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Application Training Manuals

DETE XI ADMIN USER TRAINING I

APPLICATION TRAINING MANUALS

DETEXI Admin User Training I

Revision 5.4.1 B (April 2007)

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Introduction

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

What is DETEXI?

DETEXI 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.

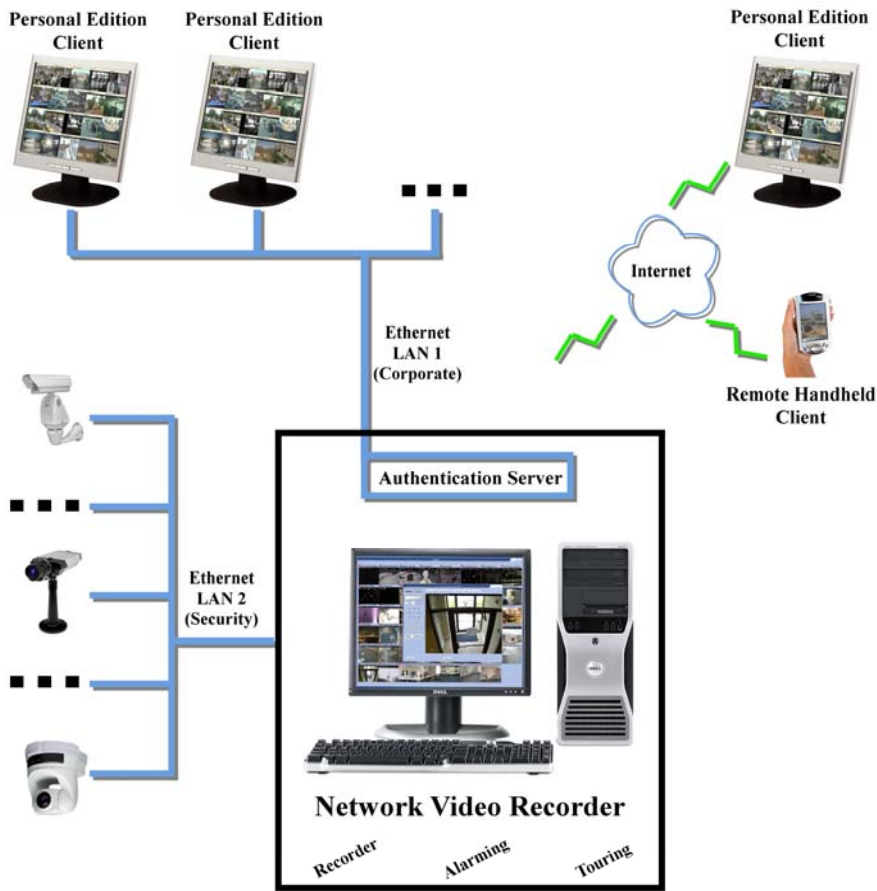


Figure 1: DETEXI System Structure

Note:

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

Target Audience

This training course is intended as a beginner course aimed toward users who will administer and/or maintain a complete DETEXI Network Video Recorder system, including NVR setup and configuration.

Course Objectives

The purpose of this course is to familiarize new and inexperienced users with the DETEXI Network Video Recorder (NVR) and its Personal Edition Client. By the end of this course, users will be able to configure a basic NVR system with cameras, motion recording, users, and alarming. Users will also be able to use the DETEXI client (local and Personal Edition) fluently, and be able to retrieve and export archived video.

This course manual assumes the use of a Detexi Demo Kit. This kit consists of an EE-PTZ-15001 (Indoor/Outdoor PTZ with IR) camera with IP 192.168.100.55, an EE-IFV-12001 (Indoor/Outdoor Fixed) camera with IP 192.168.100.57, a light bulb connected to the output of the fixed camera, and a switch for network connectivity. If this course is followed with other equipment, some lab settings will need to be altered appropriately.

Users should concentrate on the following main objectives during this course:

- Understand the different components and applications included in DETEXI NVR and Client packages, and the purpose of each.
- Be able to navigate the NVR Setup application, and use it to configure the functionality of the NVR.
- Be comfortable creating and configuring Camera Definitions using the NVR Setup application.
- Be comfortable creating User Definitions using the NVR Setup, and assigning some basic personalized permissions to each user within the NVR Setup application.
- Understand that the NVR has many underlying Services, each having its own responsibilities, and be able to use and control the services necessary for the features being used.
- Be familiar with the different recording options available, and be able to configure basic constant or motion recording for cameras configured in the NVR.
- Be able to navigate and use the local and Personal Edition Client applications; interact with live video in the Multiscreen and Video Popup interfaces as well as search, retrieve, and export archived video. Be aware that many settings and options can be adjusted and customized.
- Be able to navigate and use the Quick Archive Viewer application; search, retrieve and export archived video.
- Be familiar with the possible alarms and events that can occur within the NVR system, and be able to configure some basic actions or Tasks that can be executed in response to them.

Documentation and Technical Support

Please contact your dealer for more detailed information about your specific application or go to 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.



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.



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.



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.



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.

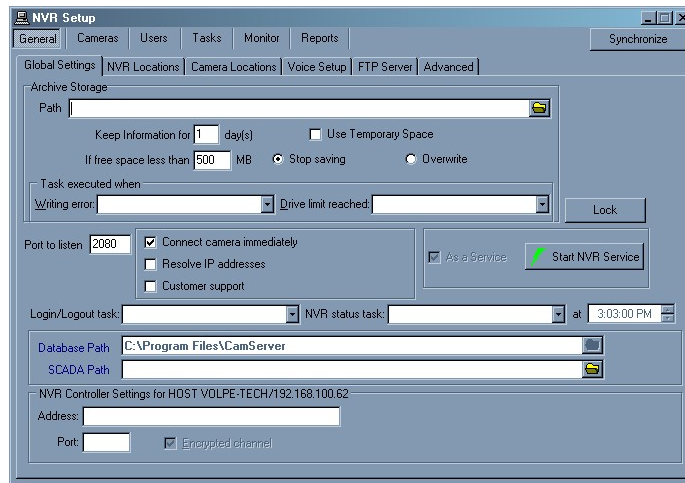


Figure 4: Global Settings Tab - General Page

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.





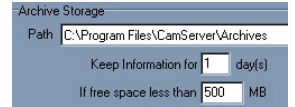
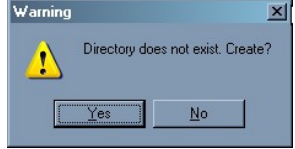

Note:

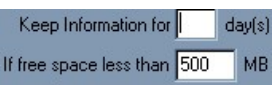
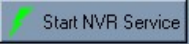
Ideally, this is not the factor which defines when data is overwritten. With proper planning, the configured data retention time should not allow the drive limit to be reached, and will act as a safety net. If data is continuously overwritten based on the drive limit, unnecessary strain is placed on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

Exercise 3.1 – Defining NVR Global Settings

OBJECTIVES

- Learn how to start and stop the NVR
- Set the Archive Storage Path
- Learn how to calculate archive storage needs
- Define appropriate archive storage settings based on calculations

<p>1. Launch NVR Setup using the shortcut on your desktop.</p>	 <p>NVR Setup</p>
<p>2. If your NVR is running, you will see a Stop NVR Service button on the right side of the tab. Click this button to stop the NVR. If the button says Start NVR Service, do nothing to leave it off.</p> <p>Note:</p> <p>Many of the settings on the Global Settings Tab cannot be changed while the NVR is running.</p>	
<p>3. Browse for an Archive Storage Path using the  button. For this exercise, browse into the C:/Program Files/CamServer folder and click OK.</p>	
<p>4. Add the word Archives to the end of the path just selected so that the full path becomes C:/Program Files/CamServer/Archives.</p>	
<p>5. Click in another field on the tab to save the setting; you will be informed that the folder you chose does not exist. Click Yes to create the folder.</p>	
<p>6. Use the <i>DETEXI Storage Calculator</i> to calculate how much storage will be necessary for four cameras recording at the following parameters, which we will configure in a later lab:</p> <ul style="list-style-type: none"> ▪ 3 Frames Per Second (FPS) ▪ 640x480 Resolution ▪ 70% Motion ▪ 1 Day 	

<p>7. Determine a reasonable number of days video can be saved for based on your calculations and how much storage you have on your computer. Enter this number in the Keep Information for [] day(s). Set the NVR to delete older data If free space is less than 500MB.</p>	 <p>Keep Information for [] day(s) If free space less than 500 MB</p>
<p>8. Finally, start the NVR again with the Start NVR Service button.</p>	 <p>Start NVR Service</p>

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).

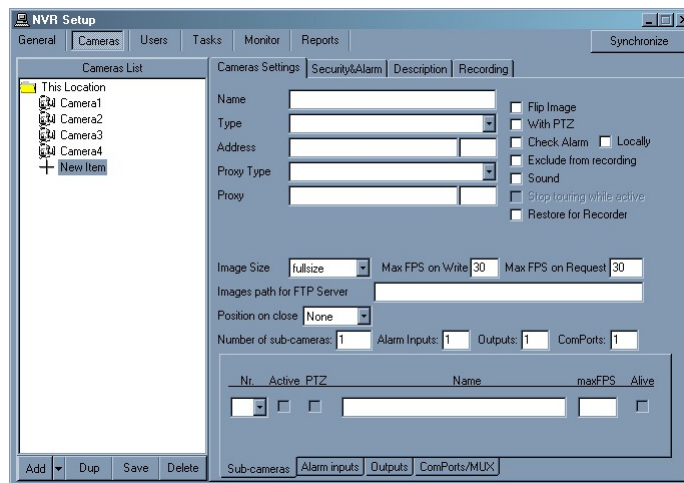


Figure 5: Camera Settings Tab – Cameras Page

The Camera Page of the NVR Setup application has several tabs of settings, many of which are optional settings. 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.
 - 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.

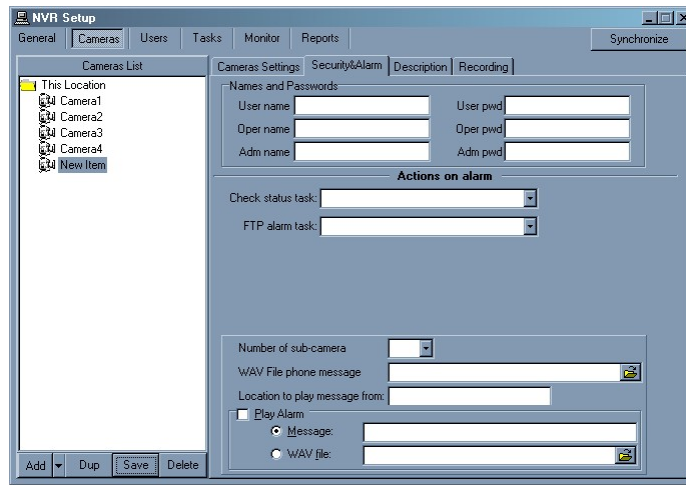


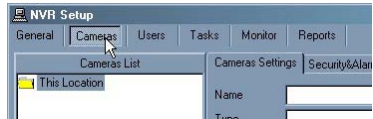
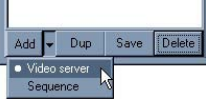
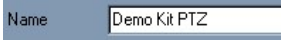

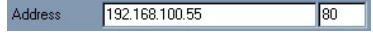
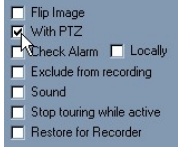

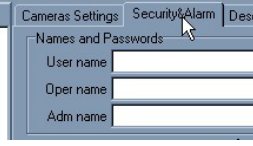


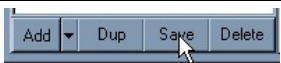
Figure 6: Security & Alarm Tab – Cameras Page



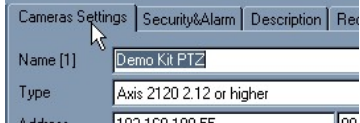


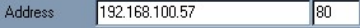
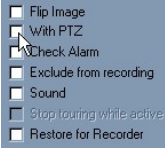
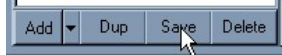

- Security & Alarm Tab
 - Names and Passwords – The usernames and passwords used to communicate with the camera. They should match the users that are defined within the camera. In most cases, cameras will only have one username and password by default, with Administrative privileges. In this case, only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

Exercise 3.2 – Defining Camera Connections

OBJECTIVES

- Create a camera definition using the Add function
- Create a camera definition using the Dup function
- Test the connection of a camera definition from within the NVR

