

DIGITAL VIDEO RECORDER

FX SERIES SERVER
FX CLIENT
FX VIEWER

User's Manual

! CAUTION

Read all precautions and instructions in this manual before using FX Series DVR Server. Save this manual for future reference.

Disclaimer

This manual has been reviewed thoroughly in order to provide a guide for FX DVR systems. All statements, technical information, and recommendations in this manual and in any guides or related documents are believed reliable, but the accuracy and completeness thereof are not guaranteed or warranted. They are not intended to be, nor should they be understood to be, perfect representations or warranties concerning the products described.

FX DVR server and the software included with your system are subject to the limited warranty set forth in the warranty and license agreement enclosed with the respective products. All software is licensed AS IS, as described in the license agreement enclosed with the software disk. Further, we reserve the right to make changes in the specifications of the products described in this manual at any time without notice, and without obligation to notify any person of such changes.

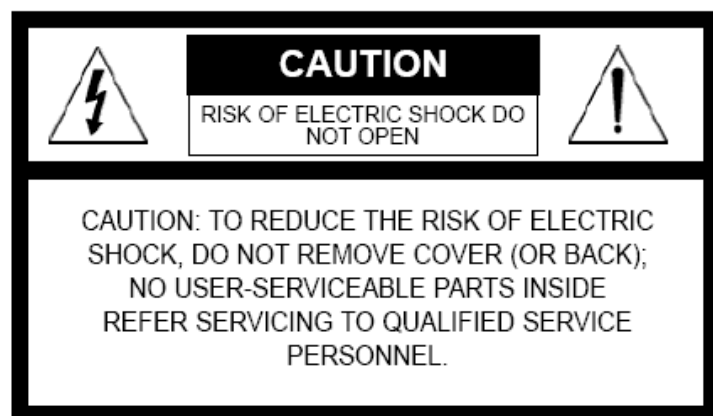


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Chapter 1

You must read all contents of the manual thoroughly before operating the system. Not following guidelines described in the manual will result in failure of the warranty. Proper implementation and operation are required to prevent from any malfunction or system error.

1.1 FX DVR Setup

Before using FX DVR Digital Video Recorder system, make sure all necessary installations are complete. Make sure following basic requirements are met.

Installation checklist

- ☒ All cameras are color and at high resolution
- ☒ All cameras are individually powered through regulated power supply
- ☒ All cameras are fed with at least 500 ~ 1000 mA power each
- ☒ All cameras are wired properly with correct cabling method
- ☒ VGA monitor, 1024x768 / 32 Bit / 70~80 Hz, monitor is properly connected
- ☒ DVR unit is properly installed in cool and dry area
- ☒ DVR is securely stationed to avoid damage or theft
- ☒ DVR is powered with reliable Universal Power Surge protector
- ☒ All input devices are properly installed
- ☒ The operator has basic knowledge of using mouse and keyboard
- ☒ Network is set up correctly
- ☒ All output devices are properly installed
- ☒ No software or hardware unrelated to DVR is installed

Range of requirements can vary depending on unique circumstances in each application location. Make sure to consult with security professionals to obtain better understanding of surveillance systems in general. Practice on searching, monitoring, and backup can be helpful.

Preparing FX DVR Setup

It is important to prepare appropriate systems and tools according to the well-planned-out design. Each location involves unique application. FX DVR can be a heart of the good surveillance design. Cameras, wiring, power supply, distance, and other aspects must all be set up properly for the best result.

Surveillance Application Design

Digital Video Recorders require good source of video signals. Installing right types of cameras with appropriate wiring are integral parts of stable surveillance system. It must also match the client's needs and requirements. Power failure is often a culprit of major problems. Make sure to check the specs and requirements of all equipments.

Basic design checklist.

- ☒ Inspect the area thoroughly
- ☒ Plan appropriate design that fits the needs
- ☒ Measure the distance of the camera to the objects
- ☒ Measure the distance of the camera to DVR and Power
- ☒ Choose the equipments for best performance and value
- ☒ Be aware of unexpected outcomes and prepare scenarios (i.e., natural disaster, irregular power failures, damage by the intruders, pest attack, etc.)

1.2 Materials and Cameras

FX DVR Pack includes following.

- FX DVR Server X 1
 - It can be either Tower or Rack case.
- BNC Input Pigtail Connector (Selective)
 - FX-4C30 does not have pigtail.
 - All 8 Channels come with 1 pigtail.
 - All 16 Channels come with 2 pigtails.
 - All 32 Channels come with 3 pigtails.
- 101 Key Keyboard (PS2) X 1
- Optical Mouse (PS2) X 1
- FX DVR CD X 1
- Windows XP CD X 1
- MB Driver CD X 1
- ATI Graphics CD X 1
- Nero CD X 1
- DVI to VGA Adapter X 1
- User's Manual X 1
- Administrator's Manual X 1

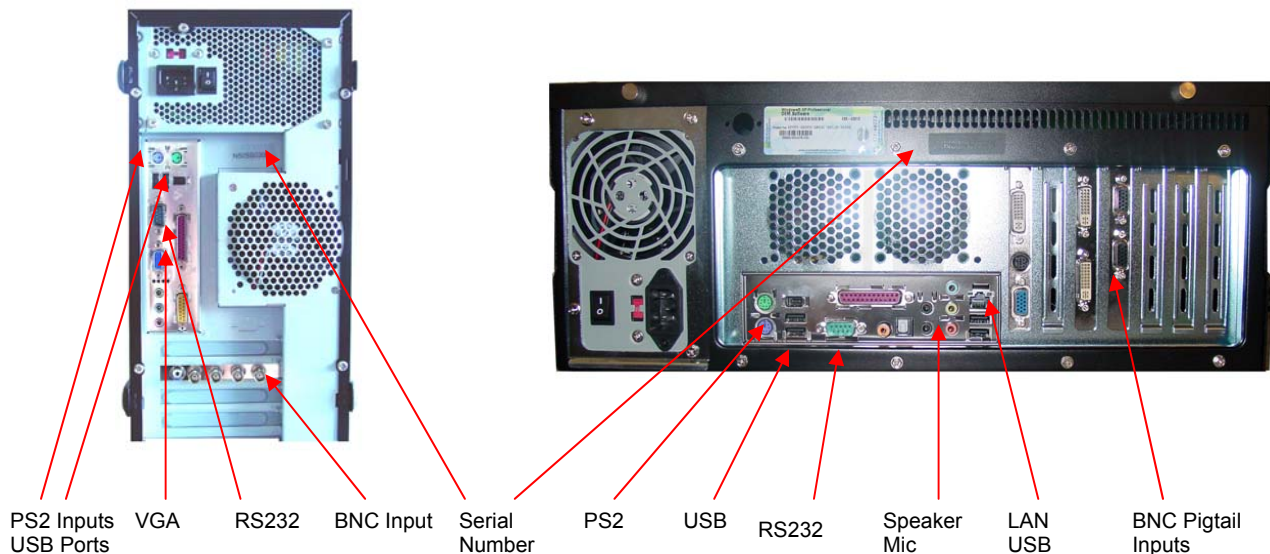


Camera Basic Guide

High resolution color cameras are required for optimal performance by FX DVR. Follow generic wiring rules for camera installations. Coax shielded cables normally deliver good signal transfer up to 400~500 ft. Regulated power supply is required for cameras. Refer to camera manufacturers for detailed specs and requirements.

1.3 Basic Installation

FX DVR Server



* Numbers and types of available I/Os can be different between the models. Appearance can change without notice.

Every surveillance application is unique, and can differ from one another in various aspects. The following is basic procedure of FX DVR installation. All the requirements and limitations must be thoroughly considered in accordance with the basic setup procedure.



1. Install the server in cool area. The area must be secure place with limited access.
2. Connect Keyboard, Mouse, and VGA monitor.
3. Make sure a good Power Surge Protector is the main source of power for DVR.
4. Connect all the cameras.
5. Turn on FX SERIES Server.
6. Wait for Graphic User Interface (GUI) to start automatically.
7. Make sure all the cameras show up on each channel.
8. Set up Recording schedule.
9. Adjust camera settings.
10. Adjust advanced settings such as Network, PTZ, Password, etc.

Chapter 2

2. Main Screen


Main screen display of FX DVR is laid out for the ease of navigation and operation. All functions on main screen can be accessed and performed using simple mouse-clicks (Except in advanced settings of Networking and Password).



FX Series Main Screen

Main Screen features live camera channels, brightness/contrast control, log panel, PTZ control, sensor buttons, split-screen selection, setup button, search button, backup button, time, model number, and power button.

Red letter **R** displays when recording is processed. FX DVR system features triplex operation. You can search, setup, backup, or remote-monitor while recording proceeds without interruption. Make sure all channels display clear image by making it to full screen. It is recommended to leave the screen to full split-screen mode without interface.

☞ Toggle between full screen (no interface) and Interface screen:  **Right click** on any camera channel.

☞ Toggle between single channel and split screen  **Left click** on desired camera channel.

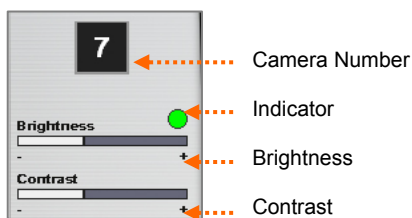
You can also alter camera positions on the screen. Please refer to the Advanced Guide section of the manual.

2.1 Camera Selection

On top-right section of GUI shows the camera number selected. Any actions for camera are going to be applied to that camera selected. For example, Pan/Tilt control will be applied to only the camera selected. Select the camera by left clicking once on desired camera channel. Red border line confirms the selection. **When switching mode, if you want to pause, click the button inside the rectangle and the color of the Camera Number will become red.** If you want to switch again, click again.



Quick Camera Adjustment



In some cases, camera produces dim image or intensive color range. You can adjust the image with the control on GUI. Select a camera to adjust. Make sure the camera number displayed is correct. Indicator must be green to perform quick adjustment. Move the level-bar by holding left button. The changes you make affect the camera setting immediately. Check the camera to find the best level of brightness and contrast.

2.2 Screen Division



Screen Division

There are eight kinds of division that you can choose. Not all divisions are activated on some models. Utilize Screen Change feature to use division effectively. When you are on division less than the number of maximum camera, switching might be activated if you did setup the switching time longer than 0 sec on the recording speed setup dialog.

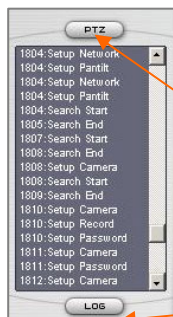
2.3 Clock Display



The clock on the center of the bottom side shows the current time. **You can change the current time by double-clicking inside the clock area.**

Time Display

2.4 Log Panel



Log panel displays all the basic activities being processed on FX DVR Server.

Any changes in setup will display with the time stamp.

IP number will show when remote connection is established.

If PTZ camera is set up, you can switch between PTZ control and log panel with Left Click.

2.5 Pan / Tilt / Zoom Control

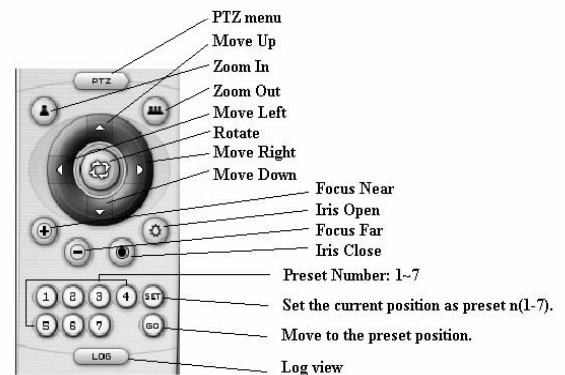
PTZ Control panel is activated when PTZ function is turned on in Setup.

As you see on figure 6, Pan-Tilt-Zoom commands include Move Left, Move right, Move Up, Move Down, Rotate, Zoom In, Zoom Out, Focus Near, Focus Far, Iris Open, Iris Close and Set/Go Preset.

Preset function is limited depending protocols and camera models.

You have to first select the preset number before you click on Set/Go buttons. Preset functions have limited compatibility with PTZ cameras.

Supported protocol list is in Setup-Pan/Tilt section of the software. For detailed information contact a security administrator or refer to the Administrator's manual.



PTZ Control Panel

2.6 Storage Bar

PTZ Control panel is activated when PTZ function is turned on in Setup.

FX DVR server deletes old video data, and replace with the new video file in increment of five minutes.

Hard disk should indicate 95-100 % full all the time.



Storage Bar

Do not alter Hard Disk settings by any mean.

2.7 Power



Power Button

Power button allows the users to turn off whole DVR software. Correct password must be typed in to shut down the system.

Do not turn off system without properly closing software. Do not attempt to enter OS without administrator's instruction.

2.8 Setup / Search / Backup



Setup / Search / Backup Buttons

There are 3 buttons that are immediately visible. All essential features are compacted into these three different modules. FX DVR server writes video without being affected by these features.

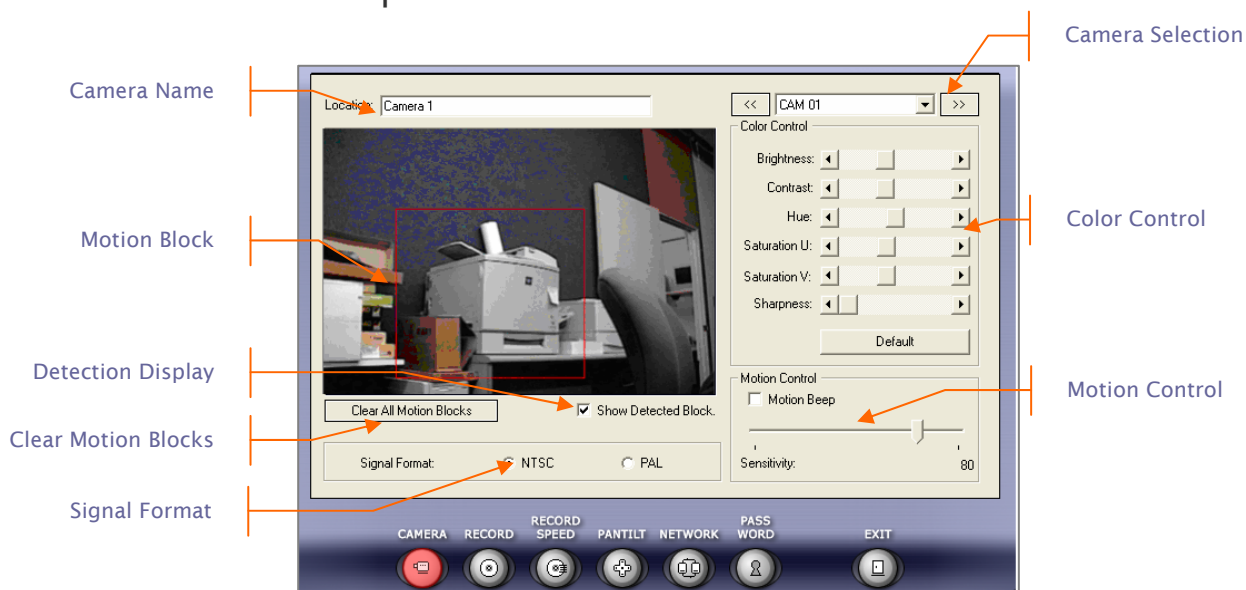
SETUP	SEARCH	BACKUP
<ul style="list-style-type: none"> ◆ Adjust Camera quality & attributes. ◆ Recording schedule setup. ◆ Network setup. ◆ Password settings. 	<ul style="list-style-type: none"> ◆ Find video footage. ◆ Smart Search. ◆ Zoom in and out for better image. ◆ Save and print image. 	<ul style="list-style-type: none"> ◆ Run CD or DVD writer program. (CD : 650 MB, DVD : 4.5 GB) ◆ DAT format for multi screen / original video screen. ◆ AVI format to be played on conventional media player.

