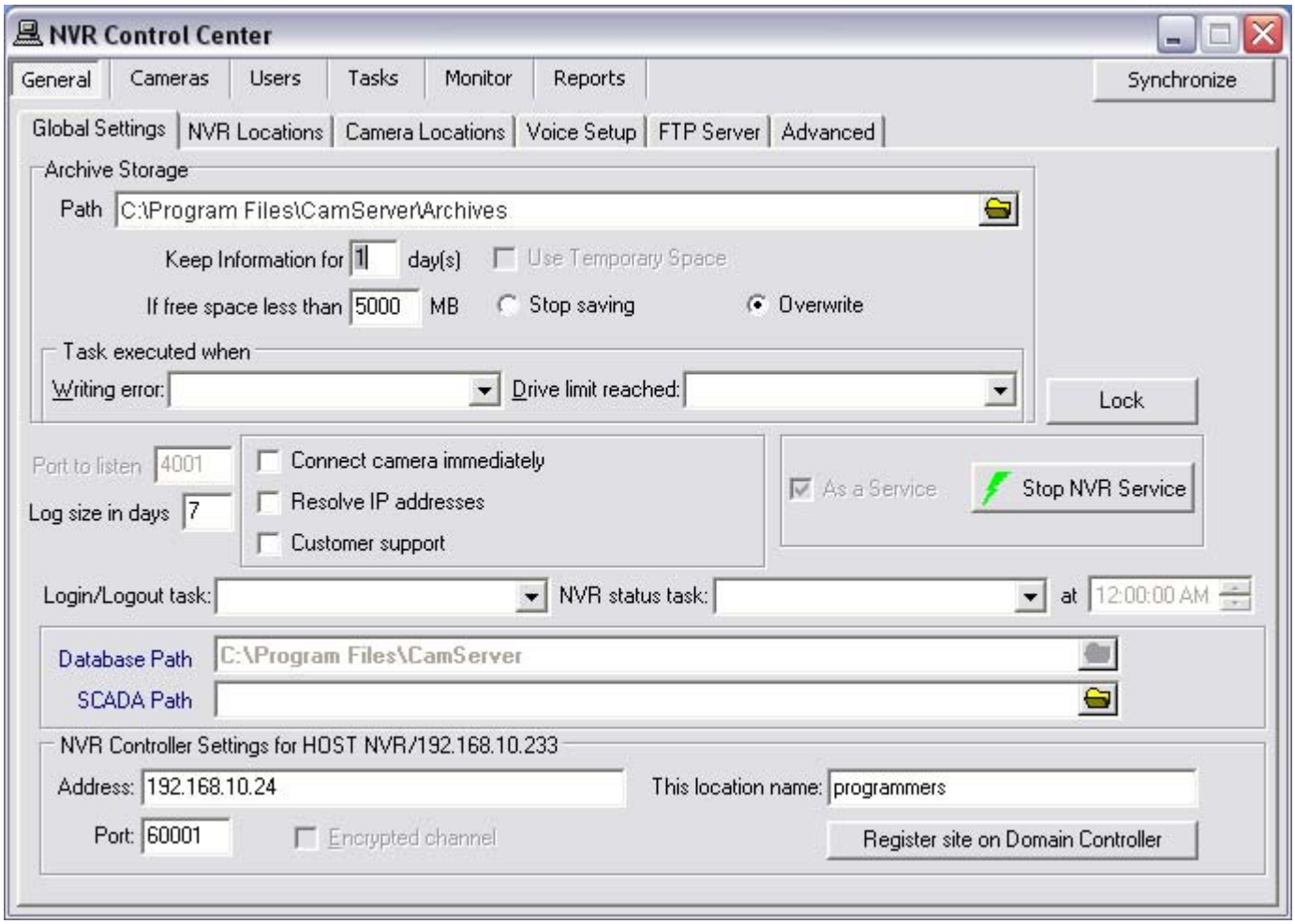


Fig 108. NVR Control Center — General — NVR Locations
(Assign Login/Logout Task.)

- ✓ Each individual event can only have one task assigned to it.
- ✓ Any task can include one or more actions/notifications, allowing for **multiple** things to happen when a single alarm or event is raised.
- ✓ An event can also have a **composite task** assigned to it. Any composite task consists of several predefined tasks of the user's choice.

2. Assign Specific User Login/Logout Task

Login Task — indicates that a specific user has logged in. Used instead of or along with the general login/logout event, allows different tasks to be assigned individually to users of interest.

Logout Task — indicates that a specific user has logged out. Used instead of or along with the general login/logout event, allows different tasks to be assigned individually to users of interest.

To assign Specific User Login/Logout task (Fig 109) —

1. In the **NVR Control Center** go to the **Users**.
2. Choose a specific user from the **Users List** to upload user's information.
3. In the **Users Information** select a predefined task from the **Login Task** drop-down list and/or select a predefined task from the **Logout Task** drop-down list.
4. Click **Save** button below the **Users List** to save changes.

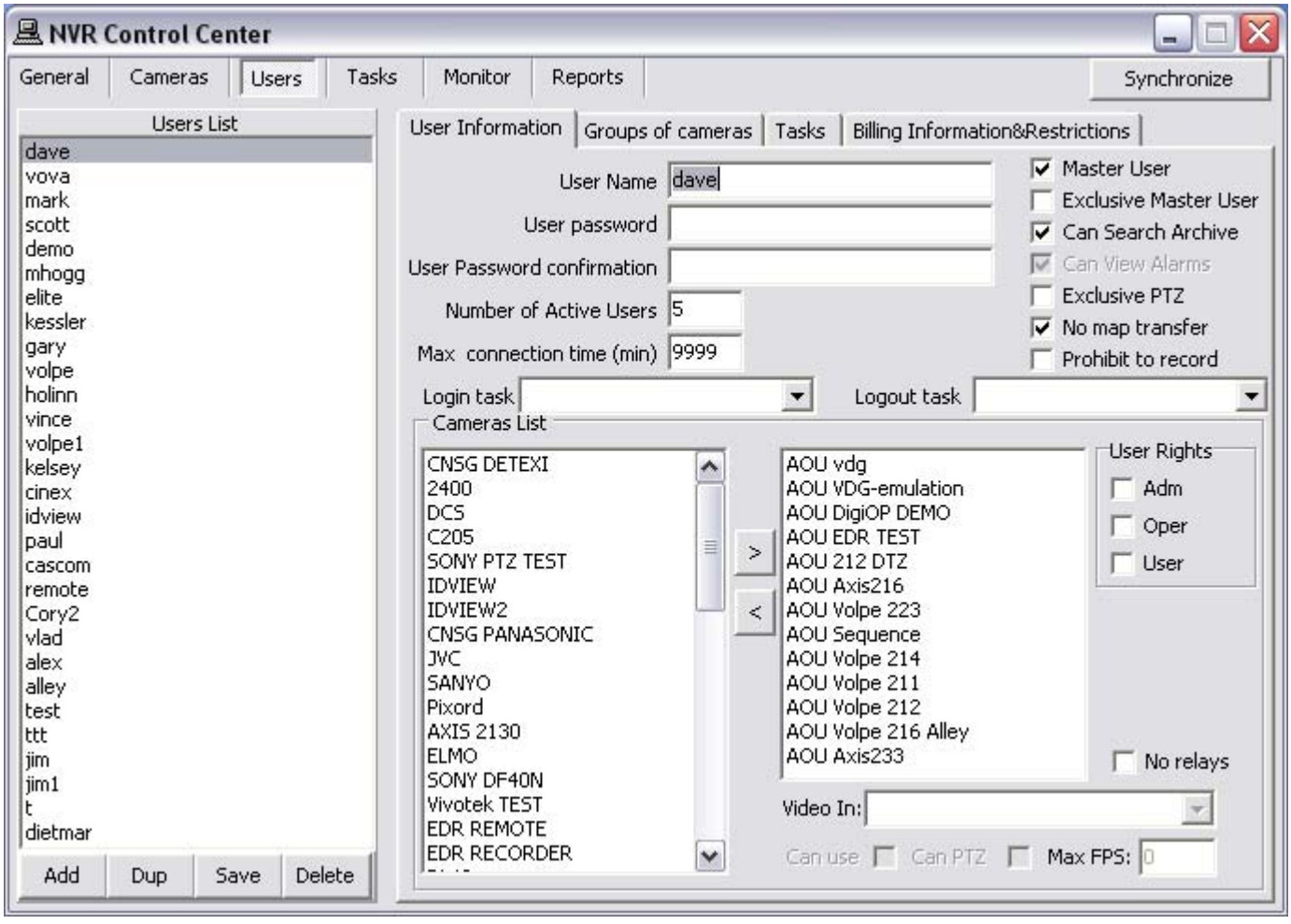


Fig 109. NVR Control Center — Users — User Information
(Assign Login Task. Assign Logout Task.)

