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Quick Start Manuals

QUICK START MANUALS

# DETEXI Quick Start

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## Introduction

*Let us first get familiar with the DETEXI system and its purpose, structure and components.*

### What is DETEXI?

**D**ETEXI Intelligent IP Video Surveillance Software offers cutting edge solutions for security, industrial and remote monitoring applications. DETEXI provides live, real-time event recording with the option to automatically archive files for later review, as well as the ability to view live video, and be notified in a number of ways of user-defined alarms and events. As a self-contained package, there are no plug-ins, downloads or players to install. DETEXI uses flexible software and hardware components – configured to your individual requirements – with the option of adding new features and functions as your needs demand.

The DETEXI suite of software applications consists of the following applications:

- Network Video Recorder (NVR)
- Personal Edition Client
- Remote Handheld Client

Combined with Network (IP) Cameras and other security and surveillance equipment, these DETEXI applications form a feature filled and robust industrial surveillance system.

### DETEXI System Structure

Let us examine a sample DETEXI Surveillance system, to understand the structure and components. Figure 1 illustrates a common DETEXI system configuration. This example shows a DETEXI NVR Server machine with two network cards residing on two networks: a security network of IP cameras, and an existing corporate network. The Authentication Server of the NVR provides live and archived video access from the connected cameras to the local client on the NVR Server machine, the remote clients on the corporate network and remote clients via the Internet.

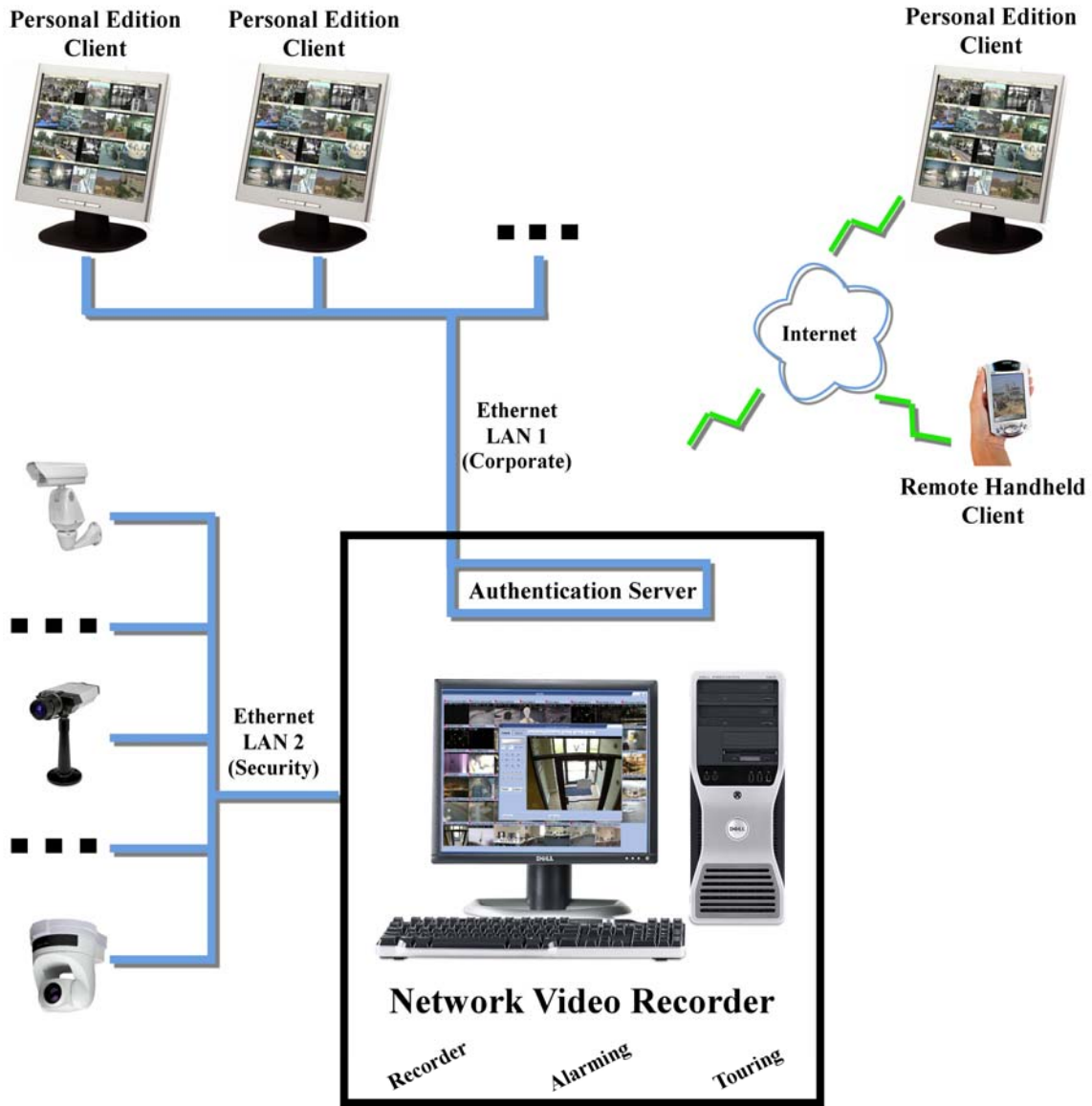


Figure 1: DETEXI System Structure

Note:

Many variations on this structure are possible; this is simply one common configuration.

## Documentation and Technical Support

Please contact your dealer for more detailed information about your specific application or go to [www.detexi.com](http://www.detexi.com)






## Getting Started with the NVR


*Start getting familiar with the basics of the DETEXI Network Video Recorder Server and Client, and their components.*

### NVR Server Components


When the DETEXI Network Video Recorder is installed, multiple applications are placed on the machine, each with their own responsibility.

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NVR Setup

  - NVR Setup Application – Acts as the user interface allowing for the setup, configuration, and monitoring of all the NVR's services and components. This application is used to set up all cameras, users, recording, and alarm settings. It can also be used to monitor, start and stop all underlying services of the NVR.
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Detexi

  - Local DETEXI Client Application – Displays live video, provides camera control and provides archive retrieval capabilities. Because this application is local to the NVR Server, no authentication is necessary as it is part of the NVR Server set of applications.
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Remote Detexi Client

  - Remote DETEXI Client Application – Displays live video, provides camera control and provides archive retrieval capabilities. This application is equivalent to a remote Personal Edition Client, and can connect to remote NVR Servers in addition to the local NVR Server. This application requires server connection settings and authentication to connect to the local or remote NVR Servers.
- 

Quick Archive Viewer

  - NVR Quick Archive Viewer Application – Searches and replays video information from the NVR's video archive. Because this application is local to the NVR Server, no authentication is necessary to access the Central Archive, as it is part of the NVR Server set of applications. This application can also be used to retrieve archived video from remote NVR Servers with appropriate authentication.

By default, the NVR components and files are installed in the C:/Program Files/CamServer folder. All configuration databases, media, programs and other files are stored here. It is recommended that users become familiar with the file structure.

## Personal Edition Client Components

When the DETEXI Personal Edition is installed, two main applications are placed on the machine:

- DETEXI Client Application – used as a client to remote NVR Servers. This application displays live video, provides camera control, and provides archive retrieval capabilities once connected to a server. Server connection settings and authentication are required to connect to a remote NVR Server. This client can be used to access multiple NVR Servers, one at a time.
- NVR Quick Archive Viewer Application – searches and replays archived video from any remote NVR. Server connection settings and authentication are required to connect to a remote NVR Server. This application can be used to access the archives of multiple NVR Servers, one at a time.