Chapter 3

Setup

You must have permission to alter the settings in Setup. Misuse or unauthorized activities can lead to technical problems, and even damage to the DVR system. Please consult security administrator for assistance. Any changes made in Setup window will be saved and applied when you click on **Exit**.

3.1 Camera Setup



[Camera Selection]

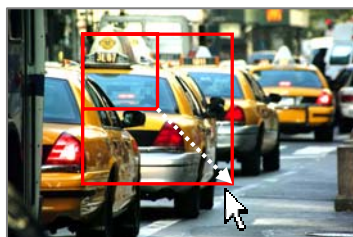
You can adjust some of the camera display settings and motion detection attributes in this section of the setup. You must choose the right channel by clicking Camera Number pull-down list.

[Camera Name]

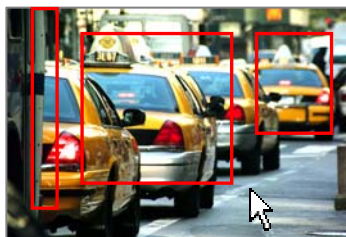
Type-in specific site name in location text box. For example, you can type in 'Office 1' for CAM 03, and Channel 3 will display 'Office 1' on top of the channel display.

[Motion Block]

You can create up to 10 Motion boxes in channel display by free-drawing with mouse.



[Figure a] Motion Blocks



[Figure b] Multiple Motion Blocks

⚠ Avoid such objects as trees, air-conditioned motion, traffic, and stationary wall to maximize recording capacity.

Drag your mouse with the left mouse down.

Make multiple motion blocks to designate specific detection zones. (**Motion Blocks=Motion Detection Zone**)

Only activities inside the block will trigger recording if Motion Recording is on. You clear the settings by clicking on '**Clear Motion Blocks**'. Whole screen becomes motion blocks if no boxes are drawn.

You will see the small blocks when the DVR system detects any motion when 'Show Detected Block' is checked.

[Signal Format]

There are two options of camera signal format selection. You can choose either “NTSC” or “PAL” format depending on the camera that you are using with DVR system.

NTSC is used typically used in North America, Central America, and Japan.

PAL is often referred as ‘European Standard’, and is used in Europe, Central Asia, and Africa.

FX DVR does not support SECAM standard.

[Color Control]

- Brightness : adjust the brightness of the camera image.
- Contrast : adjust the contrast of the camera image.
- Hue: adjust the hue of the camera image.
- Saturation U/V: adjust the saturation of the camera image.
- Sharpness: adjust the sharpness of the image.
- If you press default button, the setting is restored with the default value.

[Motion Control]

- Motion Beep: This means the DVR system makes a beep sound when it detects any motion.
- Motion Sensitivity: You can select the sensitivity value for motion detection at the range from 0 to 100. (0 does not mean that it is not going to detect any motion) Setting right parameter for Motion Sensitivity can greatly increase recording capacity.
 - Most common setting is around 60-75.
 - Make sure to analyze green detection dots to determine correct settings.
 - Letter **R** on display means there is recording. Carefully inspect for its activity.
 - Adjust **Motion Effective Duration** if necessary (Section 3-2).

3.2 Recording Schedule Setup

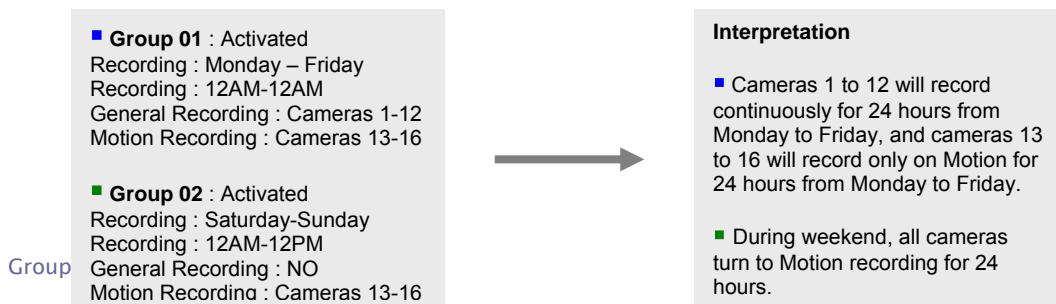
Setting up schedule is the most important part of the Setup. Default Group 1 setting is set for optimal recording with continuous method. Motion Recording is preferred. Consult with Security Administrator for customized setup.

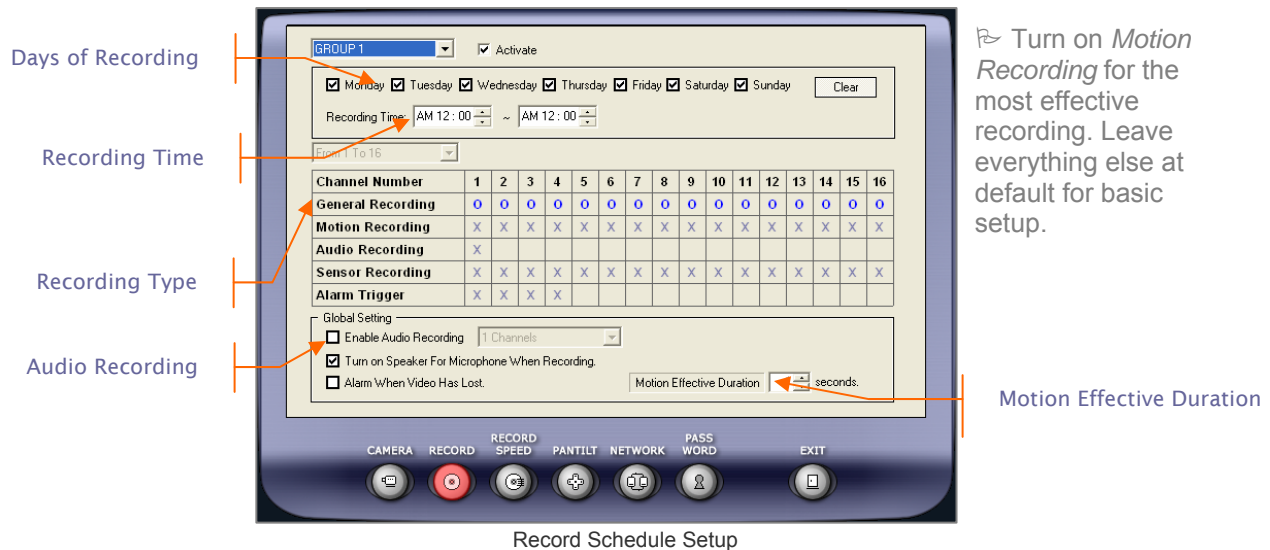
[Group]

A total of 16 groups can be created with different recording time and method. Please remember to **activate** the group in order to take effect after you’ve configured any schedule. Consult with Administrator or refer to the Administrator’s Manual for details.

[Recording Time & Days of Recording]

Default time setting is based on 24 hour recording (12:00 AM to 12:00 AM). You can combine recording time, days, and type to enhance recording capabilities. The change takes effect as soon you exit the Setup. Any mistake can lead to recording failure. Carefully check recording time and group settings to ensure you have desired time set. If you see “Clear”, it means that the whole week is checked. The text will be changed into “Everyday” when there is any unchecked day.





[General Recording]

General Recording means continual recording from the start time to the end time.

[Motion Recording]

Motion Recording means that the DVR system saves the image whenever it detects any motion from the camera.

[Motion Effective Duration]

This feature enables extended post-motion recording (Up to 60 seconds). Default is 1 second recording after motion stops. About 1 to 10 seconds is recommended.

[Audio Recording & Speaker]

You must check on 'Enable Audio Recording', and choose 1 Channel. FX DVR Server can record 1 channel of audio by default. Use Mic-In plug (pink) on the back panel to connect a microphone. Some models have multiple audio inputs. At this time, 1 channel recording produces best sound quality. Each channel associated with audio recording must be set for general recording. Current technology limits video-audio synchronization with 0.1 to 1.5 second delay. Nevertheless, synchronizing audio to time-lapsed video is one of the most difficult tasks DVR can handle. **YOU MUST INSTALL MICROPHONE THAT'S SPECIFICALLY MADE FOR SURVEILLANCE APPLICATIONS.** All microphones must be self powered, AMPLIFIED, and produce clear sound. Check on 'Turn on Speaker for Microphone When Recording' to listen to audio live.



Audio recording in most states is prohibited or limited. Consult with your lawyer or Security Professional if your location is under any 'Audio Tap' restriction.

[Sensor Recording]

Sensor device must be connected properly to DI input on the back of server. DIO interface can be optional or onboard on select models. Please consult with Security Administrator for details. For details on DIO refer to the Advanced Guide section of the manual.

[Alarm Trigger]

Alarm Trigger option must be activated with DIO setting. Alarm device must be properly connected to DO.

[Alarm When Video Has Lost]

The DVR system will beep to notify that the video signals have lost.

3.3 Record Speed Setup

This part of setup is very important due to sensitive nature of high frames processing in FX DVR. Consult with Security Administrator. **Do not change any settings here without reading this manual thoroughly.**

The screenshot shows the 'Record Speed Setup' menu with various settings. On the left, labels with arrows point to specific sections: 'Number of Cameras' points to the 'Number of Camera' field (set to 16); 'Recording FPS' points to the 'General Record', 'Motion Record', and 'Sensor Record' dropdowns (all set to 'ALL'); 'Recording Attributes' points to the 'Image Resolution', 'Image Quality', and 'Image Compression' options; 'Switching Period' points to the 'Switching Period' field (set to 0 sec.); 'TV Out Switching' points to the 'Setup TV-Out Switching' button; and 'Record While Playback' points to the 'Record While Playback' checkbox (checked). A red box highlights the '704x240' resolution option, with a red arrow pointing to it from the text 'Avoid these settings unless approved by the Security Administrator'.

Number of Cameras

Recording FPS

Recording Attributes

Switching Period

TV Out Switching

Record While Playback

Avoid these settings unless approved by the Security Administrator

Record Speed Setup



Warning !!

Do not change any settings here. You must contact Administrator for the initial setup or adjustment. Wrong settings on Record Speed can result in unexpected system faults. Leave all settings at default for optimal settings.

[Default Settings]

Keeping default setting is recommended for optimal configuration. Total FPS is based on 1 CIF (352x240) Recording. If you want to use 2CIF or 4CIF image recording, read Advanced Guide section. Image Quality and Compression must be set at default (*Fine* & *Enhanced MJPEG*). Only the Administrator is authorized to alter any features in Record Speed Setup.

[Switching Period]

If you are in the division 1/4/6, you can have the automatic image switching on main display. If you set the switching period as 3 second and you are in the 4-division mode. The cameras on the screen are switched whenever it elapses 3 seconds. So, you see the camera 1 thru 4 for the first time and camera 5 thru 8 on the next time after 3 seconds.

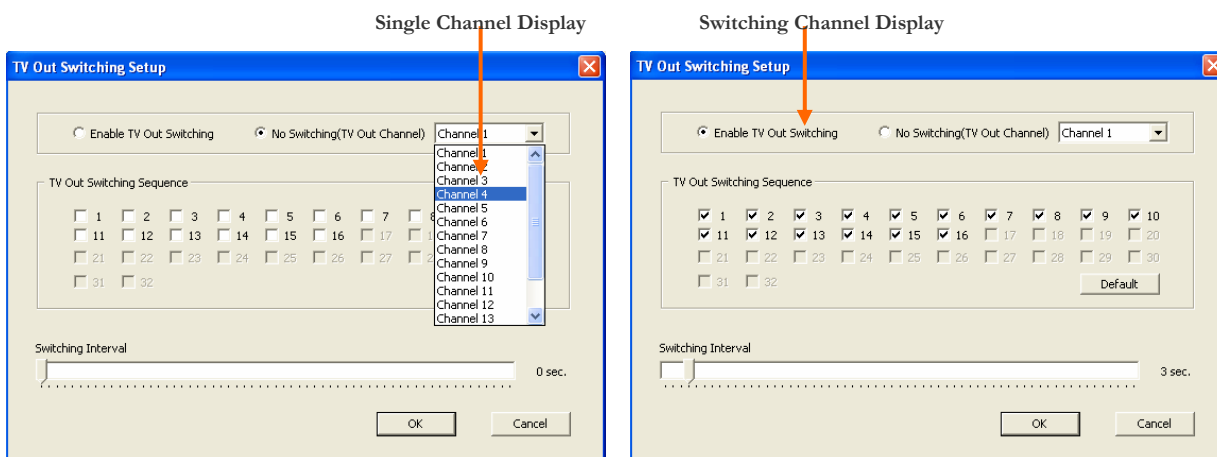
There will be no switching if you set the switching time as 0.

[TV Out Switching]

All FXDVR servers are equipped with at least 1 RCA jack for composite TV display. This is spot monitoring only. TV spot display is signal pass-through, and is not affected by any features of DVR server.

DVR Model	TV Spot Output	Single	Switching	Split
FX-C30 (30/30 FPS)	1	Yes	Yes	No
FX-C60 (60/60 FPS)	1	Yes	Yes	No
FX-C120 (120/120 FPS)	1	Yes	Yes	No
FX-C240 (240/240 FPS)	1	Yes	Yes	No
FXR-16C120 (480/120 FPS)	1	No	No	Yes
FXR-16C240 (480/240 FPS)	1	No	No	Yes
FXR-16C480 (480/480 FPS)	1	No	No	Yes
FX-32C240 (240/240 FPS)	1	No	No	Yes
FX-480 Enterprise	2	No (Through Loop out)	No	Yes

1. Connect the cable to the RCA jack on back of the unit.
2. Go to **[Setup] -> [Record Speed] ->** and click on **[Setup TV-Out Switching]** button.
3. If you want a single channel to be displayed permanently, select **'No Switching'** and desired Channel number.
4. If you want channels to be switched, select **'Enable TV Out Switching'**. You can select which channel to be displayed. You must configure switching period.

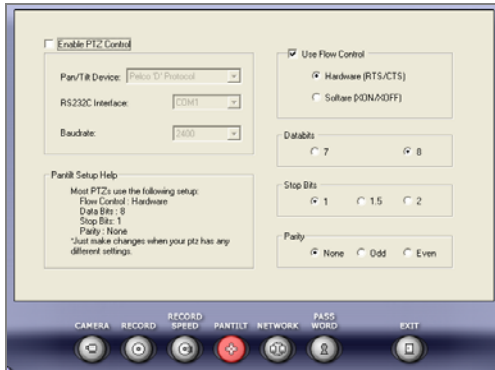


[Record while Playback]

FX DVR server records the captured image while you are in search mode. This feature must be checked all time. It is recommended to uncheck it only if there is extensive searching operation.

3.4 Pan/Tilt/Zoom Camera Setup

'Enable PTZ Control' must be checked to activate PTZ control panel on main screen and on FX-Client. This feature must be managed by the administrator only. Contact Security Administrator or refer to the Administrator's Guide for details.