Configure IP Device Tasks

The following tasks if configured in the DETEXI NVR will keep you informed of the status of any IP device in your IP-surveillance installation, alarms on the device I/O *(if supported)*, detected motion and more.

IP-Device Status Tasks

Check Alive service task — the **Check Status Task** can be triggered if the IP-device fails to answer on the Check Alive service request.

Recovery Procedure tasks — when NVR loses connection to a camera it is scheduled to record, it enters into a recovery procedure. Tasks can be executed at different points within it:
Task on First Error can be triggered when NVR first loses connection;
Task on Recovery Procedure Failure — initiates if all the attempts of recovery have failed;
Task on Restore initiates in case the IP-device comes back online.

FTP Alarm

FTP Alarm— in some wireless configurations and other environments where constant streaming is not possible, video can be uploaded via FTP based on decision making within the IP-device. When video is uploaded to the DETEXI NVR FTP Server, the video is merged into the archives as alarm video, and this event is raised.

Alarm on Motion

Input Alarm — if an IP-device supports external I/O, the Check Alarm (IO Listener) service can monitor the status of the camera's inputs. This event is raised when an IP-device's defined input is in an active (non-normal) state. A separate event is raised for each IP-device input that has this feature enabled.

Soft Motion Alarm — when motion detection is enabled in the IP-device recording schedule, an event is raised each time motion is detected on an IP-device by the DETEXI software. A separate event is raised for each IP-device recording schedule if Alarm on Motion is configured.

1. IP-Device Status Tasks

IP-Device Status Tasks as part of the DETEXI Health Monitoring System are described in details in the Configure System Health Monitoring Tasks section.

2. Assign FTP Alarm Task

FTP Alarm Task — in some wireless configurations and other environments where constant streaming is not possible, video can be uploaded via FTP based on decision making within the IP-device. When video is uploaded to the DETEXI NVR FTP Server, the video is merged into the archives as `alarm video`, and this event is raised.

To assign FTP Alarm task do the following —

1. In the **NVR Control Center** go to the **Cameras**.
2. Select camera to configure from the **Cameras List** and switch to the **Security & Alarm** (Fig 110).
3. Under the **Actions on Alarm** select an appropriate predefined task from the **FTP Alarm Task** drop-down list.
4. Click **Save** button below the **Cameras List** to save settings.

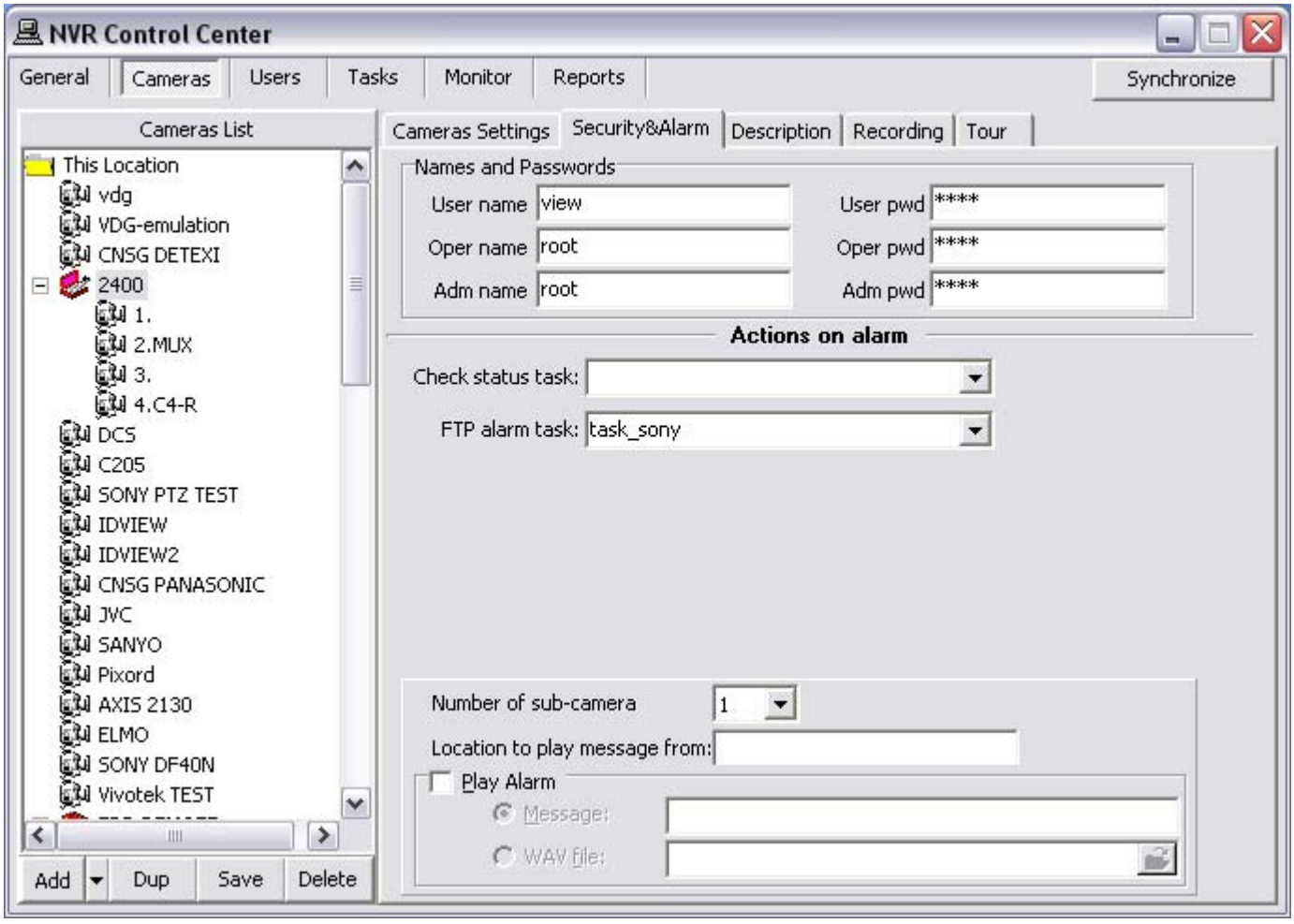


Fig 110. NVR Control Center — Cameras — Security & Alarm
(Assign FTP Alarm Task.)

3. Assign Input Alarm Task

IP-device Input Alarm executes task on hard motion detection, when an external motion detector is connected to the IP-device input. If a camera supports external I/O, the Check Alarm (IO Listener) service can monitor the status of the camera's inputs. **Input Alarm** event is raised when an IP-device defined input is in an active *(non-normal)* state. A separate event is raised for **each** IP-device input that has this feature enabled.

1. In the **NVR Control Center** — **Cameras** (Fig 111).
2. Select camera to configure from the **Cameras List** and switch to the **Recording — Schedule**.
3. Select a schedule from the schedule list and switch to the **Alarm** tag below the list.
4. Select **Input Ports** from the **Alarm on** drop down list and specific input port from the **Port** drop down list.
5. Check **Active** checkbox — the **Execute task** drop down list activates — select a predefined task from the list.
6. Click **Save** button below the schedule list to save settings.