Detexi



Quick Archive Viewer

By default, the Personal Edition Client components and files are installed in the C:/Program Files/Detexi folder. All configuration databases, media, programs and other files are stored here; users should become familiar with the file structure.

## NVR Licensing

All licensing for the DETEXI NVR system (with the exception of the Remote Handheld Client) is done on the NVR Server. This means that the Personal Edition Client can be installed on as many computers as desired, without additional licensing. The NVR's Authentication Server will limit the number of concurrent connections based on the Server's license. The NVR Server License will also contain the number camera connections allowed for that server. NVR Server licenses are available in many configurations, to fit any sized application.

When the NVR is first installed, it will be in Demo Mode for 30 days. While in Demo Mode, four camera connections will be allowed, and one remote client connection.



Figure 2: Registration Splash

When the NVR Setup application is launched within the 30 days of Demo Mode, the splash shown in Figure 2 is shown before the application is loaded. After a short period of time, the Continue Unregistered button will become active, at which time the NVR Setup application can be loaded in Demo Mode.

To register the NVR, communicate the Registration Number shown in the Registration splash to your DETEXI dealer. You will be provided a Product ID and Key File.

1. The Key File should be placed in the CamServer\NKL directory (located in the C:\Program Files directory by default).
2. The NVR Setup application should be launched using the shortcut on the desktop. If NVR Setup is already running, it should be closed and launched again.
3. The Product ID should be copied into the appropriate box in the Registration Splash. The Register button will become active to complete the registration and continue launching the NVR Setup application.
4. Once inside NVR Setup, the license can be checked on the Advanced Page by using the About button. The camera and connection licensing information will be shown as in Figure 3.



Figure 3: NVR About

**Note:**

If this is the first time the NVR Setup application is launched, navigation through the application is not allowed until the Archive Path is set. See the *Basic NVR Configuration* chapter for more information about configuring the Archive Path.



## Basic NVR Configuration

*Get a basic NVR configuration up and running in no time. This chapter will guide the user through the minimum required configurations necessary to have a functioning NVR with live video.*

### Global Settings

When the NVR Setup application is launched, the Global Settings Tab of the General Page is the default opening location, as shown in Figure 4. The first time the application is launched this location can not be changed until some Archive Settings are set. Some of these settings take significant consideration and will vary with each application. The *DETEXI Storage Calculator* should be used to help you determine the settings that best fit your application.

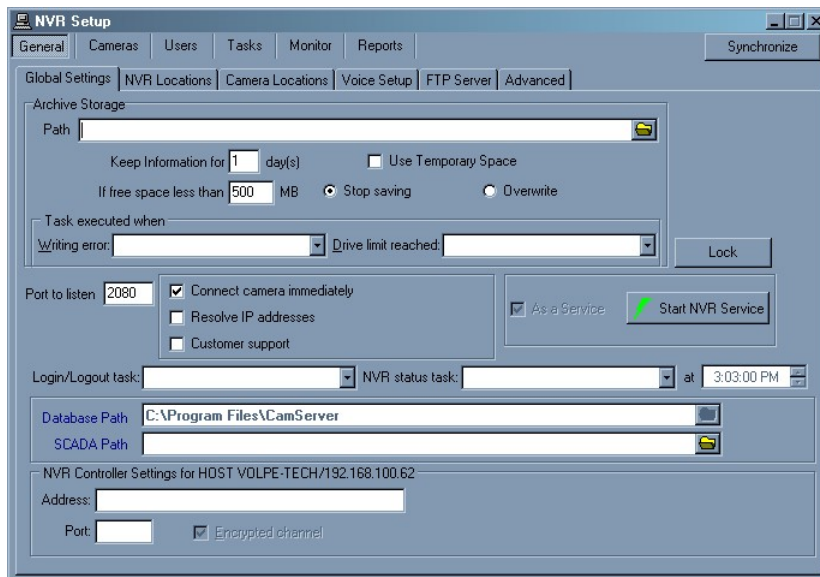


Figure 4: Global Settings Tab - General Page

Before continuing, the following Archive Storage Settings should be configured:

- Path – Defines the location to which the NVR records. This can be a local or network path. This directory must be empty when chosen.

- Keep Information for [ ] day(s) – Controls the duration for which the information is kept in the archive. The space required for the archive is based on the frequency of recording, quality of the image, and frames per second to be received from all cameras in the network. Calculations should be done when building the system according to these expected settings. This will allow the data retention time setting to take precedence over the drive limit setting in data overwrite decisions.

**Note:**

A DETEXI Storage Calculator can be provided by your DETEXI dealer, which will help you estimate the storage space required for the specifications of your application. This calculator will also outline minimum recommended system requirements based on the specifications of your application.

- If free space less than [ ] MB (stop saving/overwrite) – Defines when (and if) data should be overwritten in the form of a minimum storage space setting. If available space on the drive drops below this setting, the defined action will take place: stop saving or overwrite the oldest data.

**Note:**

Ideally, this is not the factor which defines when data is overwritten. With proper planning, the configured data retention time should not allow the drive limit to be reached, and will act as a safety net. If data is continuously overwritten based on the drive limit, unnecessary strain is placed on the processor and hard drive.

*Sample Settings*

Path	C:/Program Files/CamServer/Archives
Keep Information for [ ] day(s)	5 (calculated using the DETEXI Storage Calculator based on 10 cameras recording at 640x480 resolution and 3 FPS with 85% motion for an available 500GB storage)
If free space less than [ ] MB (stop saving/overwrite)	1000MB Overwrite

**Note:**

The Archive Storage Settings cannot be set or changed while the NVR is running. If the NVR is running, you must first stop the servers with the Stop NVR Service button located on the Global Settings Tab of the General Page.

## Camera Connections

Camera connections must be defined in the NVR Setup application before recording can occur or live video can be viewed in the DETEXI Clients. The DETEXI NVR supports most Network (IP) Cameras as well as analog to IP Video Link Units (VLUs).

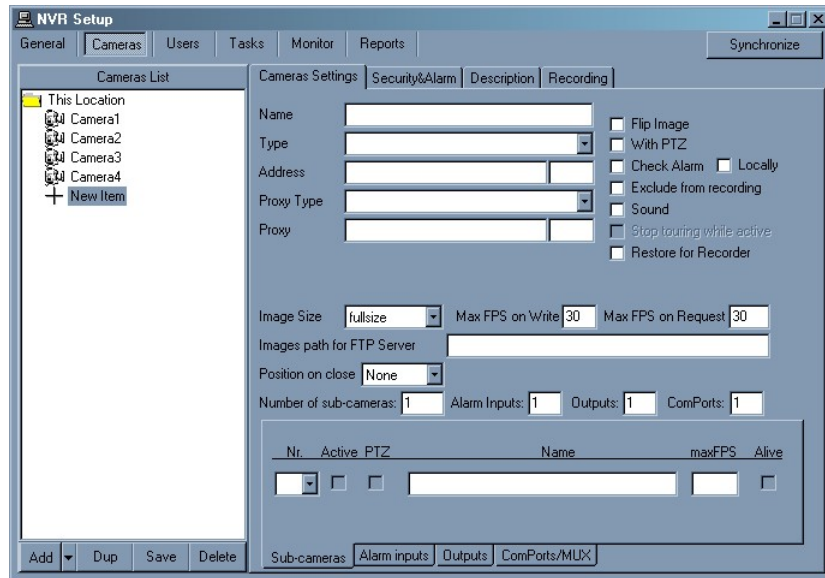


Figure 5: Camera Settings Tab – Cameras Page

The Camera Page of the NVR Setup application has several tabs of settings, many of which are optional settings. Camera definitions are created using the Add and Dup buttons under the Cameras List. The Add button will add a blank camera entry for configuration, where the Dup button will add a copy of a selected camera for editing. The Save button must be used to save all configurations and changes.