<p>1. Move to the Cameras Page of the NVR Setup application. The Cameras Settings Tab will be shown by default.</p>	
<p>2. Make sure that Video Server is chosen as the Add type using the button next to Add, and then click Add to create a new item.</p>	
<p>3. Enter Demo Kit PTZ as the name for the new item.</p>	
<p>4. From the Type drop-down box, choose Axis 2120 2.12 or higher as the driver.</p>	
<p>5. In the Address fields, enter 192.168.100.55 as the IP and 80 as the port.</p>	
<p>6. This camera has PTZ functionality; check the With PTZ checkbox to enable these features.</p>	
<p>7. Click the Save button under the Camera List to save the changes.</p>	
<p>8. Move to the Security & Alarm Tab of the Cameras Page.</p>	
<p>9. Since this camera has a single (administrative) username and password defined in it, we will only use the administrative authentication level. Enter root in the Adm name field.</p>	
<p>10. Enter eagle in the Adm pwd field.</p> <p>Note: Usernames and Passwords are case sensitive!</p>	
<p>11. Click the Save button under the Camera List to save the changes.</p>	

<p>12. To test your new camera definition, select it from the Camera List, right-click and choose Check Connection.</p>	
<p>13. A test window will open, and should show live video from the camera. Click the Close button when finished.</p> <p>Note:</p> <p>This will not be a high resolution image; it simply proves a connection to the camera.</p>	
<p>14. Return to the Cameras Settings Tab of the Cameras Page.</p>	
<p>15. Create a second camera definition based on the configurations of the first by selecting the first camera in the Camera List and clicking the Dup button at the bottom of the Camera List.</p>	
<p>16. A copy of the first camera definition will be created. Change the Name to Demo Kit Fixed.</p>	
<p>17. Change the Address to 192.168.100.57, leaving the port at 80.</p>	
<p>18. Uncheck the With PTZ checkbox, as this camera does not have PTZ functionality.</p>	
<p>19. Click the Save button at the bottom of the Camera List when finished to save the camera.</p> <p>Note:</p> <p>You do not need to enter the Names and Passwords on the Security & Alarm Tab, because they were copied from the first camera.</p>	
<p>20. To test the connection, select the new camera in the Camera List, right-click and choose Check Connection. A test window will open as before, and should show live video from the camera. Click the Close button when finished.</p>	

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 and task control 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.

The Users Page of the NVR Setup application has several tabs of settings, many of which are optional. 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.
- 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:




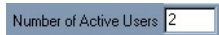
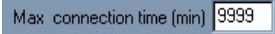



In most cases, the camera only has one username and password, with administrative privileges. Be sure that this User Rights configuration makes sense considering the authentication settings in the Security & Alarm Tab of the Cameras Page (i.e. if only the Adm user information is defined only Adm should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







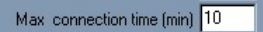

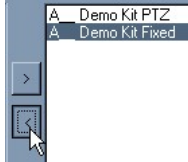
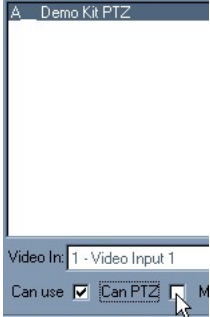

- Can PTZ – Determines whether the selected user has PTZ permissions on the selected camera. This setting is defined on a per-camera basis, and is enabled by default if the camera has PTZ capabilities when assigned to the user.

Exercise 3.3 – Defining Users

OBJECTIVES

- Create a user with the Add feature
- Create a user with the Dup feature
- Create a user with full rights to all cameras and archived video, and no time limitation
- Create a user with limited rights to only one camera, and a 1 minute time limitation

<p>1. Move to the Users Page of the NVR Setup application. The User Information Tab will be active by default.</p>	
<p>2. Click the Add button under the Users List to create a new user definition.</p>	
<p>3. Enter user1 in the User Name field, and enter and confirm a password of user1 as well.</p> <p>Note: Usernames and passwords are case sensitive!</p>	
<p>4. Enter a Number of Active Users as 2.</p> <p>Note: Unless otherwise configured for security reasons, it is recommended to have at least 2 Active Users allowed per user definition. 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.</p>	
<p>5. Enter a Max connection time of 9999 to assign no time limitation to this user.</p>	
<p>6. Select the Demo Kit PTZ camera in the Cameras List to the left and check the Adm checkbox to pass the previously configured camera authentication settings to this user.</p>	
<p>7. Click the  button to add the camera permissions to this user.</p>	

<p>8. Select the Demo Kit Fixed camera in the Cameras List to the left and click the  button to add the camera permissions to this user.</p> <p>Note:</p> <p>The User Rights chosen for the first camera configured will automatically be assigned to each camera after that unless manually changed.</p>	
<p>9. You should not have any cameras left in the available Cameras List on the left, and both cameras should be listed on the right with A_ before their names indicating their User Rights.</p>	
<p>10. Click the Save button at the bottom of the Users List to save the changes.</p>	
<p>11. Create a second user definition based on the configurations of the first by selecting the first user in the Users List and clicking the Dup button at the bottom of the Users List.</p>	
<p>12. A copy of the first user will be created. Change the User Name to user2. Enter and confirm a User password of user2 as well.</p>	
<p>13. Change the Max connection time to 10 minutes. This user will not be allowed to use the system for more than 10 minutes at a time.</p>	
<p>14. Remove permissions to the Demo Kit Fixed camera for this user by selecting the camera in the list to the right and clicking the  button to move it to the left.</p>	
<p>15. Remove PTZ permissions by selecting the Demo Kit PTZ camera and un-checking the Can PTZ checkbox for that camera.</p>	
<p>16. Click the Save button at the bottom of the Users List to save the changes.</p>	

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.

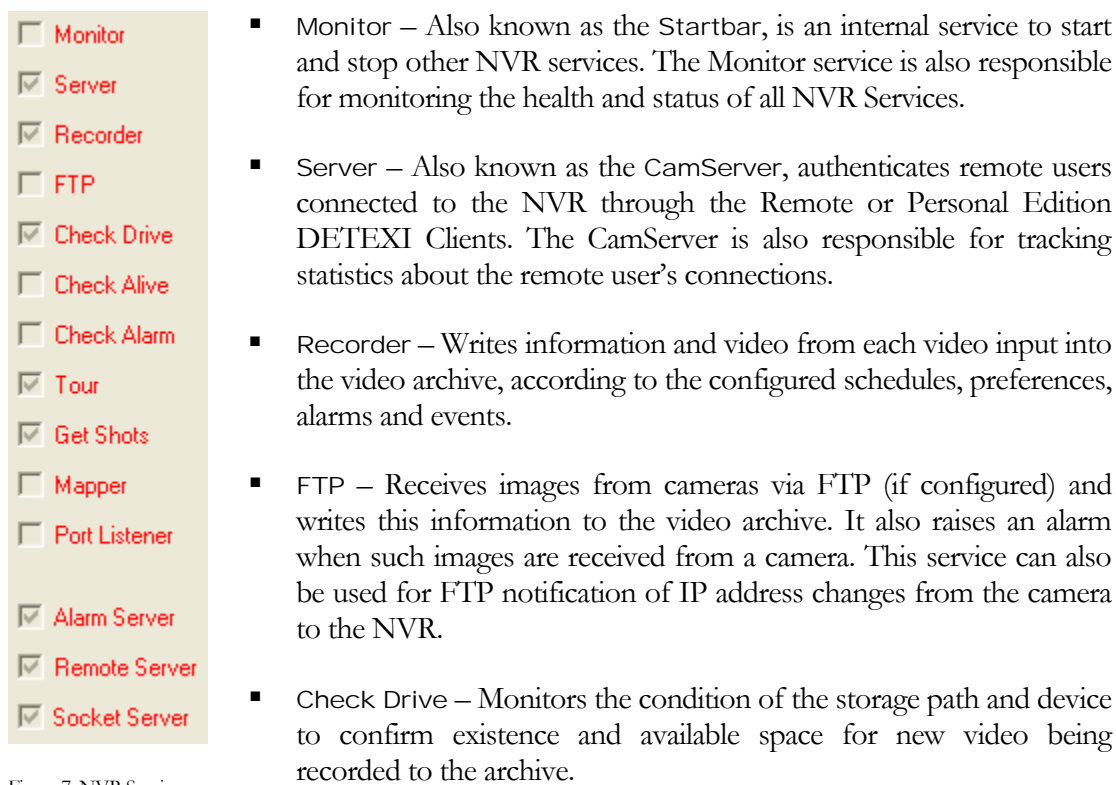


Figure 7: NVR Services

- Check Alarm – Monitors the hard inputs of connected video devices, and raises alarms when defined changes are seen on such inputs.
- 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 7. 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.

Note:

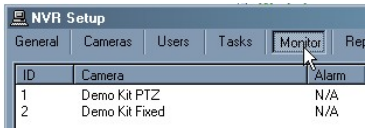
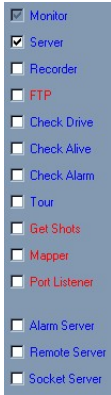


The Monitor service is started and stopped using the Start/Stop NVR Services button on the Global Settings Tab of the General Page.

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.

Exercise 3.4 – NVR Service Setup

OBJECTIVES

- Turn off all services not currently in use
- Configure services in use to be monitored and controlled by the Monitor Service
- Synchronize running services with the current configuration so recent changes take effect

<p>1. Move to the Monitor Page of the NVR Setup application.</p>	 <table border="1"> <thead> <tr> <th>ID</th> <th>Camera</th> <th>Alarm</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Demo Kit PTZ</td> <td>N/A</td> </tr> <tr> <td>2</td> <td>Demo Kit Fixed</td> <td>N/A</td> </tr> </tbody> </table>	ID	Camera	Alarm	1	Demo Kit PTZ	N/A	2	Demo Kit Fixed	N/A
ID	Camera	Alarm								
1	Demo Kit PTZ	N/A								
2	Demo Kit Fixed	N/A								
<p>2. No recording or alarming has been configured to this point. Therefore, the only service needed at the moment is the CamServer for authentication. Uncheck all services except Server.</p>										
<p>3. Leaving the Monitor, Server, Alarm Server, Remote Server, and Socket Servers running, click on all other services that are blue to turn them off. They will turn red when they are off.</p> <div style="background-color: #f0f0f0; padding: 5px; margin-top: 10px;"> <p>Note:</p> <p>If a checked service is shut off this way, the Monitor Service will restart the service automatically.</p> </div>										
<p>4. Since the CamServer was left running during configuration, click the Synchronize button to activate all new configurations. All new cameras and users are now active in the NVR.</p>										

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.

In this course, users will only interact with the Local and Remote DETEXI Clients located on the NVR Server machine. The Remote DETEXI Client 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 8. 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.

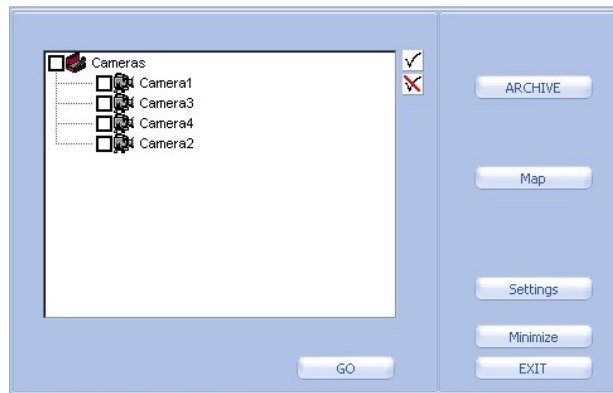



Figure 8: Client Camera List

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.

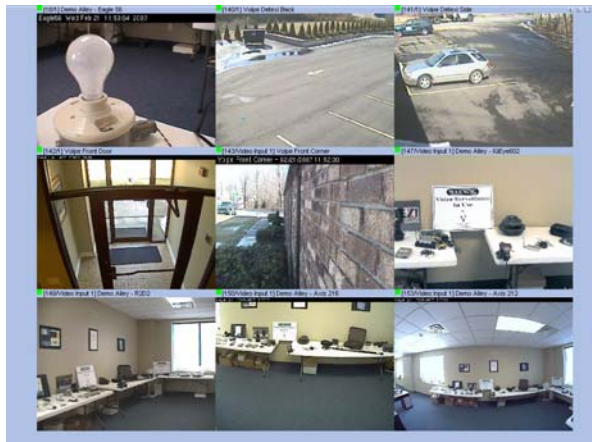


Figure 9: Multiscreen

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. If the indicator is red, the live stream is halted. A flashing yellow/green indicator means live video is currently streaming.

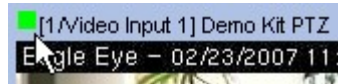


Figure 10: Multiscreen – Live Status Indicator

- 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 11: Multiscreen – Tiling Controls

- Standard – All cameras will be the same size, dynamically sized and tiled with the least wasted space, as shown in Figure 9.
- 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 12.



Figure 12: 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 13.