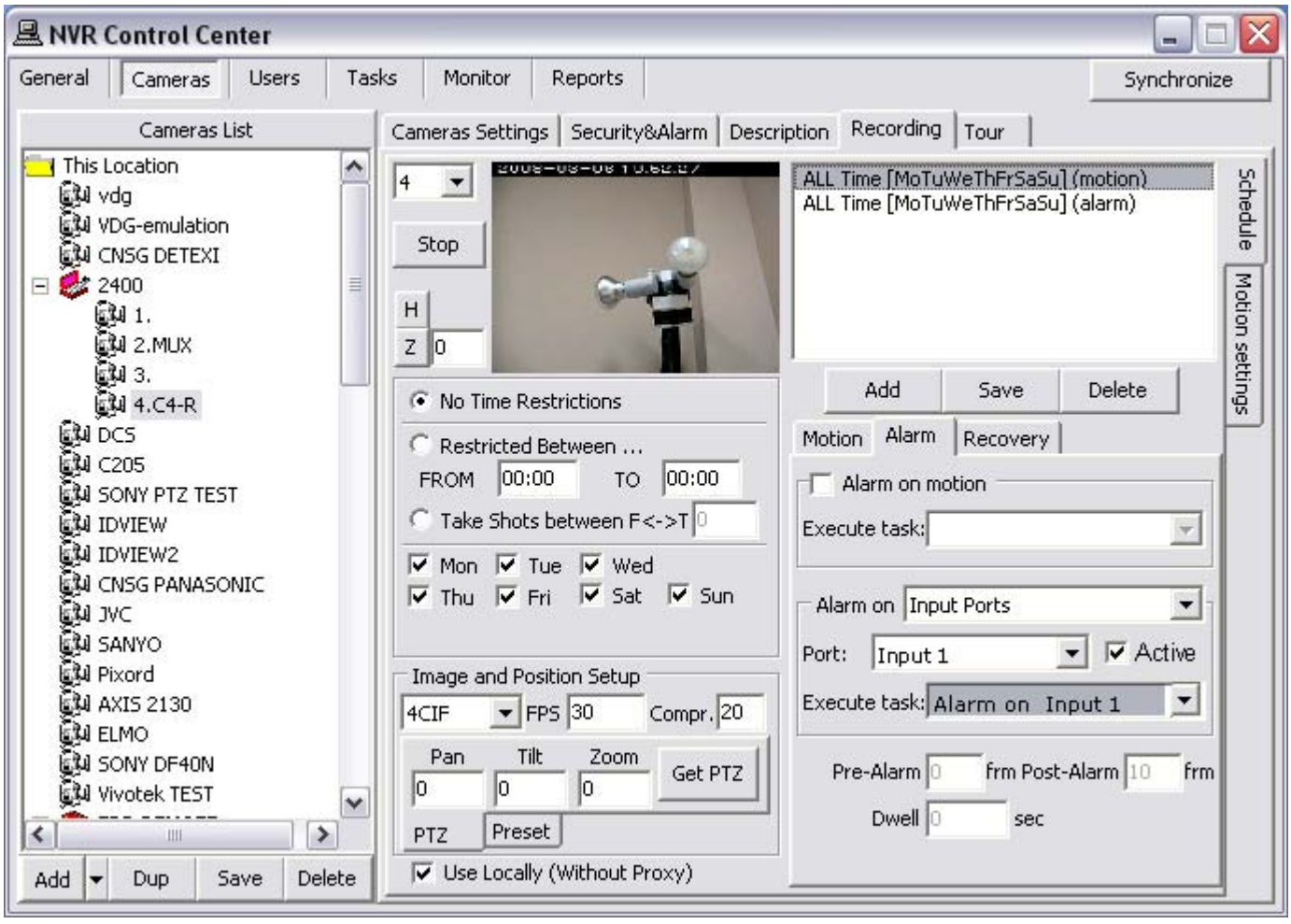


Fig 111. NVR Control Center — Recording — Schedule — Alarm
(Assign Input Alarm Task.)

✓ The **Input Alarm** applies to **hard motion** sensing (triggered by an external motion detector) only. For soft motion sensing (residing in the software) the IP-device Soft Motion Alarm should be configured.

4. Assign Soft Motion Alarm Task

When **motion detection** is enabled in the IP-device recording schedule, the **Soft Motion Alarm** is raised each time motion is detected on an IP-device by the DETEXI software. A separate event is raised for each IP-device recording schedule if Alarm on Motion is configured.

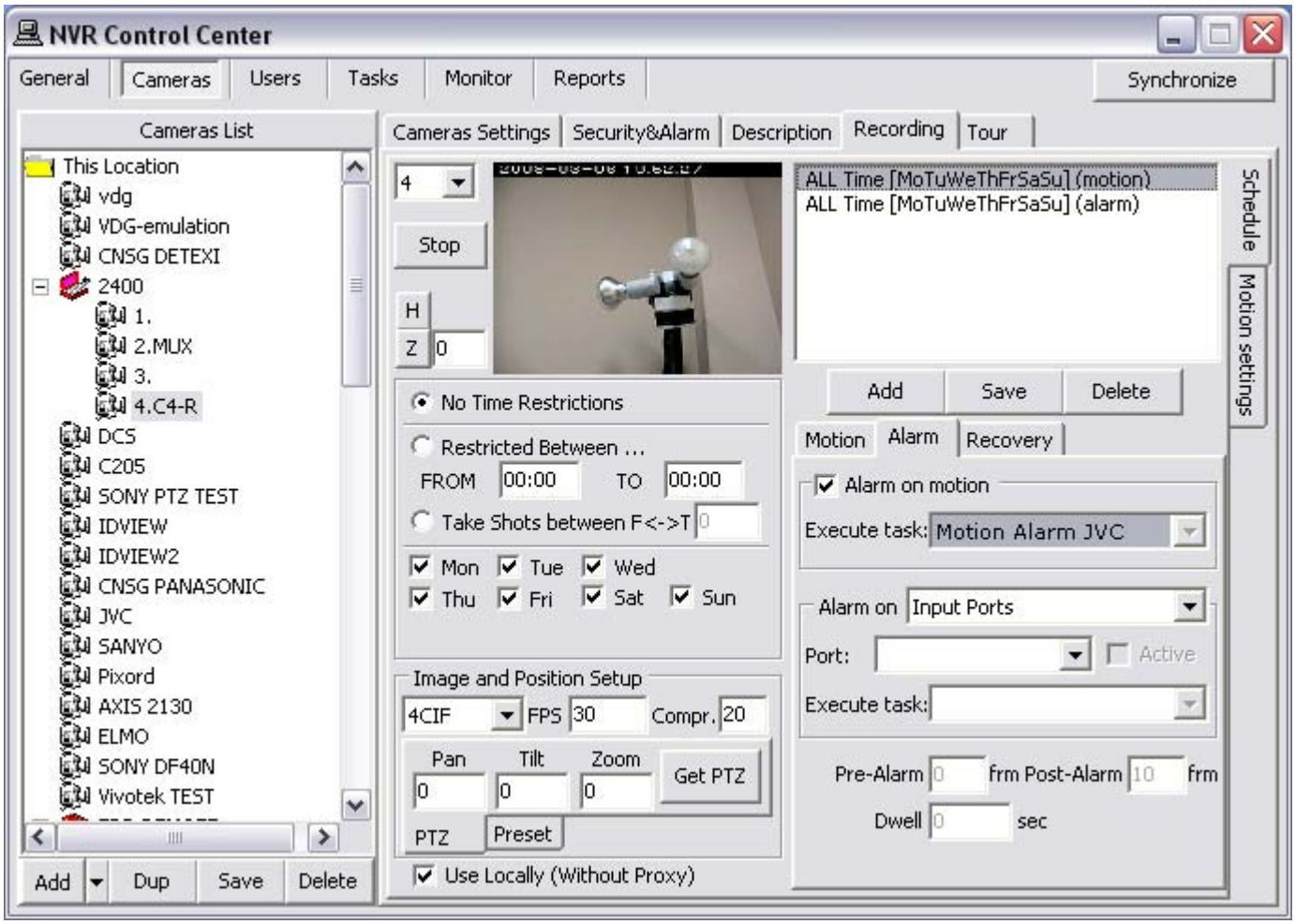


Fig 112. NVR Control Center — Recording — Schedule — Alarm
(Assign Alarm on Motion Task.)

1. In the **NVR Control Center** — **Cameras** (Fig 112).
2. Select camera to configure from the **Cameras List** and switch to **Recording — Schedule**.
3. Select a schedule from the schedule list and switch to the **Alarm** tag below the list.
4. **Check Alarm on Motion** checkbox — the **Execute task** drop down list activates — select a predefined task from the list.
5. Click **Save** button below the schedule list to save settings.

✓ The IP-device **Soft Motion Alarm** applies to **soft motion** sensing (residing in the software) only. For hard motion sensing (triggered by an external motion detector) the IP-device Input Alarm should be configured.

Configure User Triggered Tasks

User Triggered Task — task execution can be added to a user's permissions, by assigning users the specific tasks they are allowed to trigger manually from the remote DETEXI Client.

1. Assign User Triggered Task

1. In the **NVR Control Center** go to the **Users** (Fig 114).
2. Select a user from the **Users** list and switch to the **Tasks**.
3. Select a task of interest in the **Available** list and press the direction button to move the selected task to the **Selected** list.
4. Add more tasks to the **Selected** list if necessary.
5. Press **Save** button under the **Users** list to save changes.