To configure a camera in the NVR, the following minimum settings should be set:

- Cameras Settings Tab
  - Name – A descriptive name for the camera. If many cameras from different areas will be controlled by this NVR, you may want to begin the camera name with a category or area for organizational purposes.
  - Type – The driver type to be used to communicate with the camera or VLU. See the *NVR Camera Driver Application Note* for help choosing the appropriate driver for the camera in use.
  - Address – The IP Address and HTTP Port of the camera or VLU. There must be direct access to this 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. The first field is for the IP Address, where the second is for the Port.
  - With PTZ – If the camera has Pan/Tilt/Zoom (PTZ) capabilities, this checkbox must be checked before these capabilities will be enabled in the NVR and Clients.

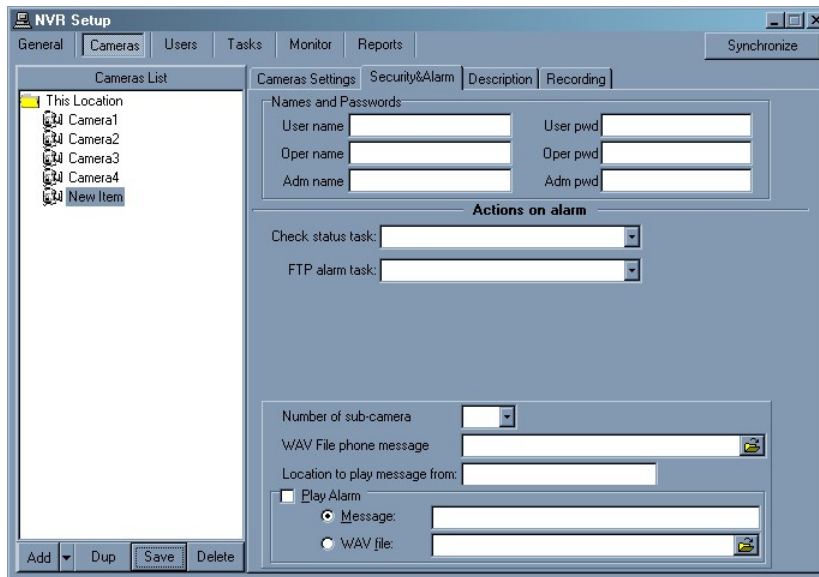


Figure 6: Security & Alarm Tab – Cameras Page

- Security & Alarm Tab
  - Names and Passwords – The usernames and passwords used to communicate with the camera. They should match the users that are defined within the camera. In most cases, cameras will only have one username and password by default, with Administrative privileges. In this case, only the administrative authentication level will need to be configured here.

*Sample Settings*

Configuration assumes: Axis 214 PTZ camera with IP 192.168.1.100, default port configuration, administrative username root, and password eagle.

Camera Settings: Name	North East Corner PTZ
Camera Settings: Type	Axis 2120 2.12 or higher
Camera Settings: Address	192.168.1.100, 80
Camera Settings: With PTZ	Checked
Security & Alarm: User name	<blank>
Security & Alarm: User pwd	<blank>
Security & Alarm: Oper name	<blank>
Security & Alarm: Oper pwd	<blank>
Security & Alarm: Adm name	root
Security & Alarm: Adm pwd	eagle



## User Configuration

The DETEXI NVR system has the ability to provide different lists of camera configurations to different users, only allowing users to see and interact with cameras they have privileges for. In addition, permissions such as PTZ control, maximum connection time, task control, etc. are configurable on a per-user basis. When users connect to the NVR from Remote or Personal Edition DETEXI Clients, they will be required to authenticate with user settings defined in the NVR.

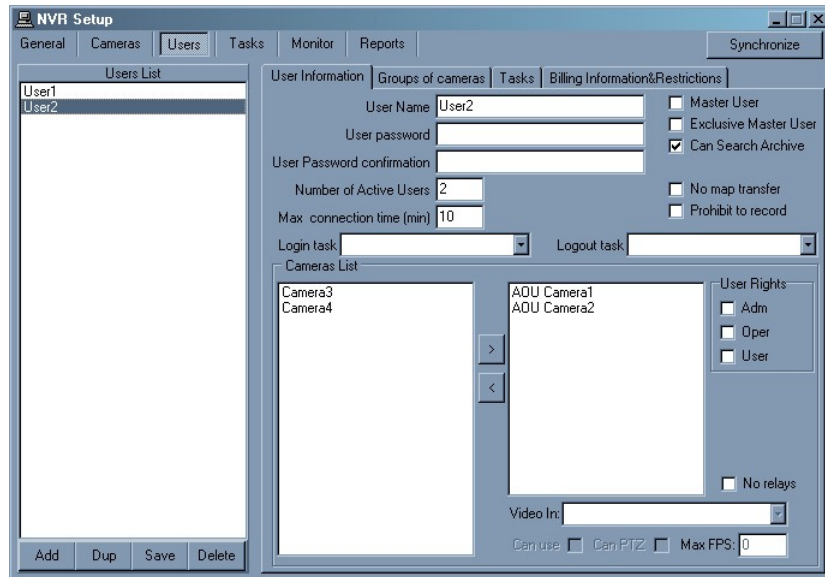



Figure 7: Users Page

The Users Page of the NVR Setup application has several tabs of settings, many of which are optional. User definitions are created using the Add and Dup buttons under the Users List. The Add button will add a blank user entry for configuration, where the Dup button will add a copy of a selected user for editing. The Save button must be used to save all configurations and changes.

The following are some of the basic settings for configuring a user in the NVR:

- User Name – A single word, case-sensitive name used to log into the NVR.
- User Password – A single word, case-sensitive password used to log into the NVR.
- User Password Confirmation – The User Password re-typed to be sure it was typed as desired.
- Number of Active Users – The number of client instances the user can be signed onto simultaneously.
- Max Connection Time (min) – The number of minutes the user can be continuously logged into the server for before the connection will be terminated. The user may log in again if desired, after being terminated due to the connection time reaching its maximum. A value of 9999 in this field designates no time limit.
- Cameras List – Designates which of the available cameras the user has access to. Each camera added to a user's camera list will need User Rights defined. Use the  button to move cameras from the available list on the left to the chosen list on the right.

- User Rights (Adm/Oper/User) – Assigns the level of authentication allowed from this user to the camera. This refers to the Adm, Oper and User authentication levels defined in the Security & Alarm Tab of the Cameras Page of the NVR Setup application.

**Note:**

In most cases, the camera only has one username and password, with administrative privileges. Be sure that this User Rights configuration makes sense considering the authentication settings in the Security & Alarm Tab of the Cameras Page (i.e. if only the Adm user information is defined only Adm should be checked here).

- Can PTZ – Determines whether the selected user has PTZ permissions on the selected camera. This setting is defined on a per-camera basis, and is enabled by default if the camera has PTZ capabilities when assigned to the user.

*Sample Settings*

Configuration assumes: camera settings outlined in the previous section are configured.

User Name	user1
User Password/Confirmation	pass1
Number of Active Users	2
Max Connection Time (mins)	9999
Cameras List	North East Corner PTZ in right-hand list
User Rights: Adm (for North East Corner PTZ)	Checked
User Rights: Oper (for North East Corner PTZ)	Unchecked
User Rights: User (for North East Corner PTZ)	Unchecked
Can PTZ (for North East Corner PTZ)	Checked

## NVR Service Control

The underlying structure of the NVR Server consists of many individual services, which allow it to execute and organize all the tasks it is responsible for. Each of the services discussed here are registered with Windows as Services. Some are configured as automatic services by default. All services are visible and configurable on the Monitor Page of the NVR Setup application.