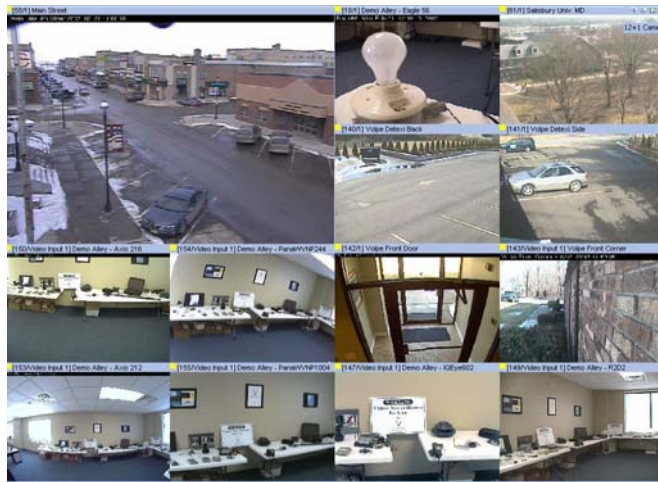


Figure 13: Multiscreen – 12 + 1 Configuration

- 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 14. The controls available are the same as on the Video Popup, which will be discussed in the next section.

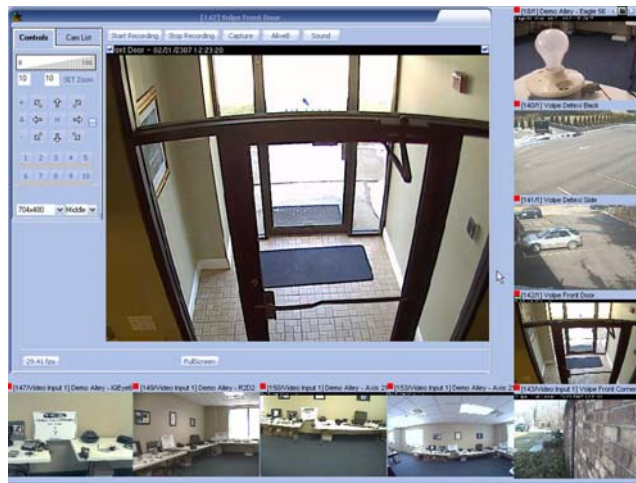


Figure 14: Multiscreen – Enlarge

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.

- 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 15: 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 16 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.

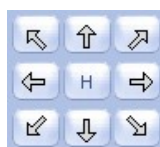


Figure 16: Video Popup – Pan/Tilt Controls

- 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 17 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.

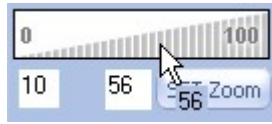


Figure 17: Video Popup – Zoom Controls

- 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 18. This will visibly affect the quality of the image.

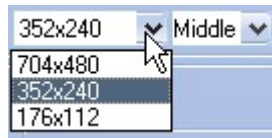


Figure 18: Video Popup – Resolution Selection

- 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 19. This will visibly affect the quality of the image.

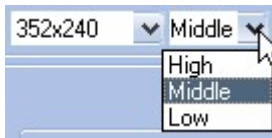





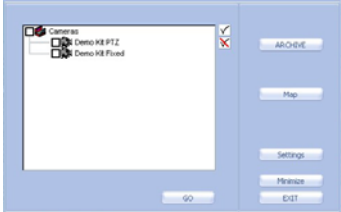

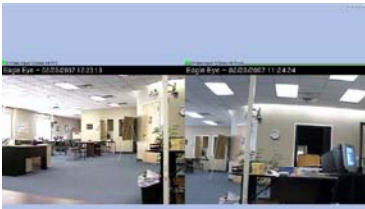

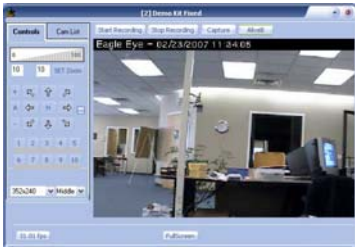
Figure 19: Video Popup – Compression Selection

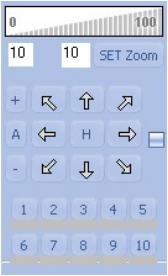
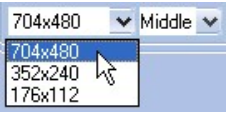
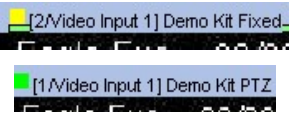



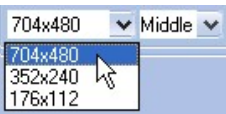


- Window Controls – Users may choose to view the video in Full Screen by clicking either the Full Screen button at the bottom of the Video Popup, or the  button in the upper-right corner of the Video Popup. The  button can also be used to close Full Screen mode.

Exercise 4.1 – Testing with the Local Client

OBJECTIVES

- Test basic connection to cameras with the Multiscreen
- Become comfortable with the GOTO feature of the Multiscreen
- Test full connection to cameras with the Video Popup
- Test the driver selection by adjusting the resolutions of both cameras in the Video Popup
- Pan, Tilt and Zoom the Demo Kit PTZ camera from the Video Popup

<p>1. Launch the Local DETEXI Client using the DETEXI shortcut on your desktop.</p>	 <p>Detexi</p>
<p>2. Without requiring authentication, the Camera List will open showing the two cameras created in the NVR in the previous chapter.</p>	
<p>3. To select both cameras, check the Cameras checkbox at the top level of the list, and click GO.</p>	
<p>4. This will open a live video connection to both cameras in the Multiscreen. This tests the basic video connect – the request for live video.</p>	
<p>5. Right-click on the Demo Kit Fixed video stream and select GOTO Demo Kit Fixed.</p>	
<p>6. The Video Popup will open showing live video from the Demo Kit Fixed camera. This tests the full video connection with authentication.</p> <p>Note:</p> <p>The Multiscreen remains open behind the Video Popup, but the video streams will freeze. It is possible to have the Multiscreen video streams remain active using the AliveB feature.</p>	

<p>7. Confirm that the PTZ controls are grayed out and unavailable; this is a fixed camera and we did not enable PTZ for this camera definition in the NVR.</p>	
<p>8. The video stream should open in medium resolution by default. Adjust the resolution of the camera using the drop-down box in the bottom-left corner of the Video Popup. Confirm that the quality of the image changes.</p>	
<p>9. Close the Video Popup to return to the Multiscreen. Confirm that both video streams in the Multiscreen begin streaming live again.</p>	
<p>10. Close the Multiscreen to return to the Camera List using the X in the upper-right corner.</p>	
<p>11. To illustrate another way to launch the Video Popup, uncheck the Demo Kit Fixed camera – leaving only the Demo Kit PTZ camera checked – and click GO.</p>	
<p>12. The Multiscreen will not open, because only one camera was selected. The Video Popup will open showing live video from the Demo Kit PTZ camera.</p>	
<p>13. The video stream should open in medium resolution by default. Adjust the resolution of the camera using the drop-down box in the bottom-left corner of the Video Popup. Confirm that the quality of the image changes.</p>	
<p>14. Confirm that the PTZ controls are active, and experiment with adjusting the position of the camera using the PTZ controls, as well as the Click to Center feature.</p>	
<p>15. Close the Video Popup, and the Exit the Client from the Camera List when done.</p>	

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 20: Client Authentication Server Setup

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 20. 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.



Figure 21: 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.


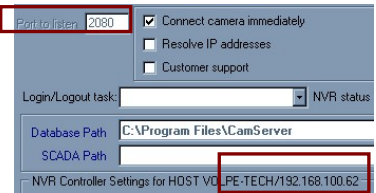


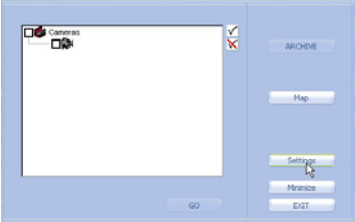




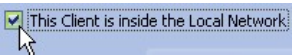

Note:




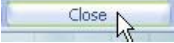
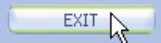






If the settings of only one NVR Server are configured in the Central Servers List, no options will be shown during authentication; the server defined as the Central Server Address in the main Client Settings page will automatically be used. For this reason, make sure the server is selected as the Central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



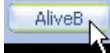



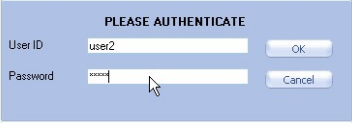


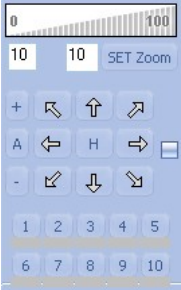

Exercise 4.2 – Testing with the Remote Client

OBJECTIVES

- Configure Server Settings in the Remote Client for connecting to the local NVR
- Authenticate with the local NVR with multiple users using the Remote Client
- Test user permissions such as cameras and time allowed
- Get familiar with the Enlarge feature of the Multiscreen
- Recognize that all main features used in the Local Client are available in the Remote Client

<p>1. If the NVR Setup application is not still running, launch it now. If the application is still running, move to the General Settings Tab of the General Page.</p>	 <p>NVR Setup</p>
<p>2. Take note of the Port to Listen setting, as well as the IP Address listed at the bottom of this page. These will be needed to configure the Remote Client Server Settings.</p>	
<p>3. Launch the Remote Client using the Remote DETEXI Client shortcut on your desktop.</p>	 <p>Remote Detexi Client</p>
<p>4. Since the Client is not yet aware of any Server to authenticate with, authentication attempts at this time would fail. Click Cancel to cancel out of the authentication and enter the Client application without connecting to a Server.</p>	
<p>5. An empty Camera List will open. Click the Settings button to open the Settings dialog.</p>	
<p>6. Inside the main Client Settings dialog, click the Servers Settings button in the Authentication Server Setup section to open the Central Servers List.</p>	
<p>7. In the Central Servers List dialog, click the Add button to add a new Central Server configuration.</p>	
<p>8. Name this Central Server definition Local NVR.</p>	
<p>9. Enter the IP Address and Port to Listen found in the NVR Setup application in Step 2.</p>	
<p>10. Check the This Client is inside the Local Network checkbox.</p>	
<p>11. Click Save to save the settings.</p>	

<p>12. Click on the new Local NVR server in the list, to re-select it; this will activate the Set as Current Server button.</p>	
<p>13. Click the Set as Current Server button to assign the Local NVR server configuration as the default central server. The Central Servers List will close automatically.</p>	
<p>14. Back in the main Client Settings dialog confirm that the new Local NVR server is defined as the Central Server Address.</p>	
<p>15. Click Close to return to the Camera List.</p>	
<p>16. Click Exit to close the Client.</p>	
<p>17. Launch the Remote Client once again using the Remote DETEXI Client shortcut on your desktop.</p>	
<p>18. Enter user1 as the username, user1 as the password, and click OK to authenticate.</p> <p>Note: Usernames and passwords are case sensitive!</p>	
<p>19. Per this user's permissions, you will be informed that you have no time limit, and both cameras will be visible in the Camera List.</p>	
<p>20. Select both cameras by checking the Cameras checkbox, or clicking the <input checked="" type="checkbox"/> button, then click GO to open the Multiscreen.</p>	
<p>21. Confirm there is live video from both cameras in the Multiscreen.</p>	
<p>22. Right-click on the Demo Kit PTZ video stream and choose Enlarge Demo Kit PTZ.</p>	

<p>23. The Multiscreen will adjust, showing the Demo Kit PTZ camera with full controls (identical to those available in the Video Popup). The live video stream for the Demo Kit Fixed camera will be suspended.</p>	
<p>24. Adjust the resolution for the Demo Kit PTZ camera to the highest resolution using the drop-down box in the bottom left-hand corner.</p>	
<p>25. Click the AliveB button on the enlarged camera window to re-activate the live video stream of the Demo Kit Fixed camera.</p>	
<p>26. Test the user's permissions for this camera by using the PTZ controls and Click to Center feature to adjust the position of the camera.</p>	
<p>27. Close the Multiscreen to return to the Camera List, and Exit the Client.</p>	
<p>28. Launch the Remote Client again using the Remote DETEXI Client shortcut on your desktop.</p>	
<p>29. This time, enter user2 as the username, user2 as the password, and click OK to authenticate</p>	
<p>30. Per this user's permissions, you will be informed that you may use the system for 10 minutes, and only the Demo Kit PTZ camera will be visible in the Camera List.</p>	
<p>31. Select the Demo Kit PTZ from the Camera List and click GO.</p>	
<p>32. The Video Popup window will open with live video from the Demo Kit PTZ camera. Test the user's permissions for this camera by confirming that the PTZ controls and the Click to Center feature are disabled.</p>	
<p>33. When finished, close the Video Popup window to return to the Camera List, and Exit the client.</p>	

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 22.