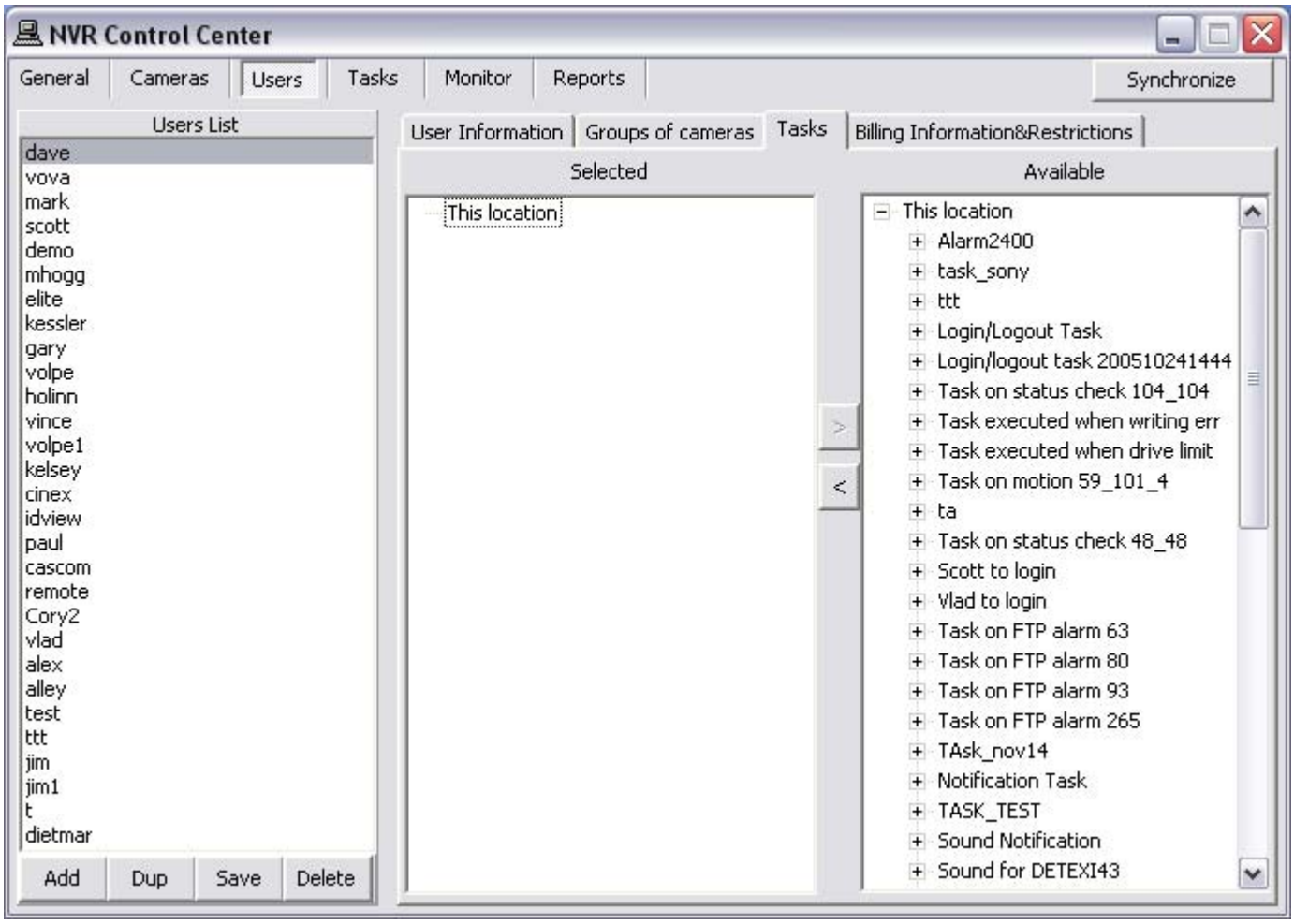


Fig114. NVR Control Center — Users — Tasks
(Assign User Triggered Task.)

✓ Tasks configured with alarm-specific information should not be assigned as no alarm-specific information will be available.

2. Trigger Task from Remote Client

1. Login to the **Remote DETEXI Client** (Fig 115).
2. On the Client start page press the **Tasks** button to launch **Execute Task** panel with the tasks available upon the user logged in permissions.
3. Select a task of interest and press **Start Task** button.

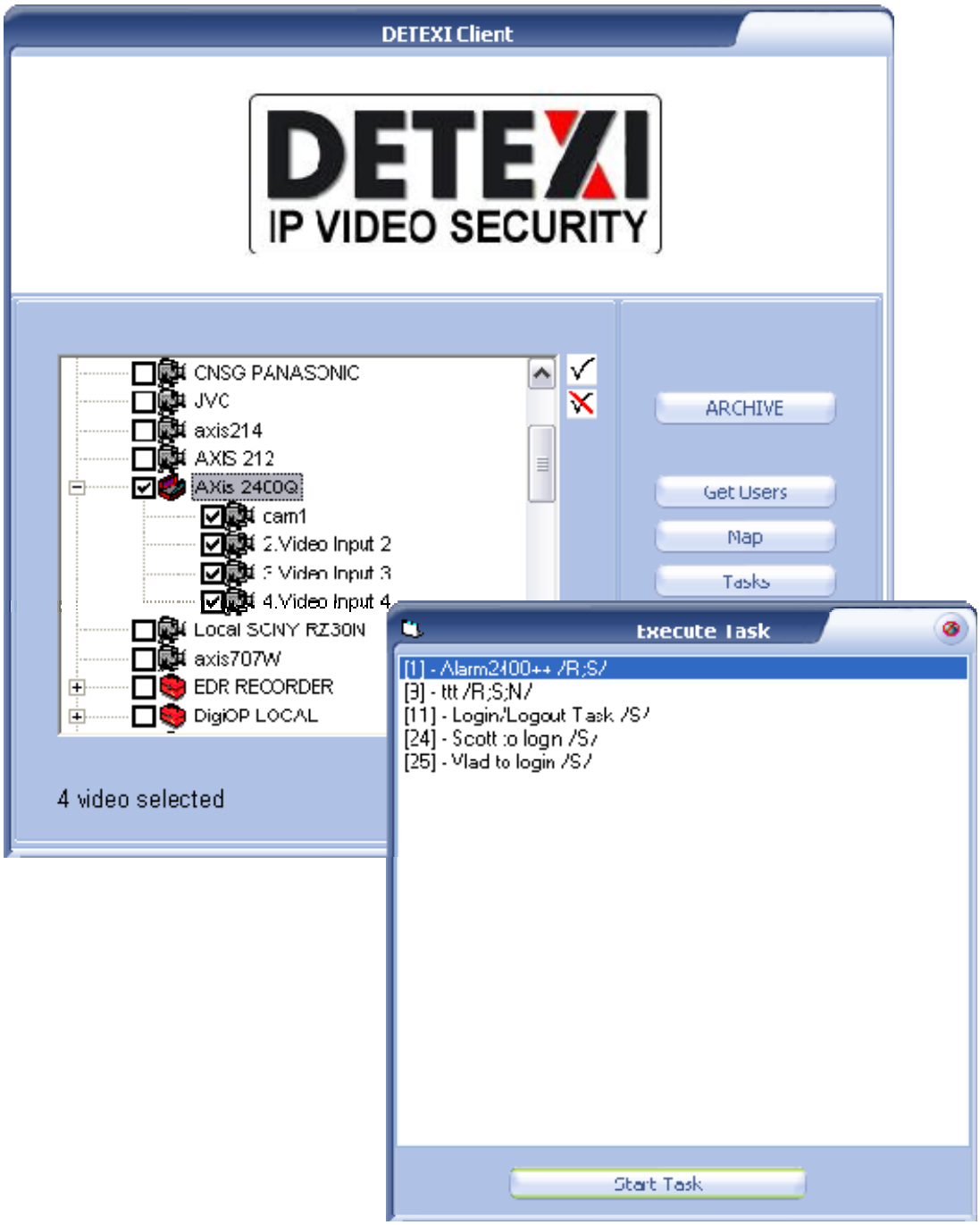


Fig 115. Remote DETEXI Client — Execute Task
(Execute Available Task.)

Access DETEXI NVR Video Archive

With the DETEXI NVR configured to record video, local and remote clients can access the recorded video. There are two main tools that allow users to access the NVR video archive; search, view and export video

1. DETEXI Client Archive Tool
2. DETEXI Archive Viewer

Although the Client Archive Tool and Archive Viewer have very similar capabilities, they access and pull the recorded video from the archive in very different ways allowing for both to excel in different environments and for different needs. That is especially apparent when connecting over a network. There are a few unique features in each as well.

DETEXI Client Archive Tool

Remote DETEXI Client

Remote DETEXI Client Installed stand-alone on any PC, or/and included automatically with the DETEXI NVR installation enables connection to any **authorized** DETEXI NVR available anywhere on the Internet or corporate network for remote viewing and control. Requires NVR settings configuration and authentication.

The **ARCHIVE** button on the Client Start Page launches the **Archive Tool** built into the Client (Fig 116).