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.

<input type="checkbox"/> Monitor	▪ Monitor – Also known as the Startbar, is an internal service to start and stop other NVR services. The Monitor service is also responsible for monitoring the health and status of all NVR Services.
<input checked="" type="checkbox"/> Server	▪ Server – Also known as the CamServer, authenticates remote users connected to the NVR through the Remote or Personal Edition DETEXI Clients. The CamServer is also responsible for tracking statistics about the remote user's connections.
<input checked="" type="checkbox"/> Recorder	▪ Recorder – Writes information and video from each video input into the video archive, according to the configured schedules, preferences, alarms and events.
<input type="checkbox"/> FTP	▪ FTP – Receives images from cameras via FTP (if configured) and writes this information to the video archive. It also raises an alarm when such images are received from a camera. This service can also be used for FTP notification of IP address changes from the camera to the NVR.
<input checked="" type="checkbox"/> Check Drive	▪ Check Drive – Monitors the condition of the storage path and device to confirm existence and available space for new video being recorded to the archive.
<input type="checkbox"/> Check Alive	▪ Check Alarm – Monitors the hard inputs of connected video devices, and raises alarms when defined changes are seen on such inputs.
<input type="checkbox"/> Check Alarm	
<input checked="" type="checkbox"/> Tour	▪ Tour – Moves PTZ cameras through a predefined series of locations according to defined schedules or on alarms or events.
<input checked="" type="checkbox"/> Get Shots	▪ Get Shots – Captures still shots related to alarms from streaming video when configured, and stores them in a special location in the archive.
<input type="checkbox"/> Mapper	▪ Mapper – Also known as the Port Mapper. When configured, the Port Mapper routes network requests between two network connections on different subnets or networks. This allows for separate security and corporate networks across which the NVR system can communicate.
<input type="checkbox"/> Port Listener	▪ Port Listener – Also known as the I/O Listener, has the ability to monitor alarms raised by local alarm devices connected to the NVR Server computer via COM ports.
<input checked="" type="checkbox"/> Alarm Server	▪ Alarm Server – Also known as Alarm Central, 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 will start with Windows.
<input checked="" type="checkbox"/> Remote Server	▪ Remote Server – An internal service for intercommunications between linked NVR Domain Controllers and NVR Children using the Domain Controller feature. This is configured as an Automatic Windows Service and will start with Windows.
<input checked="" type="checkbox"/> Socket Server	

Figure 8: NVR Services

- Tour – Moves PTZ cameras through a predefined series of locations according to defined schedules or on alarms or events.
- Get Shots – Captures still shots related to alarms from streaming video when configured, and stores them in a special location in the archive.
- Mapper – Also known as the Port Mapper. When configured, the Port Mapper routes network requests between two network connections on different subnets or networks. This allows for separate security and corporate networks across which the NVR system can communicate.
- Port Listener – Also known as the I/O Listener, has the ability to monitor alarms raised by local alarm devices connected to the NVR Server computer via COM ports.
- Alarm Server – Also known as Alarm Central, 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 will start with Windows.
- Remote Server – An internal service for intercommunications between linked NVR Domain Controllers and NVR Children using the Domain Controller feature. This is configured as an Automatic Windows Service and will start with Windows.

- Socket Server – An internal service to support remote TCP/IP access to the NVR. This is configured as an Automatic Windows Service and will start with Windows.

Each of these services is listed on the right-hand side of the Monitor Page of the NVR Setup application, as shown in Figure 8. The color of the service indicates its status: blue while running and red while stopped. The checkbox next to a service configures how it is affected by the Monitor service. If a service is checked, its status will be monitored and displayed on the Monitor Page of the NVR Setup application. Checked services will also be started and stopped along with the Monitor service. Individual services can be started or stopped by clicking on the service name. If a checked service is shut off this way, the Monitor Service will restart the service automatically.

**Note:**

The Monitor service is started and stopped using the Start/Stop NVR Service button on the Global Settings Tab of the General Page.

For most settings, the NVR Services support Runtime Configurations. 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, simply Synchronize the services with the current configuration. The Synchronize button is found in the upper right-hand corner of the NVR Setup application, no matter what page is active.

### *Sample Settings*

Configuration assumes: cameras are defined and are or will be configured for recording, and the NVR (Monitor Service) is turned on.

Monitor	Checked, blue
Server	Checked, blue
Recorder	Checked, blue
FTP	Not checked, red
Check Drive	Checked, blue
Check Alive	Not checked, red
Check Alarm	Not checked, red
Tour	Not checked, red
Get Shots	Not checked, red
Mapper	Not checked, red
Port Listener	Not checked, red
Alarm Server	Not checked, blue
Remote Server	Not checked, blue
Socket Server	Not checked, blue

## Getting Started with the Client

*Both the local and remote DETEXI clients installed with the NVR are useful testing tools. In this chapter, users will learn to navigate all editions of the DETEXI client, and how both the local and remote clients can be used to test different portions of NVR configurations.*

### Different Client Editions

When working with a DETEXI system, a user will encounter multiple editions of the DETEXI client. Although they all have the same functionality, and will look and feel the same in most cases, they do have some differences.

The four editions of the DETEXI client that a user may interact with are:

- Local DETEXI Client – Installed automatically along with the NVR. This edition of the client will only connect to the local NVR, does not require the NVR services to be running, and does not require authentication to the server. It is important to note that because no authentication is required, certain features linked to the authentication of a user will not be available.
- Remote DETEXI Client – Installed automatically along with the NVR. This edition of the client is an exact replica of the Personal Edition. The Remote Client on the NVR is meant for use with either the local NVR Server or any other remote NVR Server available to it. This client requires server settings configuration and authentication, even when used to connect to the local NVR Server.
- Personal Edition DETEXI Client – Installed stand-alone on any PC, and should NEVER be installed on the same machine as an NVR. This edition of the client requires server settings configuration and authentication, and is meant for use with any remote NVR Server available to it.
- Handheld DETEXI Client – For PDAs, and sold separately, this edition of the client is a simplified and lean version of the Personal Edition Client.

The Handheld DETEXI Client is out of the scope of this document. The Remote DETEXI Client on the NVR Server machine used to connect to the local NVR Server is a great tool for testing user configurations and basic functionality as would be seen from a Personal Edition DETEXI Client on a remote client machine.

## Basic Client Navigation

In all editions of the DETEXI client (after authentication if required), the first interface is the Camera List shown in Figure 9. In the Local Client, all cameras configured in the NVR will be available in this list, while in the Remote and Personal Edition Clients, the cameras available in the list will depend upon the user logged in.

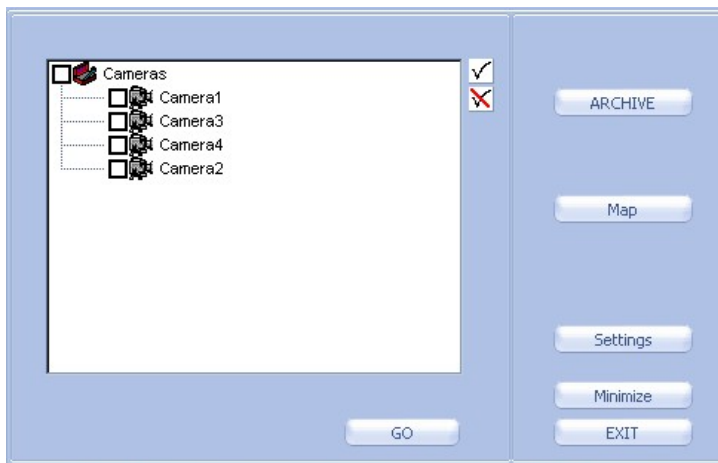



Figure 9: Client Camera List

The Camera List is the main window from which all branches of the client can be accessed. Live video can be opened for one or more cameras at a time by checking off one or more cameras in the list. Checking or un-checking the Cameras branch at the top of the list will check or uncheck all cameras in the list appropriately. The  and  buttons can also be used to check or uncheck all cameras in the list. In addition, all cameras can be checked or un-checked individually.