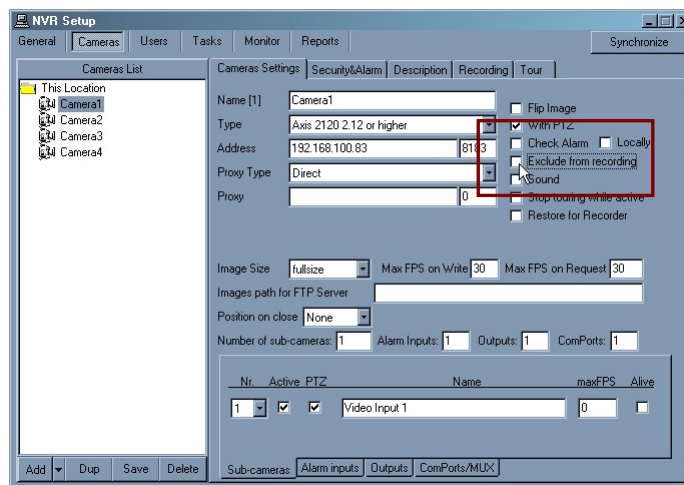


Figure 22: Enabling/Disabling Recording for a Camera

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 23. 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 23: Recorder Interface

In the example shown in Figure 23, 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 will be covered in Chapter 7.

This chapter will concentrate on the most basic recording options: schedule-based constant recording and schedule-based recording only on motion. Event-based recording will be discussed in Chapter 7. Recording on camera input alarm is out of the scope of this class.

Recording Schedules

Schedule-based recording is configured on the Recording Tab of the Cameras Page of the NVR Setup application, shown in Figure 24. 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.

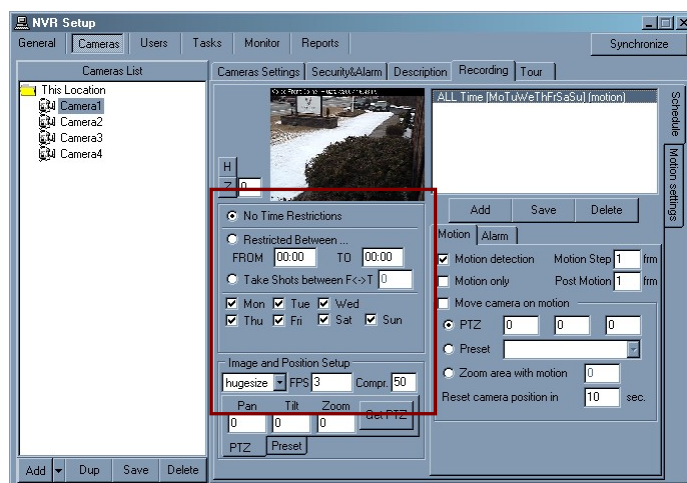


Figure 24: Cameras Page – Recording Tab

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.

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.
- 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 25 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 25: Continuous Recording without Motion Detection

Figure 26 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.

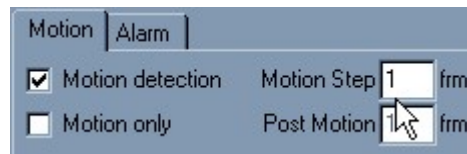



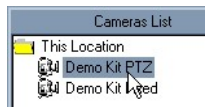


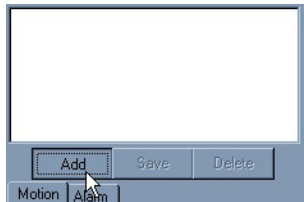
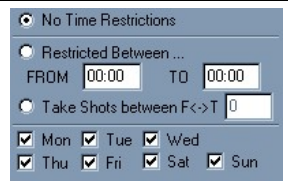
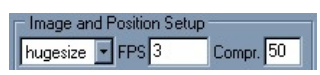
Figure 26: Continuous Recording with Motion Detection


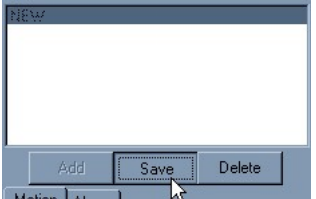

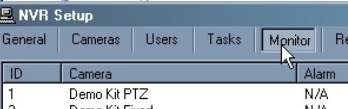


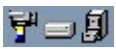



Enabling Motion Detection activates the Motion Step field. The example shown (1 frm) will process every frame sampled from the live video stream (the rate of the sampled frames will depend on the FPS setting defined in the schedule).

Exercise 5.1: Creating a Continuous Recording Schedule

OBJECTIVES

- Confirm recording is enabled for a camera
- Add a 24x7 recording schedule to a camera
- Configure a recording schedule for Continuous Recording with Motion Detection
- Turn on the Recorder and Check Drive Services
- Check recording status in the Monitor and the Recorder's interface

<p>1. If the NVR Setup application is not still running, launch it now. If the application is still running, move to the Cameras Page.</p>	 <p>NVR Setup</p>
<p>2. Select the Demo Kit PTZ camera in the Cameras List.</p>	
<p>3. Confirm that the Exclude from recording checkbox is unchecked.</p>	
<p>4. Move to the Recording Tab, which will be visible because recording is enabled for this camera.</p>	
<p>5. Click Add under the blank schedule list to add a new recording schedule.</p>	
<p>6. Leave the No Time Restrictions radio button selected, and leave all days of the week checked to configure a 24x7 schedule.</p>	
<p>7. Set this schedule to record at high resolution by choosing Hughesize from the drop-down box, and set the FPS to be 3.</p> <p>Note:</p> <p>Recall that we calculated appropriate archive path settings based on these recording parameters in Exercise 3.1</p>	

<p>8. Configure this schedule to be a Continuous Recording schedule with Motion Detection by leaving Motion detection checked. Leave the Motion Step set to 1 to analyze each frame (at 3 FPS).</p>																
<p>9. Click the Save button underneath the schedule list to save the schedule. The camera definition does not need to also be saved.</p>																
<p>10. After saving the schedule, it will be named based on the settings defined within it.</p>																
<p>11. Move to the Monitor Page.</p>																
<p>12. Click on the Check Drive service to start it; it will turn blue. Check the checkbox next to the service to turn monitoring on for the service.</p>																
<p>13. Click on the Recorder service to start it, it will turn blue. Check the checkbox next to the service to turn monitoring on for the service.</p>																
<p>14. Confirm that the Check Drive and Recorder icons are now in your System Tool Tray.</p>																
<p>15. The Monitor Page of the NVR Setup application should indicate that the Demo Kit PTZ camera is currently recording.</p>	<table border="1"> <thead> <tr> <th>Camera</th> <th>Alarm</th> <th>Touring</th> <th>Alive</th> <th>Recording</th> </tr> </thead> <tbody> <tr> <td>Demo Kit PTZ</td> <td>N/A</td> <td>-</td> <td>N/A</td> <td>s=1[Rec]</td> </tr> <tr> <td>Demo Kit Fixed</td> <td>N/A</td> <td>-</td> <td>N/A</td> <td>s=1[N]</td> </tr> </tbody> </table>	Camera	Alarm	Touring	Alive	Recording	Demo Kit PTZ	N/A	-	N/A	s=1[Rec]	Demo Kit Fixed	N/A	-	N/A	s=1[N]
Camera	Alarm	Touring	Alive	Recording												
Demo Kit PTZ	N/A	-	N/A	s=1[Rec]												
Demo Kit Fixed	N/A	-	N/A	s=1[N]												
<p>16. Double-click on the  icon to launch the Recorder's interface. You should see live video streaming for the Demo Kit PTZ camera. The mouse tool-tip will also tell you there is currently 1 recording stream (3 frames/sec).</p>																
<p>17. Minimize the Recorder's interface. Do NOT close it or the Recorder will stop.</p>																

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.





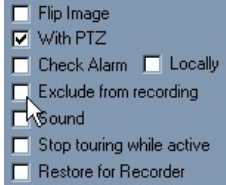

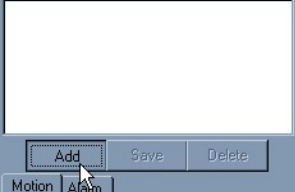
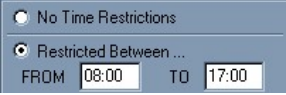
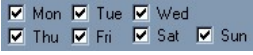
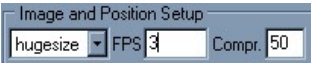
Figure 27: Motion-Only Recording


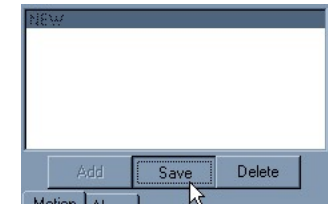

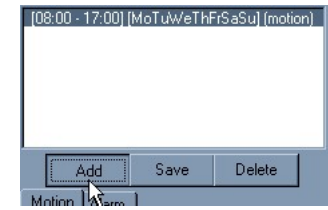
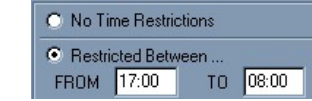
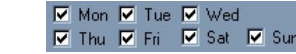


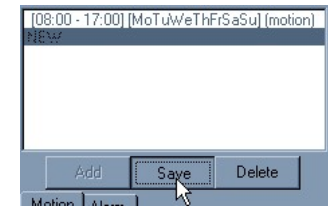

Figure 27 shows the configuration resulting in a Motion-Only recording schedule. The Motion Step and Post Motion values must also be set for this recording method. In this example (1 frm), every frame sampled from the video stream will be analyzed for motion. When motion is detected, all frames with 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.






Exercise 5.2: Creating a Motion-Only Recording Schedule

OBJECTIVES

- Confirm recording is enabled for a camera
- Add multiple recording schedules to a camera, for different portions of the day
- Configure a recording schedule for Motion-Only recording
- Synchronize the NVR Services to activate new configurations
- Check recording status in the Monitor and the Recorder's interface

<p>1. If the NVR Setup application is not still running, launch it now. If the application is still running, move to the Cameras Page.</p>	
<p>2. Select the Demo Kit Fixed camera in the Cameras List.</p>	
<p>3. Confirm that the Exclude from recording checkbox is unchecked.</p>	
<p>4. Move to the Recording Tab, which will be visible because recording is enabled for this camera.</p>	
<p>5. Click Add under the blank schedule list to add a new recording schedule.</p>	
<p>6. Select the Restricted Between radio button and define a time range FROM 08:00 TO 17:00. This is equivalent to 8AM to 5PM.</p>	
<p>7. Leave all days of the week checked to have this schedule repeated every day.</p>	
<p>8. Set this schedule to record at high resolution by choosing hugesize from the drop-down box, and set the FPS to be 3.</p> <p>Note: Recall that we calculated appropriate archive path settings based on these recording parameters in Exercise 3.1</p>	

<p>9. Configure this schedule to be a Continuous Recording schedule with Motion Detection by leaving Motion detection checked. Leave the Motion Step set to 1 to analyze each frame (at 3 FPS).</p>	
<p>10. Click the Save button underneath the schedule list to save the schedule.</p>	
<p>11. After saving the schedule, it will be named based on the settings defined within it.</p>	
<p>12. Click Add under the schedule list to add another schedule.</p>	
<p>13. Select the Restricted Between radio button and define a time range FROM 17:00 TO 08:00. This is equivalent to 5PM – 8AM.</p> <p>Note: Schedules support time ranges that wrap from one day to another. However, such time ranges should be used carefully if the schedule will not apply to all days of the week.</p>	
<p>14. Leave all days of the week checked to have this schedule repeated every day.</p>	
<p>15. Set this schedule to record at high resolution by choosing huge size from the drop-down box, and set the FPS to be 3.</p>	
<p>16. Configure this schedule to be a Motion-Only recording schedule by checking the Motion only checkbox. Leave the Motion Step set to 1 to analyze each frame (at 3 FPS), and set a Post Motion of 9 to record 9 frames (3 seconds) after the last motion was detected.</p>	
<p>17. Click the Save button underneath the schedule list to save the schedule.</p>	
<p>18. After saving the schedule, it will be named based on the settings defined within it. Two schedules will now exist in the list, covering all 24 hours of the day.</p>	

<p>19. Since the Recorder and Check Drive services were left running during configuration, click the Synchronize button to activate all new configurations.</p>																
<p>20. Move to the Monitor Page and wait for the services to finish synchronizing.</p>																
<p>21. When the services are finished synchronizing, the Monitor should indicate that both the Demo Kit PTZ and Demo Kit Fixed cameras are currently recording.</p>	<table border="1"> <thead> <tr> <th>Camera</th> <th>Alarm</th> <th>Touring</th> <th>Alive</th> <th>Recording</th> </tr> </thead> <tbody> <tr> <td>Demo Kit PTZ</td> <td>N/A</td> <td>-</td> <td>N/A</td> <td>s=1[Rec]</td> </tr> <tr> <td>Demo Kit Fixed</td> <td>N/A</td> <td>-</td> <td>N/A</td> <td>s=1[Rec]</td> </tr> </tbody> </table>	Camera	Alarm	Touring	Alive	Recording	Demo Kit PTZ	N/A	-	N/A	s=1[Rec]	Demo Kit Fixed	N/A	-	N/A	s=1[Rec]
Camera	Alarm	Touring	Alive	Recording												
Demo Kit PTZ	N/A	-	N/A	s=1[Rec]												
Demo Kit Fixed	N/A	-	N/A	s=1[Rec]												
<p>22. Double-click on the  icon to launch the Recorder's interface. You should see live video streaming for both cameras. The mouse tool-tip will also tell you there are currently 2 recording streams (6 frames/sec).</p>																
<p>23. Minimize the Recorder's interface. Do NOT close it or the Recorder will stop.</p>																

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.