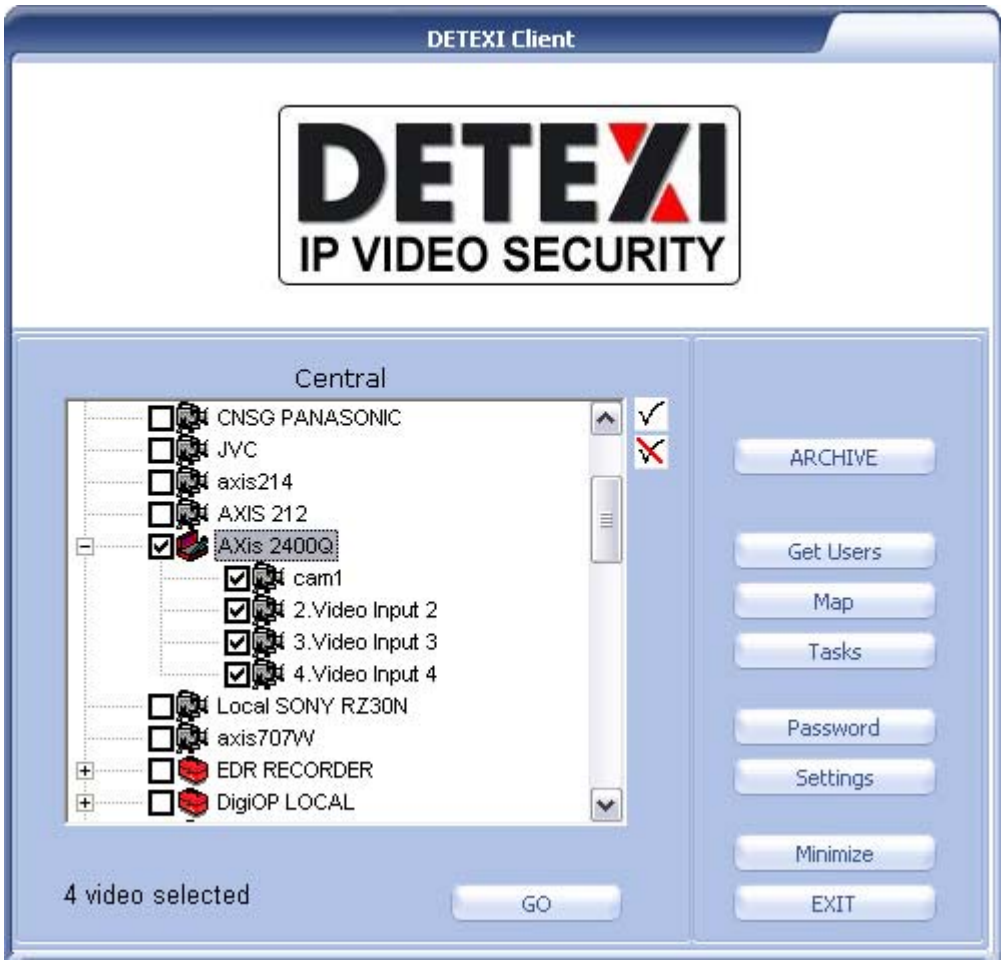


Fig 116. Remote DETEXI Client — Start Page
(Launch Client Archive Tool.)

DETEXI Client Archive Tool pulls recorded video from the DETEXI NVR archive transferring all frames in the time segment selected into local memory. For this reason, the amount of video that can be viewed at once is limited, and the initial load time is very affected by the network the video is being pulled across. Once loaded, however, this video can be viewed very quickly and efficiently at very high frame rates. When users already know the time and date of interest and only need to review a small amount of video, they might find the Client Archive Tool more efficient.

DETEXI Archive Viewer

DETEXI Archive Viewer included automatically with the DETEXI NVR and Remote DETEXI Client installation connects local and/or remote users to the DETEXI NVR recorded video (NVR archive) for video retrieval and export. For remote users permission/authentication is required.

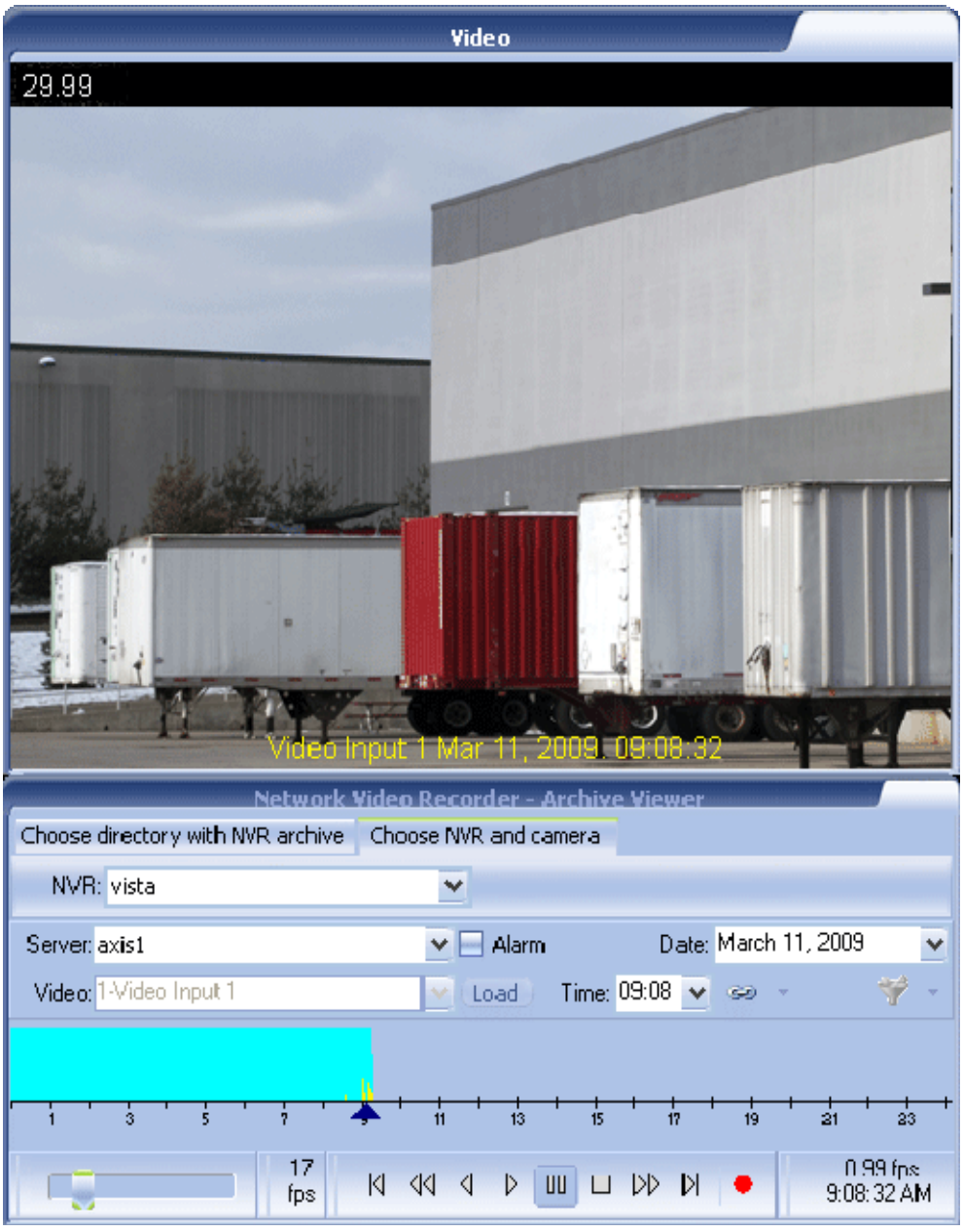


Fig 117. DETEXI Archive Viewer — Start Page
(View Recorded Video from the NVR Archive.)

When large amount of video need to be scanned for events the Archive Viewer is the tool of choice. Rather than loading a collection of video into local memory, the Archive Viewer streams video directly from the NVR archive over the network. For this reason, a full 24 hours of data is at the user's fingertips for viewing at all times without requiring a large initial load time. However, this limits user to slower possible playback speed — completely dependent upon the network connection between the Archive Viewer and NVR. It is not uncommon to see pauses in video playback for buffering of the video stream.

✓ When located on the NVR computer, the Archive Viewer is very efficient — limited only by the read speed of the hard drive and decoding speed of the video card.

Export Recorded Video

DETEXI NVR records video using proprietary file formats but enables users to export recorded video to the standard file format — AVI (Audio Video Interleave) or the proprietary file format along with a proprietary player — restricted DETEXI Archive Viewer.