The buttons available on the Camera List will differ based on the edition of the client in use, as well as the permissions of the user logged in (on Remote and Personal Edition Clients). The following buttons are always visible on the Camera List, no matter the edition of the client or permissions of the user:

- GO – Launches live video of all cameras checked in the camera list.
- ARCHIVE – Launches the Archive Retrieval tool built into the client. This portion of the client will be discussed in more depth in Chapter 6.
- Settings – Launches the Settings Configuration window, where all options and settings of the client are configured.
- Minimize – Minimizes the Client application into the System Tool Tray. The Client will not be visibly running anywhere else, but can be opened by double-clicking the  icon in the System Tool Tray.
- EXIT – Completely closes the Client application.

The following additional buttons are available depending on the edition of the client, and the permissions of the user logged in (on Remote and Personal Edition Clients):

- Get Users – Launches a user communication interface, which allows users to see other users currently logged into the same NVR Server, as well as communicate via text chatting. This button is only visible in the Remote and Personal Edition Clients.

- Map – Launches a Map interface allowing for users to browse and select cameras by location on one or more maps. This button is visible on all editions of the client, but only if at least one map location is configured in the NVR with at least one camera assigned to it. In the Remote and Personal Edition Clients, the user must also have permissions to see and use the maps for this button to be visible.
- Tasks – Launches a list of executable tasks available to the currently logged in user based on their permissions. This button is only visible in the Remote and Personal Edition Clients, and only if the user logged in has permissions to execute at least one task.
- Password – Launches an interface allowing the currently logged in user to change their password. This button is only visible in Remote and Personal Edition Clients.

## Using the Multiscreen

If more than one camera is selected from the Camera List when the GO button is clicked, the Multiscreen is launched with live video streaming from all selected cameras. The Multiscreen will dynamically size and tile the cameras to fit all selected cameras with the least wasted space.

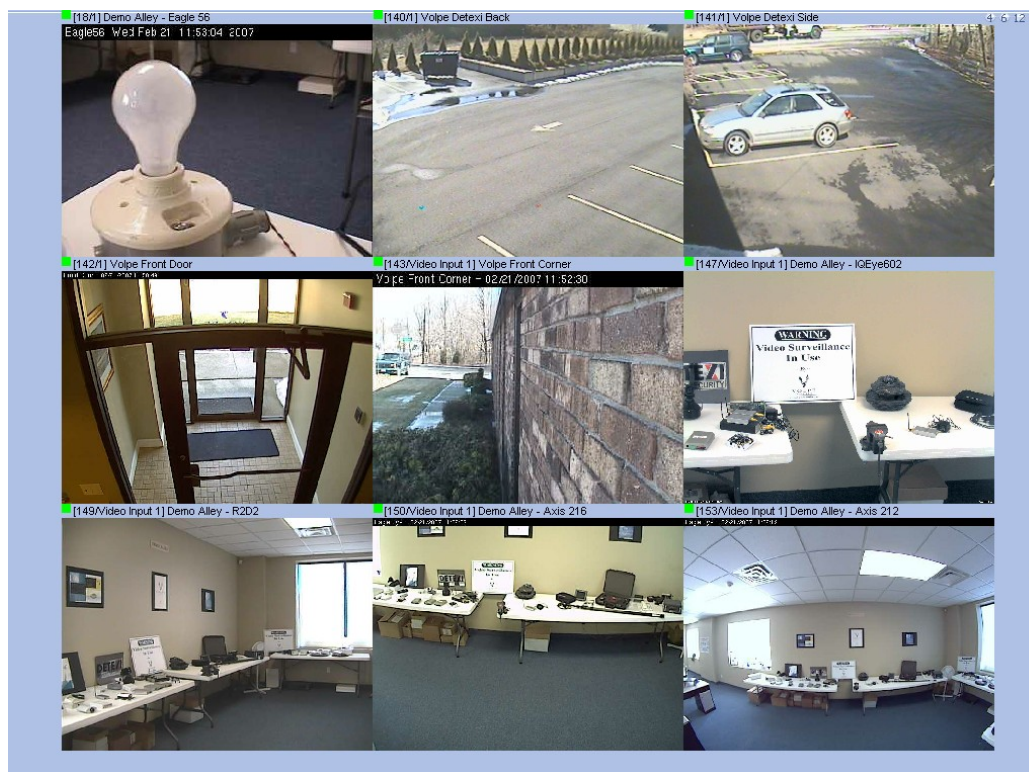


Figure 10: Multiscreen

The following features allow users to customize the Multiscreen view and/or navigate easily through their cameras:

- Live Status Indicator – Each video stream in the Multiscreen has a colored box icon next to the camera name, indicating the status of the video, as shown in Figure 11. If the indicator is red, the live stream is halted. A flashing yellow/green indicator means live video is currently streaming.





Figure 11: Multiscreen – Live Status Indicator

- Tiling Options – The Multiscreen has three main tiling options available to users, including the standard dynamic tiling just discussed. The controls for changing the tiling options are in the upper right-hand corner of the Multiscreen.



Figure 12: Multiscreen – Tiling Controls

- Standard – All cameras will be the same size, dynamically sized and tiled with the least wasted space, as shown in Figure 10.
- 5 + 1 – Only the first six cameras selected in the Camera List will be shown in the Multiscreen, with the first much larger than the rest as shown in Figure 13.



Figure 13: Multiscreen – 5 + 1 Configuration

- 12 + 1 – Only the first 13 cameras selected in the Camera List will be shown in the Multiscreen, with the first much larger than the rest as shown in Figure 14.





Figure 14: Multiscreen – 12 + 1 Configuration

- **Enlarge** – Available by right-clicking on a video stream, this feature enlarges the selected camera and displays its controls while tiling all other cameras around it as shown in Figure 15. The controls available are the same as on the Video Popup, which will be discussed in the next section.

