

User
Manual

BusSecure WaveReader 3.1



GE Security



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For the latest product specifications, visit GE Security online at www.GE-Security.com or contact your GE Security sales representative.

For technical support before and after installation, call 800-469-1676.

Technical support is available 24 hours a day, 7 days a week.

Call:	Tech Support	800-469-1676 (6 A.M. – 5 P.M. PST Monday through Friday)
	Tech Support	541-740-3589 (all other times)
	Main	800-343-3358 or 541-754-9133
Fax:	Tech Support	541-752-9096 (available 24 hours a day)
	Main	541-754-7162
Web:	www.ge-security.com	

0150-0266B / March 2004

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

You are cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



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BEFORE YOU BEGIN

Read these instructions before installing or operating this product.

This manual provides installation and operation information. To use this document, you must have the following minimum qualifications:

- A basic knowledge of CCTV systems and components
- A basic knowledge of electrical wiring and low-voltage electrical hookups

Intended use

Use this product only for the purpose for which it was designed; refer to the product specification and user documentation.

Customer Support

For assistance in installing, operating, maintaining, and troubleshooting this product, refer to this document and any other documentation provided. If you still have questions, please contact GE Security Technical Support and Sales:

GE Interlogix, Inc.

Call: 800-469-1676

Fax: 541-752-9096

You should be at the equipment and ready with details before calling Technical Support.

Conventions Used in this Manual

Boldface or button icons highlight command entries. The following **CAUTION**, and **Note** statements identify potential hazards that can occur if the equipment is handled improperly:



Caution messages alert the user to a specific procedure which if not followed correctly, could cause damage to the equipment and/or serious injury.



Notes contain important information about a product, process, or procedure. We recommend that you read this manual thoroughly before using the BusSecure WaveReader Software.

1 OVERVIEW

1.1 ABOUT THIS MANUAL

This manual is intended to provide the user with the information necessary to successfully install and use the BusSecure WaveReader software. It also provides the user with a technical reference for performing non-routine tasks. The manual is set up in sections to make the information easy to find.

Section One is an introduction, intended to familiarize the user with the concept of the Digital Video Recorder (DVR). In addition, it introduces the BusSecure WaveReader software.

Section Two is a step-by-step guide through the **Installation** and **Setup** of the BusSecure WaveReader software. In addition, basic operations are covered such as connecting to the Docking Station or remote vehicle, and retrieving previously recorded video images.

Section Three is the reference section and is intended to provide the user with a thorough description of each screen, menu, and operational details.

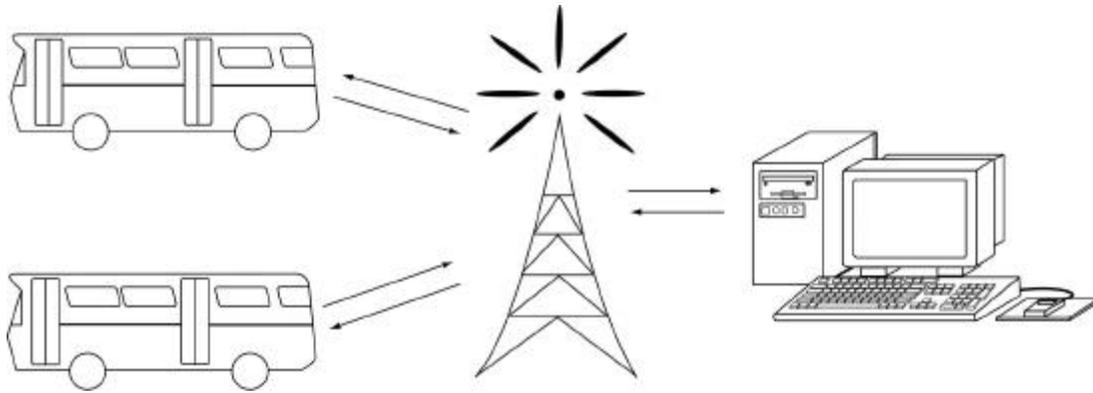
Section Four provides information about using the WaveStudio Image Editor.

Section Five provides information about using the QuickWave CD Writer.

1.2 INTRODUCTION

GE Security's BusSecure is a digital video capture/storage/transmission system that is designed for vehicle-based platforms. The typical BusSecure system consists of CCTV cameras, a removable digital video recorder (DVR), a Central Station PC with Docking Station, and an optional cellular telephone transmission system. The video images are captured at predetermined intervals and/or activated by specific triggers, such as a panic button or an inertia switch.

The images, which are stored on the removable DVR, can be downloaded via the Docking Station, Ethernet connection or transmitted to a central station through the use of digital cellular communications. The system may also be programmed to automatically capture and send images to a central station when a previously specified device is activated.



Digital Video Recorder Storage Device (DVR)

The DVR is comprised of standard removable hard drives run on an embedded platform. It has been ruggedized to withstand the vibrations and shock associated with typical transit environments.

The DVR system is capable of supporting up to six user-defined alarm or trigger inputs and two outputs. The most common use for such inputs are driver panic buttons and impact sensors. All images generated by these inputs are “tagged” with a time and date stamp in order for the critical information to be easily found and retrieved.

The DVR recognizes when the maximum available storage capacity for surveillance images has been reached and automatically purges the oldest image data in sequence, making room for additional data without operator intervention. Images that have been tagged due to activation of an alarm input are protected from being overwritten for longer periods of time. The times are keypad programmable.

Retrieval and Viewing of Images

The Central Station performs two primary functions. By using the WaveReader software, an operator may access and review previously recorded images generated by alarm input activation and view routine surveillance images. Users who employ the digital cellular transmission option will also be able to receive incoming alarms and images from a vehicle and are able to call a vehicle to receive “current” images.

This manual is provided for operators of the BusSecure WaveReader software. It is integrated into a standard PC running on a Windows® 98/NT/ME/2000/XP platform. To review the stored image data, the removable DVR is inserted into the docking station, and using the WaveReader software, images can be retrieved and reviewed. Data can then be downloaded locally and/or remotely via ethernet, or transferred to alternative mass media for long-term storage.

1.3 PRODUCT DESCRIPTION

BusSecure WaveReader provides the user the ability to view video via ethernet or modem directly from:

- Digital Video Recorders (DVR).
- Digital Video Multiplexer Recorders (DVMR^e and DVMR^e Triplex).
- Digital Single Channel Recorders (DSR).
- Digital Video Storage (DVS) devices.

WaveReader also allows the user to view video that has been archived onto a CD-R, or recorded directly onto the hard drive of a PC.

1.4 FEATURES

- Main window for viewing live or recorded video.
- Disk analysis window provides graphical overview of recorded data on the hard drive.
- Search Screen window for searching and displaying data from a specific time and date.
- Event Search window for searching and displaying recorded event data.
- Video can be downloaded and saved locally using the mvb or 60d file format.
- Images can be captured, printed, and exported as a bitmap or JPEG file.
- Images can be enhanced using WaveStudio, as well as while viewing in real time.
- Extensive Security Features.
- QuickWave evidence capture CD

1.5 HARDWARE SYSTEM REQUIREMENTS

The following hardware system requirements are needed before software installation.

Windows® 98/NT/ME/2000/XP are registered trademarks of Microsoft Corporation.

Hardware	Specification
CPU	Pentium 400 MHz or faster
RAM	128MB minimum
Hard Disk Drive	32MB free hard drive space minimum
Monitor	SVGA, 1024 x 768, 24 bit color.
Operating System	Windows® 98 Release 2/NT/ME/2000/XP

2 GETTING STARTED

2.1 OPERATOR INFORMATION

The purpose of this section is to provide the operator with step-by-step instructions to install and run BusSecure WaveReader Software. This section covers the basic steps to retrieve, view, print and manipulate previously recorded images. Recorded images are accessed through the removable DVR and the docking station. Recorded images consist of either recorded surveillance images, or recorded alarm-activated events.

2.2 INSTALLATION

BusSecure WaveReader software must be installed in order to view recorded surveillance images, alarm-activated events, and initiate remote sessions. Use the following steps to install the software.

2.2.1 INSTALLING FROM CD-ROM

To install the WaveReader on your hard disk from a CD:

1. Place the WaveReader CD in the CD-ROM drive of the Central Station PC.
2. Follow the instructions for installation as they appear.



If Autorun is not enabled on your PC, choose Run from the Start Menu, then type d:\setup.exe (where “d” is the drive letter of your CD-ROM) and click OK. Follow the instructions as they appear on your screen.

2.3 STARTING THE BUSSECURE WAVEREADER SOFTWARE

The BusSecure WaveReader software allows users to view and download previously recorded images from the DVR. The WaveReader software must be running at all times in order to receive and process incoming alarms. The BusSecure Central Station PC should be dedicated only to BusSecure applications.

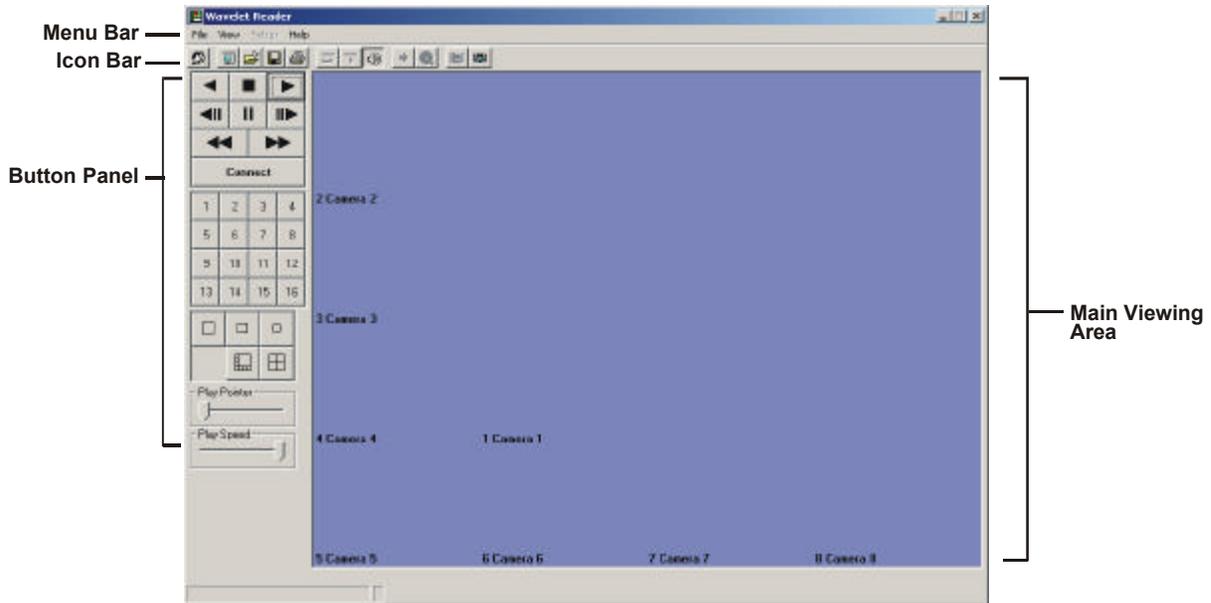


The Central Station PC and all vehicle mounted DVR(s) must be on the same logical network and subnet, as well as maintain their own unique IP address. The IP address of the DVR(s) is entered during DVR configuration, please refer to the hardware manual entitled **BusSecure DVR User Manual**. Contact your System Administrator for more information on the Central Station PC's IP address and network settings.

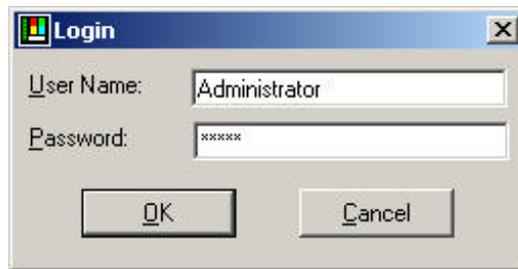
To start the BusSecure WaveReader program:

Double-click on the WaveReader Desktop icon or choose **Programs** from the **Start** menu and then select **WaveReader**. The Main window of the WaveReader program will appear.



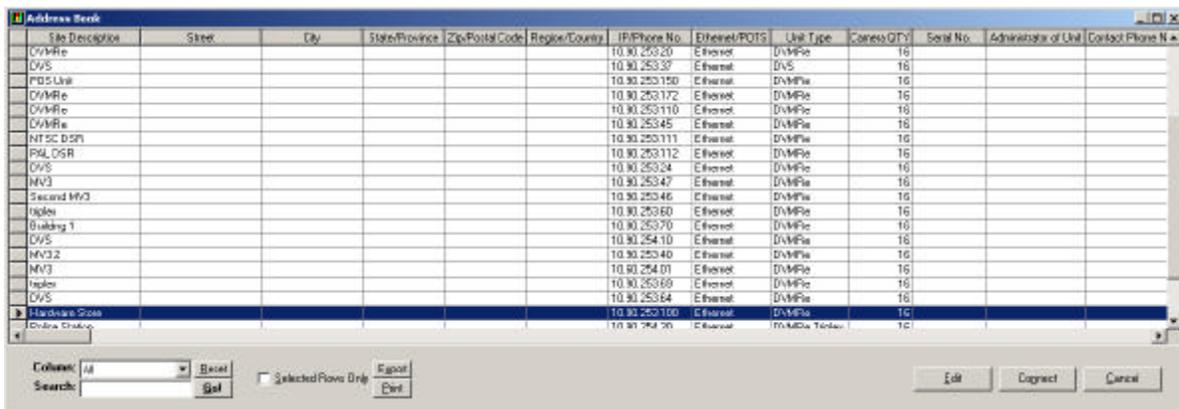


From the Button Bar, click on the **Connect** button or click on the **Connect icon** on the icon bar. The Login screen will appear. The default Administrator password is 12345.