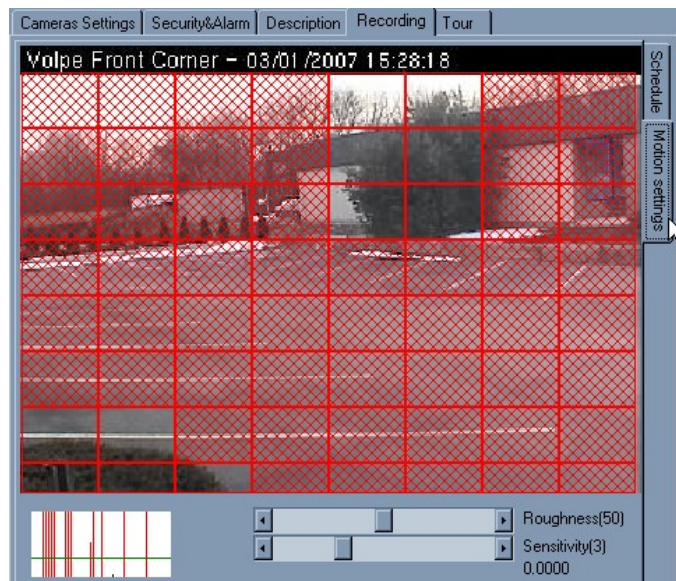


Figure 28: Recording – Motion Settings

The Motion Settings Tab in the Recording Tab of the Cameras Page in the NVR Setup application displays the configuration page shown in Figure 28. 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).





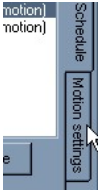
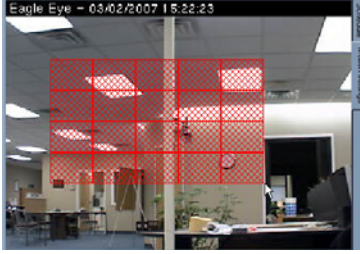
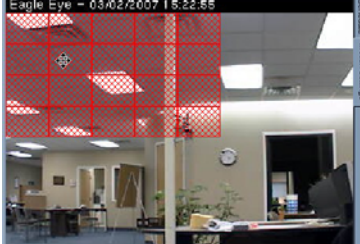
When Motion-Only recording is enabled for a camera, a walk-test is usually necessary to be sure that the Motion Settings are appropriate. One person should walk around the camera view, while another adjusts the Motion Settings to be sure that all desired motion is detected, while false alarms are ignored.



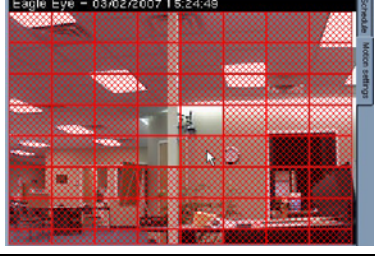
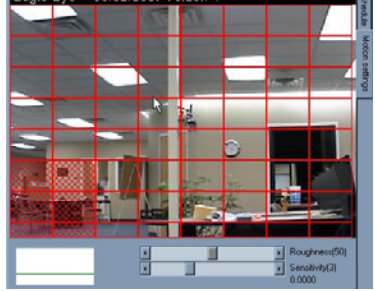
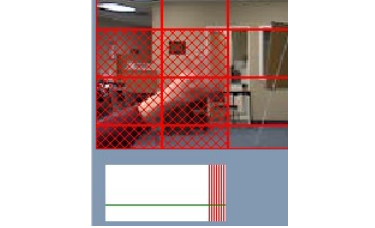


After defining the Motion Settings, users must return to the Schedule Tab and save the selected schedule or the settings will be lost.


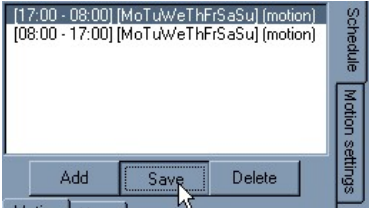

Exercise 5.3: Adjusting Motion Settings

OBJECTIVES

- Create a Region of Interest (ROI) for an existing recording schedule
- Mask out individual portions of the ROI
- Adjust the Roughness settings and see how the motion detection is affected
- Adjust the Sensitivity settings and see how the motion detection is affected
- Save the Motion Settings for the recording schedule

<p>1. If the NVR Setup application is not still running, launch it now. If the application is still running, move to the Cameras Page.</p>	 <p>NVR Setup</p>
<p>2. Select the Demo Kit Fixed camera in the Cameras List.</p>	
<p>3. Move to the Recorder Tab.</p>	
<p>4. Select the Motion-Only recording schedule for 5PM to 8AM.</p>	
<p>5. Move to the Motion Settings Tab for this schedule.</p>	
<p>6. Practice drawing an ROI by left-clicking and dragging from the upper left-hand corner of the image to the bottom right-hand corner of the image.</p>	
<p>7. A red grid will be drawn, indicating where the ROI is. Practice moving the ROI by selecting it and repositioning it so that it is all the way up into the left-hand corner of the image.</p>	

<p>8. Practice resizing the ROI by selecting the bottom right-hand corner and dragging it out to meet the bottom right-hand corner of the image.</p>	
<p>9. Practice de-selecting sections of the ROI by holding the CTRL key and clicking on sections.</p>	
<p>10. Practice re-selecting sections of the ROI that were de-selected by holding the CTRL key and clicking on those sections.</p>	
<p>11. Using the methods just learned, configure the ROI to only have a small active section, in a corner of the video where there is currently no motion. Watch the Motion Indicator Graph to see that no motion is detected.</p>	
<p>12. Introduce motion into the ROI, and make sure that the motion is detected by watching the Motion Indicator Graph.</p>	
<p>13. Adjust the Roughness and pay attention to how it affects the level of motion detected.</p>	
<p>14. Adjust the Sensitivity and pay attention to how it affects the level of motion detected.</p>	

<p>15. Leave the Roughness and Sensitivity settings at appropriate levels for this environment.</p> <p>Note:</p> <p>These settings will completely depend upon the environment of the camera in its current location and environment.</p>	 <p>A screenshot showing two sliders. The top slider is labeled 'Roughness(30)' and the bottom slider is labeled 'Sensitivity(4) 0.0000'. Both sliders are positioned towards the right side of their respective scales.</p>
<p>16. Return to the Schedule Tab and click Save under the Schedule List immediately to save the settings.</p>	 <p>A screenshot of a software interface showing a 'Schedule List' table with two rows of motion detection schedules. Below the table are three buttons: 'Add', 'Save', and 'Delete'. The 'Save' button is highlighted with a mouse cursor.</p>
<p>17. Since the Recorder and Check Drive services were left running during configuration, click the Synchronize button to activate all new configurations.</p>	 <p>A screenshot of a single button labeled 'Synchronize' with a mouse cursor pointing to it.</p>

Archive Video Retrieval

With the NVR configured to archive video, the local client and remote users with access to the Central Archive can access, view, and export archived video. This chapter will discuss the tools for accessing the Central Archive, and how to use them.

Archiving Retrieval Tools

There are two main tools available to users for accessing the Central Archive and viewing archived video:

- **DETEXI Client Archive tool**— A part of the Local, Remote, and Personal Edition Clients. This tool is always available in all three editions of the Client for locally recorded archives (recorded on the client-side), and in the Local Client for recordings in the Central Archive. In the Remote and Personal Edition Clients, this tool only has access to the Central Archive if the user logged in has archive viewing permissions.
- **Quick Archive Viewer** – A separate application installed with the NVR as well as the Personal Edition Client. On the NVR Server machine, no login is necessary to gain access to the Central Archive. On a Personal Edition Client machine (remote to the NVR Server), users are required to authenticate with the same login used for the Personal Edition Client. Only users with archive viewing permissions will be allowed access.

Although these tools 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.

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. When large amounts of video need to be scanned for events the Quick Archive Viewer is the tool of choice. This is due to the way each tool pulls video from the Central Archive, and is especially apparent when connecting over a network.

The DETEXI Client Archive tool pulls data from the Central Archive transferring all frames in the time frame selected by the user 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 effected 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.

Rather than loading a collection of video into local memory, the Quick Archive Viewer streams video directly from the Central 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 users to slower possible playback speeds – completely dependent upon the network connection between the Quick Archive Viewer and Central Archive. It is not uncommon to see pauses in video playback for buffering of the video stream. When located on the NVR Server machine, the Quick Archive Viewer is very efficient – limited only by the read speed of the hard drive and decoding speed of the video card.

DETEXI Client Archive Tool

The Archive tool built into the DETEXI Client can be launched with the Archive button found on the Camera List of the Client. In the Local Client, and when logged into the Remote or Personal Edition Client with archive viewing permissions, the Archive tool opens to the Search pane automatically with a direct connection to the Central Archive.

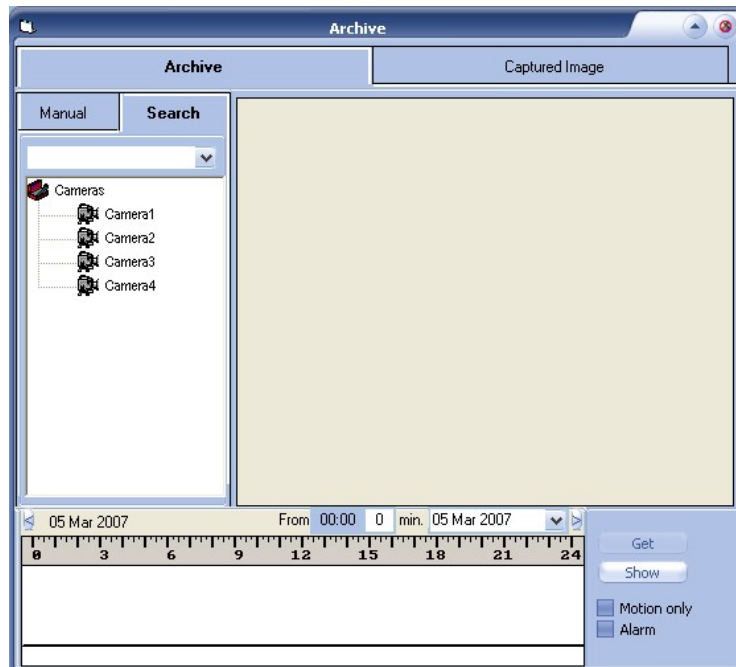


Figure 29: DETEXI Client Archive Tool

To begin a search for a particular camera, users must double-click on the camera of interest in the list to turn it yellow. The following are the tools users should know in order to do a basic video search for a camera:

- Date – The date is selected from the drop-down calendar and must be chosen before any video can be viewed.



Figure 30: Client Archive Tool – Date Selection Calendar

- Show – Once the date is chosen, this button is used to show a bar graph of archived video for that date, including motion activity if applicable. If no video exists in the archive for that day (for the selected camera), no bar graph will be filled in.
- Video Bar Graph – Indicates the existence of archived video based on the time of day, each bar equating to one minute in time. The color of the bar at any given time indicates the category of video recorded. Gray bars indicate continuous recording, while green bars indicate motion. A combination of gray and green bars will be seen when a Continuous Recording Schedule with Motion Detection is configured. The height of each bar indicates how much video (of the given category) was recorded in that minute. For this reason, with the exception of the first and last minute, gray lines should always be the maximum size.

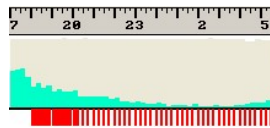


Figure 31: Client Archive Tool – Video Bar Graph

Note:

Red lines may also be seen in the bar graph, indicating video associated with an alarm. Alarms and events will be discussed in Chapter 7.

- Time Line – Used to graph the video, and also to select a segment of video for viewing. To select a segment of video for viewing, right-click and drag on the time line to highlight the time segment of interest. If no segment is selected, all video in the current view is considered selected.