1. Export Video in AVI Format from Client Archive Tool

DETEXI Client Archive Tool can export recoded video in AVI format only. To export the video:

1) Search for Video of Interest

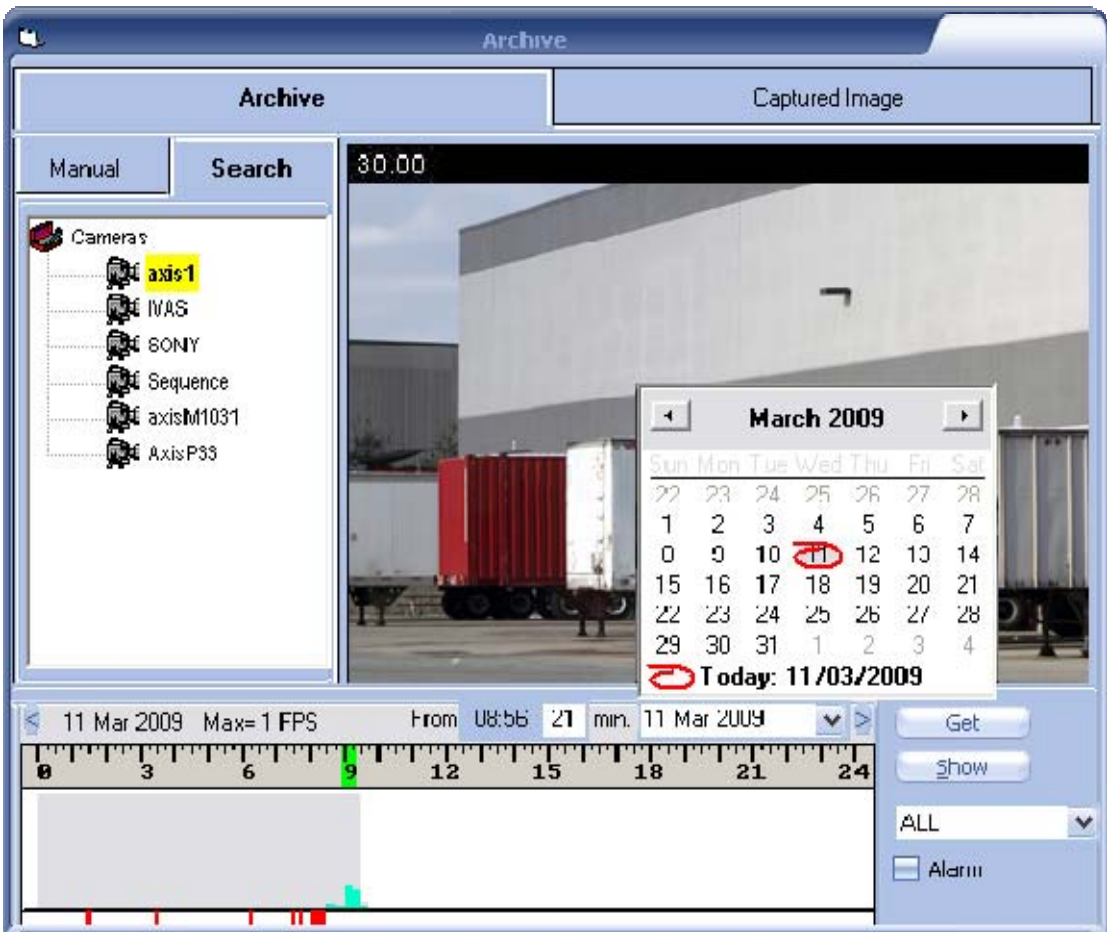


Fig 118. Remote Detexi Client — Archive Tool
(Find Video of Interest.)

1. On the **Client Start Page** press **ARCHIVE** button — the Archive Tool built into the Client launches (Fig 118).
2. Double-click on the camera of interest in the **Search — Cameras** list to turn it yellow.
3. To choose the date of interest click on the down arrow next to today's date and select the date from the calendar.
4. Click **Show** button to show all recording activity for the chosen date. The timeline will be filled in with the **Video Bar Graph**, indicating the recorded video available for the day.
   - ✓ If motion detection is turned on in the recording schedule for the camera, the green bars indicate the amount of motion detected within each minute of video.
   - ✓ The solid gray around the motion bars indicate continuous recording.
   - ✓ Red bars indicate alarm video *(recorded due to alarm)*.
   - ✓ The height of each bar indicates how much video *(of the given category)* was recorded in that minute.

- ✓ A combination of solid gray and green bars are seen when a continuous recording with Motion Detection schedule is configured.

2) Select Segment of Video

1. To select the segment of video for viewing, **right-click and drag** on the time line above the Video Bar Graph to highlight the time segment of interest. If no segment is selected, all video in the current view is considered selected (Fig 118).
   - ✓ Be careful not to select too large period of time, since loading can take a long time depending on the network resources. The maximum amount of video that can be loaded at once is **10.000** frames.
2. With video selected, click the **Get** button to begin loading the section of video into memory.
   - ✓ Before clicking **Get** button, the **Alarm** checkbox can be **checked** to load only the alarm video *(recorded due to alarm)* for that period of time rather than the continuous and motion video.
   - ✓ While the video is loading, the **Get** button changes to a **Break** button, showing the current status of the load. If the load is taking longer than desired, this button can be used to **stop** the load, and whatever video was loaded to that point will be viewable.

3) Playback, Export

Once a segment of video is loaded for viewing, the **video playback control panel** appears, with all video currently loaded in memory listed at the bottom. Many situations may call for multiple sections of video listed there.

1. **Double-click** the portion of video listed to view the first frame (Fig 119).
2. Playback control panel includes the following buttons from left to right — **Play Forward**, **Play Backward**, **Pause**, **Frame Forward**, and **Frame Backward**.
   - ✓ The frame slider can be used to quickly select a playback position within the video clip, and speed slider — to adjust the playback rate in FPS *(Frames Per Second)*.
3. Video can be exported in the form of a snapshot picture, or AVI format movie. Press **Capture** button to save a single frame of the video and follow to the **Captured Image** panel to enhance

and save the snapshot.

4. To export selected recordings as an **AVI** format movie — when playback is **stopped**, click the **Save AVI** button to begin exporting the video from the current location until playback is stopped again.

   ✓ It may be necessary to apply compression during the export in order to lower the file size. A compression type can be applied if desired in the **Client Settings — Show Advanced Settings** in the **Capture** section.

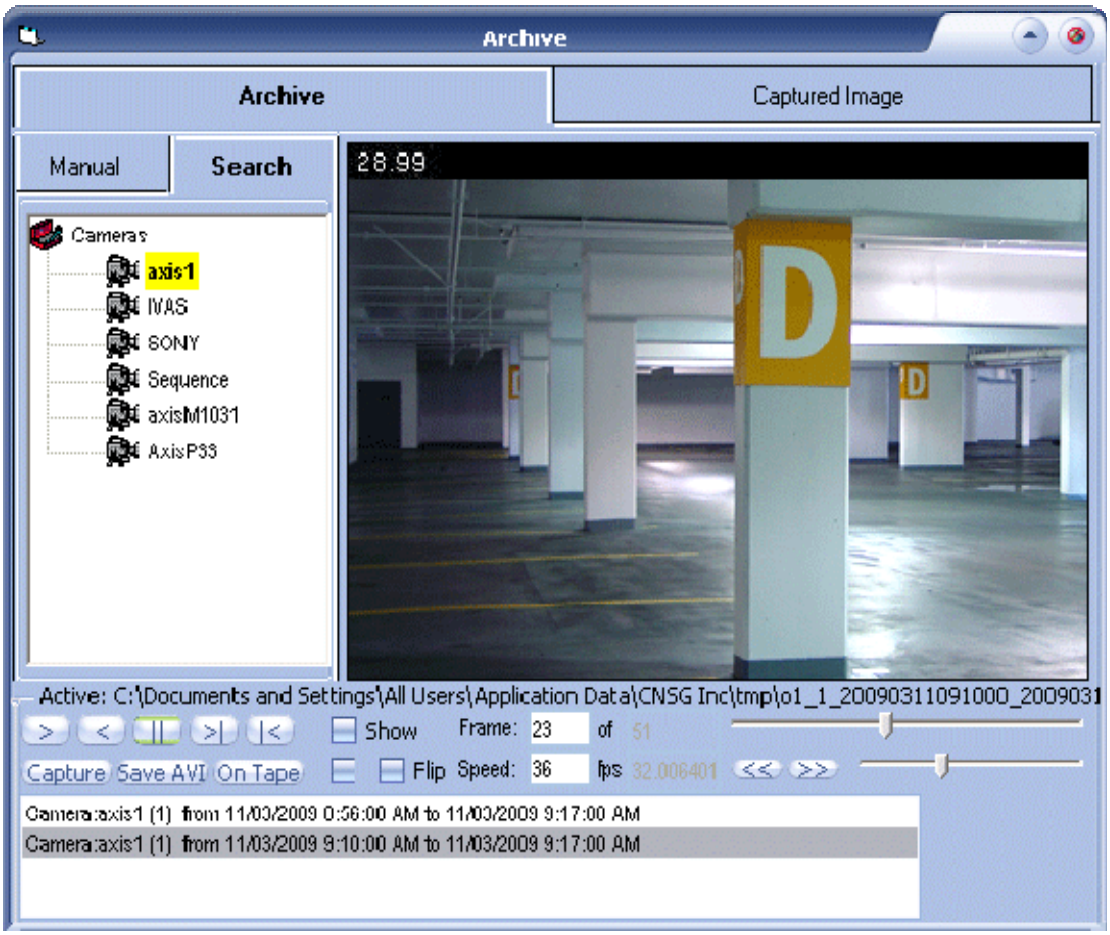


Fig 119. DETEXI Client — Archive Tool
(Playback. Export Video in AVI Format.)