It is recommended that this password be changed after installation is complete. As a security measure, store the password in the administrator's secure files or in a limited access area.

After a successful login the Setup menu becomes available in the Menu bar and the **Address Book** will appear.



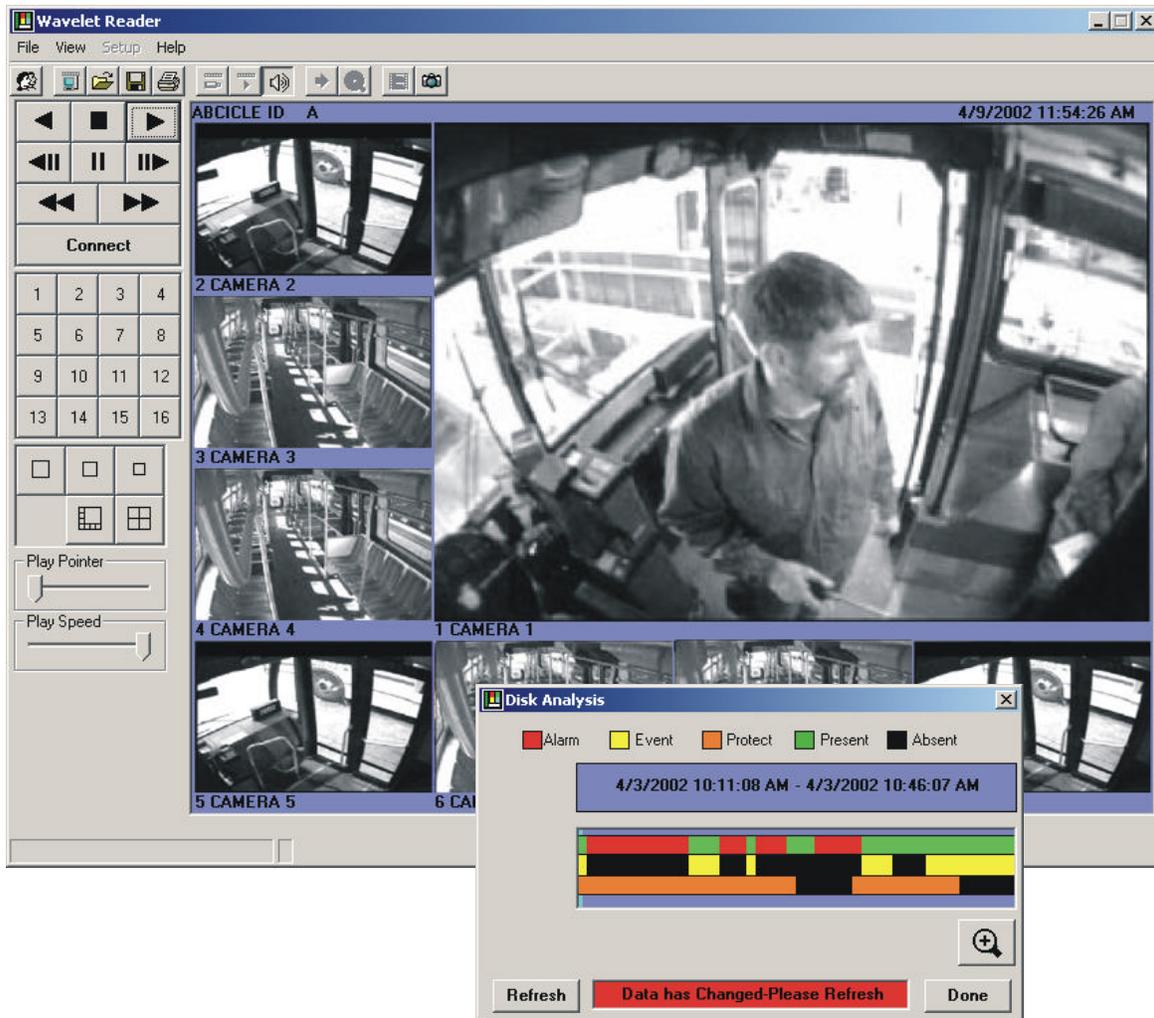
The Address Book is a comprehensive relational database consisting of the following fields:

- Site Description
- Street Address
- City
- State/Province
- Zip/Postal Code
- Region/Country
- IP Address/Phone Number
- Ethernet/POTS (Connection type)
- Unit Type (DSR, DVMRe, etc.)
- Camera Quantity
- Serial Number
- Administrator of Unit
- Contact Phone Number
- Notes (4 fields)

2.3.1 CONNECTING TO A SITE/DEVICE VIA THE ADDRESS BOOK

Highlight a selection on the Address Book and double-click or click on the **Connect** button. WaveReader will attempt to connect to the device/site using the parameters specified in the database. See **Site Administration** for information on creating and editing the Address Book. If WaveReader cannot connect to the device/site it will display a timeout message. Verify that the parameters in the Address Book are correct. If the parameters are correct verify that the PC can connect to the Internet or to another ethernet connected device.

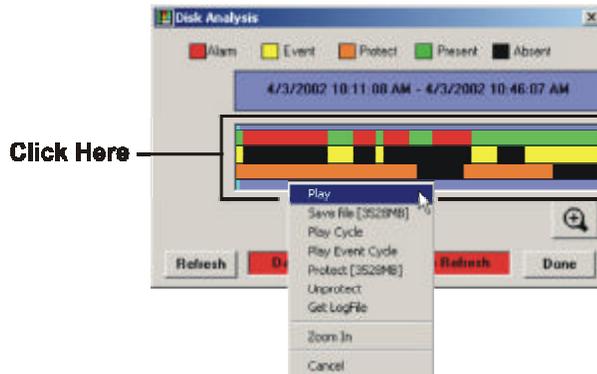
Once connected to the selected DVR, a disk analysis screen will appear and playback of video will begin.



2.4 RETRIEVING VIDEO FROM A BUSSECURE DVR

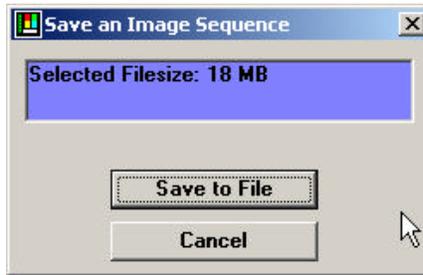
Clicking the left mouse button in the Disk Analysis screen displays a Pop-Up menu with the following commands:

- Play
- Save File (with selected file size)
- Play Cycle
- Play Event Cycle
- Protect (with selected file size)
- Unprotect
- Get Log File
- Zoom In
- Cancel

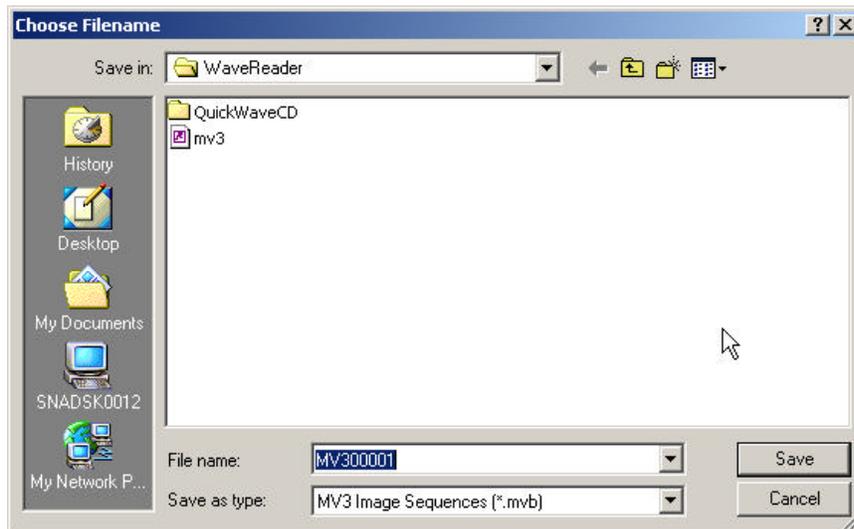


For Details on the Disk Analysis Screen, see Section 3.4.

To select previously recorded video click and drag (with the left mouse button) over the data bars. As you are dragging the mouse two red horizontal bars are displayed that show the start and end of the selection. Use the magnifying glass to get a more detailed selection. The Pop-Up menu will display the estimated file size of the selected video. Click on the **Save File** command to bring up the **Save an Image Sequence** dialog box.



Click on the **Save to File** button and the **Choose Filename** dialog box will appear.



Select from two file formats .mvb or .60d.

- 60d: Use this format for large video clips that have to be downloaded at the fastest speed possible or writing to CD via QuickWave.
- mvb: Use this format for smaller sized video clips. Not for use with QuickWave.

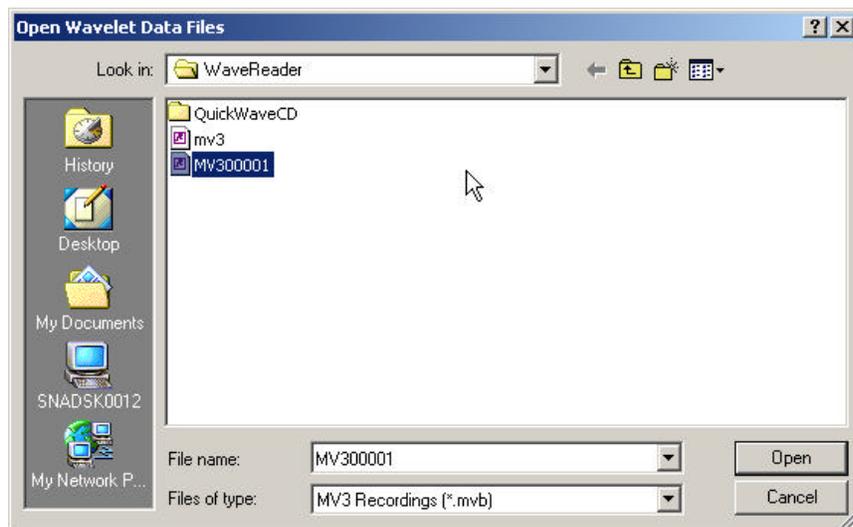
Type in a pertinent filename and click the **Save** button.

2.5 OPENING A SAVED VIDEO FILE

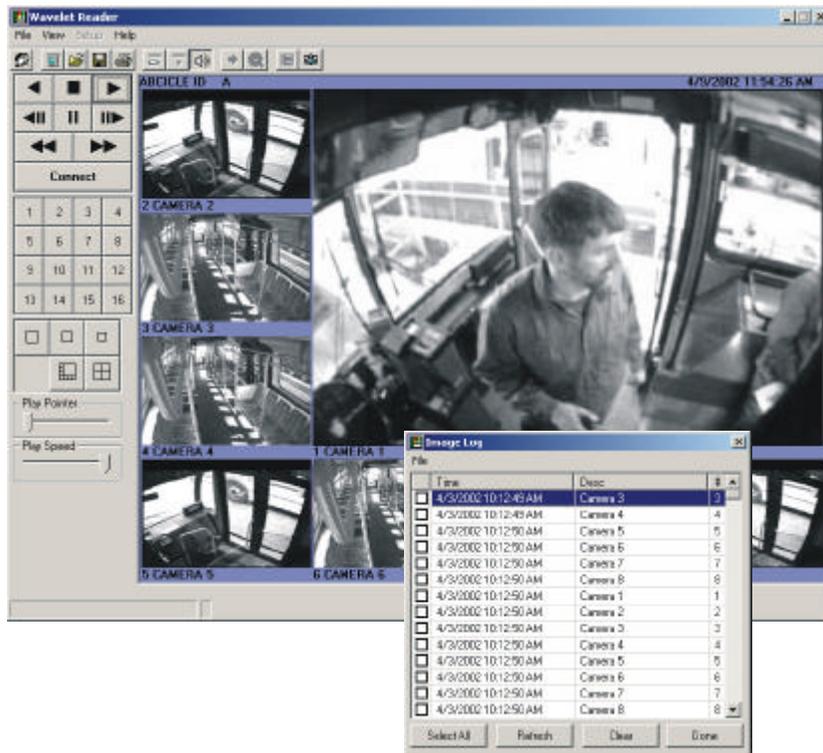
Click on **File**, then **Open** on the Menu Bar or click the **File Open** icon on the Icon Bar. Select or navigate to the file from the dialog box, and then click the **Open** button.