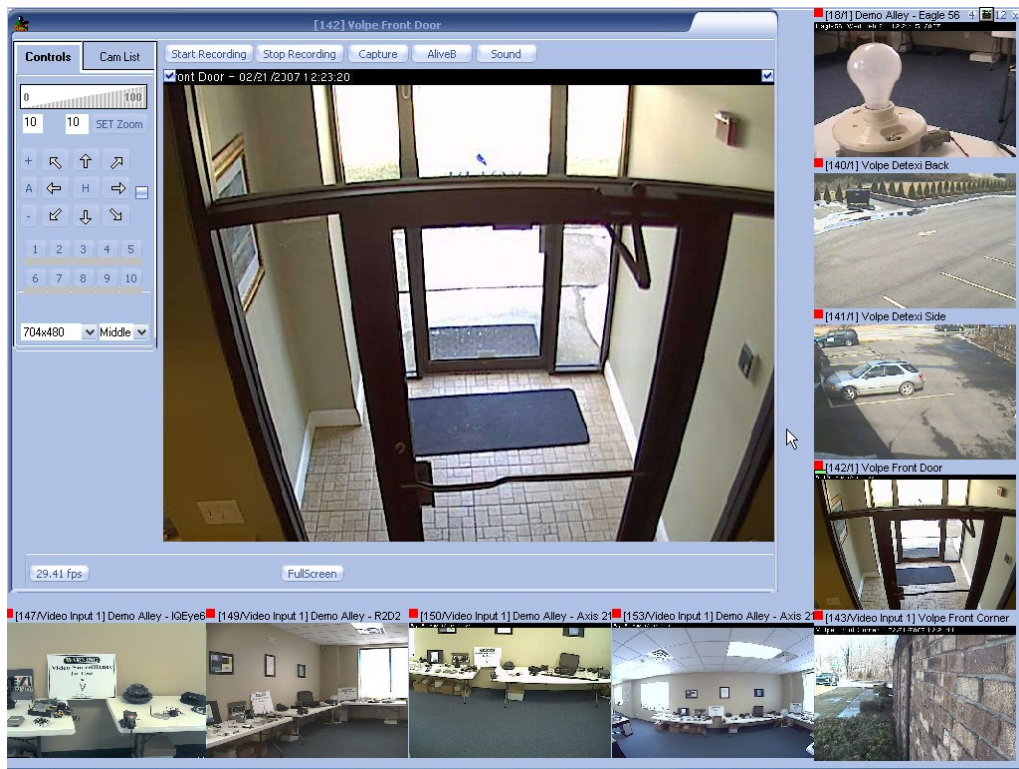


Figure 15: Multiscreen – Enlarge

**Note:**

In Enlarge mode of the Multiscreen, all other video streams are disabled by default. Click the AliveB button on the enlarged camera to reconnect other video streams. This button can also be used when the Video Popup is open on top of the Multiscreen.

- GOTO – Available by right-clicking on a video stream, this feature launches the Video Popup interface for the selected camera. The Video Popup interface is discussed in the next section, and is used to control cameras.

## Introduction to the Video Popup

If only one camera is selected from the Camera List and the GO button is clicked, the Video Popup is launched with live video streaming from the selected camera. The Video Popup can also be launched from the Multiscreen via the right-click menu.



Figure 16: Video Popup

For now, let us just familiarize ourselves with the basic features of the Video Popup:

- Pan/Tilt Controls – If the camera being viewed is a PTZ camera, the Pan/Tilt controls shown in Figure 17 will be active (depending on permissions in Remote and Personal Edition Clients). Clicking the arrows will move the camera view in that direction one step.

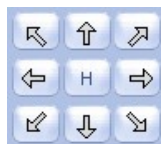


Figure 17: Video Popup – Pan/Tilt Controls

- Click to Center – If the camera being viewed is a PTZ camera, the user will have the ability to click anywhere on the image to center the video on that spot (depending on permissions in Remote and Personal Edition Clients). The Click to Center feature only changes the Pan and Tilt coordinates, and does not effect the Zoom coordinate.

- Zoom Controls – If the camera being viewed is a PTZ camera, the Zoom controls shown in Figure 18 will be active (depending on permissions in Remote and Personal Edition Clients). Clicking within the 0-100% scale will adjust the zoom coordinate of the camera to that percentage of the camera's full zoom capabilities. Users may also enter the desired percentage in the text box and click SET Zoom to define a specific zoom percentage.

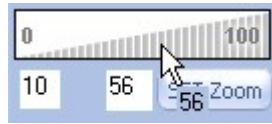


Figure 18: Video Popup – Zoom Controls

- Resolution Selection – When the Video Popup is launched, the video is streamed in a default resolution. Users can change the resolution of the video to any resolution supported by the camera using the drop-down box shown in Figure 19. This will visibly affect the quality of the image.



Figure 19: Video Popup – Resolution Selection

- Compression Selection – When the Video Popup is launched, the video is streamed with medium compression by default. Users can change the resolution between low, middle and high compression using the drop-down box shown in Figure 20. This will visibly affect the quality of the image.

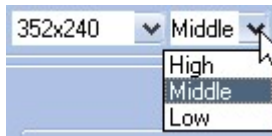




Figure 20: Video Popup – Compression Selection

- Window Controls – Users may choose to view the video in Full Screen by clicking either the Full Screen button at the bottom of the Video Popup, or the  button in the upper-right corner of the Video Popup. The  button can also be used to close Full Screen mode.

## Client Authentication Server Setup

Before a Remote or Personal Edition DETEXI Client can connect to an NVR, the Authentication Server Setup must be configured, found in the Client Settings. These settings define the TCP/IP settings the Client should use connect to one or more NVR Servers.



Figure 21: Client Authentication Server Setup

### Note:

In order to enter the Settings dialog of the client the first time it is used, cancel out of the login prompt and click Settings.

The Central Servers List dialog is used to define the connection settings for any and all NVR Servers the Client will connect to, and is launched using the Servers Settings button shown in Figure 21. Users must know the IP Address of the NVR Server, as well as its configured Port to Listen (configured on the General Settings Tab of the General Page in the NVR Setup application). The use of Proxy Servers is supported if needed. The Add button must be used to add an empty Central Server configuration before entering settings.



Figure 22: Client Servers Settings

### Note:

The Central Servers List dialog is not available for configuration while connected to an NVR Server. To add, remove, or change Server Settings users must cancel out of the Login step and enter the Client Settings while not logged in to any NVR Servers.

After configuring a list of Central Servers, a preferred Central Server Address should be chosen. This can be done using the Set as Current Server button with the preferred server selected in the list, or by choosing a server with the Central Server Address drop-down box after returning to the main Client Settings page. If settings for more than one server are configured, the authentication dialog of the client



will show all configured servers in a drop-down box for selection at the time of login. The server defined as the Central Server Address will be chosen by default.

**Note:**

If the settings of only one NVR Server are configured in the Central Servers List, no options will be shown during authentication; the server defined as the Central Server Address in the main Client Settings page will automatically be used. For this reason, make sure the server is selected as the Central Server Address in the main Client Settings page when only one is defined, or authentication will fail.



## Recording with the NVR

*The main purpose of a Network Video Recorder is to record and archive live video for later replay and analysis. This chapter introduces the recording features of the DETEXI NVR and how to configure them.*

### Enabling/Disabling Recording

Before recording can be configured for a camera, it must be enabled for that camera. By default, all cameras have recording enabled. Recording for a camera can be enabled or disabled on the Cameras Settings Tab of the Cameras Page in the NVR Setup application, as shown in Figure 23.

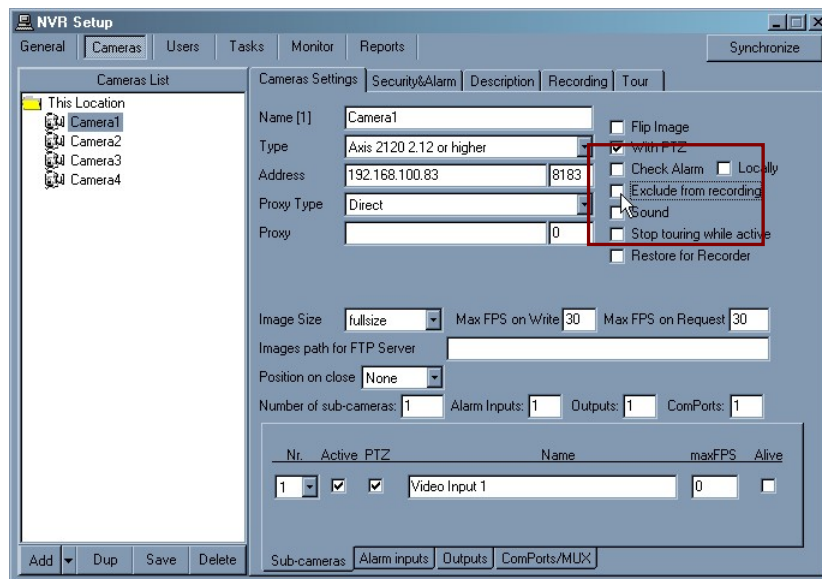


Figure 23: Enabling/Disabling Recording for a Camera

When the Exclude from recording checkbox is unchecked (the default setting), recording is enabled for that camera and the Recording Tab is visible. When the checkbox is checked, recording is disabled for that camera and the Recording Tab is not visible. Recording can be temporarily disabled for a camera without removing recording schedules and configurations by using this checkbox. If recording is enabled again later (the checkbox is unchecked again), all previous recording schedules and configurations will be restored.