Default Settings

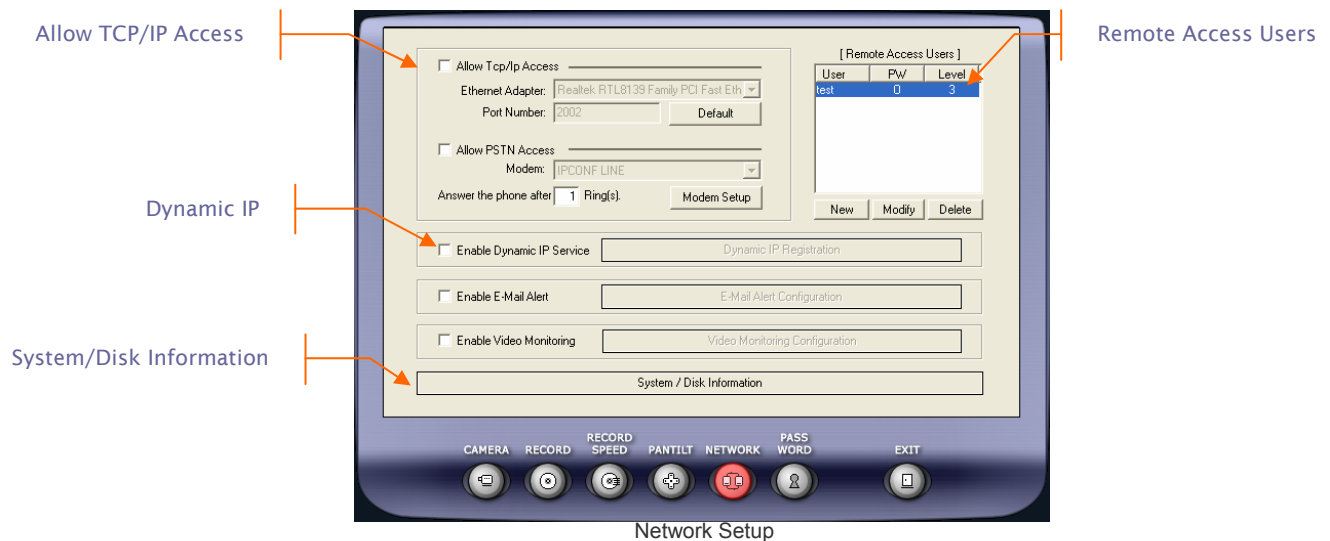
Protocol : Pelco D
RS 232/485 : COM1
Baud rate : 2400
Use Flow Control : Hardware
Data Bits : 8
Stop Bits : 1
Parity : None

PTZ Setup

*Note: FX DVR system does not come with PTZ camera or RS-232/485 converter.

3.5 Network Setup

Networking is integral part of good FX DVR applications. This feature must be dealt carefully, and must be set up by the Security Administrator only.



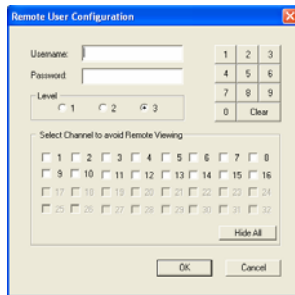
Network Setup

To troubleshoot Network connection, do the following.

- ☑ Contact Security Administrator or Tech Support line.
- ☑ Make sure 'Allow TCP/IP Access' is checked.
- ☑ Make sure Remote Access Users list is correct
- ☑ Click on System/Disk Information to start troubleshooting. Tech support requires IP number and Software information to correct any issue.

Details on Network Setup are provided in Advanced Guide section.

[Remote Access Users: New/Modify/Delete]




Remote Access Users

There is a list of users under “Remote Access Users”. These usernames and passwords are going to be used when you try to login with the client program. User Name and Password are not case-sensitive. If you want to add new user, click “New” button. If you want to modify the user information, click “Modify” button. If you want to delete the user, click “Delete” button.

The remote system that tries to access the DVR system has to login to the DVR system first. The DVR system authorize all users who wants to login. You can use the number pad for password. You can also select certain channel number to block remote viewing.

[System/Disk Information]

‘System/ Disk Information’ is the most useful tool in troubleshooting. Make sure to give correct information to Tech Support when troubleshooting.  Do not click or change anything in this window.

Drive	Type	Data Storage	Total Space	Free Space
C:\	Hard Disk	No	5.239 GB	3.201 GB
D:\	Hard Disk	Yes	244.808 GB	240.921 GB
E:\	CD Rom	No	0 B	0 B

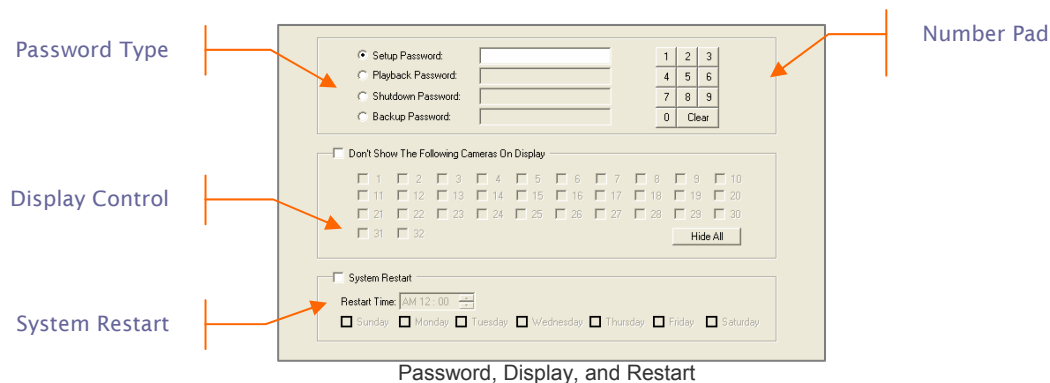
System / Disk Information

System Disk Information window also lets you configure Windows Network settings and install printer. Install only drivers for new printers. Only administrator should alter the settings in this section.

With this option, it will show a message if the Hard Disk has less than 2 GB (Or specified number) of free space. This happens when Backup folder is full, or user is saving personal files on the computer.

3.6 Password Setup

Password and permission control must be performed by the authorized administrator only. Access this setting for troubleshooting purposes. Any changes made can result in unexpected system malfunctions or inability to reset access.



[Password]

You can type in alphabetic or numeric passwords for four different types of access. Limiting access to the **[Setup]** and **[Shutdown]** is a good way to prevent any hampering.

[Display Control]

You can manage what can be displayed on main screen. If you check on camera 1, that camera view is blocked on main display. However it does not affect TV out display or search display.

[System Restart]

Do not check unless necessary. Weekly System Restart is common where power shortage occurs often. This feature does not guarantee any increase in system stability.

Chapter 4

4. Search

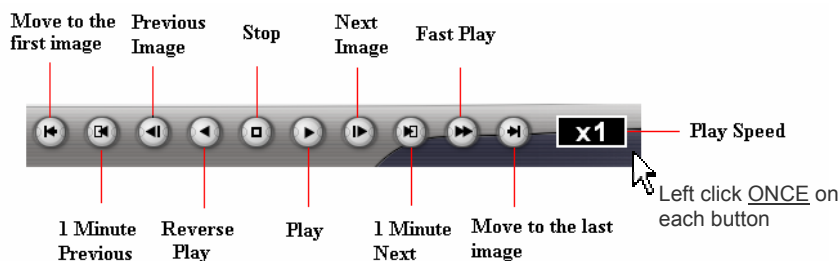
In Search Mode, you can go to specific date and time, and play back recorded video at any speed. Be precise and patient while searching. Only a single mouse-click is required to execute functions. Use Play button and time bar effectively to find the right image.

Capture Time



Playback Time

Search Screen



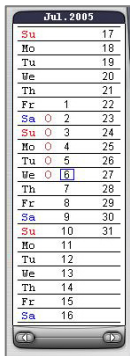
Play Control

Toggle between full screen and minimized screen : **Right click** on any camera channel.

Toggle between single channel and split screen : **Left click** on desired camera channel.



4.1 How to Find Date and Time

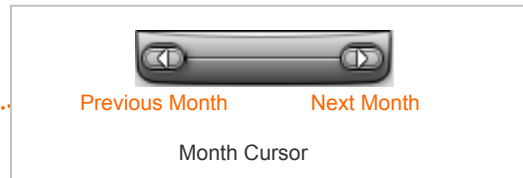


Calendar

[Calendar]

There is a calendar on the upper right side of the search screen. It shows which day the image was recorded. The red circle (○) in front of the date means that there is recording. If you want to change the date, just click the date with a red circle mark.

If you want to change the month, click the arrow button on bottom of the calendar.



If you want to change the camera, just click the image on the display screen.

You can change brightness and adjusting contrast on a channel selected. Click on appropriate buttons to adjust the value.



[Figure 23] Contrast Control



[Figure 24] Brightness Control

Once the right date is selected you can search to the scene of interest by using Time Bar.

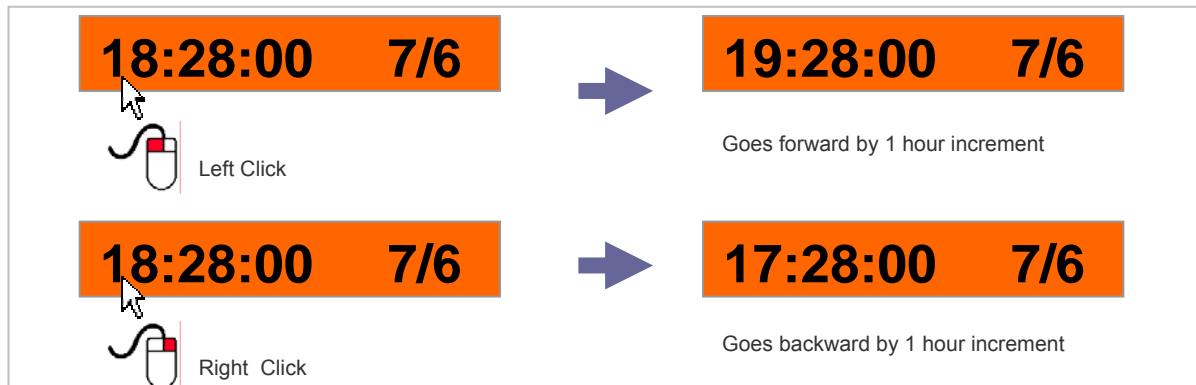
4.2 How to Use Time bar



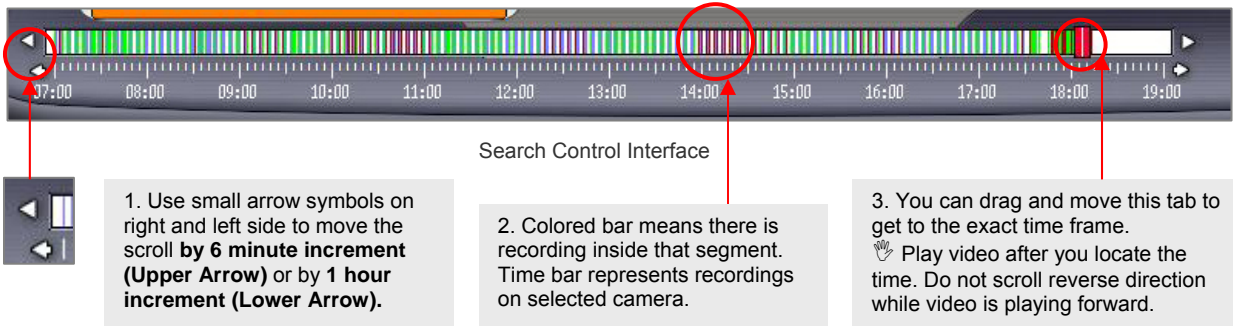
Search Control Interface

[Time Display]

With FX DVR, you can easily change the time with simple mouse clicks.

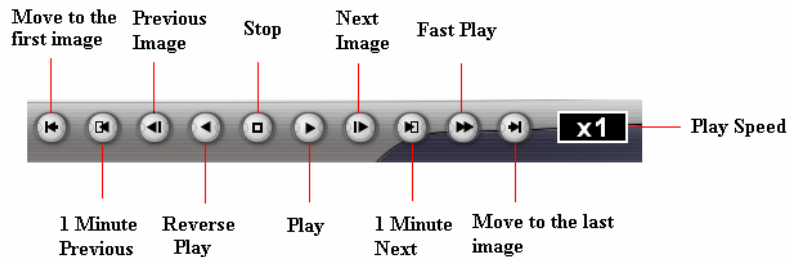


The same applies for Minute change. If there is no image, it will display closest time with image. FX DVR uses 24 hour military time. This method is safer and more accurate than scrolling on Time bar.

[Time Bar]

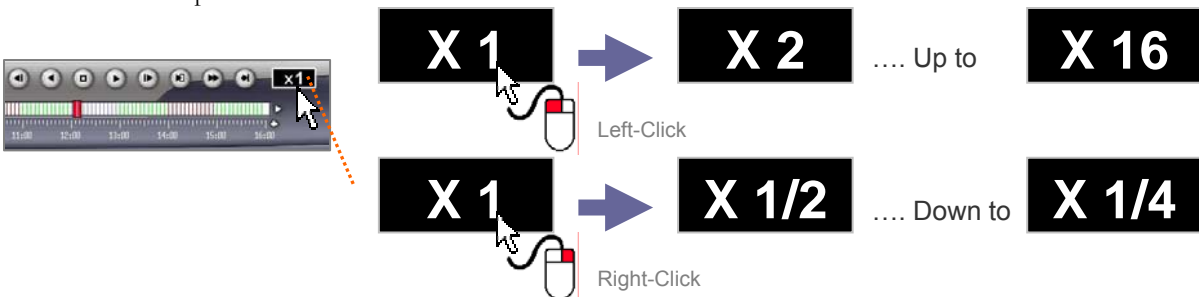
4.3 How to Play Back Video Data

In search, you can select 1-camera mode or 16-camera mode. You are going to see all the pictures at the same time whenever you click on any of the Playback buttons. Each button does its job as described in the following.



- **Move to the first image:** This button shows the first image of the specified date. (The date has already selected on the calendar) This button does not show the image at 0:0 but the first recorded image on the date.
- **1 Minute previous:** shows the 1-minute previous image before the current displayed time on the clock.
- **Previous image:** shows the right advanced image.
- **Reverse Play:** plays the image in the reverse way.
- **Stop:** stops play, reverse play and fast play.
- **Play:** displays the images at the real time speed with sound if it exists.
- **Next image:** displays the following image.
- **1 Minute Next:** displays the next image that is 1 minute.
- **Fast play:** plays the images step by step.
- **Move to the last image:** displays the last images of the date.
- **Play Speed:** frame play speed (from x-16 to x16)

Tip : You can also use speed box to alter the speed while playing. Simply click left or right button on mouse to switch between different speeds



4.4 Smart Search

Smart search feature in FX DVR lets you find the image faster and more accurately. Smart Search function can be activated in a single channel playback mode.



1. Select the channel you want to perform Smart Search
2. Right-click inside the camera view to stretch the image
3. [Smart Search Off] button appears on top right corner. Click on the button to activate Smart Search.

Smart Search On

4. A new [Search] button appears in place of Playback Speed display.
5. Draw a box, or boxes, that you want to search.
6. Click on [Search] button to detect any change in the box designated
7. It will fast forward until any change of scene is detected.
8. You can save or print the image if necessary
9. Keep clicking on 'Search' to view to the next frame.
10. It will resume fast forward if the scene has no active change.
11. To exit Smart Search mode, click on Smart Search button on top.