Select from two file formats .mvb or .60d.

- 60d: This format file does not display the image log and printing is not possible.
- mvb: This format file does display the image log and printing is an option.



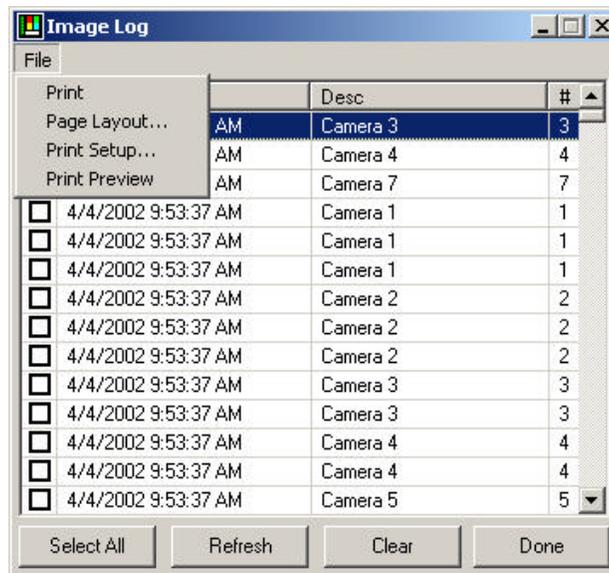
The selected file will open and display in the Main Viewing area. The Image Log window will also appear (for .60d files only).



The Image Log window contains Time Stamp and Camera number information associated with the recorded video. Click on an entry in the Image Log to display the video image. Multiple images may be selected by clicking on additional entries. Shift-click to select whole blocks of entries. Once selected the video images may be played by clicking on the Play Forward button or printed using the Image Log Menu. For details on the Image Log see section 3.12.

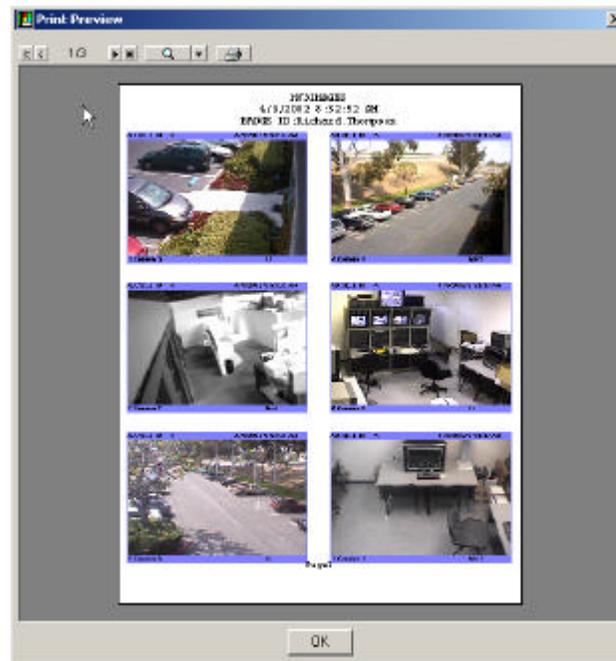
2.5.1 PRINTING FROM THE IMAGE LOG WINDOW

Once selections have been made in the Image Log window, click on the **File** Menu on the Menu Bar (in the Image Log window).



1. Select the **Page Layout**: Choose **Large** or **Small** Images. Large Images are printed 1 per page. Small Images are printed 6 per page.

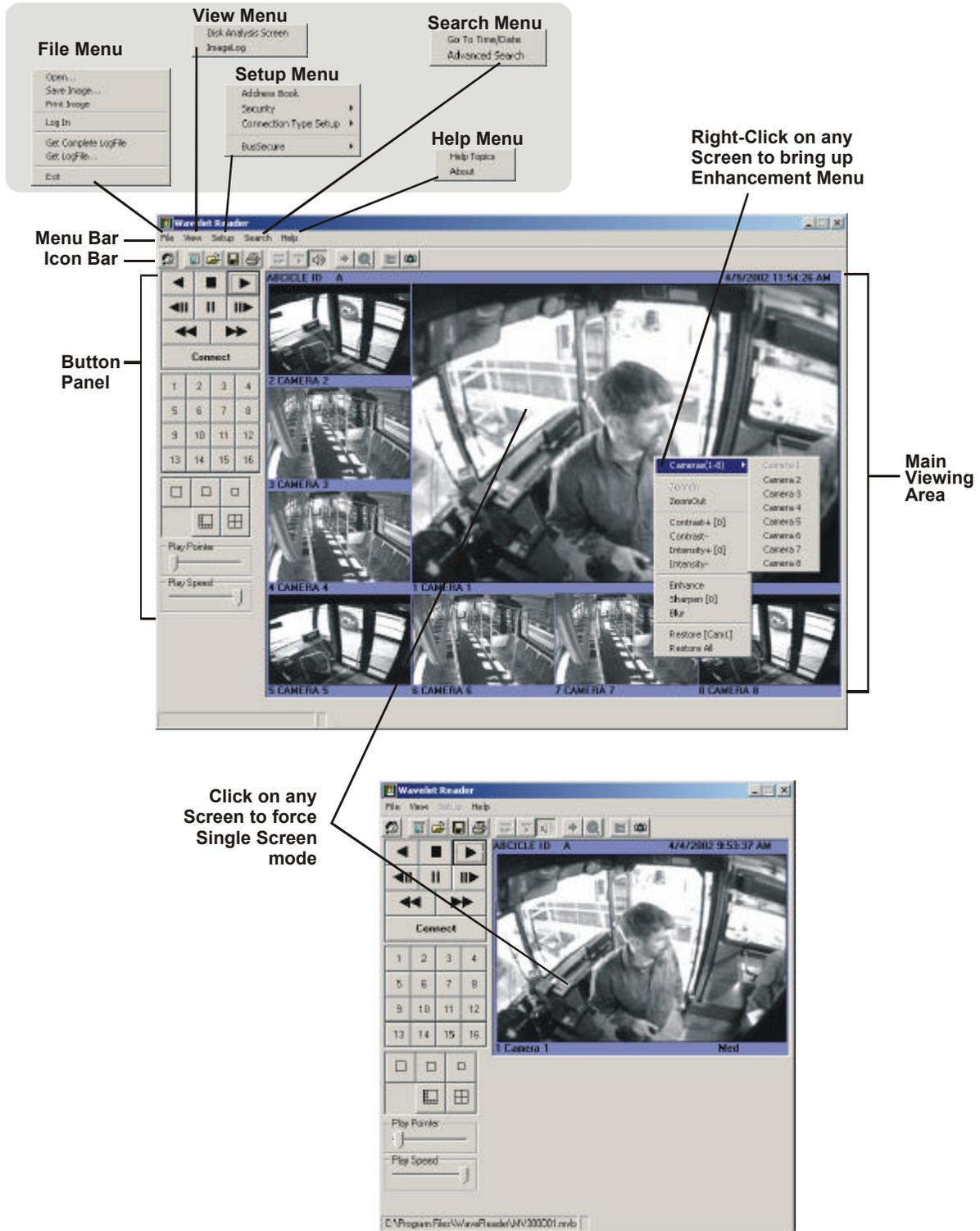
2. Select **Print Preview** to preview the selected images and page layout. Print Preview can display a maximum of 150 images.



3. Select **Print Setup** to select a printer, or **Print** to use the system's default printer.

3 BUSSECURE WAVEREADER REFERENCE

3.1 WAVEREADER MAIN WINDOW OVERVIEW



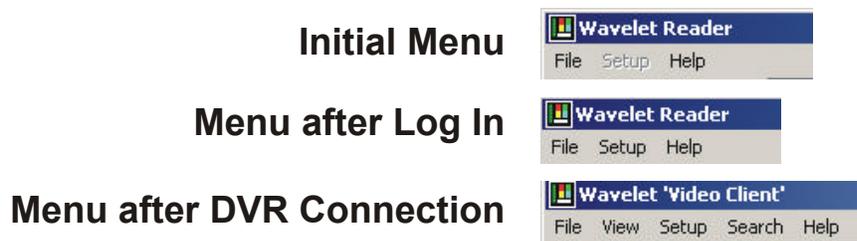
3.2 THE MAIN PROGRAM WINDOW

The Main program window consists of five areas:

- **The Menu Bar:** At the top of the window.
- **The Icon Bar:** Underneath the Menu Bar.
- **The Main Viewing Area:** The large blue area.
- **The Status Bar:** At the bottom of the window.
- **The Button Panel:** The left side of the window.
- **The Text Data Display Box:** Located under the Main Viewing Area (Not Shown).

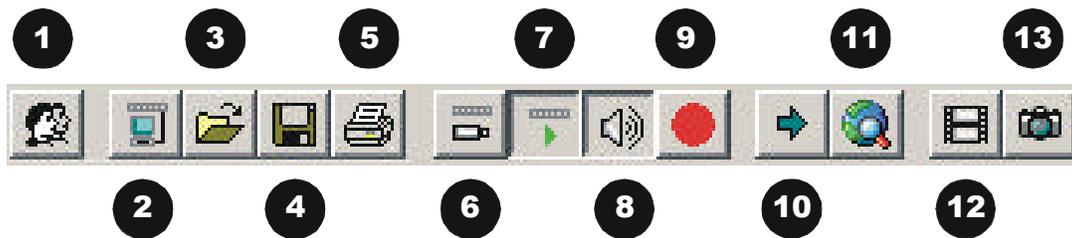
3.2.1 THE MENU BAR

The Menu Bar provides access to the programs functions and parameters, as well as access to files. The Menu Bar changes its appearance to reflect the program mode that it is operating in.



3.2.2 THE ICON BAR

The Icon Bar provides one-click access to program functions and parameters, as well as access to files.



- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Log In / Log Off 2. Connect / Disconnect 3. Open File 4. Save Image 5. Print Image 6. View Live 7. View Playback | <ol style="list-style-type: none"> 8. Audio On / Mute 9. Start / Stop Recording 10. Go To Time / Date 11. Advanced Search 12. Start WaveStudio 13. Snapshot |
|---|---|

3.2.3 THE MAIN VIEWING AREA

Pictures are displayed in this area in Multi-Camera, and Single-Camera formats. Picture display order is according to the information encoded by the unit used to create the original video data file.

Choose from the following displays:

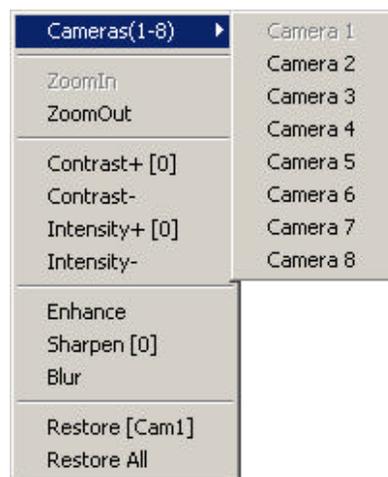
- 8-way Multiscreen Display (1 large and 7 smaller images)
- 4-way Display
- Single Camera Large
- Single Camera Medium
- Single Camera Small

3.2.3.1 ENHANCEMENT POP-UP MENU

Right-click on any single camera display and the Image Control Pop-up menu appears. Select any command to perform the selected action on the current image. Once the image enhancements are applied, doing a "restore" will not display the original image. This "restore" will be applied to future images from that camera. The enhancements only affect the way the image is viewed and do not affect the actual image itself.

The following video enhancements are available on this menu:

- Zoom In and Zoom Out.
- Contrast
- Intensity
- Enhance
- Sharpen
- Blur
- Restore



The option to **Mute** the Audio if applicable is also featured in this menu.

3.2.4 THE STATUS BAR

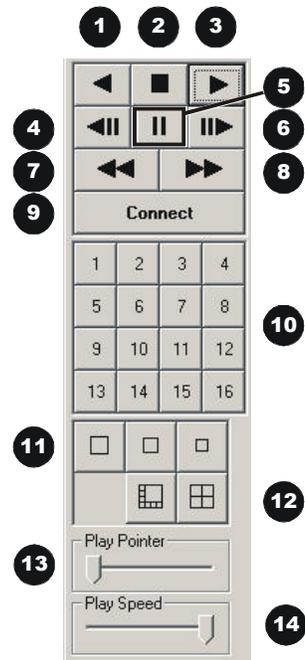
The Status Bar displays messages and current connection status information. If the user is viewing data recorded as files on a CD-ROM or stored on the user's PC, Path Name information is displayed on the status bar.

Example of the Status Bar showing the path and name of the file currently being displayed.



3.2.5 THE BUTTON PANEL

1. **Play Backward button:** Click on this button to playback video in reverse.
2. **Stop button:** Click on this button to halt all playback operations. The Play Pointer Slider Bar moves to the start of data.
3. **Play Forward button:** Click on this button to playback video.
4. **Single Frame Rewind button:** Click on this button to rewind the video a single frame.
5. **Pause button:** Pauses playback until the Pause button is pressed again. Clicking any of the buttons, except Stop will also resume playback. The Play Pointer slider bar stays at the current position while paused.
6. **Single Frame Advance button:** Click on this button to advance the video a single frame.
7. **Rewind button:** Click on this button to perform high-speed reverse playback.
8. **Fast Forward button:** Click on this button to perform high-speed playback.
9. **Connect button:** Click on this button to display the address book (after a successful login).