4) Edit Captured Image

Once video of importance is found, it is often necessary to be able to export that video to a universal format for distribution to management, the police, or other authority. This can be done with either the **Capture** or **Save AVI** features.
Clicking **Capture** button will save a single frame of the video and transfer it into the **Captured Image** panel for editing. This captured image can be adjusted as needed and saved as a JPEG file (Fig 120).

Fig 120. Remote DETEXI Client — Archive Tool
(Edit Captured Image.)

2. Export Video in AVI Format from Archive Viewer

1) Select Camera and Date

1. Launch **Archive Viewer** (Fig 121).
2. Under the **Choose NVR and Camera** select the NVR to connect to from the **NVR** list. Once connected, the **Server** list will be populated with the cameras / video encoders that currently have a recorded video.
3. Select the camera of interest from the **Server** list. The **Alarm** checkbox can be **checked** before the selection in order to search for alarm video only.
4. If a video encoder is specified — select a video input of interest from the **Video** list.
5. When the camera is selected, the **Date** list will automatically be populated with all dates containing recorded video for the selected camera. Choose the date of interest.
6. Press **Load** button — the **Video Bar Graph** and the **Time** list will both be populated with data indicating when video for the date and camera selected was recorded.

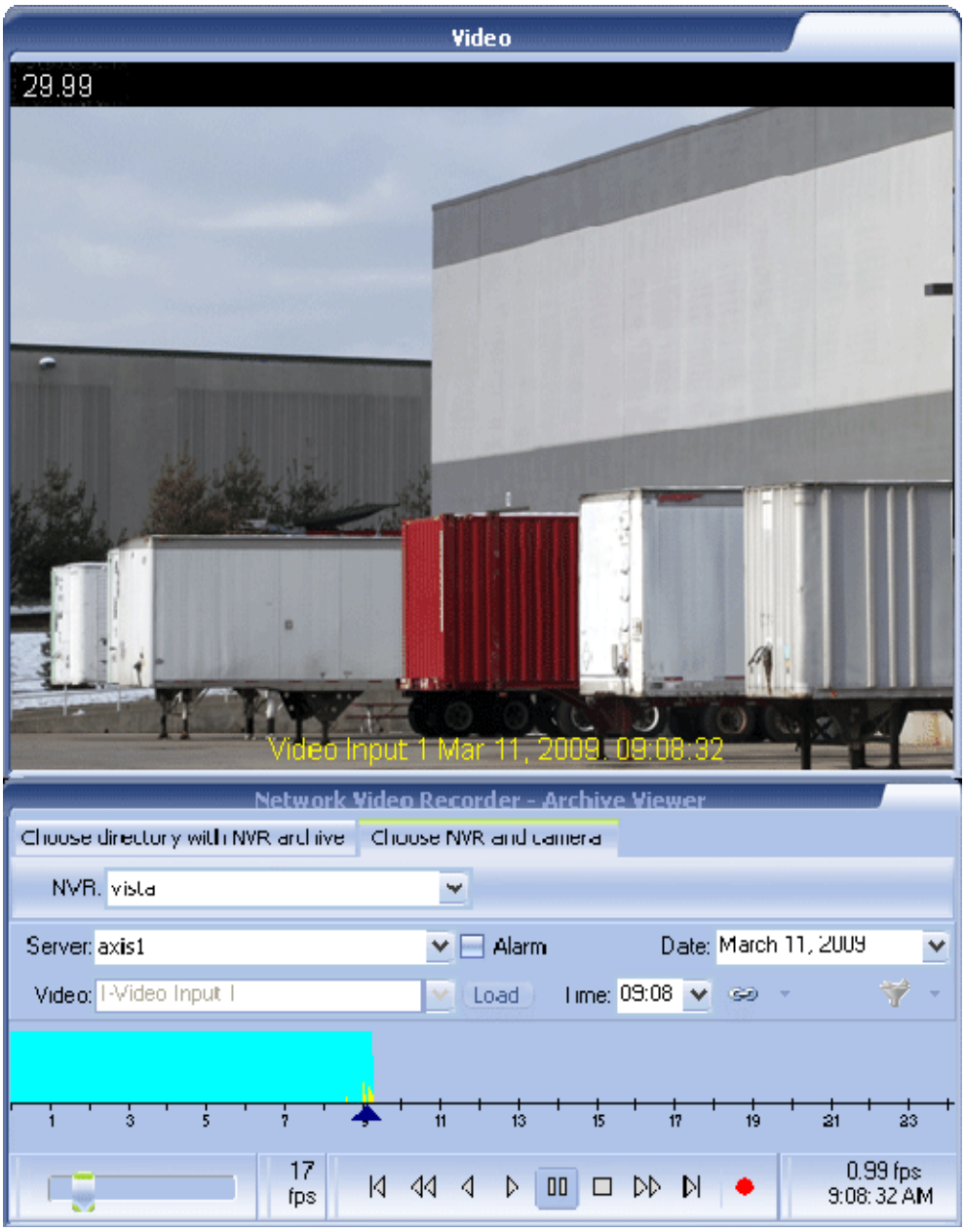


Fig 121. DETEXI Archive Viewer

(Select Camera and Date. Playback. Export Video in AVI Format.)

2) Video Bar Graph, Select Time

1. Select a minute of interest from the **Time** list *(the position arrow moves to that time)* — the first frame of that minute video will be loaded; or drag and drop directly the position arrow on the time line (Fig 121).

   ✓ **Video Bar Graph** indicates the existence of archived video based on the time of the day. Each bar equating to one minute in time. The color of the bar at any given time indicates the category of video recorded: blue — continuous recording, yellow — recording on motion detected.

   ✓ A combination of solid blue and yellow bars is seen when a Continuous Recording with Motion Detection schedule is configured.

   ✓ The height of each bar indicates how much video (of the given category) was recorded in that minute.

3) Playback, Export

Use playback control panel to play video forward and backward, stepping one frame forward and backward, and jumping to the beginning and end of the selected video (Fig 121).

Playback control panel from left to right —

- **First frame in the current minute** button — jump to the first frame in the currently selected minute.
- **One frame back** button — step one frame backward in time.
- **Play backward** button — play the video backward from the current position.
- **Play forward** button — play the video forward from the current position.
- **Pause** button — pause the video in the current position.
- **Stop playing** button — stop the video playback.
- **One frame forward** button — step one frame forward in time.
- **Last frame in the current minute** button — jump to the last frame in the currently selected minute.

Use **Record** button to record (export) video in AVI format from the current position until the playback is stopped, at the selected speed (FPS).

- ✓ Use the speed slider at the bottom left to adjust the playback/recording rate in FPS *(Frames Per Second)*.
- ✓ When you click **Record** button you will be asked to define filename and path for the exported video. The video file is available immediately after the recording was stopped in the directory that you defined. This file can then be viewed in a media viewer such as Windows Media Player, or distributed to other personnel.
- ✓ Users can keep track of video time by watching the clock in the bottom right corner. This **clock follows the time of the video**, as stamped on the files by the NVR archive.

4) Compression

The primary function of the DETEXI NVR is to record video, for search and replay at a later date. When video of importance is found in the NVR archives, it is often necessary to be able to export that video in a universal format for distribution to management, the police, or other authority. Before exporting retrieved video, it is important to consider the size of the resulting file, to be sure that it can be delivered in an acceptable way. Uncompressed video can result in a very large file such as 1GB for only 2 or 3 minutes of video.
How to compress exported video (Fig 122):

1. Before exporting video, **right-click** on the **Record** button and choose the desired compression type from the right-click menu.
2. Press **Record** button to start recording and continue as usual.

- ✓ Be aware that applying compression to video is often considered changing the video from its original form, and **can potentially prevent the video from being used in prosecution**.