Search

What is Smart Search for?

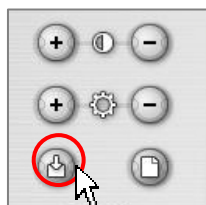
- Smart Search is effective if a certain object is missing or moved with suspicion. It can reduce lengthy search time by targeting certain object or area of interest.. For an example, if a bag is missed in the bank lobby, you can draw a box where the bag was, and perform Smart Search on it. You can obtain time and cause of displacement faster and more accurately than standard searching

4.5 How to Save Snapshot Image

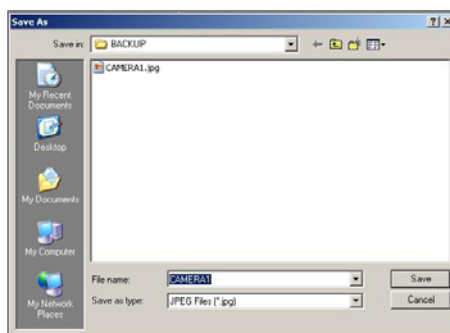
You can save snapshot during search as JPEG image with FX DVR.

First, search to the scene of interest and pause the video.

You can use Previous Image button  or Next Image  button to move frame by frame. Only one camera view can be selected.



1. Click on 'Save Image' Button





2. Save the image in desired location.
(Default location is 'BACKUP' folder in 'C:' Drive)



3. Burn it on blank CD or DVD.
Refer to Backup section for instruction.

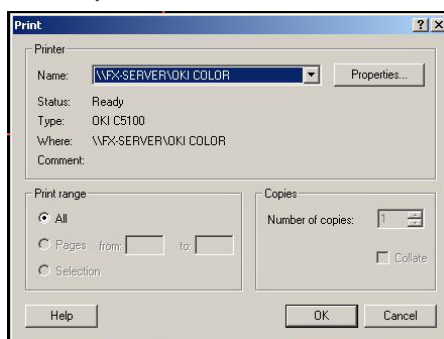
4.6 How to Print Snapshot Image

You can also perform quick printing of snapshot image. Make sure a printer is connected properly before printing.

First, search to the scene of interest and pause the video. You can use Previous Image button  or Next Image  button to move frame by frame. Only one camera view can be selected.



1. Click on 'Print Image' Button



2. Select printer and press OK. Printer MUST be installed already. For printing setup refer to the Administrator's manual or contact tech support.



3. Make sure printout is good.

Make sure a printer is installed properly. Installing drivers only is preferred. Installing software can cause unexpected results such system slowdown and file corruptions.

To add a new printer, go to **[System/Disk Information]** in [Setup], and click on **[Add a new printer]** button.

Save and Print feature is standard in all FX client and viewer software as well.

Chapter 5

5. Backup

There are several methods to approach backup procedure.

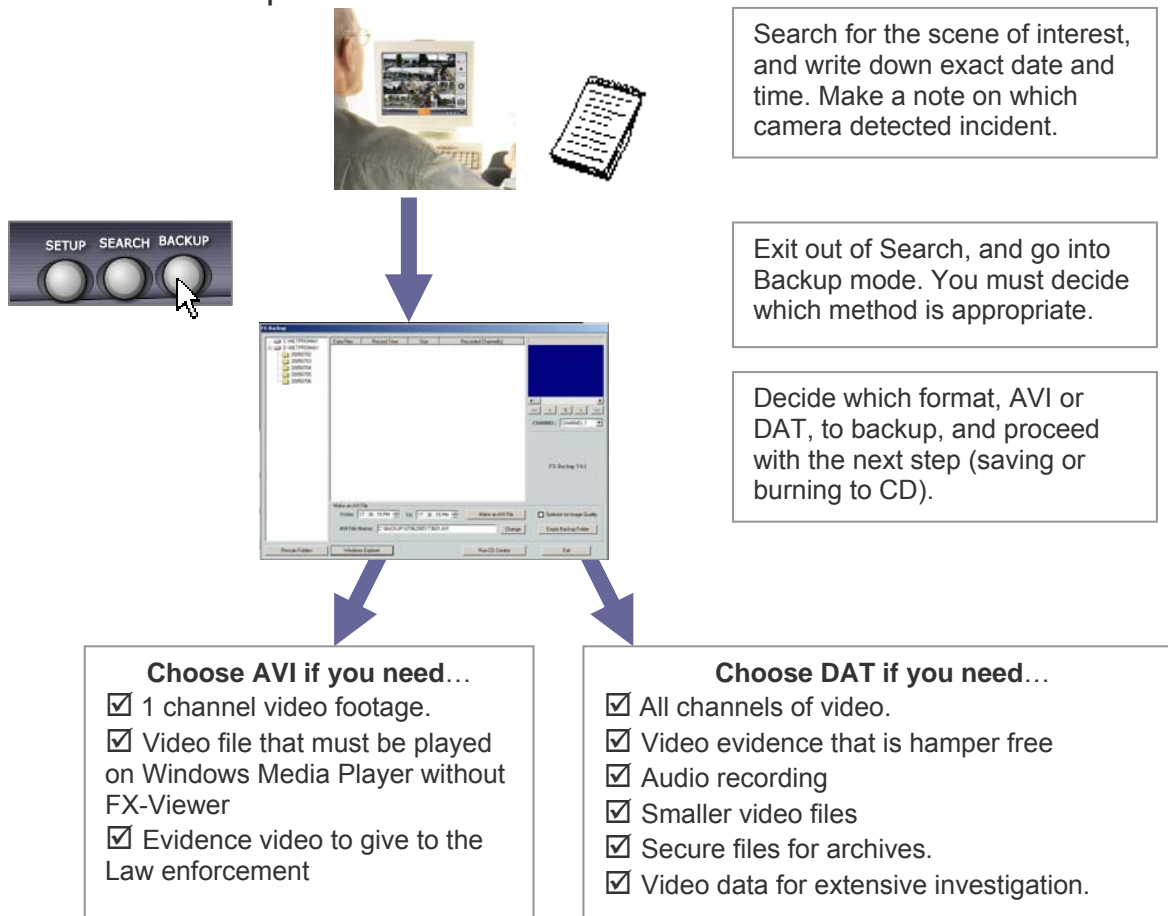
- Quick image save in Search mode.
- AVI video backup in Backup mode.
- DAT video transfer in Backup mode.

Make sure to obtain correct date and time in search mode before starting backup.

IMPORTANT!

You must back up videos **IMMEDIATELY** when you are aware of any incident. Automatic recording process will eventually delete old video data.

5.1 Backup Basic Guideline



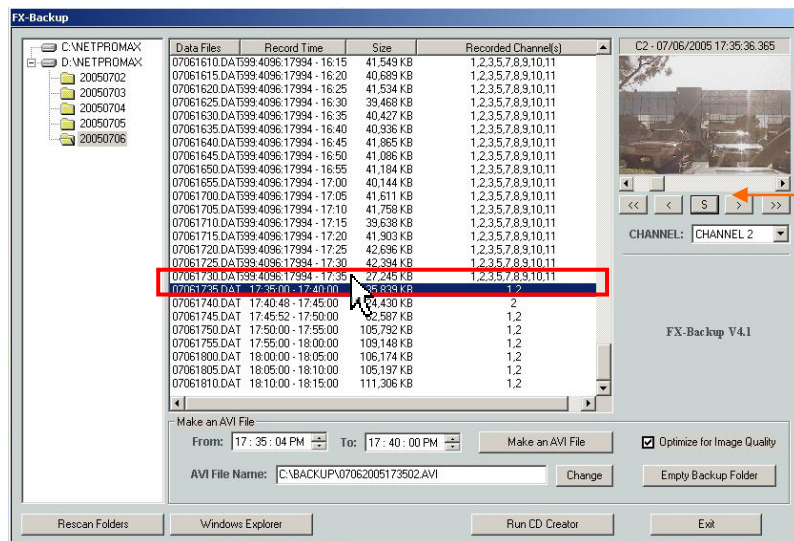
5.2 How to Find Video Data

1. Choose the date with scenes of interest.



Backup Screen 1

2. Click once on DAT file that contains start of video footage. Only one file can be selected.



You can preview DAT file here. Make sure to select correct Channel.

Backup Screen 2

5.3 How to Back Up in AVI Format

Once the right file is selected from the list, you can start AVI backup. AVI backup involves 2 procedures.

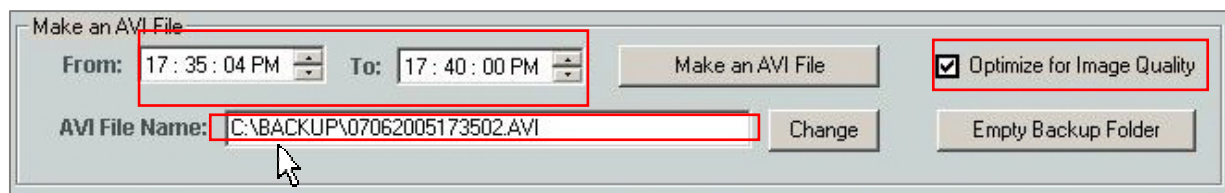
- Converting and saving file.
- Transferring file to storage media (i.e. CDR, CDRW, DVD-R, USB)

AVI file can be played on Windows Media player, and is popular format that can played on various media player software. However, file size is much larger than DAT files, and only 1 channel of video can be created.

1. Select camera channel.

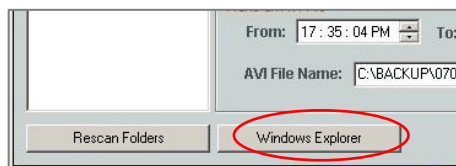


2. Put the time, and check on 'Optimize for Image Quality'

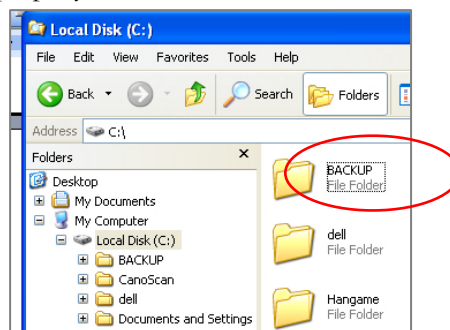


AVI File control

- Click on 'Make an AVI file' button to start converting video into AVI file.
- All videos are stores in 'C:\BACKUP' Folder. You can designate specific location by typing in the directory information in 'AVI File Name' box.
- Once file is created click on 'Windows Explorer button', and go to 'Backup' folder in C: drive to confirm there is data. Double click on video files if they play properly.



AVI File control



BACKUP folder in C: Drive

- Start CD Creator Program to burn onto CD-R or DVD-R



Run CD Creator

5.4 How to Back Up in DAT Format

All video images are saved with DAT file extension. DAT file is raw file compressed with proprietary Enhanced MJPEG codec. Each file contains data with 5 minutes interval. Size can vary depending on the number of cameras that recorded or environmental factors. DAT file shows all camera information just as in FX DVR server, and is much smaller in size. However, FX-Viewer software is required to play these files. In general, unless required, utilizing FX-viewer on DAT files is superior method when extensive searching is involved.

- Copying DAT file is similar to file transferring in Windows.
 - No converting or saving is required before writing onto media.
- Make sure you have all the information from Search ready (Date, Time, Camera number)
 - Click on Run CD Creator.
 - Select right files in CAPDATA folders, and write onto CD/DVD media.

How to interpret DAT files.			
Data Files	Record Time	Size	Recorded Channel(s)
07001750.DAT	17:50:00 – 17:55:00	105,792 KB	1,2
Date Starting Time	5 Minutes Segment	File Size (Kilo Bytes)	Cameras with Recording

5.5 How to write onto Blank CD-R

To write AVI files created in BACKUP.

1. Insert blank CD into CD-RW drive. If window pops up asking for the action, just click **Cancel**.

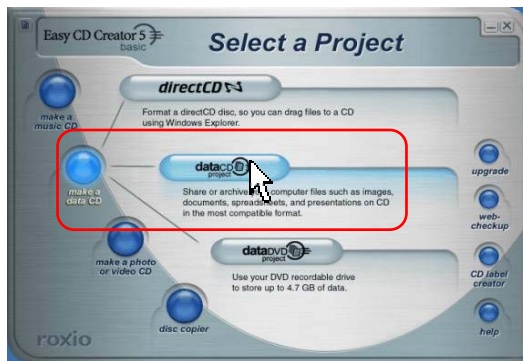


2. Go to 'Backup', and click on 'Run CD Creator'.



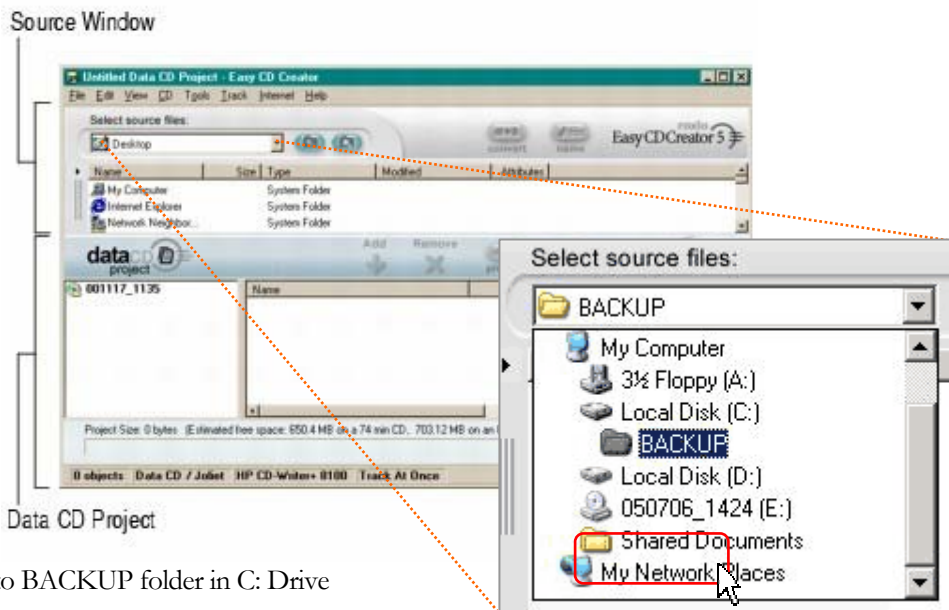
Run CD Creator

3. Click on 'Make a data CD', and 'DataCD Project' (With DVD-R, click on 'DataDVD')



CD Creator

4. Wait for the program to start.

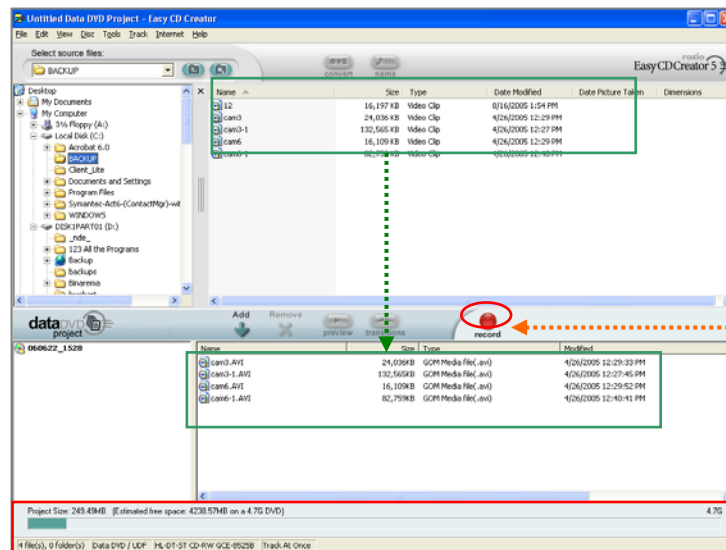


5. Go to BACKUP folder in C: Drive

6. Find AVI files that you want to copy and select with mouse (single Left click). Click **Add** button.

You can add until disk is full. CDR can hold up to 700 MB of file size. (DVD-R can hold up to 4.7 GB)