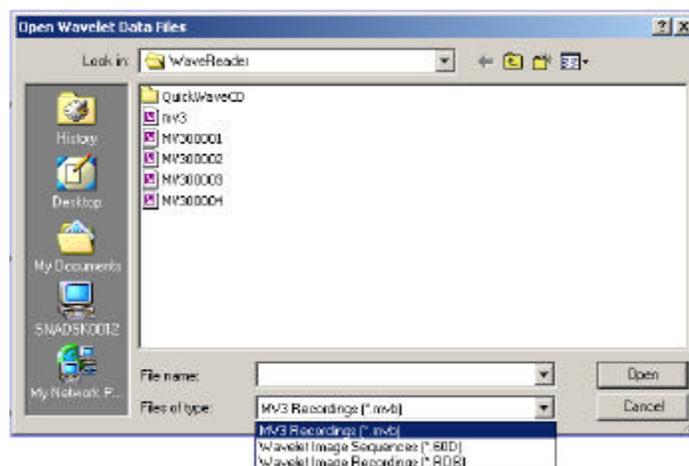
10. **Number buttons:** Press any of these buttons to call up individual cameras for display. When connected to a DVR buttons 9-16 will be disabled.
11. **Single Camera Display Size:** Choose from Small, Medium, or Large.
12. **8-way and 4-way Multiscreen button:** Choose from a Large 4-way or Large 16-way display.
13. **Play Pointer Slider Bar:** The Play Pointer slider bar advances to the right to indicate the playback position on the disk. The user can drag the bar to navigate forward or backward.
14. **Play Speed Slider bar:** Controls the video playback speed. The default position is to the far right and selects the fastest playback speed. Sliding the bar to the far left will set the playback speed to approximately one picture per second.

3.3 THE FILE MENU

3.3.1 OPEN

From the Menu Bar, click **File**, then click **Open** or click on the **File Open** icon on the Icon Bar. The Open Wavelet Data Files window will appear (depending on the operating system, some windows may differ from the one shown here).

1. Select the Drive and the Directory (normally the WaveReader directory) that contains the video files archived from the archiving device.
2. Select the Filename and click the Open button. The default file type is the .mvs file.



.mvb is the BusSecure proprietary native file type. These files contain video, audio, and associated data information.

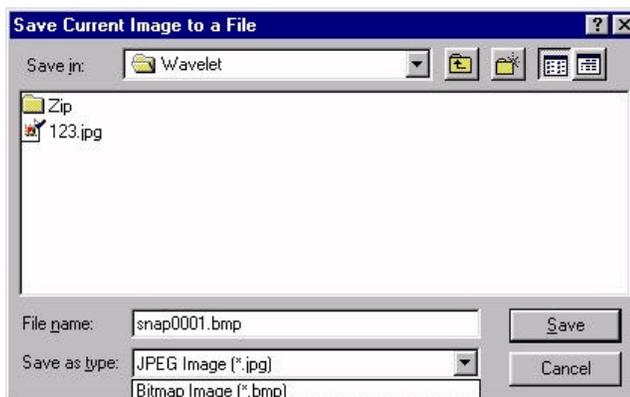
.60d is a Wavelet video clip in a proprietary data format. Files of this format are created by other GE Security digital recorder products.

.RDB File is a collection of wavelet images in a database. Files of this format are created by other GE Security digital recorder products.

3.3.2 SAVE IMAGE

From the Menu Bar, click **File**, then click **Save** or click on the **Save File** icon on the Icon Bar. The following menu will appear.

The benefit to this method is that snapshots can be saved with a more appropriate file name that better describes the picture's content rather than letting the software automatically assign a numeric sequence file name.



The disadvantage to using this method is that playback operations continue while the user is interacting with the dialog box and specifying the file name. If the user misses seeing portions of the video, it will be necessary to replay those sections again so that they may be viewed without further distractions.

3.3.3 PRINT IMAGE

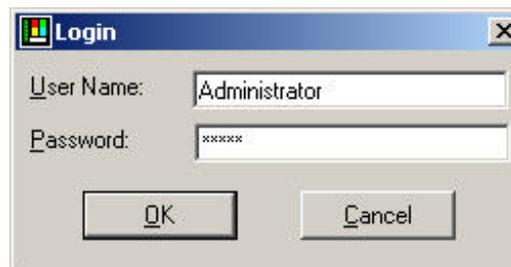
From the Menu Bar click on **File**, and then **Print Image** or click on the **Print Image** icon on the Icon Bar. The Print Image command allows the user to print whatever is displayed in the Main Viewing area. Better control over printing is achieved by saving video locally and printing through the Image Log. See Image Log in section 3.14.

3.3.4 LOG IN

From the Menu Bar click on **File**, then **Log In** or click on the **Log In** icon on the Icon Bar. The Login screen will appear. The default Administrator password is 12345.

It is recommended that this password be changed after installation is complete. As a security measure, store the password in the administrator's secure files or in a limited access area.

After a successful login, the Setup menu becomes available in the Main Menu bar.



3.3.5 GET COMPLETE LOG FILE

From the Menu Bar click on **File**, then **Get Complete Log File**. This command retrieves a file used to assess the condition of the DVR. Only use this command if requested by GE Security Technical Support.

3.3.6 GET LOG FILE

From the Menu Bar click on **File**, then **Get Log File**. This command opens a dialog box in which you can specify a start and stop date range for the log file.

3.3.7 EXIT

From the Menu Bar click on **File**, then **Exit**. This command terminates the BusSecure WaveReader program and closes all associated windows.

3.4 THE VIEW MENU

The View menu is not seen when the program first starts. It appears only after establishing a Normal Connection to a unit on the network, local Ethernet connection, or after opening a Wavelet file with an associated header file located in the same directory. The View menu appears between File and Setup menus.

The following commands are available in the View menu:

- **Disk Analysis Screen:** This command displays the Disk Analysis screen.
- **Image Log:** This command displays the Image Log screen.

3.4.1 THE DISK ANALYSIS SCREEN

The recording dates and times of the file appear above the horizontal bars.

The light blue vertical marker indicates the current play position within the file.

Horizontal color bars indicate the following:

Top Row:

- **Green:** Standard Video
- **Red:** Alarm Mode

Middle Row:

- **Yellow:** Events
- **Black:** Not in Event

Bottom Row:

- **Orange:** Protected or Locked areas
- **Black:** Not Protected

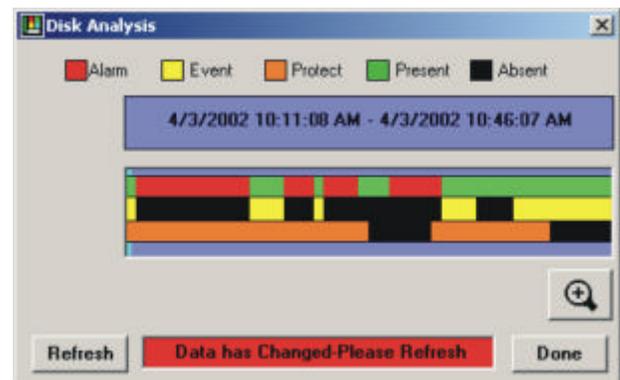
Vertical Color cursors indicate the following:

- **Light Blue:** Play indicator, positioned by progress slider bar.
- **Red:** Left and right markers to assist with defining boundaries for data retrieval, etc. Click and Drag to the right to place the red cursors in the desired position.

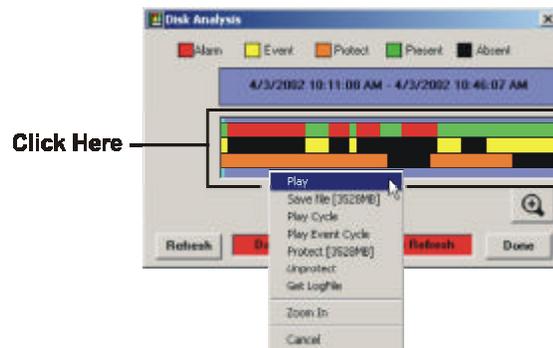
The **Date and Time** of the data under the cursor appears near the top of the Disk Analysis Screen. If a range is selected, the start and end, time and date of the selected region will be shown.

Zoom In and Out using the **Magnifying Glass**, or follow the prompts after clicking on the data bars.

Clicking the left mouse button in the Disk Analysis screen on the data bars displays a Pop-Up menu with the following commands:



- Play
- Save File (with selected file size)
- Play Cycle
- Play Event Cycle
- Protect (with selected file size)
- Unprotect
- Get Log File
- Zoom In
- Cancel



3.4.2 THE IMAGE LOG

The Image Log will only appear when an .mvb file is opened.

The Image Log window contains Time Stamp and Camera number information associated with the recorded video.

Click on an entry in the Image Log to display the video image. Multiple images may be selected by clicking on additional entries. Shift-click to select whole blocks of records. Once selected the video images may be played by clicking on the Play Forward button or printed using the Image Log Menu.

(“Selected” records are records in the image log that have the check box checked)

If no records are selected, all images will be played in a cyclic manner in the multi screen mode. In the single screen mode, only images that belong to the selected camera will be played

If records are selected, only the selection will be played in a cyclic manner. In the single screen mode, only images (from the selection) that belong to the selected camera will be played

Clicking on a record in the log, will cause only that image to be displayed (Not useful when in “Play” mode)

If audio is enabled, images will be dropped to allow for synchronized playback (in all modes)

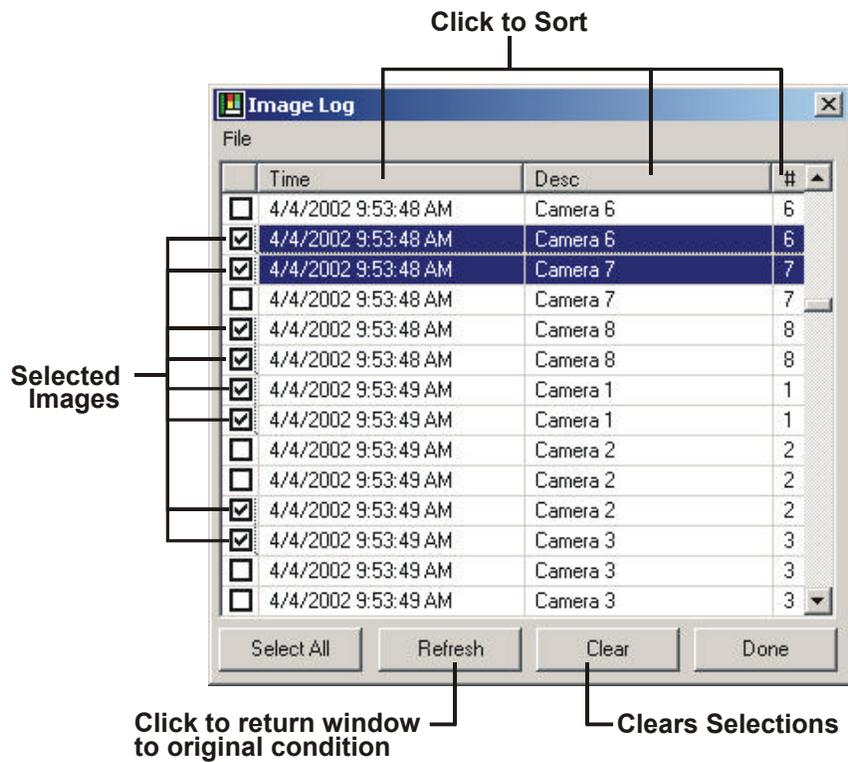
Audio is automatically disabled if records are selected

In the “play” mode, the highlighter bar will indicate the current record that is being displayed

The slider bar on the wave reader screen can be used to set the “Start” position for playing.

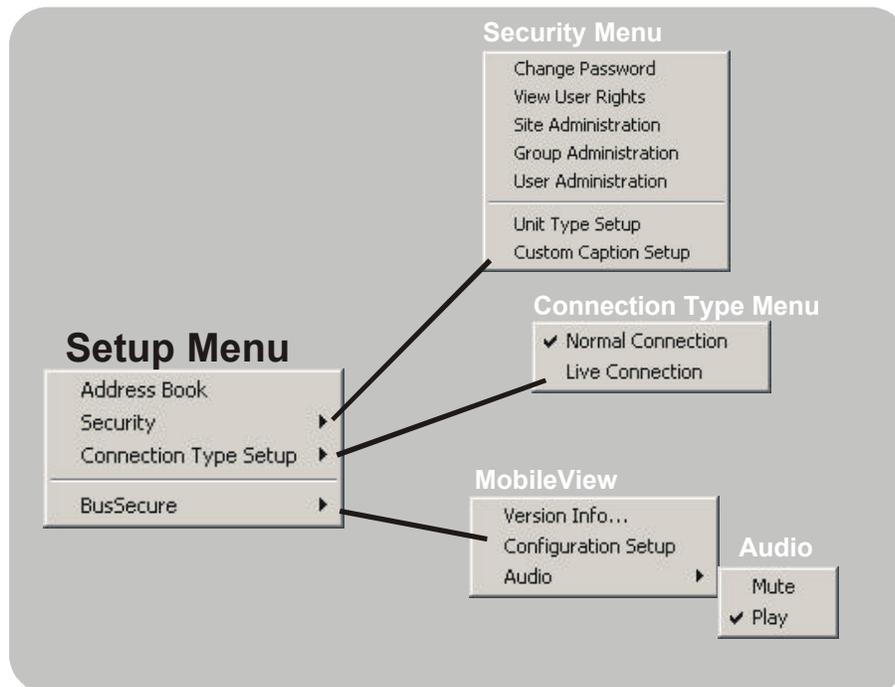
3.4.3 WAYS TO SELECT IMAGES

- Left button Click, CTRL+ Left button Click - will cause current record to be added to selection.
- Drag selection, Shift + Click - used to select a block of records.