**Note:**

Although recording may be enabled for a camera, no recording will take place until either schedule-based or event-based recording is configured and active for that camera.

To optimize performance, recording should be disabled using the Exclude from recording checkbox for cameras that are not intended for recording. This tells the Recorder to ignore those cameras completely, freeing the Recorder's resources for other tasks.

## Recording Services

Recall from Chapter 3 that there are two NVR Services responsible for the recording functions and for maintaining the archive: Recorder and Check Drive. In order to record, both of these services should be running and monitored by the Monitor service (checked in the services list).

When the Recorder is running, a  icon will show in the System Tool Tray. Double-clicking this icon will launch the Recorder's interface, shown in Figure 24. This interface shows the status of every video stream which has recording enabled. It is important to note that not every video stream with recording enabled will necessarily have recording configured or active.

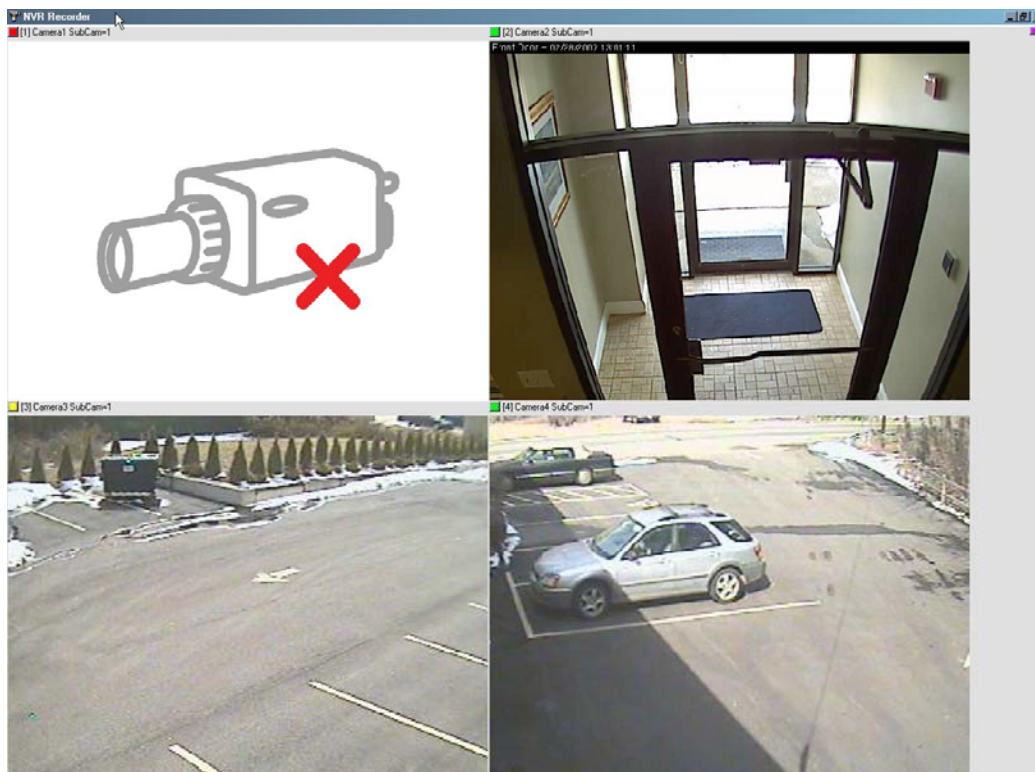



Figure 24: Recorder Interface

In the example shown in Figure 24, although the first video stream has recording enabled, it is not actively recording. Either a recording schedule does not exist for this camera, or it does not have any schedules that line up with the current time. The other three streams show live video, indicating that they have an active recording schedule. This interface can be very useful in troubleshooting recording issues.



When Check Drive is running, a  icon will show in the System Tool Tray. An indicator light on this icon can indicate the status of the archive path. A red light indicates an alarm of some sort. Right-clicking shows the Start Test option, which will give more details on the current alarm. This interface can be very useful in troubleshooting archive issues.

## Recording Methods

Recording in the DETEXI NVR is either schedule-based or event-based, and many recording options are available:

- Schedule Based Recording:
  - Continuous recording with no motion detection – Video is archived constantly while on schedule, with no motion analysis being done.
  - Continuous recording with motion detection – Video is archived constantly while on schedule. The video is analyzed and encoded with markers when motion is detected for faster and smarter replay.
  - Recording only on motion – Video is analyzed constantly while on schedule, but only archived when motion is detected.
  - Recording on camera input alarm – The hard input(s) of the camera are monitored while on schedule, and when an alarm is detected on the input(s) video is archived. Although this is event based recording, it still relies on a schedule.
- Event Based Recording:
  - Recording on NVR event (Recording task action) – Video is archived for any defined camera when a chosen event occurs in the NVR. This, and other tasks are out of the scope of this document.

This document will discuss the most basic recording options: schedule-based constant recording and schedule-based recording only on motion. Event-based recording and recording on camera input alarm is out of the scope of this document.

## Recording Schedules

Schedule-based recording is configured on the Recording Tab of the Cameras Page of the NVR Setup application, shown in Figure 25. Schedule settings defined here are compared with the system clock to determine whether a schedule is valid or not, and applies recording settings only when the schedule is valid.

### Note:

While inside the Recording Tab, the camera being configured may not be changed. Users must return to the Camera Settings Tab before switching cameras.

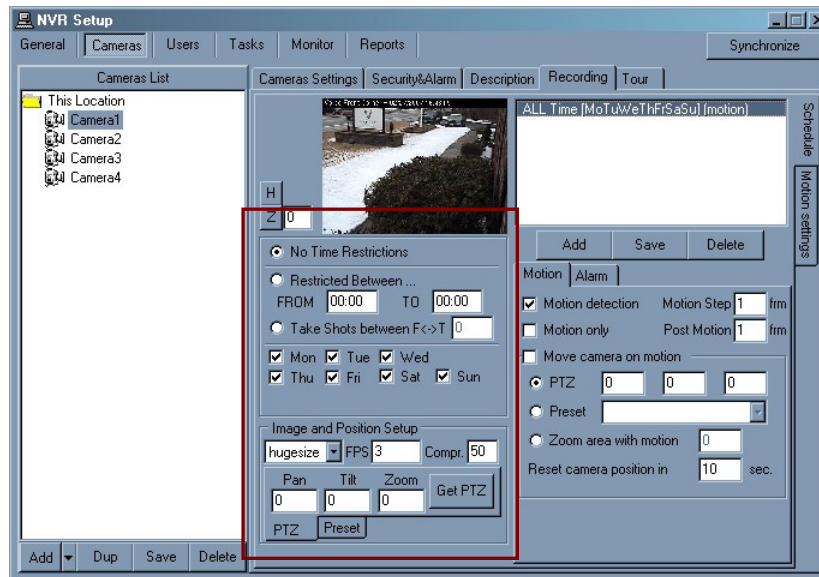


Figure 25: Cameras Page – Recording Tab

Turning recording on for a camera requires at least one schedule to be added and configured, a type of recording defined, and motion settings if appropriate. Multiple recording schedules can be, and often are, configured for each camera. This allows for different recording types and/or parameters to be used at different times and/or on different days.