7. Check the available file size on info bar on bottom. When all the video files are added, click on **Record**.

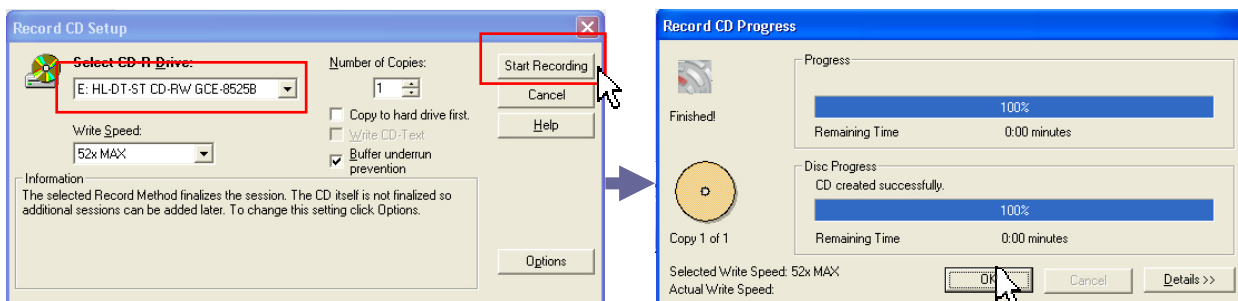


Easy CD Creator 5 : Record CD

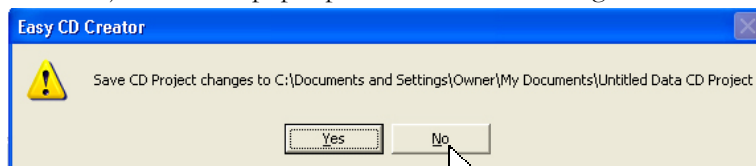
Click on Record to start burning CD

Make sure file size is smaller than maximum space on media

8. Click **Start Recording**, and click **OK** when recording is complete.



9. Click on **NO** if 'Save Project' window pops up. Close CD Creator Program.



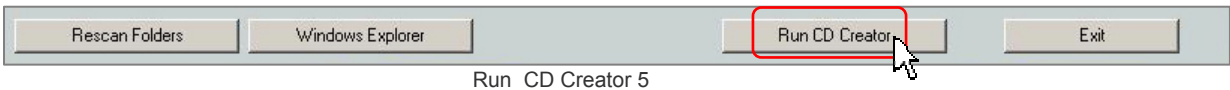
Do not save changes.

10. Take out CD. Play on another Windows PC to confirm video is recorded correctly.

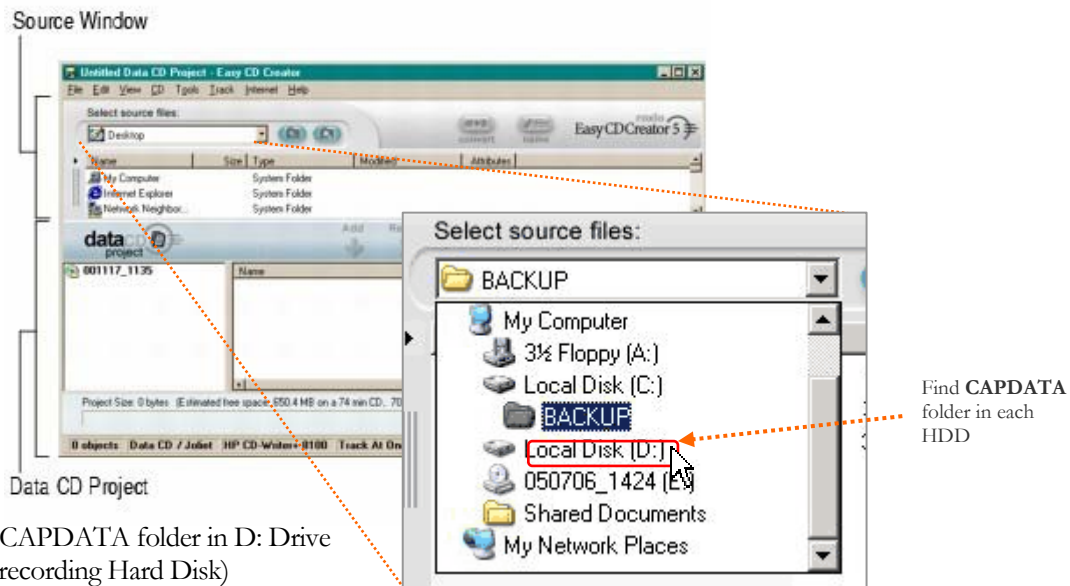
To record DAT files.

Backing up DAT files is more advanced method compared to AVI recording. Reading DAT files on another computer requires FX-Viewer software. There is no conversion process as in AVI videos. You can record DAT files directly from CAPDATA folder in recording Hard Disk. Do not back up files in progress of recording.

1. Insert blank CD into CD-RW drive. If Windows pops up asking for the action, just cancel.
2. Go to 'Backup', and click on 'Run CD Creator'.



3. Click on 'Data CD Project' (With DVD-R, click on 'Data DVD Project')
4. Wait for the program to start.



5. Go to CAPDATA folder in D: Drive (Or any recording Hard Disk)

Look for the folder with the right date, and choose that folder to show all DAT files.

6. Find DAT files that you want to copy and select with mouse (single Left click). Refer to **Chapter 5-4** 'How to Interpret DAT files'. Click **Add** button. You can add until disk is full. A blank CD can hold up to 700MB of file size. A CD-R can hold up to 4.7 GB of file size.
7. Check the available file size on info bar on bottom. When all the video files are added, click on **Record**.
8. Click **Start Recording**, and click **OK** when recording is complete.
9. Click on **NO** if 'Save Project' window pops up. Close CD Creator Program.
10. Take out CD (or DVD). Play on another Windows PC to confirm video is recorded correctly.
11. You must use **FX- Viewer** to play these files. Refer to FX-Viewer section for instruction.

Chapter 6

6. FX-Client

FX DVR server is capable of handling any network environment. FX-Client software is required to connect to FX DVR. No web browser connection is supported at this time. This ensures secure and reliable connection with good image quality. Apple computers are not compatible with FX-Client at this moment. Before using FX-Client, networking of FX DVR MUST be firmly established and tested. Port assignment, port forwarding, firewall adjustment, Domain Name registration, and other networking setup must be finished by the Security professional, or authorized IT personnel.

6.1 FX-Client Software Requirement and Installation

Installation

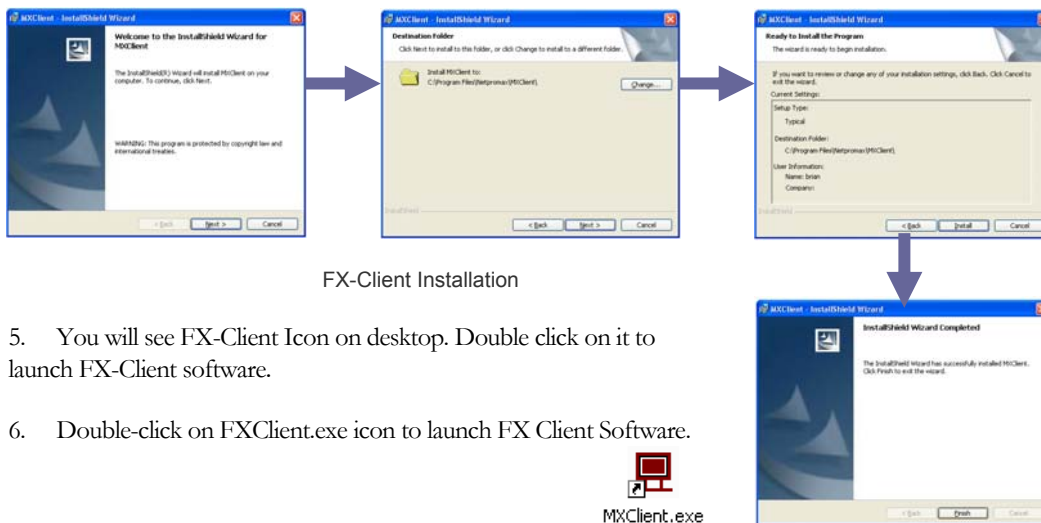
1. Make sure PC meets all the requirements above.
2. Insert CD with FX-Client software.
3. Double click on 'FXClient-Setup.exe'



4. Follow instruction on Installation Window, and complete setup.

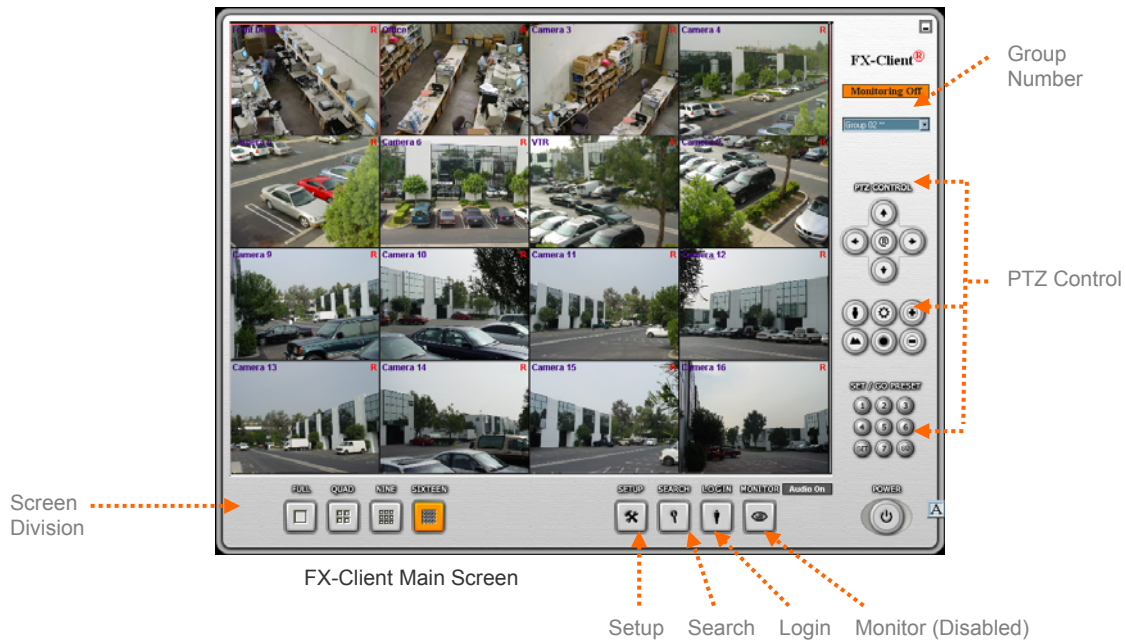
FX-Client Requirement

- Windows XP or 2000
- Direct X 8.1 or newer
- 128 MB RAM or better
- 1024x768, 32 Bit Resolution



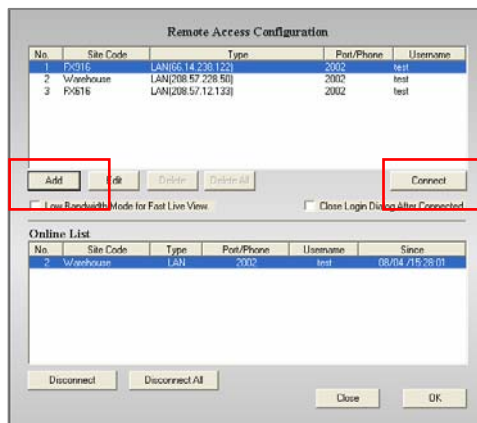
6.2 FX-Client Features and Capabilities

Although simple in its form, FX-client software has many advanced features built in its software. Simplistic GUI is intended for better user experience, and is common theme with FX DVR and FX-Client. FX-Client can connect up to 125 DVRs simultaneously. You can designate specific camera from various locations in each channel. You can control PTZ cameras remotely. It is built with password control to ensure secure access at different levels. Search feature allows navigating through archives remotely. You can even save snapshot or playback images remotely as well.

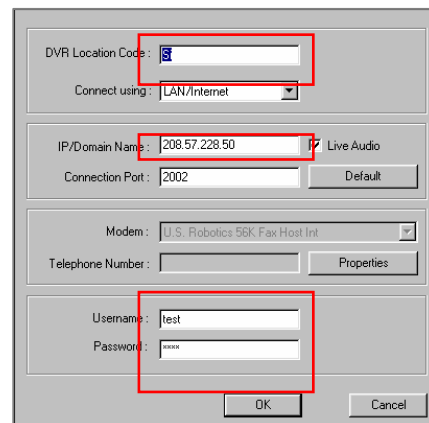


6.3 Adding DVR Site (First time connection)

1. Open FX-Client.
2. Left-Click on **Login. Remote Access Configuration** window pops up.
3. Left-Click on **Add**.
4. You can add DVR location here. Put in **DVR Location Code** to identify from others.
5. Select connection method. (You must choose **LAN/Internet** unless advised otherwise)
6. Put in **IP** number of DVR or **Domain name** made with FX DVR. Proper IP designation and router port-forwarding must be completed before any attempt on remote connection.
7. **Live Audio** must be unchecked unless instructed by the administrator.
8. Port number by default is 2002.
9. Type in User name and Password.
10. Press OK
11. Close Screen configuration by clicking computer icon on the bottom right.
12. You will see that the new site now appears in the list.
13. Click 'Connect' each time you want to connect.



Remote Access Configuration



DVR Site Configuration

6.4 Connecting to DVR site (Login)

1. Open **FX-Client**.
2. Click on **Login**.
3. Select DVR location. Make sure the site is highlighted blue.
4. Click on **Connect**.
5. Close **Remote Access Configuration** after the connection is established.
6. When monitoring is done, click on Login, and click on Disconnect All.
7. Or you can simply close the software.

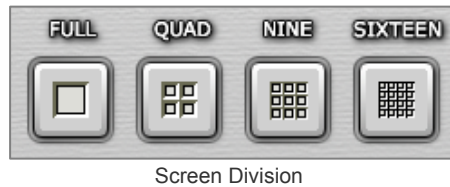


6-5 Screen Display Control

You can control how cameras display with simple mouse clicks in a similar method present in FX DVR.

- ✎ Toggle between full screen (no interface) and Interface screen : **Right click** on any camera channel.
- ✎ Toggle between single channel and split screen : **Left click** on desired camera channel.

You also have preset screen division you can use. Use mouse click to switch between division types.



6.6 Setup

FX-Client's **Setup** screen includes multi camera/site configuration and some remote management functions.

Screen Configuration

DVR Site : You can choose any DVR set up in Remote Access Configuration.