3.5 THE SETUP MENU

The Setup menu is not enabled when the program first starts. It is enabled only after a successful login.



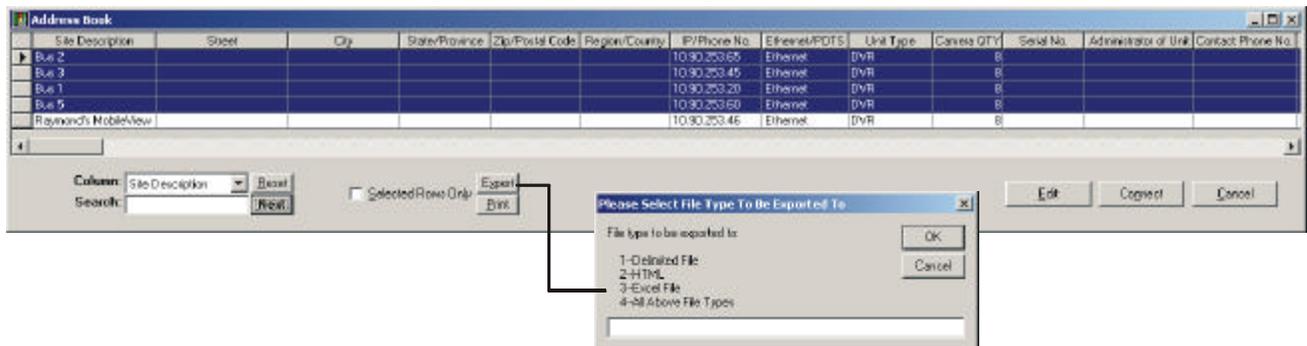
The following menus are disabled once a connection is established between WaveReader and a DVR:

- The Address Book
- Connection Type Setup
- Security
- BusSecure Configuration Setup

3.5.1 THE ADDRESS BOOK

The Address Book is a comprehensive relational database consisting of the following fields:

- Site Description
- Street Address
- City
- State/Province
- Zip/Postal Code
- Region/Country
- IP Address/Phone Number
- Ethernet/POTS (Connection type)
- Unit Type (DSR, DVMRe, etc.)
- Camera Quantity
- Serial Number
- Administrator of Unit
- Contact Phone Number
- Notes (4 fields)



The lower portion of the Address Book contains groups of command buttons. See illustration above.

Use the **Column/ Search** fields to perform searches by category and keyword.

Use the **Export** button to send the Address Book data into one of or all the following filetypes:

- A Delimited File
- An HTML File
- An Excel File

Use the **Print** button to send the Address Book data to the default printer in a spreadsheet-like format.

3.5.1.1 CONNECTING TO A SITE/DEVICE VIA THE ADDRESS BOOK

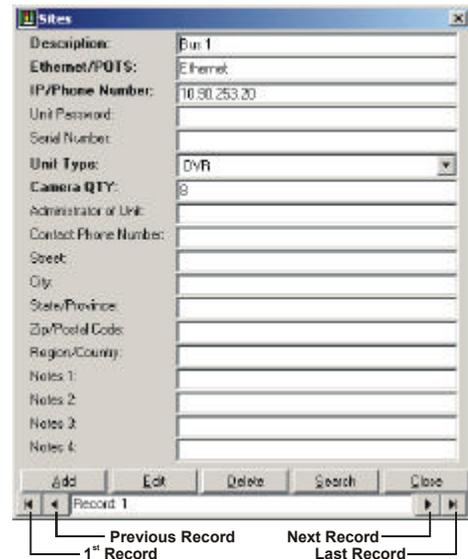
Highlight a selection on the Address Book and double-click or click on the **Connect** button. WaveReader will attempt to connect to the device/site using the parameters specified in the database. See **Site Administration** for information on creating and editing the Address Book. If WaveReader cannot connect to the device/site it will display a timeout message. Verify that the parameters in the Address Book are correct. If the parameters are correct verify that the PC can connect to the Internet or to another ethernet connected device.

3.5.1.2 EDITING THE ADDRESS BOOK

To edit the Address Book, click on the **Edit** button. The Site edit window will appear. This window allows the user to:

- **Add** new device/site information. Clicking on Add also provides the option of importing an Address Book that has been saved as a .lst file from a previous version of WaveReader
- **Edit** existing records.
- **Delete** existing records.
- **Search** through current records by the Site Description, IP/Phone Number, Street, City, State/Province, Zip/Postal Code, or Region/Country fields.

The required fields in this dialog box are **bolded**.



3.6 THE SECURITY MENUS

3.6.1 SECURITY SHELL OVERVIEW

The Security Shell is designed to provide controlled access to multiple Digital Recorder units by multiple users. The following definitions are used in the discussion below:

- **User:** A person that uses the WaveReader to review data stored on a Digital Video Recorder (DVR).
- **Group:** A collection of Users that have specific access rights to a specific list of Sites.
- **Site:** A specific Digital recorder with a unique IP address.

Users are assigned to specific Groups. Any number of Groups can be defined. Every user can only belong to one Group. The default Group is called the Administrator group and cannot be deleted from the database. Users that are assigned to the Administrator Group have full access rights to all Sites in the Database. The Administrator is the default user in the Administrator group. Examples of Groups names would be: Management, Engineering, Supervisor and Shipping.

Only Users who belong to the Administrator Group have access to all administrative functions – all other users are only allowed to change their own passwords and to view their user rights.

All groups except the Administrator group have specific sites that are associated with them. Every Site in the database can be associated with any number of Groups. A Group also has access rights that can be set up that apply to all Sites in the Group. A Supervisor Group, for example, might have the right to delete files on all Sites associated with the group.

A Group may also be set up to have unique access rights on a per Site basis. The administrator can specify for each site belonging to the group, whether WaveStudio can be used to enhance and analyze images, or whether clips from the unit can be saved on the PC.

3.6.1.1 USING THE SECURITY DATABASE FROM MULTIPLE COMPUTERS.

When WaveReader has been installed on several networked computers, it is possible to use only one central database that can easily be maintained by the Administrator.

During the installation of WaveReader on a clean Computer, the Security Database is copied to the WaveReader folder. The filename is WRSecurity.mdb. This file can be moved to a drive on the network that can be accessed from the PC. The WaveReader then has to be instructed where the database is located. This is done as follows:

Using any ASCII editor like Notepad, open the file BWVAL.DAT that is located in the WaveReader folder. Edit or add the following line to reflect the new position of the database on the network: (The part following the '=' is the network path of the WRSecurity.mdb file).

```
SECURITY_DB_PATH_AND_FILENAME = P:\Security\WRSecurity.mdb
```

Be sure to remove the letters "REM" that may come before the string. The next time WaveReader is launched it will get its Security settings from the network database. Several WaveReaders can be set up this way to simultaneously access the same database file.

If the WRSecurity.mdb file is not moved to the network, each WaveReader will simply access the database on its local hard drive and the site and user information will have to be added to every database individually.

3.6.1.2 ADDITIONAL NOTES.

It is recommended that the Administrator always add at least 1 user beside himself to the Administrator group. If he forgets his password, the other user can still log in and reset the Administrator's password. If all users in the Administrator group forget their passwords, they would have to contact GE Security Technical Support to have their passwords reset.

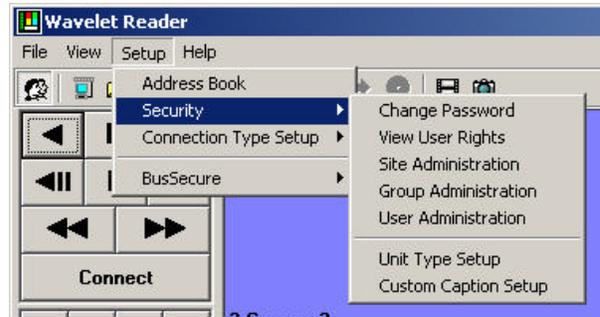
Uninstalling WaveReader from a PC will not remove the BWVAL.DAT file or the WRSecurity.mdb database file from the WaveReader folder. When the new WaveReader is installed, a user will be able to log into the old database without any additional setup.

On PC's that have both WaveReader and WaveWatch installed it is necessary to uninstall both programs when upgrading to a new WaveReader. This is because some system files are shared by the two applications and will cause problems with the new installation if not properly removed.

3.7 SECURITY MENUS

WaveReader features extensive security and administrative options. From the Menu Bar click **Setup**, then **Security**. The following options are available:

- Change Password
- View User Rights
- Site Administration
- Group Administration
- User Administration
- Unit Type Setup
- Custom Caption Setup



3.7.1 CHANGE PASSWORD

By default, the password for User 1 (Administrator) is 12345 when the software is first installed. It is recommended that this password be changed after installation is complete. After the Administrator creates new user groups and new users, all the users will be able to set and change their individual passwords. As a security measure, store the password(s) in the administrators secure files or in a limited access area.

To change the Password, select **Setup** → **Security** → **Change Password** from the menu bar. The Change Password dialog box will appear.

- Click in the box labeled **New Password**.
- Type in the new password.
- Click in the box labeled **Confirm Password**.
- Type in the new password again.
- To complete the selection, click the OK button. If the new password was accepted the Password Accepted box will be displayed.
- If the Cancel button is chosen, the password will not be changed.



3.7.2 VIEW USER RIGHTS

To View User Rights, select **Setup** → **Security** → **View User Rights** from the menu bar. The Group's Rights window will be displayed. This window provides a quick overview of User and Group rights that have been setup in the **Group Administration** database. No editing functions may be performed in this window.

The screenshot shows the 'Group's Rights' window, which displays a table of user and group rights. The table has the following columns: Group Name, Access Level, Connection Type, Change Break Study, Advanced Search, View Wave Studio, View Wave Rights, Record White Views, Seen Etc Train List, PTC Functionality, Menu Setup, Site Description, IP/Phone No., Unit Type, Camera ID#, and Access Camera. The table contains data for two groups: 'D-Bus' and 'Hardware Group', each with multiple rows of user rights.

Group Name	Access Level	Connection Type	Change Break Study	Advanced Search	View Wave Studio	View Wave Rights	Record White Views	Seen Etc Train List	PTC Functionality	Menu Setup	Site Description	IP/Phone No.	Unit Type	Camera ID#	Access Camera
D-Bus	Level 2	Manual	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Bus 1	30.30.203.20	DVR		12345678
											Bus 2	30.30.203.40	DVR		12345678
											Bus 3	30.30.203.40	DVR		12345678
											Bus 4	30.30.203.60	DVR		12345678
											Hardware	30.30.203.40	DVR		12345678
Hardware Group	Level 1 (Local)	Manual	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Bus 1	30.30.203.20	DVR		12345678
											Bus 2	30.30.203.40	DVR		12345678
											Bus 3	30.30.203.40	DVR		12345678
											Bus 4	30.30.203.60	DVR		12345678
											Hardware	30.30.203.40	DVR		12345678

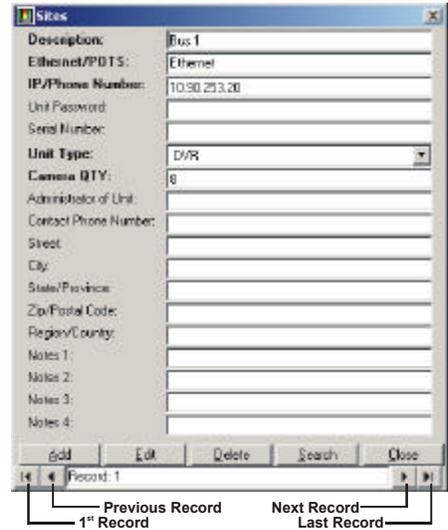
3.7.3 SITE ADMINISTRATION

Site Administration provides all the data required for the creation of the **Address Book**. To access Site Administration, select **Setup** → **Security** → **Site Administration** from the menu bar. The Sites Edit window will be displayed.