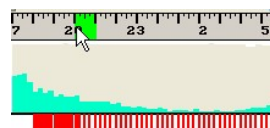


Figure 32: Client Archive Tool – Video Segment Selection

- Get – Once a segment of video has been highlighted using the Time Line, this button will load that segment of video into local memory for viewing. The video interface will automatically be launched when the video is completely loaded in memory. If no time segment is highlighted, the viewer will attempt to load all video in the current view (24 hours). The maximum amount of video that can be loaded at once is 10000 frames.

Note:

If loading takes longer than desired, use the Break button (located in place of the Show button) to stop the load and view all video successfully loaded before being stopped. The Break button also indicates the progress of the load, as shown in Figure 33.



Figure 33: Client Archive Tool – Break Button

- Motion only – If checked when the Get button is pressed, only video encoded with motion flags within the selected time frame will be loaded for viewing. Motion Detection must be turned on in a recording schedule for this feature to work.

Once a segment of video is loaded for viewing, the video interface is automatically shown, with all video currently loaded in memory listed in the bottom pane. Many situations may call for multiple sections of video listed in this pane. Users must double-click on a section of video to begin viewing it.

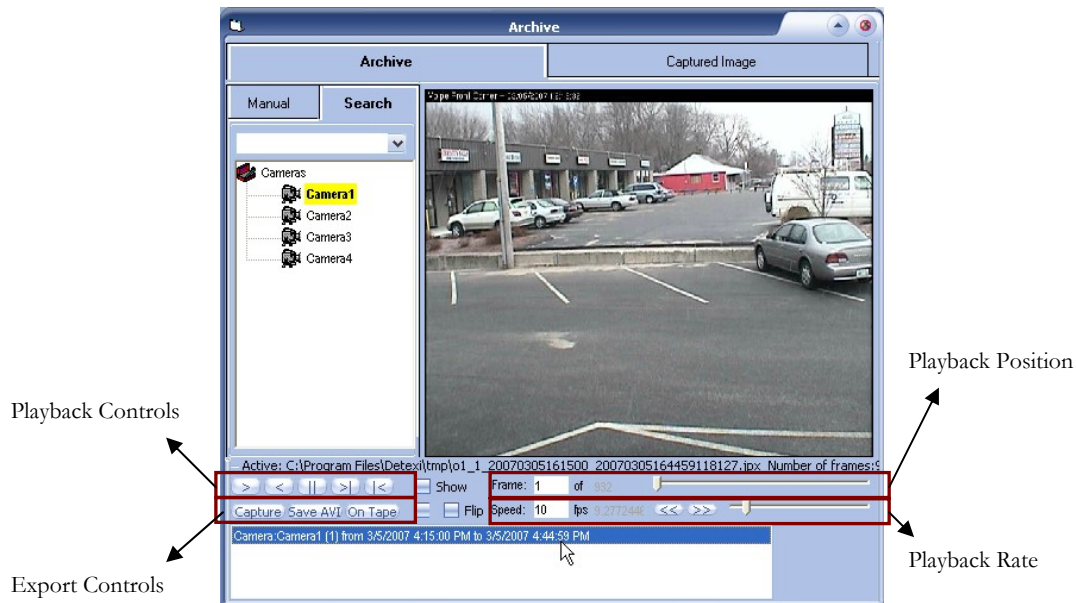


Figure 34: Viewing Archived Video in the Client Archive Tool



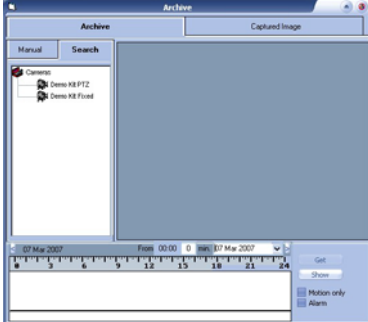


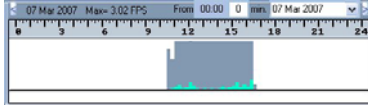
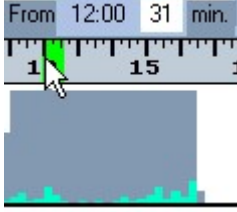
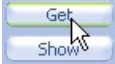
The basic playback controls include Play Forward, Play Backward, Pause, Frame Forward, and Frame Backward. The Frame slider can be used to quickly select a playback position within the video clip, and the Speed slider adjusts the rate (FPS) at which the video is played.

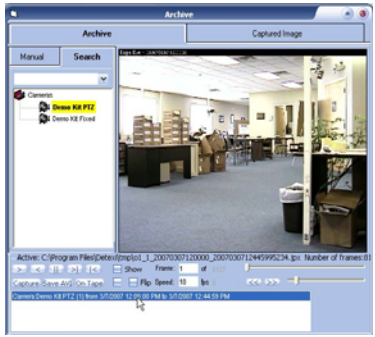




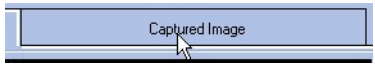






Once video of importance is found, it is important to be able to export that video in a universal format for distribution to Management, the Police, or other authority. This can be done with either the Capture or Save AVI features. Clicking Capture will save a single frame of the video and transfer it into the Captured Image Tab for editing. This captured image can be adjusted as needed and saved as a JPEG file. When stopped, users can click the Save AVI button to begin exporting the video to an AVI format from the current location until stopped.




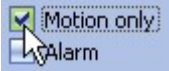

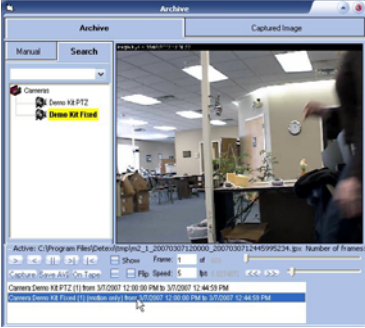


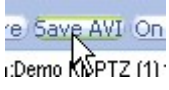
Exercise 6.1 – Using the DETEXI Client Archive Tool





OBJECTIVES

- Pull video information from the Central Archive with the Local DETEXI Client Archive Tool
- Select a time frame of interest and view the video
- Get familiar with the basic playback controls
- Capture a still shot, add a title and save the image
- Skip over unimportant video using the Motion Only feature
- Export a short clip of video to an AVI format

<p>1. Launch the Local DETEXI Client using the DETEXI shortcut on your desktop. The client will open to the Camera List automatically.</p>	 <p>Detexi</p>
<p>2. On the Camera List, click the ARCHIVE button.</p>	
<p>3. The Archive tool will be launched, with today's date already selected.</p>	
<p>4. Double-click the Demo Kit PTZ camera to select it. It will turn yellow when selected for a video search.</p>	
<p>5. Leaving today's date selected, click the Show button to show recording activity for today.</p>	
<p>6. The timeline will be filled in with the Video Bar Graph, indicating the archived video available for the day. Because motion detection is turned on in the recording schedule for this camera, the green bars indicate the amount of motion detected within each minute of video.</p>	
<p>7. Right-click and drag on the timeline to highlight a section of video. Be careful not to select too much video to load at once.</p>	
<p>8. With video selected, click the Get button to begin loading the section of video into memory.</p>	

<p>9. Since this is a continuous recording, a single stream of video is fetched, and listed in the viewer. No video will be shown by default. Double-click the portion of video listed to view the first frame.</p>	
<p>10. Using the basic playback controls, move around within the video segment. Get comfortable with the play forward, play backward, pause, frame forward and frame backward controls.</p>	
<p>11. By default, the video will play at a speed of 10 FPS. Recall that this video is being recorded at 3 FPS. Use the slider, the arrow buttons, or the text box to change the playback speed to 3 FPS to view the video real-time.</p>	
<p>12. Practice moving to different positions in the video segment using the Frame slider to skip ahead or back.</p>	
<p>13. Pause the video at a position of interest, and click the Capture button to take a still shot of that frame.</p>	
<p>14. Click the Captured Image Tab to open the edit interface for the captured still shot.</p>	
<p>15. Click the Set Text button to add a caption to the image, perhaps to indicate the date and time of the image, as well as the event captured.</p>	
<p>16. This caption will be inserted as an overlay at the bottom of the image.</p>	
<p>17. Click the Save As button to save the image in JPEG format. Give the file a name, and save it to your Desktop.</p>	
<p>18. Open this newly saved image to be sure it saved properly.</p> <div style="background-color: #f0f0f0; padding: 10px; border: 1px solid #ccc;"> <p>Note:</p> <p>Use the  button in the Quick Launch of your computer to activate the desktop while leaving the Full Screen Client running. You can activate the Start Bar with the Windows key on your keyboard.</p> </div>	
<p>19. Return to the Client Archive Tool.</p>	

<p>20. Leaving the current video segment in place, double-click on the Demo Kit Fixed camera in the list to begin a video search for that camera.</p>	
<p>21. The timeline will open, with the date and time segment selected in the previous search kept in place. Click the Show button to show the Video Bar Graph for this camera.</p>	
<p>22. Because there is a segment of time already selected, only the video within that time frame will show in the Video Bar Graph. This way, we can compare the video from the same segment of time for both cameras.</p>	
<p>23. Check the Motion only check box to only load video encoded with motion flags.</p>	
<p>24. Click the Get button to load the video.</p>	
<p>25. This new segment of video will be listed under the previously loaded segment of video. Double-click the video segment to view the first frame.</p>	
<p>26. Notice that although this video segment is for the same period of time as the last, and both recording schedules are recorded at 3 FPS, this video segment has less total frames than the previous segment. This is because all motionless frames have been ignored.</p>	
<p>27. Play through the video, to see that all motionless video is skipped; all motion events can be watched more quickly.</p>	
<p>28. Pause the video in a location of interest, and click the Save AVI button to export a segment of video starting at this location. Give the file a name and save it to your Desktop. The moment you define the file to be saved, the viewer will begin playing, while it exports.</p>	

<p>29. When you have played through the video of interest, click the Stop button.</p> <p>Note:</p> <p>You can use the playback controls to move forward or backward in time while recording to AVI. All moves made while exporting will be captured in the exported video.</p>	 <p>A screenshot of a video player interface showing a blue 'Stop' button with a mouse cursor hovering over it. Below the button, the text 'emo Kit 13TZ I' is partially visible.</p>
<p>30. Open and play this newly saved AVI file to be sure it saved properly.</p> <p>Note:</p> <p>Use the  button in the Quick Launch of your computer to activate the desktop while leaving the Full Screen Client running. You can activate the Start Bar with the Windows key on your keyboard.</p>	 <p>A screenshot of a file icon on a desktop. The icon is blue and labeled 'MyAVI.avi'.</p>
<p>31. When finished, close the Archive Tool, and Exit out of the client from the Camera List.</p>	 <p>A screenshot of a blue 'EXIT' button with a mouse cursor hovering over it.</p>

Quick Archive Viewer

Either on the NVR Server machine, or on a Personal Edition Client machine, the Quick Archive Viewer can be launched using the shortcut on your Desktop. On the NVR Server machine, no login is necessary to gain access to the Central Archive. The Local Computer will already be chosen in the NVR drop-down box, and the Server field will automatically be populated with all local cameras with video currently in the Central Archive.

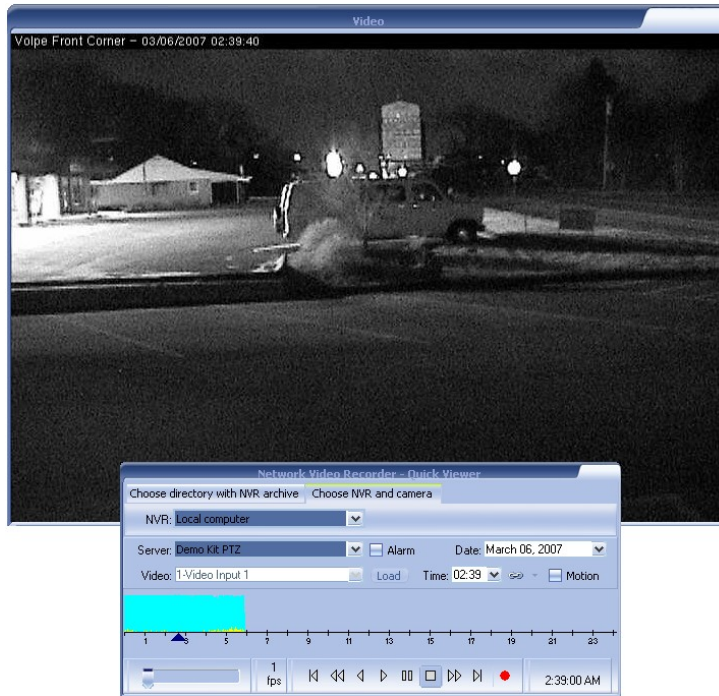


Figure 35: Quick Archive Viewer on NVR Server Machine

On a Personal Edition Client machine, a remote Central Archive needs to be chosen from the NVR drop-down box. At that point, users will be required to authenticate and will only gain access if they have archive viewing permissions on that server. Once connected, the Server field will be populated with all cameras on that NVR with video currently in its Central Archive.