The following are the minimum settings required to add a recording schedule to a camera:

- Add – Schedule settings cannot be chosen until a blank schedule is added to the schedule list.
- Save – After any schedule configuration additions or changes, this Save button must be used to save the schedule. The Save button under the Camera List will do nothing.
- Time Restrictions – The time range (if any) recording will be restricted to. If a restricted range is defined, recording will only occur within that time range.
- Day Restrictions – The days of the week this schedule applies to. Recording will only occur within the defined time range on the checked days of the week.
- Resolution – The resolution the video will be recorded at. This setting affects the quality of the image and file size of the video. Larger size (higher resolution) means better image quality, and larger file size.
- FPS – The number of frames per second that will be archived. This setting affects the fluidity of the image and file size of the video. A higher FPS means more fluid motion, and larger file size.
- Compression – The compression which will be applied to the video before it is archived, measured in percentage. This setting affects the quality of the image and file size of the video. A lower compression percentage means better image quality, and larger file size.

**Note:**

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.

- Motion Detection – If checked, video is analyzed for motion before being archived, and motion information is encoded into the archived video. When enabled, the Motion Step should also be defined.
- Motion Only – If checked, video is analyzed for motion, and only archived if motion is detected. When enabled, the Motion Step and Post Motion should also be defined.
- Motion Step – The sample rate for motion analysis. 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. The actual time between frames will depend upon the FPS defined in the schedule.
- Post Motion – The number of frames committed to the archive after motion is no longer detected. The amount of time this equates to will depend on the FPS defined for the schedule.

**Note:**

The state of the Motion Detection and Motion Only checkboxes will determine the type of schedule-based recording assigned to the schedule. The next section discusses these options in more depth.

## Schedule-based Continuous Recording

A recording schedule that records continuously will archive video with the quality settings defined (as discussed in the previous section), as long as the defined schedule is valid – whether there is motion or not.

Figure 26 shows one of the two configuration options for continuous recording: Continuous Recording without Motion Detection. No motion detection is turned on at all, so the Recorder service does not need to analyze the video stream before archiving it. In this configuration, Motion Step and Post Motion do not apply and are grayed out.

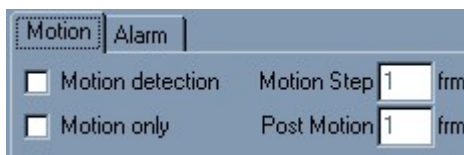


Figure 26: Continuous Recording without Motion Detection

Figure 27 shows the second (and default) configuration option for continuous recording: Continuous Recording with Motion Detection. In this case motion detection is turned on, but the analysis is not used to determine whether or not to archive the video. Motion information is simply encoded into the

continuous stream of archived video, indicating if motion was detected in each frame – and if so, how much motion was detected. This information is used during replay allowing the user to see when motion occurred, as well as skip over all motionless video at the click of a button.

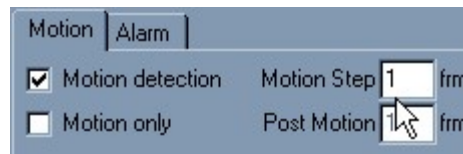


Figure 27: Continuous Recording with Motion Detection

Enabling Motion Detection activates the Motion Step field. The example shown in Figure 27 (1 frm) will process every frame sampled from the live video stream (the rate of the sampled frames will depend on the FPS setting defined in the schedule).

### *Sample Settings*

Configuration assumes: 24x7 continuous recording schedule with motion detection.

Time Restrictions	No Time Restrictions
Day Restrictions	All days checked
Resolution	Hugesize
FPS	3
Compression	50
Motion Detection	Checked
Motion Only	Unchecked
Motion Step	1

## Schedule-based Motion-Only Recording

A Motion-Only recording schedule will continually analyze video while the schedule is valid, but will only archive the video when motion is detected. This method of recording maximizes storage space for cameras monitoring low traffic areas.



Figure 28: Motion-Only Recording

Figure 28 shows the configuration resulting in a Motion-Only recording schedule. The Motion Step and Post Motion values must also be set for this recording method. In the example shown in Figure 28, every frame sampled from the video stream will be analyzed for motion. When motion is detected, all frames with motion will be archived along with the 6 frames following the last frame with motion detected. In other words, if this schedule had a setting of 2 FPS, then video would be recorded while motion was detected and for 3 seconds following the motion.

### *Sample Settings*

Configuration assumes: Motion-only recording schedule, active only from 5PM to 8AM, 7 days a week.

Time Restrictions	Restricted Between... FROM: 17:00 TO: 08:00
Day Restrictions	All days checked
Resolution	Hugesize
FPS	3
Compression	50
Motion Detection	Checked
Motion Only	Checked
Motion Step	1
Post Motion	9

## Motion Settings

When a 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.

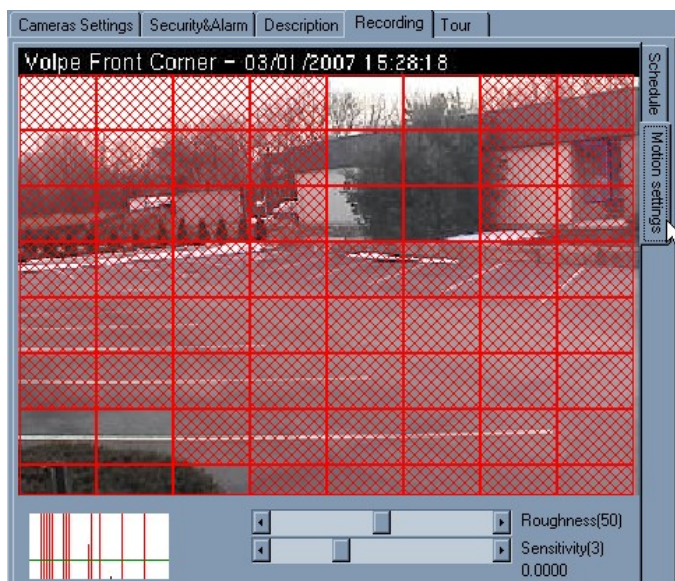


Figure 29: Recording – Motion Settings

The Motion Settings Tab in the Recording Tab of the Cameras Page in the NVR Setup application displays the configuration page shown in Figure 29. The settings defined in this page 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 Motion Settings, which will automatically apply to all new schedules created for that camera.

The Motion Indicator Graph shown in the bottom left-hand corner of the page indicates the motion detected, and whether Motion-Only recording would be triggered or not. Each vertical line in the graph indicates motion detected; the height of each line indicates how much motion was detected at that moment. When a vertical line passes above the green horizontal line it turns red, indicating that Motion-Only recording would be triggered.

Using the motion indicator graph, the following settings can be adjusted to optimize accuracy of the motion detection depending on the camera and its environment:

- 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 (from the bottom-right corner) and moved (left-click and drag), and each box within the grid can be turned on or off individually (using CTRL+Click). If no ROI is defined, the entire view will be analyzed for motion.
- Roughness – Adjusts the number of pixels required to change for motion to be detected. Moving the slider to the left requires a larger change to trigger recording (the vertical lines in the indicator graph are smaller), and right requires a smaller change to trigger recording (the vertical lines in the indicator graph are bigger).

- Sensitivity – Adjusts the motion level threshold required to trigger Motion-Only recording. Moving the slider to the left lowers the threshold (the green line in the indicator graph is lowered), and right raises the threshold (the green line in the indicator graph is raised).

When Motion-Only recording is enabled for a camera, a walk-test is usually necessary to be sure that the Motion Settings are appropriate. One person should walk around the camera view, while another adjusts the Motion Settings to be sure that all desired motion is detected, while false alarms are ignored.

After defining the Motion Settings, users must return to the Schedule Tab and save the selected schedule or the settings will be lost.