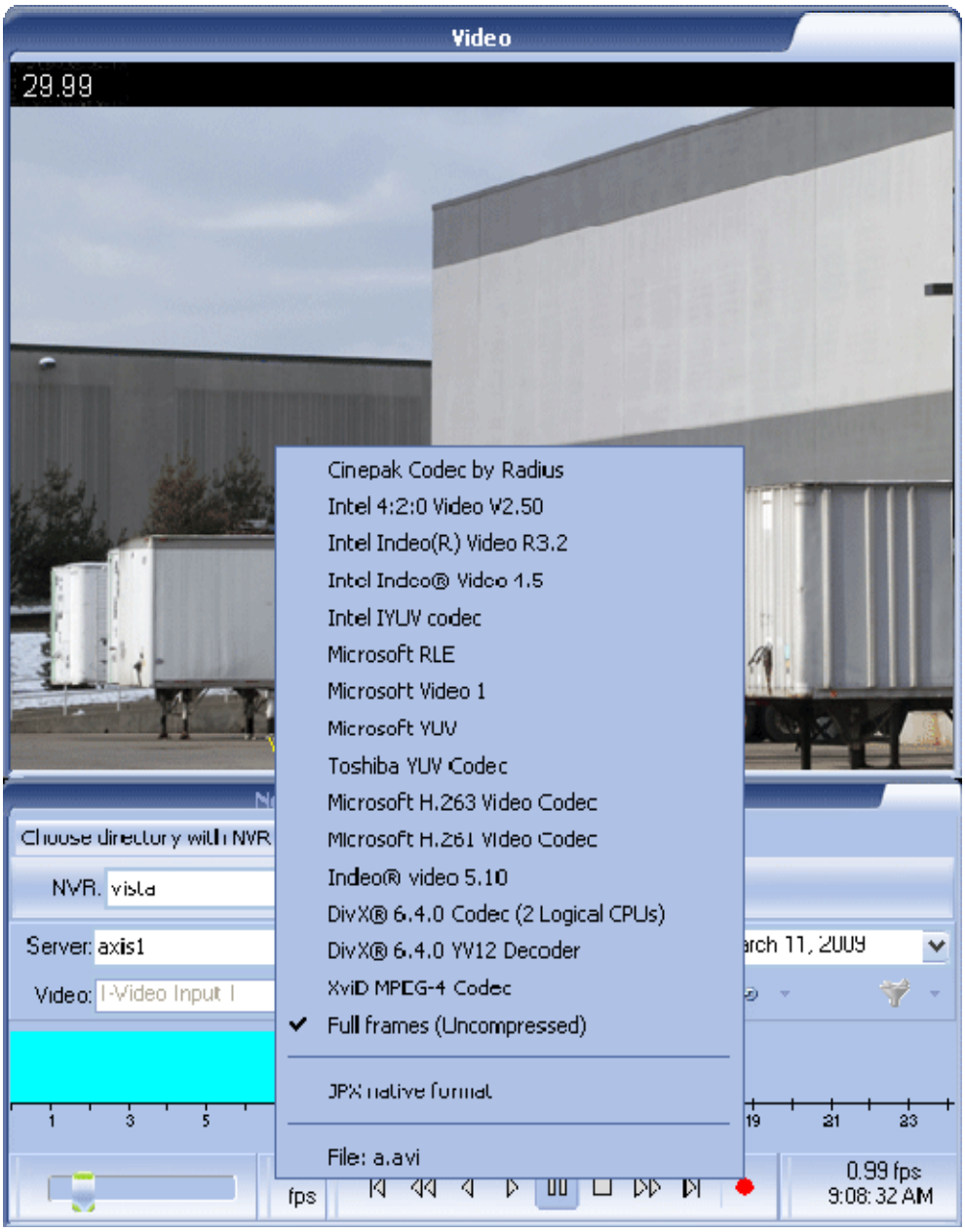


Fig 122. DETEXI Archive Viewer
(Export Compressed Video in AVI Format.)

3. Export Video in Proprietary Format

DETEXI NVR records video using proprietary file format but enables users to export recorded video to the standard file format — AVI (Audio Video Interleave). Video in the proprietary file format can also be exported along with a proprietary player (restricted DETEXI Archive Viewer). **Export NVR Video Archive** module included automatically with the DETEXI NVR installation allows users to export, or back up the recorded video. The advantages of using the native recording format are — additional security and data integrity as well as advanced playback features. Additionally, the proprietary format is more difficult to edit and can be used to preserve the chain of evidence.

- ✓ Video can be selected for user-definable periods of time and specified cameras

- ✓ File extension **JPX** is DETEXI proprietary file format
- ✓ The module can export video or shots recorded by the NVR

To replay video exported in the proprietary file format on any computer the DETEXI Archive Viewer module — **ArchiveViewer.exe** should be copied along with the video *(no installation required)*. The functionality will be restricted automatically.

1) Launch Export NVR Video Archive

On the DETEXI NVR PC server open **Export NVR Video Archive** from **Start — All Programs** or click the program icon on your desktop.

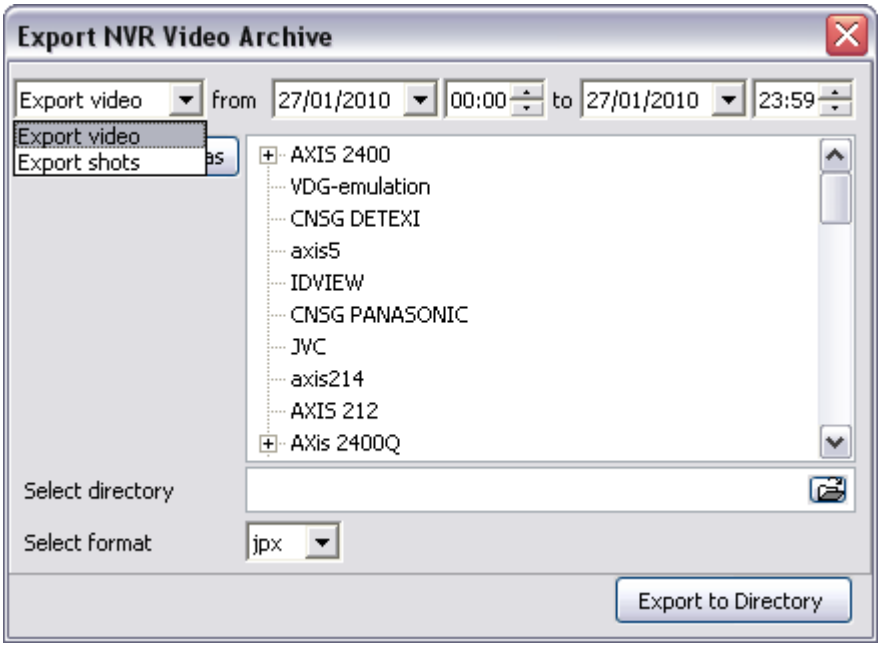


Fig 123. Export NVR Video Archive
(Select Output File Format — Video or Image Sequence.)

2) Select Video Output Format

Selected video can be exported as video in the proprietary file format *(JPX file format)*, or as image sequence *(JPG file format)* (Fig 123).

1. In the **Export NVR Video Archive** Choose **Export Video** or **Export Shots** from the list.
2. Define the range of time to export video for — from **dd1/mm1/yyyy1 hh1:mm1** to **dd2/mm2/yyyy2 hh2:mm2**

3) Export Video

1. When the range of time is defined, from the cameras list select the camera(s) from which to export recorded video (Fig 124).
   - ✓ Hold the **Ctrl** key to select multiple cameras
2. Specify the directory to export video to in the **Select Directory**.
3. Select JPX output format from the **Select Format** drop-down list.
4. Finally, click **Export to Directory** button to begin export.

✓ The button will stay **depressed** while exporting — how long will depend upon the amount being exported

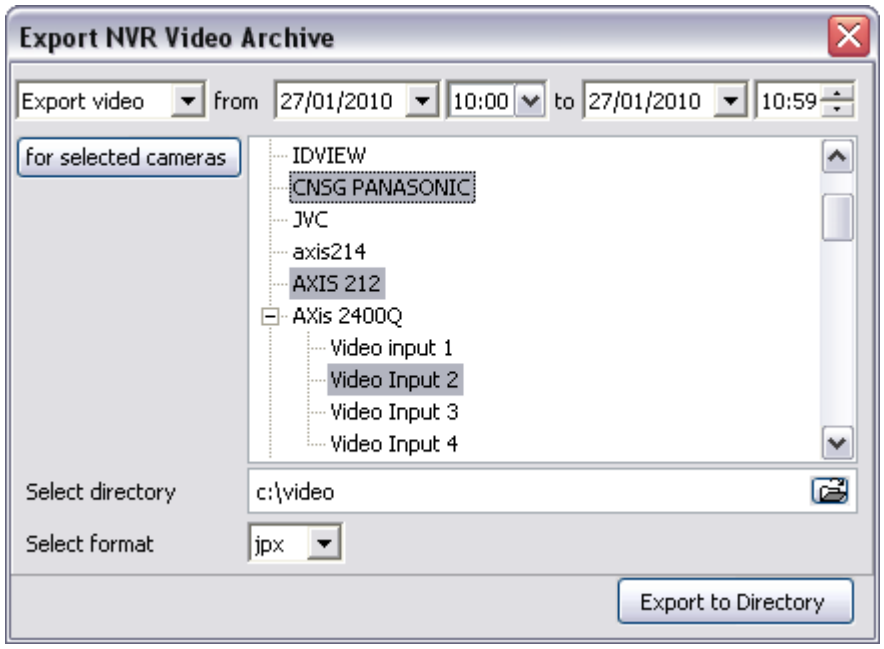


Fig 124. Export NVR Video Archive
(Export Video.)

4) Export Shots

In some occasions it could be necessary to export video as a JPG image sequence (Fig 125).

Fig 125. Export NVR Video Archive
(Export Shots.)

1. Select JPG output format from the **Select Format** drop-down list — additional **For Selected Directory** button will appear.
2. Click on it the **For Selected Directory** button to select video from directory, or click **For Selected Cameras** button to select from the cameras list.