3.7.3.1 CREATING THE SITE ADDRESS BOOK

This window allows the user to:

- **Add** new device/site information. Required fields are **Bolded**. Clicking on Add also provides the option of importing an Address Book that has been saved as a .lst file from a previous version of WaveReader
- **Edit** existing records.
- **Delete** existing records.
- **Search** through current records by the Site Description, IP/Phone Number, Street, City, State/Province, Zip/Postal Code, or Region/Country fields.



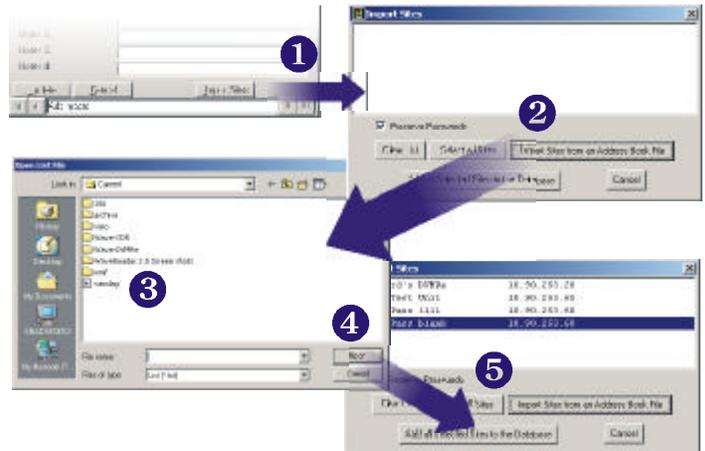
3.7.3.2 IMPORTING AN ADDRESS BOOK (FROM VERSIONS OF WAVEREADER EARLIER THAN 2.5)

Click on the **ADD** button in the Sites window. This modifies the button bar on the bottom of the window to include an **Import Sites** button. Follow the steps below to import the Address Book.

1. Click on the **Import Sites** Button. This brings up the Import Sites windows.
2. Click **Import Sites from Address Book File**. This brings up the Open List File window.
3. Navigate to the folder in which the **.lst** file resides.

NOTE: A .lst file may be created using any text editor such as Notepad. See the section titled **Creating an Address File** on the following pages.

4. Select the **.lst** file and click **Open**. This places the address list in the Import Sites window.
5. Click **Add all Selected Sites to the Database**.



3.7.3.3 CREATING AN ADDRESS FILE (FOR BASIC INFORMATION)

The Address Book file may be created using any text edit such as Notepad. A sample address book may look like the following. Be sure to save or rename the file with the extension, **.lst**. Once created the user can import the file using the previous procedure.

The first line (1000): Indicates a version number used by WaveReader to identify this list. Do not edit this number.

The second line (3): Indicates the number of addresses in the list. Change this number only if the number of address in the list changes.

```
1000
3
0,"10.90.253.129","Alex's unit","12345"
0,"10.90.10.110","demo room","54321"
0,"10.90.253.28","Test unit",""
```

The address line indicates the following 4 items:

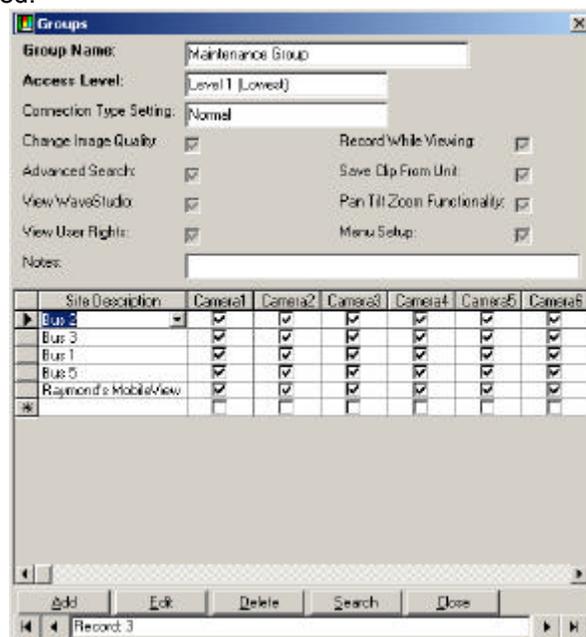
- This unit is connected via ethernet (indicated with a 0), or this unit is connected via a modem (indicated with a 1).
- The IP address or telephone number of the remote unit (example IP address show above "10.90.253.129")
- The name given to the remote unit (Example: "Alex's unit")
- The password for connecting to the remote unit (Example: "12345"). This field is not always populated.

3.7.4 GROUP ADMINISTRATION

Group Administration provides all the parameters required to set up various Group rights and access levels. To access Group Administration, select **Setup** → **Security** → **Group Administration** from the menu bar. The Groups Edit window will be displayed.

This window allows the user to:

- **Add** new Groups, set their Access Level and Connection Type. Set their Group Rights and the Sites they have access to.
- **Edit** existing records. Clicking in the Edit button adds a **Show Users** and **Add All Sites** Button on the Button Bar. The Show Users button displays all users in the currently selected group. The Add All Sites button will add all available Sites to the selected group.
- **Delete** existing records.
- **Search** through current records by Group Name, Access Level and Connection Type fields.



3.7.4.1 ACCESS LEVELS

The Access Levels are priority ratings used by the unit to determine if a currently established connection should terminate when a user with a higher priority level requests a connection.

If the current user has a lower access level, the unit will break its connection after sending a message to the users PC indicating that their connection has been terminated.

The status bar at the bottom of the WaveReader main window will also indicate that the **unit terminated the connection**.

There are three levels of access that can be set up in WaveReader:

- 1 (lowest)
- 2
- 3 (highest)

3.7.5 USER ADMINISTRATION

User Administration provides all the data required for adding Users and user information into various Groups. The users will have the rights and access levels of the group to which they are assigned.

To access User Administration, select **Setup** → **Security** → **User Administration** from the menu bar. The Users Edit window will be displayed.

This window allows the user to:

- **Add** new users.
- **Edit** existing users.
- **Delete** existing users.

- **Search** through current records by User Name, Phone Number, Email Address, and Group Name.

3.7.6 UNIT TYPE SETUP

Unit Type Setup provides the data required for Unit Type field in the Site Administration window. To access Unit Type Setup, select **Setup** → **Security** → **Unit Type Setup** from the menu bar. The Unit Type Edit window will be displayed.

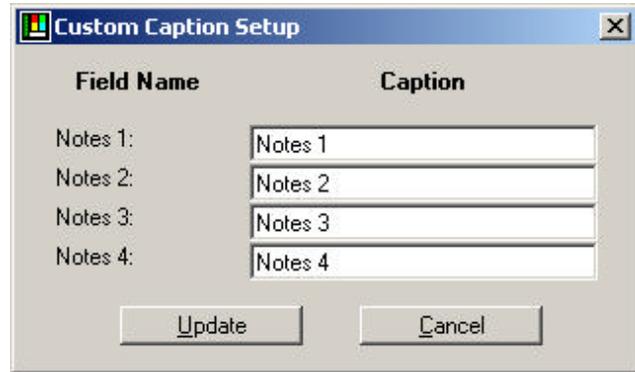
This window allows the user to:

- **Add** new devices.
- **Edit** existing devices.
- **Delete** existing devices.

3.7.7 CUSTOM CAPTION SETUP

The Custom Caption Setup menu allows the user to change the 4 provided Notes fields into user labelled fields. To access the Custom Caption Setup, select **Setup** → **Security** → **Custom Caption Setup** from the menu bar. The Custom Caption Setup Edit window will be displayed.

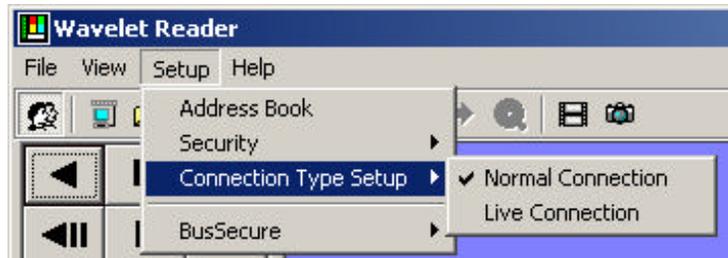
To relabel a field name simply highlight the current label, type in the new designation and click on the **Update** button.



3.8 CONNECTION TYPE SETUP MENU

Two types of Ethernet connections can be established between the WaveReader software and a unit.

- **Normal Connection**
- **Live Connection**



3.8.1 NORMAL CONNECTIONS

When a Normal Connection is made, the user may select between two operating modes:

- **Playback Mode:** Allows the user to view and search recorded data from the units hard disk.
- **Live Mode:** Allows the user to view live images.

3.8.1.1 PLAYBACK MODE

Once a connection has been made, pressing the Play button on the button panel causes images to be received and displayed. Within a few seconds the Disk analysis window (see Section 3.4.1) is also displayed in this mode. Playback is the default mode.

3.8.1.2 LIVE MODE

When viewing live images from the vehicle mounted DVR, the software may be switched to the Live Look-in mode via the Setup menu.

This mode does not apply to a DVR in a docking station, where there are no cameras connected.

The **View Live** command is added to the Setup Menu only after a Normal Connection has been established. Along with the images being displayed, the current Date, Time and Alarm status of the unit are also shown.



3.8.1.3 ENTERING THE LIVE MODE

To enter Live Mode, select **Setup** → **View Live** from the menu bar.

To begin viewing live images:

- Click the Play button. The Play button will turn green to indicate that it has been selected.
- The Pause button functions as Stop button.
- The Pause, Disconnect, Multi-Camera, Camera Size, and Camera buttons are black and remain active. The remaining buttons turn gray and are inactive.
- The View Live command is replaced with the View Playback command.
- The current Date and Time appears.
- Multi-Camera live images can be viewed in an 8-Way or 4-way format.
- Single Camera live images can be viewed in Large, Medium, or Small formats.
- Clicking any camera image will display that camera image in full screen.
- A red letter "A" opposite the camera number means an alarm for that camera. The Alarm indicator (the red A) will be preceded and followed by a red letter "P" which indicates the Pre- and Post- Alarm periods.

3.8.1.4 LEAVING LIVE MODE

To leave Live Mode, select **Setup** → **View Playback** from the menu bar.

- Live images for each camera stop updating.
- All buttons return to black.
- The View Live command is replaced with the View Live command.
- WaveReader is still connected to the unit.

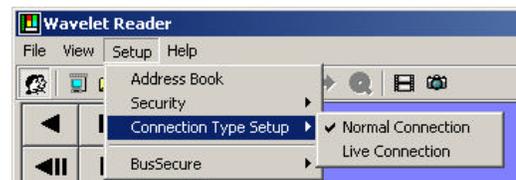


3.8.2 LIVE CONNECTIONS

When a Live Connection is made to a vehicle mounted DVR, the user is limited to viewing live images only.

This mode does not apply to a DVR in a docking station, where there are no cameras connected.

The user can establish a Live Connection even if a different user has established a Normal Connection.



To establish a Live Connection, select **Setup** → **Connection Type Setup** → **Live Connection** from the menu bar.

No disk analysis screen is displayed.

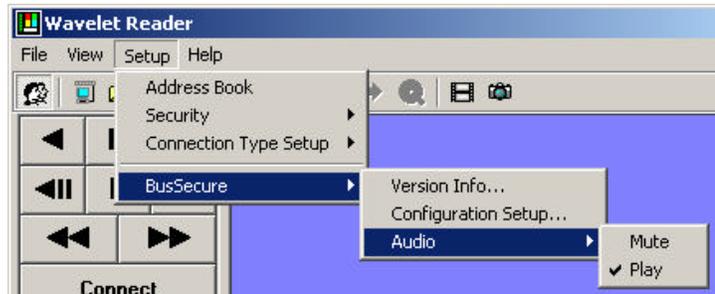
To begin viewing live images:

- Click the Play button. The Play button will turn green to indicate that it has been selected.
- The Pause button functions as Stop button.
- The Pause, Disconnect, Number, Multiscreen and Camera Size buttons are black and remain active. The remaining buttons turn gray and are inactive.
- The current Time and Date appear.
- Multi-Camera live images can be viewed in an 8-Way or 4-way format.

- Single Camera live images can be viewed in Large, Medium, or Small formats.
- Clicking any camera image will display that camera image in whatever format was last selected for viewing individual cameras.
- A red letter "A" opposite the camera number means an alarm for that camera. The Alarm indicator (the red A) will be preceded and followed by a red letter "P" which indicates the Pre- and Post- Alarm periods.

3.9 BUSSECURE MENUS

The BusSecure Setup menu options can be accessed through the Setup menu.