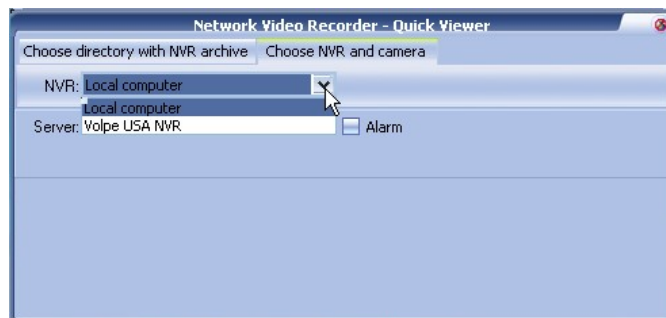


Figure 36: Quick Archive Viewer on Personal Edition Client

To search for and replay video, the following tools should be used:

- **Date** – Choose the date of interest. When a camera (server) is chosen, the drop-down box is automatically populated with the dates for which video from that camera exists in the Central Archive.
- **Load** – Populates the Video Bar Graph for the date and camera selected.
- **Video Bar Graph** – Indicates the existence of archived video based on the time of 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 bars indicate continuous recording, while yellow bars indicate motion. A combination of blue and yellow bars will be seen when a Continuous Recording Schedule with Motion Detection is configured. The height of each bar indicates how much video (of the given category) was recorded in that minute. For this reason, with the exception of the first and last minute, continuous recording blue lines should always be the maximum size.

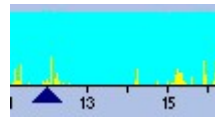


Figure 37: Quick Archive Viewer – Video Bar Graph

Note:

When viewing a Video Bar Graph related to alarm video, the blue bars indicate alarm video archived rather than continuous recording. Alarms and events will be discussed in Chapter 7.

- **Position Arrow** – Indicates the current replay position within the Video Bar Graph. Drag this arrow forward and backward in time to adjust the replay position in time.



Figure 38: Quick Archive Viewer – Position Arrow

- **Time** – Indicates the current replay position, as well what video is available during the selected day. This field is populated with all minutes during which video exists for the selected camera and date. Selecting a minute will set the replay position to that minute, moving the Position Arrow automatically.
- **Motion** – When checked, only video encoded with motion flags within the selected time frame will be replayed. Motion Detection must be turned on in a recording schedule for this feature to work.

- Playback Controls – The following controls are available in order from left to right as shown in Figure 39:
 - First frame in the current minute – jump to the first frame in the currently selected minute.
 - One frame back – step one frame backward in time.
 - Play backward – play the video backward from the current position.
 - Play forward – play the video forward from the current position.
 - Pause – pause the video in the current position.
 - Stop playing – stop the video playback.
 - One frame forward – step one frame forward in time.
 - Last frame in the current minute – jump to the last frame in the currently selected minute.
 - Export video (Record) – export video to AVI format from the current position, at the speed (FPS) selected, until the playback is stopped.



Figure 39: Quick Archive Viewer – Playback Controls

- Playback Speed – Requested playback speed in Frames Per Second (FPS). The actual playback speed may be slower, depending on the speed of the hard drive, or network if the Quick Archive Viewer is remote to the Central Archive.




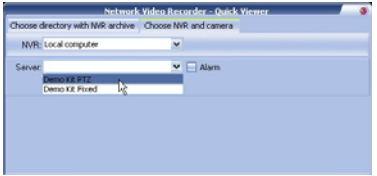

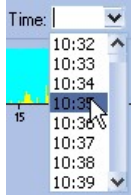

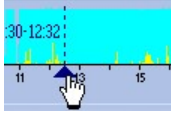

Figure 40: Quick Archive Viewer Playback Speed








Users can keep track of video time by watching the clock in the bottom right-hand corner of the Quick Archive Viewer. This clock follows the time of the video, as stamped on the files by the Central Archive.

Exercise 6.2 – Using the Quick Archive Viewer

OBJECTIVES

- Pull video information from the Central Archive using the Quick Archive Viewer
- Get familiar with the basic playback controls
- Skip over unimportant video using the Motion Only feature
- Export a short clip of video to an AVI format

<p>1. Launch the Quick Archive Viewer using the appropriate shortcut on your desktop.</p>	
<p>2. Because it is local to the Central Archive, no authentication will be necessary; the Servers drop-down box will automatically be populated with the two recording cameras. Choose the Demo Kit PTZ camera.</p>	
<p>3. Note that the Date field only has today's date available in it, because we just started recording. Leaving today's date chosen, click the Load button.</p>	
<p>4. The Video Bar Graph and the Time field will both be populated with data indicating when video was recorded today. Select a minute from the Time field.</p>	
<p>5. The first frame in that minute will be loaded, and the Position Arrow will move to that position in time.</p>	
<p>6. Select the Position Arrow and move it to a different position on the timeline. The first frame in that minute will be loaded, and the Time field will change to show the selected minute.</p>	
<p>7. Practice using the Playback Controls, playing the video forward and backward, stepping one frame forward and backward, and jumping to the beginning and end of the selected minute.</p>	

<p>8. Adjust the Playback Speed to 3 FPS, since the recording schedule was configured to record at that speed. Play the video, confirming with the clock in the right-hand corner that the video is playing back in real-time.</p>	
<p>9. Check the Motion checkbox, to begin skipping over all video without motion. If video was already playing, this setting will take effect immediately. Otherwise, begin playback to see the difference.</p>	
<p>10. Stop playback, and click the Record button.</p>	
<p>11. You will be asked to define an AVI filename and path. Save the file to your Desktop.</p>	
<p>12. Playback will begin immediately upon returning to the Quick Archive Viewer. The video being played is also being exported. When past the video of interest, click Stop to stop the export as well as playback.</p>	
<p>13. Open and play this newly saved AVI file to be sure it saved properly.</p>	
<p>14. When finished, close the Quick Archive Viewer.</p>	

NVR Events and Alarming

The alarm, events, and task capabilities of the DETEXI NVR system make it more than just a video archiving tool. Software motion detection, alarm detection, other events, and the actions that can be taken on these alarms and events make the DETEXI NVR an intelligent video surveillance system.

NVR Tasks

Actions or means of notification triggered by alarms or events raised in the NVR are called Tasks. Tasks can include one or more item, allowing for multiple things to happen when a single alarm or event is raised. Tasks are configured on the Tasks Page of the NVR Setup application, shown in Figure 41.

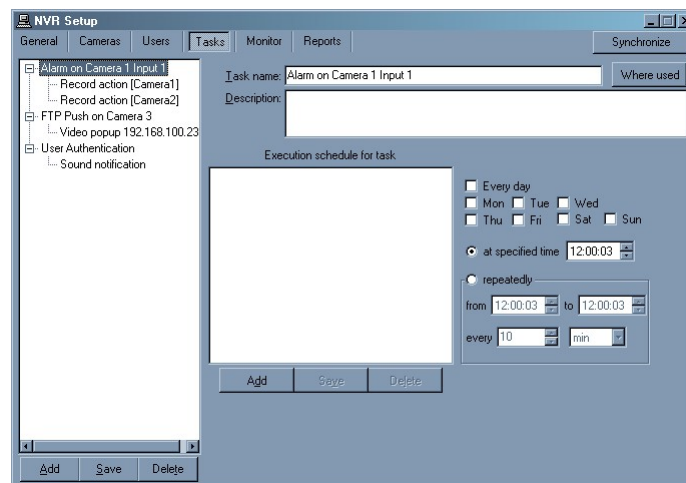


Figure 41: NVR Tasks

When defining a task, users have the option to assign an execution schedule to that task. Schedules are not required, but are simply another way to trigger tasks. Task schedules can execute tasks repeatedly within a time frame, or at a specific time. Tasks are not limited to being assigned to either 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. NVR alarms and events that can trigger tasks will be discussed in the next section.

Note:

After defining a schedule for a task, the schedule must be saved and the Task itself must also be saved. If both items are not saved, the changes will be lost.

There are two categories of tasks in the NVR: Actions and Notifications. Actions are things that can be done with cameras, clients, and other applications. Notifications are ways to indicate to users that a particular event occurred so that further human actions can be taken.

Empty tasks are first created using the Add button under the Task List, and then Actions and/or Notifications are added to those tasks using the right-click menu. All Actions and/or Notifications contained in one task will be executed when that task is triggered by an event.

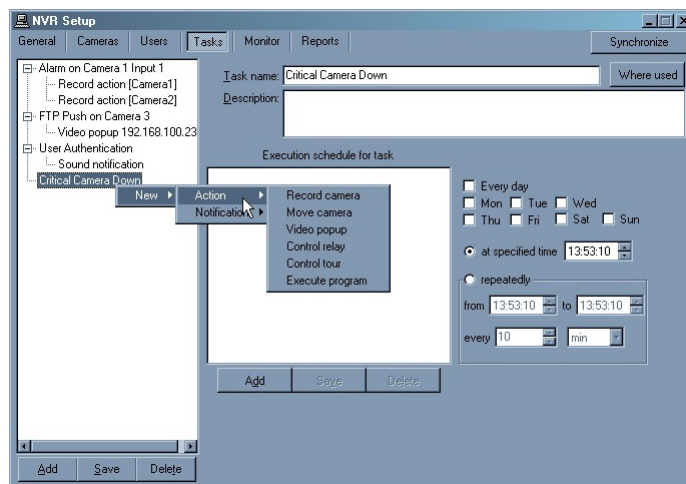


Figure 42: Add an Action to a Task

The following Actions are available for Tasks in the NVR:

- Record Camera – Sends a specified length of video to the Central Archive at a specified quality from a specified camera. Pan/Tilt/Zoom coordinates can be defined for PTZ cameras with the option to return to another position when recording finishes. When triggered by events raised for specific cameras, this action can be configured to dynamically record the camera referred to by the event.
- Move Camera – Defines Pan/Tilt/Zoom coordinates for a specified PTZ camera. This can be a one-way move (defining a single set of coordinates), or one set of coordinates can be defined with a dwell time before the camera is reset to a second set of defined coordinates.

- Video Popup – Opens the Video Popup window of the DETEXI Client on a specified client machine, with a specified camera's live video stream. The DETEXI Client must already be running on the specified client machine.
- Control Relay – Sends commands to a specified relay (or output) of a specified camera. Relays can be turned on, off, or some combination of the two. The configuration and use of camera outputs is out of the scope of this course.
- Control Tour – Controls an existing tour configuration attached to a camera. Tours can be turned on, off, or some combination of the two. The configuration and use of tours is out of the scope of this course.
- Execute Program – Executes an external program on the NVR Server machine, with parameter support.

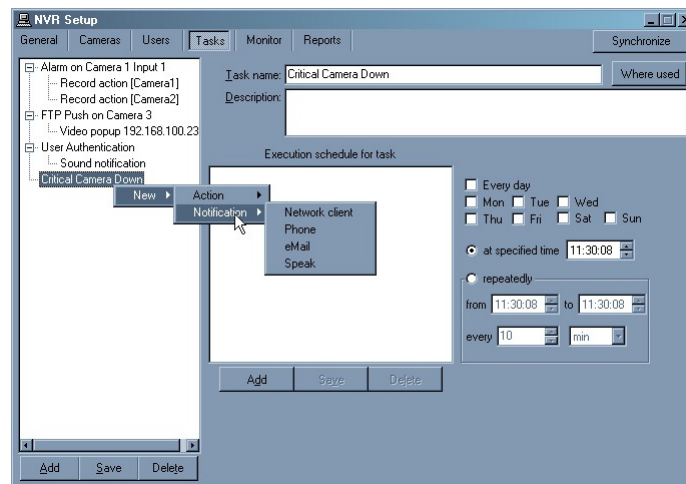


Figure 43: Adding a Notification to a Task

The following Notifications are available for tasks in the NVR:

- Network Client – Sends a notification to a specified DETEXI Client machine in one of the following two forms. The DETEXI Client must already be running on the specified client machine.
 - A text notification, either user-defined or with specific information about the event that triggered it.
 - When appropriate and configured, the Alarm List window listing the latest alarm. In this case the Video Popup window also opens with live video related to the alarm that occurred. Archived video related to the alarm can be opened without searching, and the user can acknowledge the alarm and append notes to the video related to the alarm.