Camera number and position

Screen Configuration

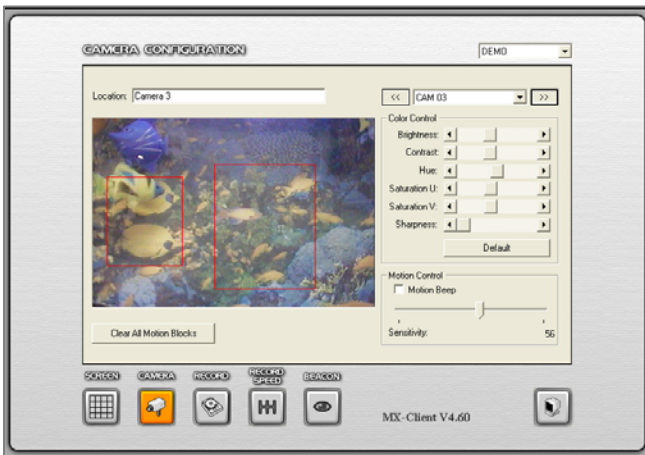
There are 16 blocks on the main screen for live remote view. You can assign the DVR location and a specific camera for each block.. Each block represents the channel displayed on Live screen. If you set **[Automatic Group Switching Period]** with a value other than 0, and multiple sites are connected, FX-Client will switch from one screen group to another. Leave at 0 for default without switching.

At setup, you can change some of settings of the FX DVR server remotely. Your login account must be at administrator's level (Level 1). Only two setting categories are affected remotely : **Camera** and **Record**. Any changes made in these two settings will be reset at the server once you exit the setup. It is recommended to disconnect and reconnect to that server to confirm changes.



Camera Configuration

This is effective only if your account is at level 1. All settings are as same as FX DVR server, and, with Level 1 authority, can affect FX DVR Server directly.

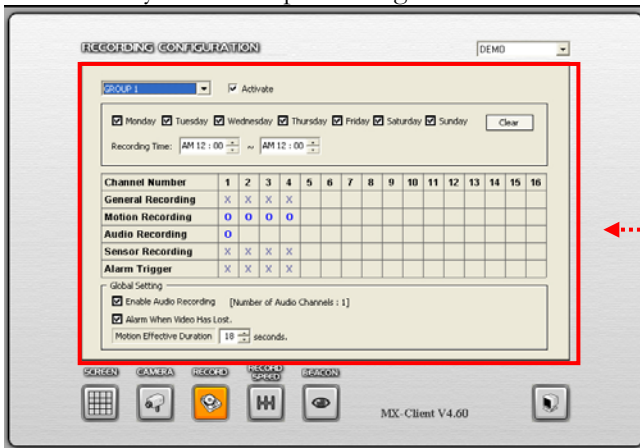


Avoid excessive changes on setup remotely for maximum stability.

Camera Configuration

Recording Configuration

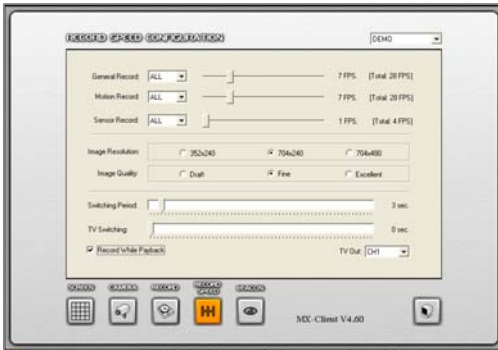
With level 1 you can set up recording schedule as well.



WARNING
Only Security Administrator should have level 1 account to avoid internal mistake or intrusion.

Recording Configuration

Record Speed & Beacon



Record Speed Configuration

Record speed section can not be altered remotely. This window, however, provides essential information on system for troubleshooting by the administrator. Beacon section is not enabled, and has no functions. Do not check on any part of this screen.



Beacon

IMPORTANT

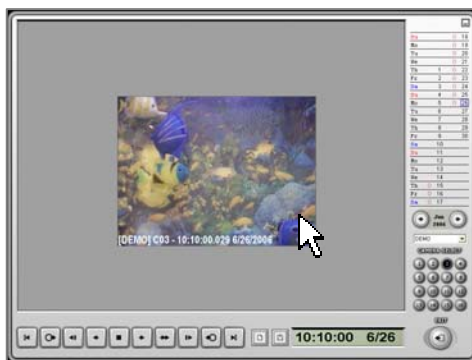
There is a button called Monitor. This feature is not enabled, and must not be clicked. Make sure not to check on any of the monitor controls. (This is automatic video alert feature that should be determined by the Security Administrator only)



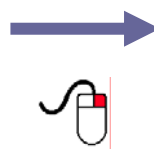
This feature is intended for CMS (Central Monitoring Service) with Call service capabilities. Remote central computer must have dedicated T1 or T3 line with static IP.

6.7 Search

Level 1 and Level 2 users can access Search mode in FX-Client. Remote Search is limited to 1 channel playback, and highly dependent on bandwidth capacity at FX DVR location (Upload speed). Do not click mouse buttons repetitively until desired function is processed.



Search Screen




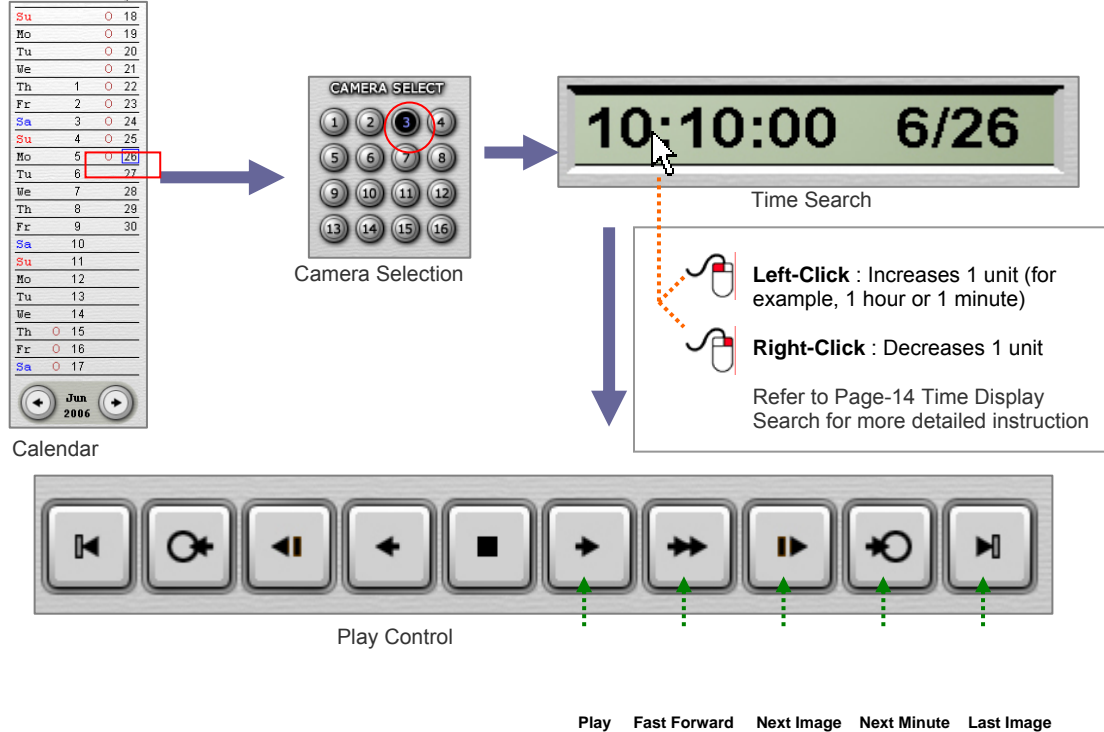
Right Click on channel to view in full screen.



Search Screen Full

How to search

1. Click on the date of interest. Recording days are marked with .
2. Choose the Camera Number to play video.
3. Go to the time you wish to check. If there is no video footage, it will display the time with video closest to it.
4. Click on **Play** button to play back the video. Try not to use reverse play or fast reverse play.
5. Using **Next Image** or **Next Minute** button is a great way to find right image remotely
6. Write down date, time, and camera number if any suspicious image is caught. If necessary, save or print the image.
7. Exit when you are done.



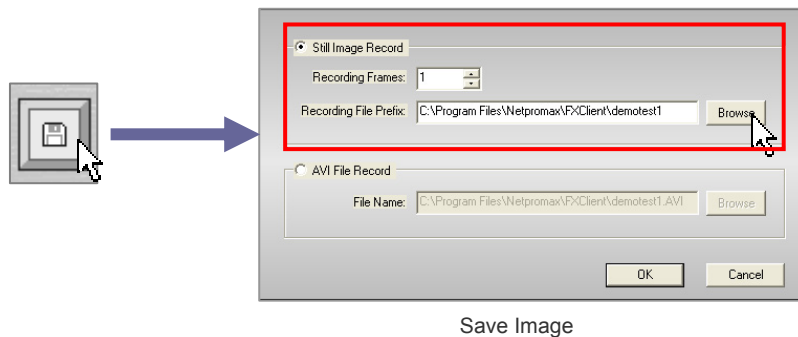
6.8 How to save Image

FX-Client can save images for quick reference in two ways.

The first is to save still image in JPEG file.

You must stop the video to get the image that you want to save.

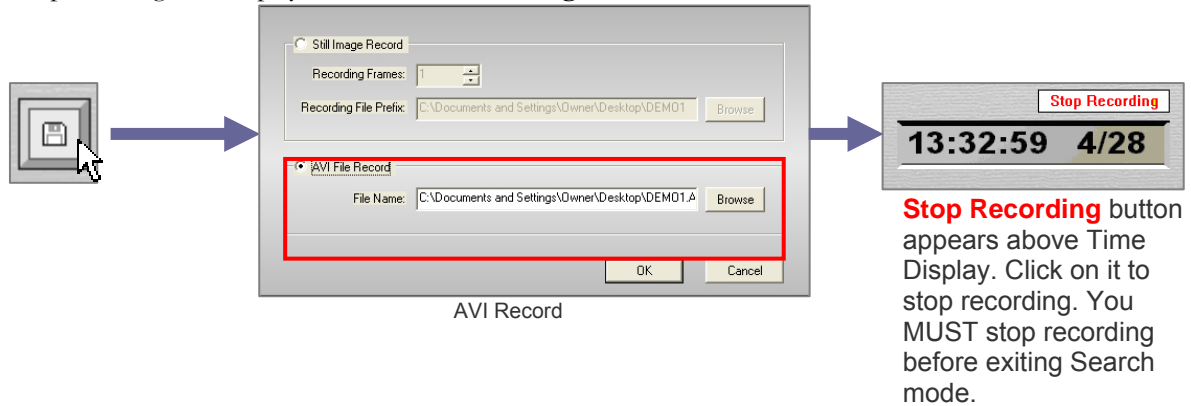
Click on **Save Image** button, and select **Still Image Record**. Saving 1 frame at a time is highly recommended.



Make sure to pause video before saving files. Click on Browse button to save image in designated folder.

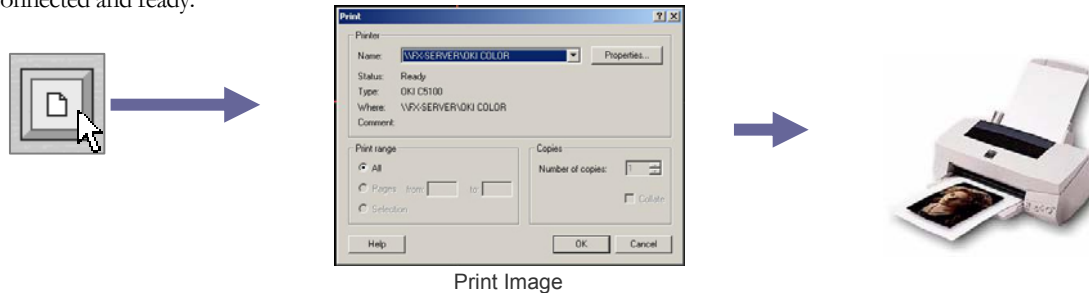
Another way is to record streaming videos being played on FX-Client. You **CAN NOT DOWNLOAD** video directly from FX DVR server. Such action could cause serious malfunction due to the bandwidth limitation and over-running FX DVR's recording process. FX-Client captures what is being played on remote computer screen. Picture quality and frame speed can be degraded and choppy compared to the images on FX DVR server. This is, again, caused by bandwidth limitation with current technology. AVI File Record function **SHOULD NOT** be used for extensive evidence analysis. Direct backup of video files from FX DVR server is the only proper method for such action.

To capture images while playback, click on **Save Image** button, and select **AVI File Record**.



6.9 How to print image

While camera is selected and paused, you can also print still image on your personal printer. Make sure your printer is connected and ready.



Chapter 7

7. FX-Viewer

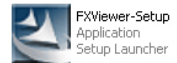
FX-Viewer is special software that can read and play DAT files from FX DVR server. DAT files, as mentioned in Chapter 5, are better than AVI files in terms of file size, picture quality, and video control. FX-Viewer is required to analyze DAT video files at full extent. Just as FX DVR and FX-Client software, FX-Viewer is built with the similar layout of GUI for easy operation.

7.1 FX-Viewer Software Requirement and Installation

FX-Client Requirement

- Windows XP or 2000
- Direct X 8.1 or newer
- 128 MB RAM or better
- 1024x768, 32 Bit Resolution

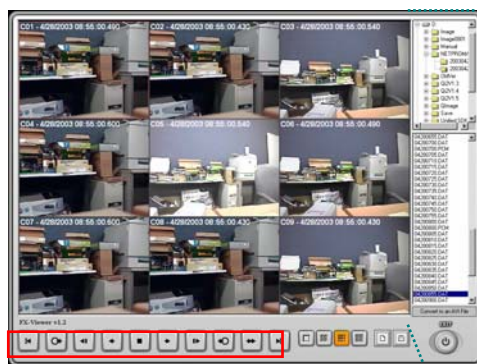
1. Make sure PC meets all the requirements above.
2. Insert CD with FX-Viewer software.
3. Double click on 'FXViewer-Setup.exe'
4. Follow instruction on Installation windows, and finish installing.
5. Double click on FX-Viewer.exe icon to launch the software.
6. You can browse to CD or folders with DAT files to begin analysis.



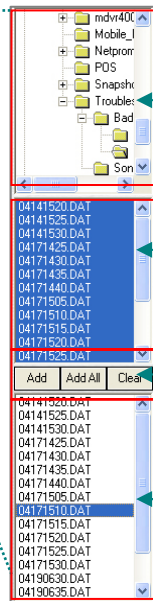
7.2 FX-Viewer Features and Capabilities

With FX-Viewer you can read original video files and play back. Its functions replicate Search mode in FX DVR server. You can view all cameras on one screen, synchronized with time progress display on each channel. You can select a channel, and view in full screen as well. You can save and print still image in JPEG. With AVI conversion option, you do not have to rely on FX DVR for AVI backup. FX-Viewer software is great for managing large archives of video backup securely.