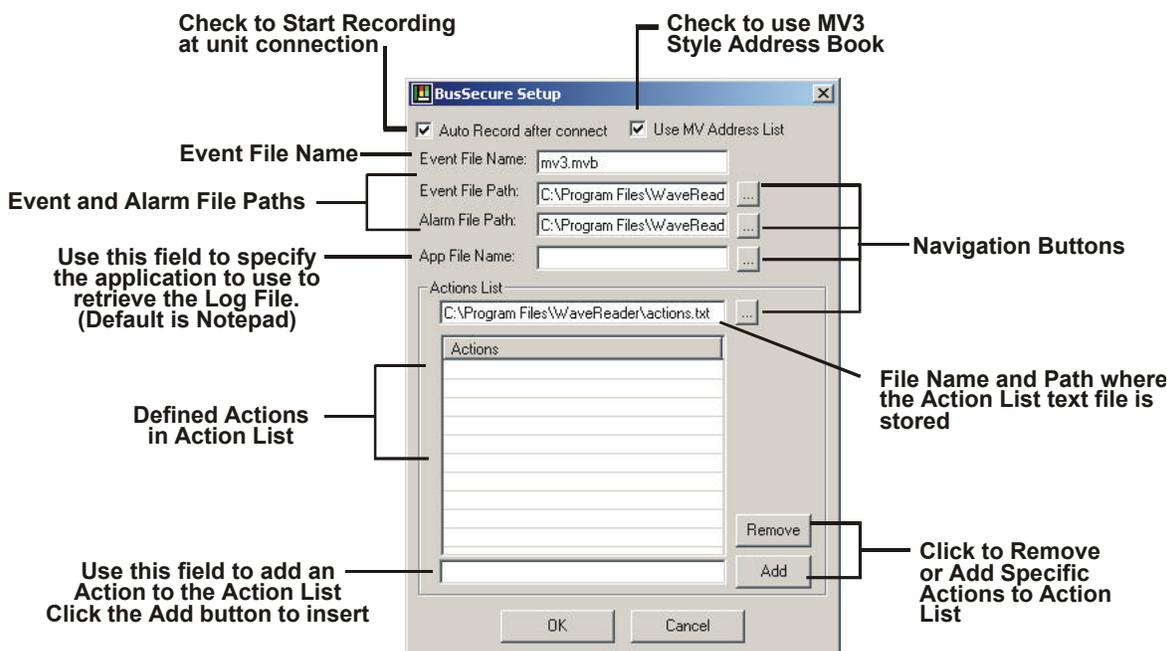
3.9.1 VERSION INFO

To access Version Info command, select **Setup** → **BusSecure** → **Version Info** from the menu bar. The Version Info command displays a window with the Serial Number, Disk Capacity and Software version numbers for all programmable devices.



3.9.2 CONFIGURATION SETUP

To access Configuration Setup screen, select **Setup** → **BusSecure** → **Configuration Setup** from the menu bar. The following window will appear.



3.9.2.1 AUTO RECORD AFTER CONNECT

If this box is checked, WaveReader will record every image that is viewed from a unit it connects to. The recording is saved in the mv3.mvb file when viewing in the docking station.

3.9.2.2 USE MV ADDRESS LIST

If this box is checked, WaveReader will give preference to the short address book, automatically detected from broadcasting stations on the LAN. This takes preference over the comprehensive address book provided for users who wish to connect to a wide variety of DVR's.

3.9.2.3 THE ACTION LIST

The Action List (WaveReaderactions.txt) is used for the placement and designation of actions to be performed by the Central Station operator when an alarm is received:

The Action List field designates the folder that the actions will be stored in. It is recommended that this folder remain at its default location.

This window is also where the Actions are defined and entered. Defining and adding actions should be done at the beginning of the Central Station Software setup. Place the cursor in the bottom screen and enter the name of an action and click on **Add**. Repeat for every action you wish to be displayed on the Alarm transmission drop down menu on the BusSecure Alarm screen.

To remove an action, highlight the action with the mouse and click on the **Remove** button.

The Action List will appear on the alarm drop-down menu of the BusSecure alarm screen when an alarm is received.

The Central Station Operator can then click on the actions taken in response to that alarm, and those actions will become a part of the event record.

3.9.3 AUDIO MENU

To access Audio commands, select **Setup** → **BusSecure** → **Audio** from the menu bar. The Operator can **Mute** or **Play** the audio from this menu.

When playing directly from disk, audio is only available when looking at a camera full screen. However all audio associated with the time period being viewed, is stored in the *.mvb file. When downloading a video clip from disk, all audio for the time period selected, is also saved to the *.mvb file.

When playing back from an *.mvb file, operation is different. When audio is on, synchronized video is played with the audio. This means that images might be dropped so that the audio is not interrupted. This is especially true when playing back in multiscreen. In order to see all the captured frames, audio can be turned off.

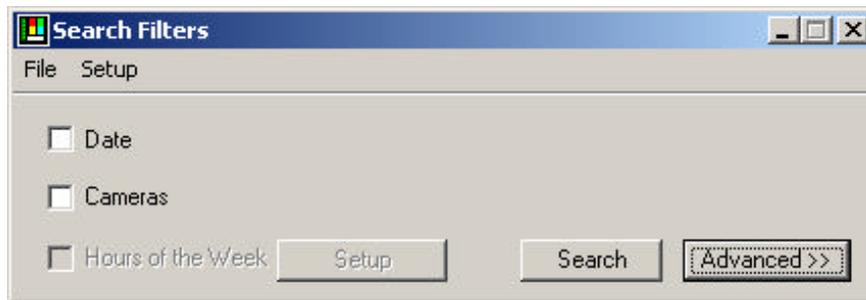
When individual images are selected in the image log for playback, audio is automatically disabled. Audio is also automatically disabled when playing backwards, rewinding or fast-forwarding.

3.10 THE SEARCH MENU

Once a Normal Connection has been established between the PC and a unit, the Search Menu option will appear in the Menu Bar and the Search Icon will become available in the Icon Bar.

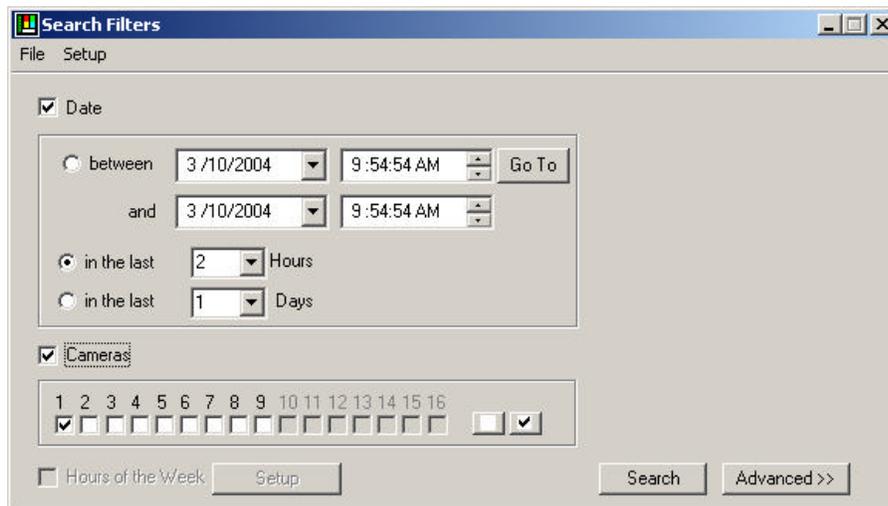


Launch the Search screen by clicking on the Search icon or the Search menu option. The **Search Screen** has two modes basic and advanced. The Search screen is in basic mode when it first appears as shown below.



3.10.1 BASIC MODE

In basic mode, the user can set up the **Date** and **Camera** filters. Selecting any of these parameters modifies the Search Filters screen and displays that selection's options. The screen below shows the Search Screen with both of these filters selected.



The Search Filters Menu bar contains the **File** and **Setup** menus.

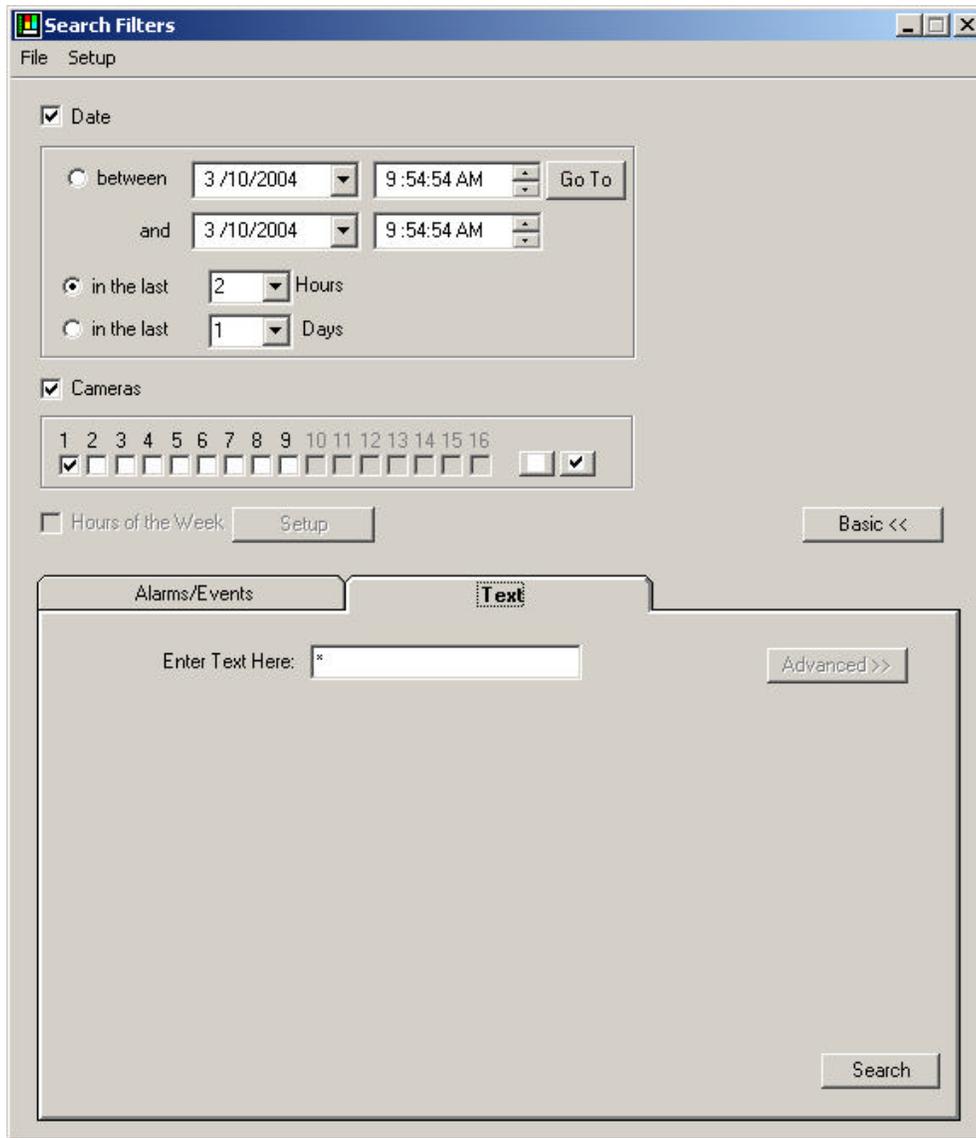
The **File** menu contains the **Load Search Filters** menu and the **Save Search Filters** menu. Search filter combinations can be saved and loaded through these menus for use on different devices. Filter parameters in the saved file that are not applicable on a particular device are ignored during the Search. Search filter parameters are saved in xml format in the Quickwave directory.

The **Setup** menu contains the **Mode** menu.

The **Mode** menu is used to select the way the search is reported, **Batch** or the default **Interactive**. The batch mode does not have any result quantity limitation and all results are written to a file. The file format choices are txt, html, or xml.

The **Go To** button in the **Date** filter section begins transmitting recorded video from the closest point to the **time and date** selected. If the unit is not currently playing back video when the **Go To** button is clicked, the user will have to click the **Play** button on the button panel to start playback.

Clicking on the **Advanced** button will expand the Search Filters screen to include filters such as **Alarm/Event** and **Text**. The screen shown below is shown with the Text tab selected.



3.10.2 ADVANCED MODE

In the advanced mode, the user can specify **alarm/event** and **text** filters in addition to **camera**, **date** and **week**. If the user is not logged in or doesn't have rights to do an advanced search, the user cannot switch to advanced mode. The advanced button will be grayed out.

The **Alarm/Event** tab executes searches based upon Alarm or Event flags.

The **Text** tab allows the user to type in text and search for it.

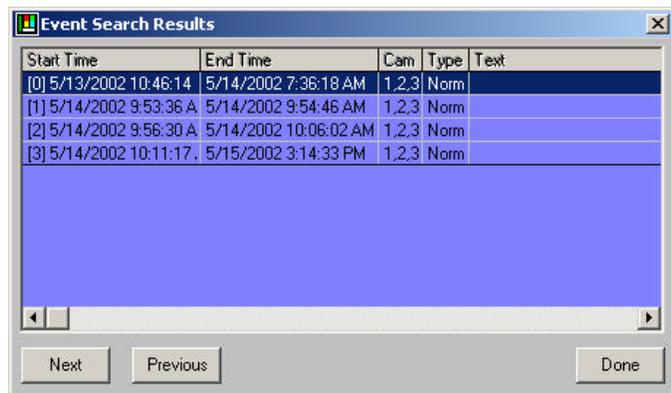
Click on the **Search** button to execute the search.