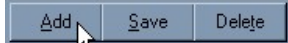
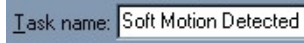
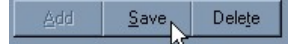
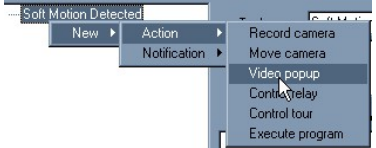

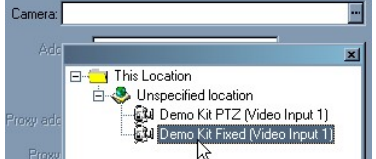
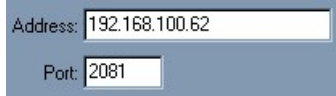
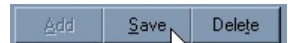
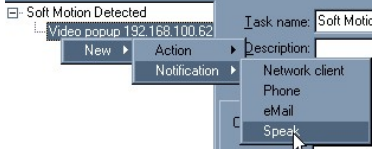
- Phone – Places a call to a specified phone or pager with a user-defined, alarm specific, Text-to-Speech message indicating that an alarm or event has occurred.
- eMail – Sends an email message, either user-defined or specific to the alarm, to one or more specified email addresses. SMS messages to cell phones are also supported.
- Speak – Plays a user-defined or alarm specific notification over the NVR Server machine's local sound card. This alarm can either be a WAV file, or a Text-to-Speech message.


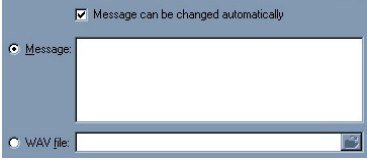
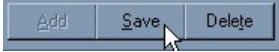
Each of these task items has different configuration settings for customization and definition. Configuration of a few basic task items will be addressed in the following exercise. For setting explanations for task items, refer to the *NVR User Manual*.

Exercise 7.1 – Creating and Configuring Tasks

OBJECTIVES

- Create a Task
- Add a Video Popup item to the Task
- Add a Speak Notification item to the Task

<p>1. If the NVR Setup application is not still running, launch it now. If the application is still running, move to the Cameras Page.</p>	
<p>2. Click the Add button under the Task List to add a new task.</p>	
<p>3. Name the new task Soft Motion Detected.</p>	
<p>4. Click the Save button under the Task List to save the changes.</p>	
<p>5. With the new task selected in the Task List, right-click and choose New → Action → Video Popup.</p>	
<p>6. The right-hand pane will be populated with settings specific to a Video Popup action. Use the  button next to the Camera field to browse for and select the Demo Kit Fixed camera.</p>	
<p>7. Recall the IP Address of the machine you are working on from Exercise 4.2. Assign this for the IP Address for the Video Popup action. Assign the Port to be 2081.</p> <div style="background-color: #f0f0f0; padding: 5px; margin-top: 10px;"> <p>Note:</p> <p>This port can be configured as any unused port on the user's network, as long as the same port is defined as the Alarm Port to Listen setting in the defined client.</p> </div>	
<p>8. Click the Save button under the Task List to save the changes.</p>	
<p>9. While still working in the same task, right-click again and choose New → Notification → Speak.</p>	

<p>10. Leave the Location to play message from blank, to play the message over the local sound card.</p> <p>Note:</p> <p>It is possible to send Speak notifications to the sound cards of other remote NVR Servers rather than playing them locally if desired.</p>	
<p>11. Because we want an alarm-specific message to be played over the sound card, check the Message can be changed automatically checkbox and leave everything else blank.</p> <p>Note:</p> <p>Users may desire to define a generic message as well, which would be used in the event that alarm specific information is not passed to the Task Manager at the time of the alarm.</p>	
<p>12. Click the Save button under the Task List to save the changes.</p>	

Alarms and Events in the NVR

There are many alarms and events that are monitored by, or can occur within the DETEXI NVR system: from monitoring the status of a camera's I/O, to the authentication of users via the client. Each of these events can trigger the tasks discussed in the previous section.

The alarms and events that can be raised in the NVR are as follows:

- 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 [] MB parameter is reached, and the Stop saving option is set, this event is raised. In addition to being an event for tasks, this alarm automatically causes the Recorder service to stop. User intervention is required to restart the service when appropriate resources are available.
- General User Login/Logout – When any user logs in or logs out, this general event is raised with information indicating the user and the action (login or logout).
- Specific User Login – This event indicates that a specific user has logged in. Used instead of – or along with – the General User event, this event allows tasks to be assigned individually to users of interest, and with different actions depending on the user if desired.
- Specific User Logout – This event indicates that a specific user has logged out. Used instead of – or along with – the General User event, this event allows tasks to be assigned individually to users of interest, and with different actions depending on the user if desired.
- Camera Health Status – When communications are lost to a camera this event is raised. A separate event is raised for each camera that has the feature enabled, allowing for camera-specific health monitoring.
- Camera FTP Push – 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 camera. When video is uploaded to the NVR FTP Server, the video is merged into the archives as Alarm Video, and this event is raised.
- Camera Input Alarms – If a camera supports external I/O, the Check Alarm (IO Listener) service can monitor the status of the camera's inputs. This event is raised when a camera's defined input is in an active (non-normal) state. A separate event is raised for each input on each camera that has this feature enabled.

- Soft Motion Alarms – When motion detection is enabled in the Recording Schedule of a camera, an event is raised each time motion is detected on a camera. A separate event is raised for each recording schedule of each camera.

Each individual event can only have one task assigned to it, which is chosen using a drop-down box populated with all available tasks. These configuration fields are located appropriately with other settings of a similar subject. An example of such configuration is shown in Figure 44.

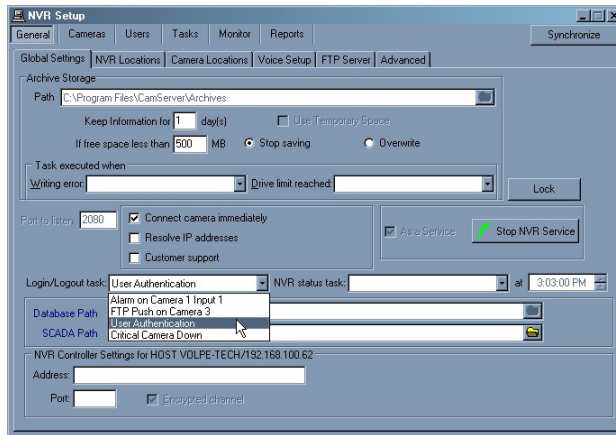


Figure 44: Assigning a Task to an Event

It is out of the scope of this course to address the task assignment location of all events. However, Figure 44 shows both Archive Storage events, as well as the General User Login/Logout event to be located on the Global Settings Tab of the General Page of the NVR Setup application. Otherwise, you can expect to find task assignment for a camera event on the Cameras page, for a user event on the Users page, etc.

A particular event of interest in this course is the Soft Motion Alarm for a camera’s recording schedule. The Task assignment for this event can be found on the Alarm Tab within a recording schedule of interest for a particular camera (on the Recording Tab of the Cameras Page). Motion Detection must be enabled for the selected schedule or the field will be disabled.

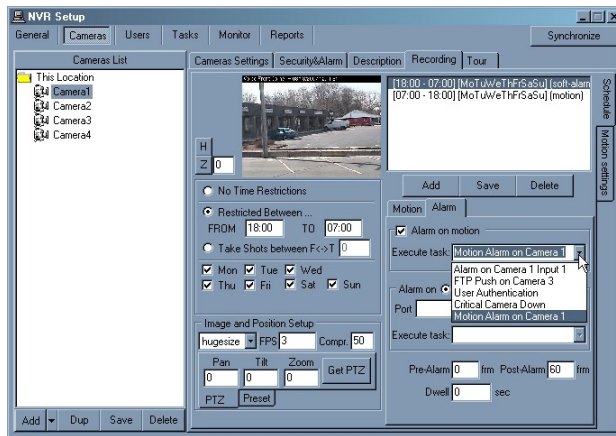


Figure 45: Task Assignment for a Soft Motion Alarm

It is easy for users to keep track of the events that have tasks assigned, and which tasks are assigned to them, using the Task Usage page. This page can be launched from the Tasks Page on the main configuration form of any task, as shown in Figure 46, by clicking the Where Used button. Users can also key CTRL+T with their keyboard from any page or pane in the NVR Setup application to view the Task Usage page.

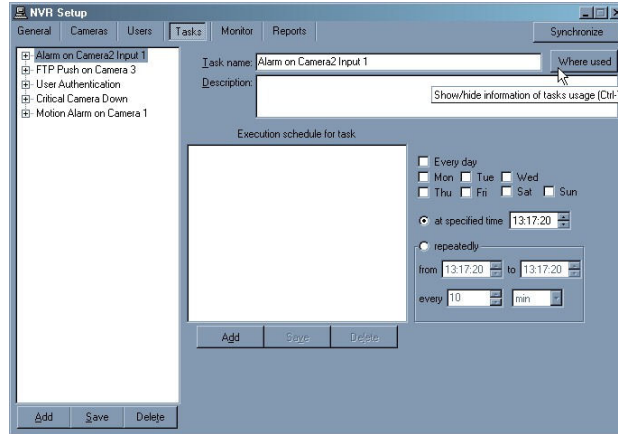


Figure 46: Launching the Task Usage Page

Once in the Task Usage page, selecting each Task in the list on the left will list all events that Task is assigned to on the right. An example is shown in Figure 47.

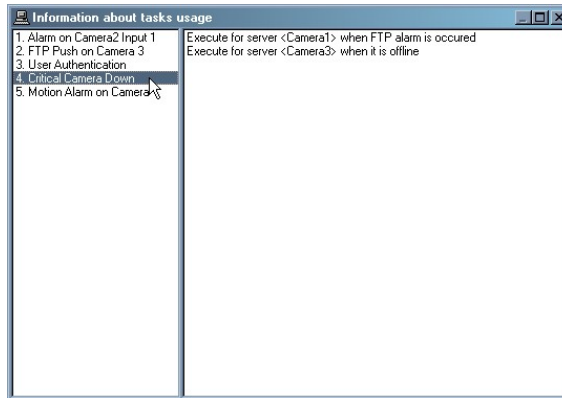

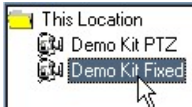


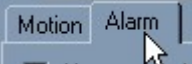










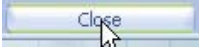





Figure 47: The Task Usage Page

Exercise 7.2 – Assigning a Task to a Soft Motion Alarm

OBJECTIVES

- Enable the Alarm on Motion feature of a recording schedule with Motion Detection
- Assign a task to the Soft Motion Alarm for that recording schedule
- Use the Task Usage page to confirm task configuration
- Test the event-driven task by triggering motion on the camera

<p>1. If the NVR Setup application is not still running, launch it now. If the application is still running, move to the Cameras Page.</p>	
<p>2. Select the Demo Kit Fixed camera in the Camera List at the left.</p>	
<p>3. Move to the Recording Tab of the Cameras Page.</p>	
<p>4. Select the 8AM to 5PM schedule from the Schedules List, which is already configured with motion detection.</p>	
<p>5. Move to the Alarm Sub-Tab of the Recording Tab underneath the Schedules List.</p>	
<p>6. Check the Alarm on motion checkbox to enable the event, and select the new Soft Motion Detected task from the Execute task drop-down box.</p>	
<p>7. Click the Save button under the Schedules List to save the schedule.</p>	
<p>8. The name of the recording schedule will be updated to show that soft-motion alarming has been enabled for this schedule.</p>	
<p>9. Since the NVR Server was left running during configuration, click the Synchronize button to activate all new configurations.</p>	
<p>10. Using your keyboard, key CTRL+T to open the Task Usage window. Select the Soft Motion Detected Task in the left-hand pane to see where it is being used. The right-hand pane should read Execute for server <Demo Kit Fixed> recording soft-alarm for video 1.</p>	
<p>11. Launch the Local DETEXI Client using the DETEXI shortcut on your desktop.</p>	
<p>12. On the Camera List page, click the Settings button to launch the Settings configuration page.</p>	

<p>13. In the upper right-hand corner, set the Alarm Port to Listen to be 2081.</p> <p>Note:</p> <p>This port should be configured to match the port defined in the Video Popup Task configured in the NVR in Exercise 7.1.</p>	
<p>14. Close the Settings page to return to the Camera List of the client.</p>	
<p>15. Click the Minimize button on the Camera List page, to minimize the client to run in background mode.</p>	
<p>16. The client will close, but will still be running in the background. The  icon will appear in your System Tool Tray, which can be double-clicked to launch the client's interface again when necessary.</p>	
<p>17. Create some motion in the view of the Demo Kit Fixed camera to test the soft-motion alarm. When the NVR Recorder detects the motion your task should be executed, causing the local client's Video Popup window to launch, with live video from the Demo Kit Fixed camera. You should also hear a notification over your computer's sound card, indicating that there has been an alarm on the Demo Kit Fixed camera.</p>	
<p>18. Close the Video Popup, restore the client using the  icon in the System Tool Tray, and Exit the client when finished.</p>	