7.3 How to load DAT files

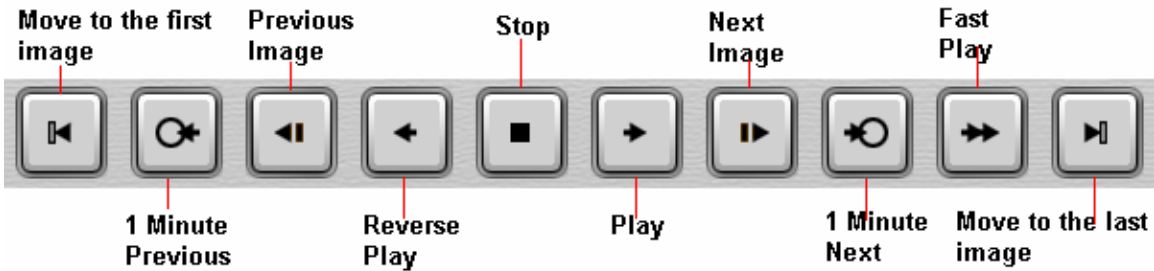


FX-Viewer



1. Browse to the DVD/CD or folders containing DAT files backed up from the server
2. Select files to add to play list.
3. Click on Add All to play all the files. (Refer Chapter 5-4 to learn how to interpret file name)
4. Select files to play back. FX-Viewer will play all the files following the first file of your choice.
5. Use Control buttons for more detailed analysis

7.4 Playing Video Data



FX-Viewer Control

The buttons are used for reviewing recorded videos. You can select 1-camera mode or 16-camera mode. You are going to see all the pictures at the same time whenever you click any of the above buttons.

7.5 Screen Division and Control



FX-Viewer Screen Division

FX-Viewer supports 1/4/9/16 screen division modes. Select any of those divisions as you prefer.

7.6 Converting DAT Files into AVI Format

You can convert each file into AVI video file that can be played on any media player on Windows. AVI file can only contain 1 camera recording. Each file contains images recorded in 5 minute interval.

1. Click on '**Convert to an AVI File**' button on GUI.

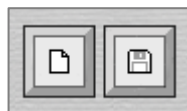
2. Select Camera number

3. Click on '**Save As**', browse to the folder where AVI file will be saved.

4. Click on '**Convert**' to finalize AVI conversion

7.7 Saving and printing Snapshot Image

This feature is same as in Search mode of FX DVR Server. Refer to the chapter 4-4 and 4-5 to familiarize with the process.



FX-Viewer Save & Print

Chapter 8

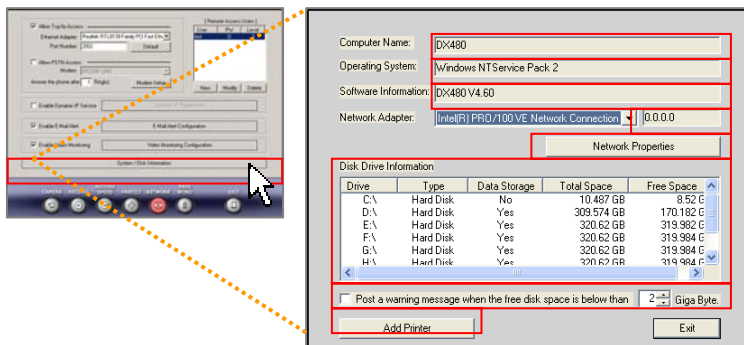
8. Advanced Guide

This Chapter is intended for advanced user settings. Please note that altering default settings can either enhance overall performance or cause serious system malfunctions. Some adjustment can be necessary to avoid failures due to the environment. (i.e. Limited network bandwidth can be critical to both system and network) Read this section thoroughly, and contact Tech Support if any issue is found.

8.1 System / Disk Information

This is one of the most useful tools for troubleshooting. This information can not be transmitted over to FX-Client software. First thing to note is Software Information. You can figure out capabilities and known bugs with model type and version information. You can also set up network and printer here.

Click **[Setup]** → Click **[Network]** → Click **'System / Disk Information'**



1. **Computer Name** : Model name by default.
2. **Operating System** : Windows OS type.
3. **Software Information**: Shows model and version number.
4. **Network Adapter**: Must show valid Network adapter name.
5. **IP Number**: Verifies connection. No IP numbers or 0's mean there is no connection.
6. **Network Properties**: Enables manual configuration of Local or Public Static IP.
7. **Disk Drive Information**: Shows all HDD being used. Data Storage sign must be 'Yes' for recording HDDs.
8. **Printer Settings**: Enables installation of specific printer. Install drivers only.
9. **Post Warning**: Warns users of overused HDDs.
10. **Data Disk**: 'Yes' means video data is recorded.

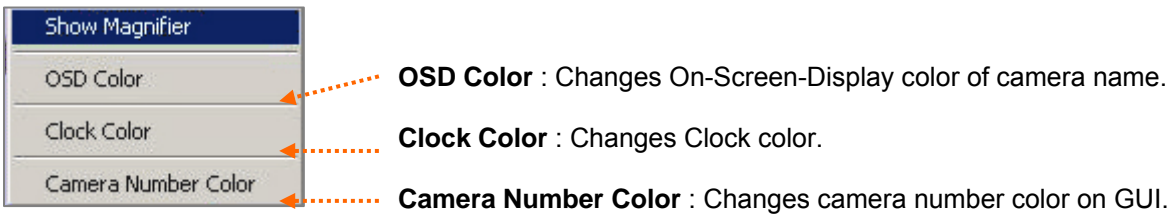
8.2 Magnifier

FX DVR Server has unique feature called Magnifier. You can zoom in with magnifier window on live display. Simply place the magnifier window over the camera or area you wish to enlarge. You can adjust the size by adjusting the window scale. This function is digital zoom. Pixilation will occur because you are simply stretching the image. True zooming capability can only be achieved with Optical zoom cameras.



8.3 OSD Color

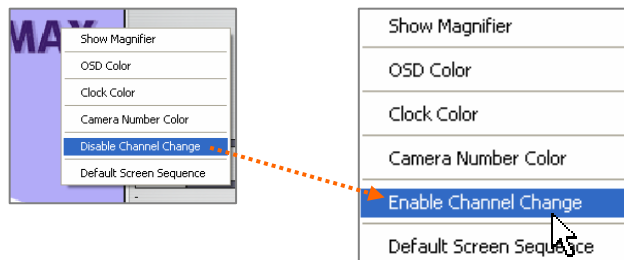
In that same window shown above, you also have to customize OSD, Clock, and camera number colors. Default OSD color is white. This is useful when the background is bright. Right-click on GUI's gray area to bring advanced control window.



8.4 Channel Change

One of the newest feature that is unique to FX DVR series is the ability to change the camera positions on screen. You can drag the channel with left mouse click to a different channel. Simple channel swapping, or repositioning, can eliminate difficulty of camera connections to the BNC inputs. For example, you can connect all the cameras to the DVR without worrying about what channel it should go. This feature is most useful when you want to use Screen Configuration scheme already set on DVR. However, recorded image is from original connection. If searching and backup are active parts of surveillance, avoid this feature, and adjust physical connection to BNC inputs.

1. Go to advanced submenu, and click on 'Enable Channel Change' to activate.

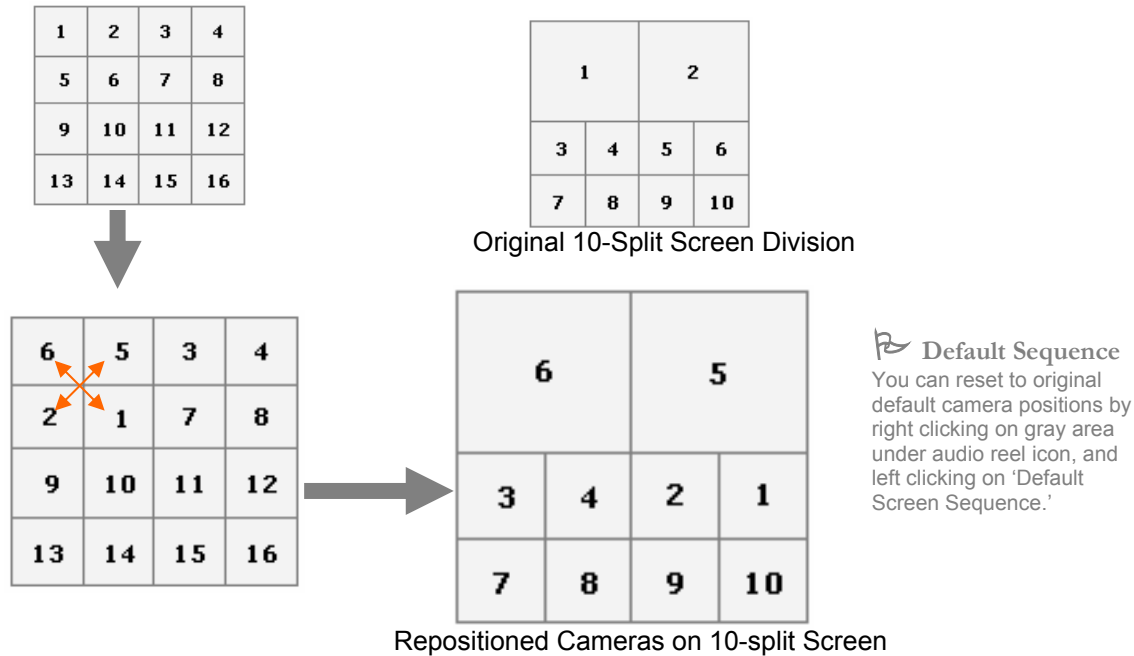


WARNING

Channel Change applies to Display only, not recording.

2. Drag a channel to another channel to swap.

Position of cameras can be easily altered by dragging desired channel onto the new channel box.



3. Once all cameras are positioned correctly, go to the submenu again, and disable 'Channel Change'.
4. To bring original channel configuration back, go to the submenu, and click on 'Default Screen Sequence'

8.5 Advanced Setup

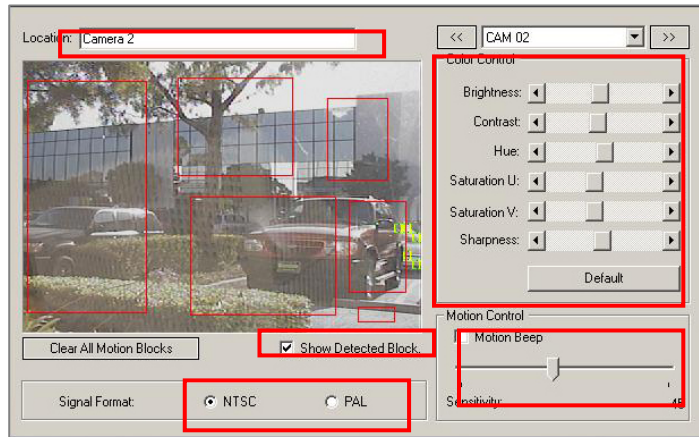
A. Camera Setup

- **Adjustment** : Just as quick camera settings on main GUI, you can adjust several color and brightness levels to each camera. This is helpful when the camera produces dim image or color level is not good compared with other cameras. More vibrant color display can lead to the bigger file size..
- **NTSC/PAL** : One of the common mistakes by the user is wrong signal settings. With FX DVR server you choose either NTSC or PAL signals. It is global setting, and you can not have a mix of two different signal types. If you have black display on main screen, check this setting firsthand.
- **Effective Motion Settings** :As explained in User's Manual, avoid natural objects that will increase file size. A good setup will be making several Motion Blocks (=Motion Detection Zone) only around important area. You can create up to 10 Motion Blocks. If you clear the Motion Blocks whole screen on that channel becomes Motion Block.

With Motion Sensitivity Level you can avoid unnecessary storage loss further. Around 60~70 percent is acceptable setting to detect human movements. You must check on **[Show Detected Block]** to ensure sensitivity level is adequate. For example, if you have wide view screen raise sensitivity level to detect distant human movement.

Type in name for each camera for better identification.

Observe activity of green detection blocks to validate sensitivity level.



You can adjust color and brightness of each camera here.

Make sure Signal format corresponds to the camera specs.

Carefully adjust sensitivity level to maximize storage space.

B. Recording Schedule

Turning on Motion Recording for all channels is basic setting recommended, and FX DVR system will serve its main function of digital recording adequately that way. Elaborate recording schedule can increase storage space further after adjusting motion settings.

■ General or Motion ?

Turn on Motion Recording for maximum storage space. Unlike Time-Lapse Tape recording, DVR can not guarantee how many hours or days it can record in certain settings. Days of recording depends on size of video files created. Environmental factors, such as wind, traffic, and trees, can affect size of files dramatically. Motion Recording is recommended for all situations. However, certain areas can be more critical than others. Example will be the area where the vault is located. You can turn on General Recording for that camera only to avoid any loss of images.

■ Group Settings

You can create up to 13 groups of recording schedules with FX DVR server. This method can enhance security level during the time of interest while minimize frame use during the time where security is of less concern. You can designate which camera will be recording continuously or in Motion mode. Refer to the User's Manual for an example.

■ DIO Activation

DIO (Digital Input/Output) is advanced feature that enables external devices to be activated upon specific trigger command. FX DVR server is designed specifically for Alarm Relay Output. Turn on Alarm Trigger along with Relay function available in Password window. Alarm device must be self powered as well. Refer to **Appendix A**.

Recording Schedule Setup Example

GROUP 2 ☒ Activate

☒ Monday ☒ Tuesday ☒ Wednesday ☒ Thursday ☒ Friday ☐ Saturday ☐ Sunday

Recording Time: AM 12:01 ~ AM 7:59

From 1 To 16

Channel Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
General Recording	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Motion Recording	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Audio Recording	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sensor Recording	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Alarm Trigger	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Global Setting

☒ Enable Audio Recording 16 Channels

☒ Turn on Speaker For Microphone When Recording. Motion Effective Duration: 1 seconds.

GROUP 1 ☒ Activate

☒ Monday ☒ Tuesday ☒ Wednesday ☒ Thursday ☒ Friday ☐ Saturday ☐ Sunday

Recording Time: AM 08:00 ~ PM 09:00

From 1 To 16

Channel Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
General Recording	0	0	0	0	0	0	0	0	0	X	X	X	X	X	X	X
Motion Recording	X	X	X	X	X	X	X	X	X	0	0	0	0	0	0	0
Audio Recording	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sensor Recording	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Alarm Trigger	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Global Setting

☒ Enable Audio Recording 16 Channels

☒ Turn on Speaker For Microphone When Recording. Motion Effective Duration: 3 seconds.

GROUP 4 ☒ Activate

☒ Monday ☒ Tuesday ☒ Wednesday ☒ Thursday ☒ Friday ☐ Saturday ☐ Sunday

Recording Time: PM 09:01 ~ PM 11:59

From 1 To 16

Channel Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
General Recording	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Motion Recording	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Audio Recording	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sensor Recording	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Alarm Trigger	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Global Setting

☒ Enable Audio Recording 16 Channels

☒ Turn on Speaker For Microphone When Recording. Motion Effective Duration: 1 seconds.

In this setup, three groups are scheduled for recording from Monday to Friday.

Group 2 records all cameras in Motion Recording method from 12:01 AM to 7:59 AM. (You can have it set up for 12 AM to 8AM. Overlapping start / end time usually is resolved automatically.)

Group 1 records nine cameras (CH 1 ~ CH 9) continuously from 8:00 AM to 9:00 PM. I, and records seven cameras (CH 10 ~ 16) on Motion only.

Group 4 records all cameras on Motion from 9:00 PM to 11:59 PM. Alarm Trigger (Relay Out) is on as well.

GROUP 3 ☒ Activate

☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☒ Saturday ☒ Sunday

Recording Time: AM 12:00 ~ AM 12:00

From 1 To 16

Channel Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
General Recording	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Motion Recording	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Audio Recording	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sensor Recording	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Alarm Trigger	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Global Setting

☒ Enable Audio Recording 16 Channels

☒ Turn on Speaker For Microphone When Recording. Motion Effective Duration: 1 seconds.

In this setup, three groups are scheduled for recording from Monday to Friday.