3.10.3 SEARCH RESULTS

After the Start Search button is pressed, the unit will search for the specified events. After a short time, the Event Search Results window will appear.

The Event Search Results window displays the:

- Start and Stop Time/Date.
- The Camera Number.
- The type of information (Alarm, Event, Normal, Motion).
- The Text Data.



Start Time	End Time	Cam	Type	Text
[0] 5/13/2002 10:46:14	5/14/2002 7:36:18 AM	1,2,3	Norm	
[1] 5/14/2002 9:53:36 A	5/14/2002 9:54:46 AM	1,2,3	Norm	
[2] 5/14/2002 9:56:30 A	5/14/2002 10:06:02 AM	1,2,3	Norm	
[3] 5/14/2002 10:11:17 .	5/15/2002 3:14:33 PM	1,2,3	Norm	

When searching event/alarm data, the input name(s) of the input(s) that resulted in the event/alarm, will be displayed in the text data area.

This window will display a maximum of 10 items. To view additional items, click the Next or Previous buttons. Clicking directly on a line item will cause that item to be displayed on the main screen.

3.11 THE HELP MENU

The Help menu options can be accessed through the main menu bar. To access the Help menus, select **Help** from the menu bar.

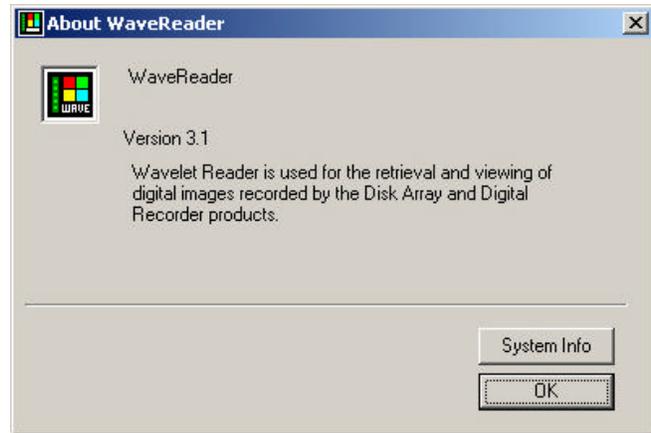
3.11.1 HELP TOPICS

The Help Topics are available in this menu and for specific help on some options, Depress the F1 key while the mouse is hovering over a feature.

3.11.2 ABOUT

The About command provides information about the Version number of the Software.

Access to the Windows System Info command is also available in this window. Extensive System information can be retrieved with this command.



4 WAVESTUDIO

WaveStudio is an image enhancement program designed specifically for use with WaveReader. WaveStudio allows the user to capture and save images. WaveStudio also allows the user to increase or decrease contrast, zoom, sharpen lines, enhance sections of the picture, and bring out detail in dark areas.

4.1 OPENING WAVESTUDIO

From the Menu bar, select **File** → **Start WaveStudio**. The WaveStudio window will open. The WaveStudio window consists of two areas, the Main Viewing Area, and the Toolbar.

4.2 WAVESTUDIO TOOLBAR

All of the functions in WaveStudio are performed using the toolbar located on the left side of the WaveStudio window.

Intensity: Changes the overall brightness (intensity) of the image.

Contrast: Increases or decreases the contrast of the image.

H. Contrast: Increases or decreases the contrast of the image, using a histogram to determine the median brightness.

This method finds the median brightness of the image; then brightens the pixels with values above the median and darkens the pixels with values below the median. This is more sophisticated (but slower) than the regular contrast method, which uses the middle possible value (128) rather than finding the actual median.

Hue: Changes the hue of colors in the image by rotating the color wheel. The user can rotate the color wheel in either direction. A 180-degree rotation in either direction changes each color to its complement. Positive rotation takes red toward green, green toward blue, and blue toward red. Negative rotation has the opposite effect.

Saturation: Negative values decrease the saturation of colors. Positive values increase the saturation. The saturation level is increased or decreased by a percentage of its present saturation level.

Sharpen: Increases or decreases the sharpness of the image. Negative values decrease the sharpness of the image. Specify -1000 for minimum sharpness. Positive values increase the sharpness. Specify +1000 for maximum sharpness.

Zoom: Clicking the In or Out button will cause the image to begin increasing or decreasing in size. Click the Stop button to stop the zooming. Click the Normal button to return the image to the original size.

Noise Removal: Changes the color of each pixel in the image to the average color of the pixels surrounding it. This results in a blur effect.

Histogram Equalization: Linearizes the number of pixels per gray area in the image. This can be used to bring out detail in the dark areas of an image.

Region Selection: Used to isolate sections of an image for enhancement. Select Rectangular to drag a box over the desired picture area. Select Freehand to draw borders around the desired area. Click On to activate this feature.



Copy & Paste: Use these buttons to copy images to or from the clipboard.

Undo: Click this button to undo all changes made to the image.

Done: Click on this button to close the WaveStudio program.

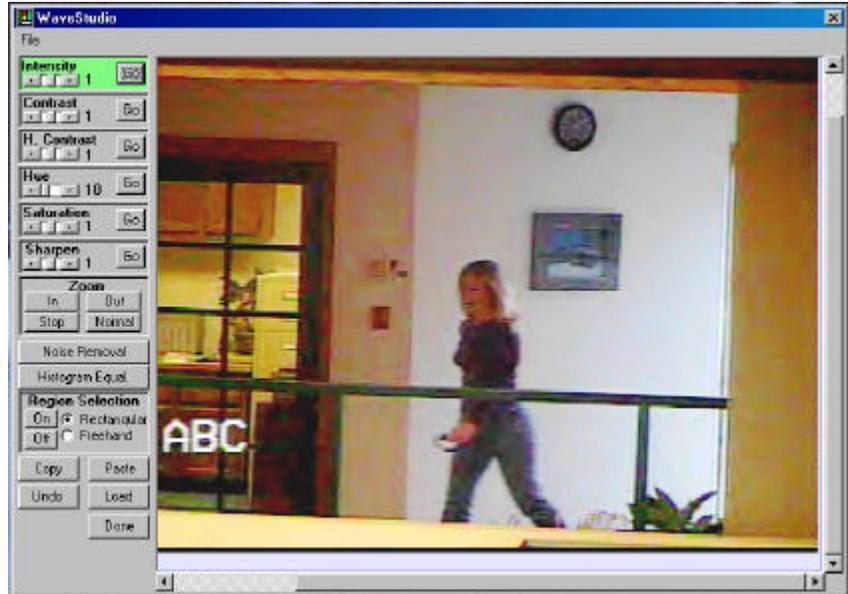
4.3 WAVESTUDIO MAIN VIEWING AREA

When WaveStudio is opened, it automatically captures the image currently displayed in the WaveReader Main Viewing Area.

Use the WaveReader window to find and pause the exact image you wish to edit.

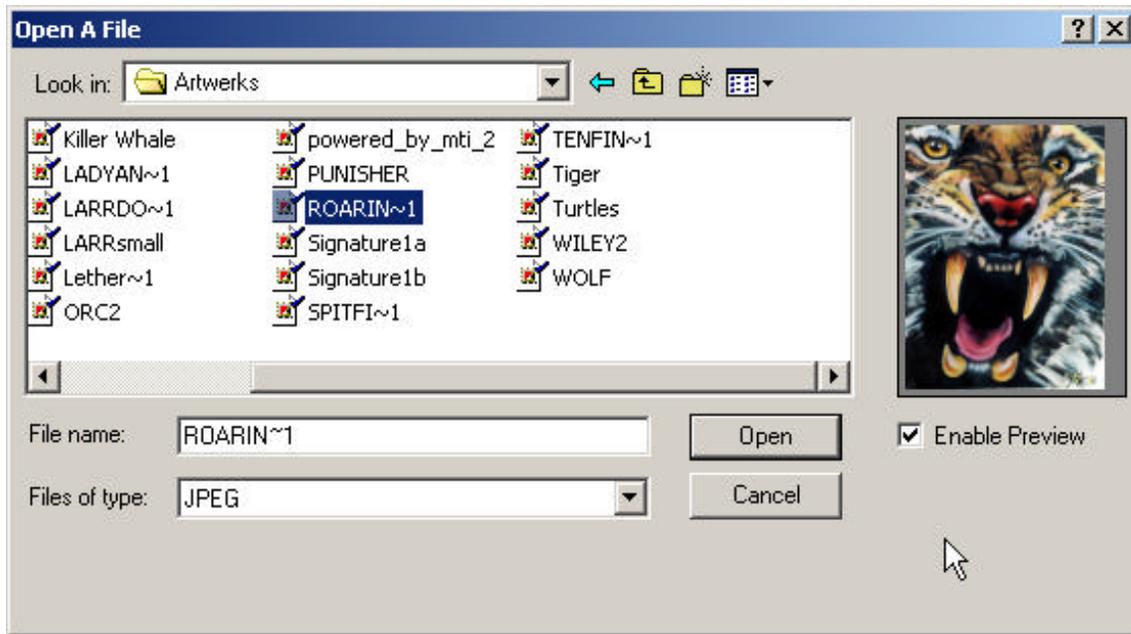
Press the Load button to insert the image into the WaveStudio's Main Viewing Area.

Any image size or screen configuration displayed in the WaveReader Main Viewing Area can be copied to the WaveStudio Main Viewing Area.



4.4 OPENING A FILE IN WAVESTUDIO

To open a file in WaveStudio, select **File** → **Open** from the Menu bar. The open file dialog window will appear. Navigate to the file to edit, select the file and click open.



WaveStudio can open images in .bmp and .jpg formats.

5 QUICKWAVE EVIDENCE CAPTURE CD

WaveReader allows any PC user with a CD writer to create a portable evidence CD, which includes an auto-launching lite version of WaveReader called QuickWave. WaveReader does not need to be installed on the PC for QuickWave to operate, and QuickWave does not install itself (or a version of WaveReader) on the PC upon which it is being played-back. The program is loaded and played directly from the QuickWave CD.

The QuickWave CD cannot be played back on Windows 95 or Windows 98 Release Version 1.

5.1 CREATING THE QUICKWAVE CD

1. Use the Disk Analysis Screen in WaveReader to select and save the desired video data as a .60d file.
2. Copy the .60d file (or files) to the C:\Program Files\WaveReader\QuickWaveCD\QuickWave folder.
3. Using the CD writer software, select **the contents** of the C:\Program Files\WaveReader\QuickWaveCD folder.



Do not select **the QuickWaveCD folder** to be written by the CD writer. Select **the contents of the QuickWaveCD folder** to be written by the CD writer.

4. Using the CD writer, create the QuickWave CD.
5. Test the CD by placing it in the CD drive of your computer. The QuickWave program should launch automatically, and begin playing the .60d file.



When finished creating the QuickWave CD, delete the .60d file (or files) from the C:\Program Files\WaveReader\QuickWaveCD\QuickWave folder, so that it does not accidentally get copied onto a QuickWave CD (for which it was not intended) in the future.

5.2 PLAYING THE QUICKWAVE CD

1. Place the QuickWave CD in the CD drive of a PC.
2. The QuickWave program will launch from the CD and begin playing the .60d file.
3. QuickWave's operation is similar to that of WaveReader.
4. Select **File** → **Open** to playback a different .60d file.

WARRANTY AND RETURN INFORMATION

GE Security warrants all of its equipment for three years from the date of purchase. This warranty covers any defects in materials and workmanship. Equipment failures that are due to improper installation, modification, abuse, or acts of nature will not be covered by this warranty. The repair department will evaluate all equipment returned for repair to determine warranty coverage. The Tech Support Manager will resolve any questions that may arise during evaluation to make a final determination.

Note: The three-year warranty does not apply to the following products:
BusSecure® and the monitor CRT, which carry a 12-month warranty from the date of purchase.

The warranty specifically covers any defects in material and workmanship and does not cover equipment that has been abused, damaged, or modified.

For all warranty repairs, GE Security will cover all costs, including parts, labor, and shipping. Repaired equipment will be returned via the same method of shipment in which it was received. If a customer requests a faster return shipment, the difference will be charged.

For all non-warranty repairs, the customer will be billed for parts, labor, and shipping. Labor will be billed in half-hour increments.

Note: Customers requesting an estimate prior to repair will be notified by phone. If they cannot be reached, they will be notified by fax. If we are unable to reach the contact person for repair authorization after one phone attempt and two fax attempts, the equipment will be returned without being repaired. We will hold equipment no longer than two weeks.

ADVANCE REPLACEMENT POLICY

When an advance replacement is required, we will send the customer replacement equipment from our stock and receive the returned product in exchange. The received equipment will be evaluated and the repair department will determine whether it is a warranty replacement. If it is non-warranty, see our repair policy above for details. The following guidelines will be used for all advance replacements:

- Fewer than 45 days from purchase, GE Security will replace the product with new equipment.
- From 45 days to 1 year from purchase, GE Security will replace the product with refurbished equipment.
- From 1 year to 3 years from purchase, the product must be sent in for repair. Advance replacements will be sent for a fee of \$100.

If you have questions about this policy, please contact GE Security's RMA department at 800-469-1676.