Group 3 records all cameras in Motion Recording method from 12:00 AM to 12:00 AM (24 hours) ONLY on Saturday and Sunday.

Below is a recording time table according to the setup example.

Time	Sunday			Monday			Tuesday			Wednesday			Thursday			Friday			Saturday		
Recording Method	General	Motion	Alarm	General	Motion	Alarm	General	Motion	Alarm	General	Motion	Alarm	General	Motion	Alarm	General	Motion	Alarm	General	Motion	Alarm
12:00 AM 8:00 AM		All 16 Channels	All 16 Channels		All 16 Channels	All 16 Channels		All 16 Channels	All 16 Channels		All 16 Channels	All 16 Channels		All 16 Channels	All 16 Channels		All 16 Channels	All 16 Channels		All 16 Channels	All 16 Channels
8:00 AM 9:00 PM		All 16 Channels	All 16 Channels	CH 1 ~ CH 9	CH 10 ~ CH 16		CH 1 ~ CH 9	CH 10 ~ CH 16		CH 1 ~ CH 9	CH 10 ~ CH 16		CH 1 ~ CH 9	CH 10 ~ CH 16		CH 1 ~ CH 9	CH 10 ~ CH 16			All 16 Channels	All 16 Channels
9:00 PM 12:00 AM		All 16 Channels	All 16 Channels		All 16 Channels	All 16 Channels		All 16 Channels	All 16 Channels		All 16 Channels	All 16 Channels		All 16 Channels	All 16 Channels		All 16 Channels	All 16 Channels		All 16 Channels	All 16 Channels



DIO Setup (Only with DIO option installed. FXR-480 Enterprise unit has DIO built in)

D/ Setup : Sensor Input (i.e. PIR, Door sensor, etc.)

1. First set up input and output device properly to DIO board. Refer to the Diagram.
2. Go to **Setup** -> **Record**
3. In **Sensor Recording box**, click on the channels that are connected with Input devices (i.e. Sensor).

GROUP 1 ☒ Activate

☒ Monday ☒ Tuesday ☒ Wednesday ☒ Thursday ☒ Friday ☒ Saturday ☒ Sunday

Recording Time: AM 12:00 ~ AM 12:00

From 1 To 16

Channel Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
General Recording	0	0	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Motion Recording	x	x	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Audio Recording	x															
Sensor Recording	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Global Setting

☐ Enable Audio Recording 1 Channel

DIO Device: DIO_NONE

☐ Alarm When Video Lost

☒ Turn on Speaker For Microphone When Recording

Motion Detection to Relay(Alarm) Output Map

Sensor Input to Relay(Alarm) Output Map

Motion Effective Duration 1 seconds

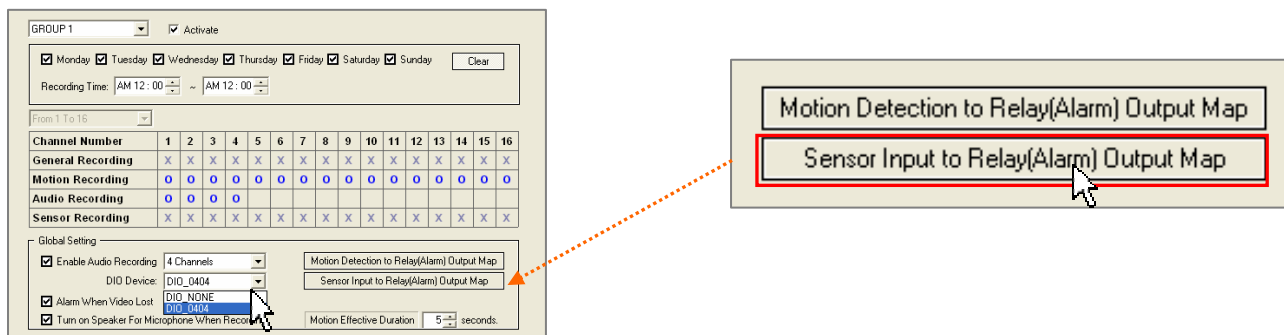
4. If **Motion Recording** method is turned on, both **Motion** and **Sensor** recording trigger recording

5. To set up Relay Trigger feature, make sure Output

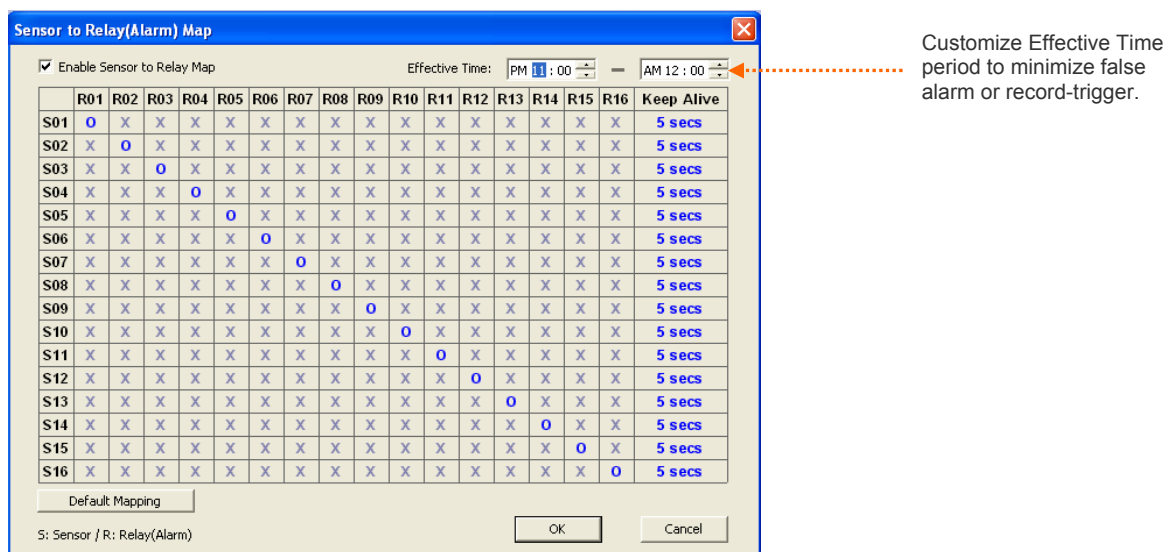
devices, such as Strobe Light, Siren, and Alarm, are properly connected to the DIO board. (***Do not follow the steps below if you do not have Output device***)

6. Click on DIO Device drop-down box to activate and select DO option.

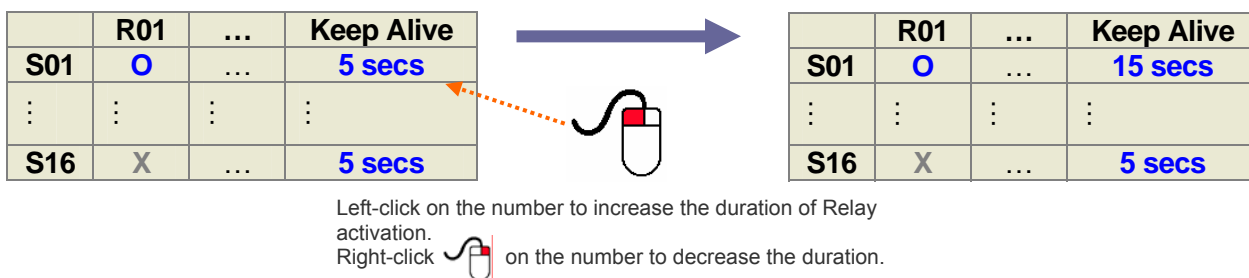
7. Click on [Sensor Input to Relay(Alarm) Output Map].



8. You can designate Sensor (**S[Channel Number]**) channels to trigger certain Relay (**R[DO Number]**) output. For an example, if **S01** and **S02** are marked **O** for **R01**, detection at Sensor 1 and 2 will activate Relay device on DO1 output.



9. You can adjust duration of which Relay device will be activated. Left click [Keep Alive] box for a desired Sensor channel to increase time by a second. Right-click will decrease the duration time by a second.



DO Setup : Relay Output (i.e. PIR, Door sensor, etc.)

1. First set up input and output device properly to DIO board. Refer to the Diagram.

- Go to **Setup -> Record**
- Relay output does not affect recording. There are two ways of triggering Relay activation.
- [**Sensor Input to Relay(Alarm) Output Map**] : Follow the steps provided in DIO setup above.
- [**Motion Detection to Relay(Alarm) Output Map**] : Click on this button to configure Relay setup.

Motion to Relay(Alarm) Map

☒ Enable Motion to Relay Map

Effective Time: PM 11:00 — AM 12:00

	R01	R02	R03	R04	R05	R06	R07	R08	R09	R10	R11	R12	R13	R14	R15	R16	Keep Alive
M01	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M02	X	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M03	X	X	O	X	X	X	X	X	X	X	X	X	X	X	X	X	10 secs
M04	X	X	X	O	X	X	X	X	X	X	X	X	X	X	X	X	3 secs
M05	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M06	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M07	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M08	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M09	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M17	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M27	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M28	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M29	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M30	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M31	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs
M32	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5 secs

Default Mapping

M: Motion / R: Relay(Alarm)

OK Cancel

Customize Effective Time period to minimize false alarm or record-trigger.

Left Click : Increase 1 second

Right Click : Decrease 1 second

M17 to M32 active only on 32 CH DVR.

- You can adjust duration of Relay equipment as described in Sensor to Relay setup.
- Relay output (Alarm) is activated by FX DVR server connecting and disconnecting the circuit. It does not have capability to send or receive multiple signals or data in a single input or output.

C. Record Speed

Record Speed settings include one of the most important aspects of FX-DVR server. Image resolution and FPS (Frames per second). Processor can overload and lead to serious malfunctions if these two settings are not set up correctly.

1. FPS

Frames Per Second (FPS), or Images Per Second (IPS), is the measure that distinguishes one DVR to another. Total FPS capability determines price, components, HDD requirements, and stability of the DVR. Movies in general records images at 22~24 FPS on film strip. Television images are processed at 30 FPS. With that in mind, recording 16 separate channels in 30 FPS each requires processing power that is dedicated in handling such advanced task. Industry trend used to be 1 FPS per channel. On FX-DVR DVRs 7FPS per channel is recommended for b

Total FPS is based on 1 CIF setting (352x240). Setting wrong FPS number can cause serious malfunctions, including inability to record all channels. An example below is from FXR enterprise DVR server.

Number of Camera: 16 | Average Frame Rates Per Channel : 30

General Record: ALL | 30 FPS. [Total: 480 FPS]

Motion Record: ALL | 30 FPS. [Total: 480 FPS]

Sensor Record: ALL | 30 FPS. [Total: 480 FPS]

Image Resolution: ☒ 352x240 ☐ 704x240 ☐ 704x480

Image Quality: ☐ Draft ☒ Fine ☐ Excellent

Image Compression: ☐ MJPEG ☒ Enhanced MJPEG

With **352 x 240**,
maximum FPS
number is **480**

Number of Camera: 16 | Average Frame Rates Per Channel : 30

General Record: ALL | 15 FPS. [Total: 240 FPS]

Motion Record: ALL | 15 FPS. [Total: 240 FPS]

Sensor Record: ALL | 15 FPS. [Total: 240 FPS]

Image Resolution: ☐ 352x240 ☒ 704x240 ☐ 704x480

Image Quality: ☐ Draft ☒ Fine ☐ Excellent

Image Compression: ☐ MJPEG ☒ Enhanced MJPEG

With **704 x 240**,
maximum FPS
number is **240**

Number of Camera: 16 | Average Frame Rates Per Channel : 30

General Record: ALL | 7 FPS. [Total: 112 FPS]

Motion Record: ALL | 7 FPS. [Total: 112 FPS]

Sensor Record: ALL | 7 FPS. [Total: 112 FPS]

Image Resolution: ☐ 352x240 ☐ 704x240 ☒ 704x480

Image Quality: ☐ Draft ☒ Fine ☐ Excellent

Image Compression: ☐ MJPEG ☒ Enhanced MJPEG

With **704 x 480**,
maximum FPS
number is **120**

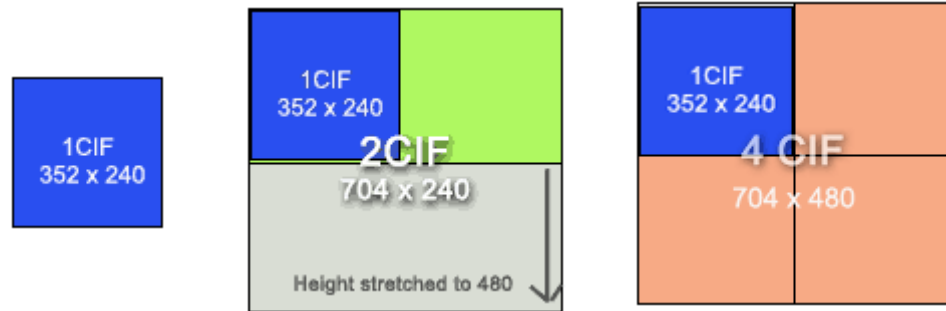
Record Speed setup in FXR-Enterprise series

	Total FPS					
Resolution	FX-4C30 Series	FX-8C60 Series	FX-16C120 Series	FX-16C240 Series	FX-32C240 Series	FXR-Enterprise
1 CIF 352x240	30 FPS	60 FPS	120 FPS	240 FPS	240 FPS	480 FPS
2 CIF 704x240	15 FPS	30 FPS	60 FPS	120 FPS	120 FPS	240 FPS
4 CIF 704x480	7 FPS	15 FPS	30 FPS	60 FPS	60 FPS	120 FPS

Image resolution and total FPS available

2. Resolution Settings

Default image resolution on all FX DVR series is 352 x 240, 1 CIF. Make sure total FPS is under available frames in different resolution settings. Most common problem rises from wrong settings.



Average File Size per Image			
Environment	1CIF Image	2CIF Image	4CIF Image
Indoor, Stationary, Bright, High-Quality Resolution Cameras	2~10 Kilo Bytes per image*	4 ~20 Kilo Bytes per Image*	8 ~ 40 Kilo Bytes per Image*
Outdoor, Various moving objects, Environmental factors, Dark scene	4~18 Kilo Bytes per Image	8 ~ 35 Kilo Bytes per Image	18 ~ 80 Kilo Bytes per Image

*File size is approximate estimate under optimal conditions. Size of each file can vary dramatically with various factors. File size or Recording days can not be exactly predicted or guaranteed.

Image resolution affects the speed of transmission since the file size increases with different settings. Check the Resolution and FPS first when there is a problem with the system.

3. Setup Example

With FX DVR servers you can assign available frames individually on each channel. This enhances security level further, and reduces unnecessary storage loss. For example if camera 5 is of no importance, you can lower the frame numbers to the minimum. Practical surveillance setting is around 5 ~ 7 FPS per camera. With traditional Time-Lapse VCR industry standard used to be 1 frame per second recording just few years ago. Maximize FX DVR server's capability by adjusting recording method, speed, and grouping in combination. Once again customization benefits in two aspects: **1.** Enhanced security level with more pictures in some areas, and **2.** Increase storage days with minor changes on some camera settings.

Number of Camera: 16 Average Frame Rates Per Channel: 30

General Record: CH5 19 FPS. [Total: 469 FPS]

Motion Record: CH5 19 FPS. [Total: 469 FPS]

Sensor Record: ALL 30 FPS. [Total: 469 FPS]

Image Resolution: ☒ 352x240 ☐ 704x240 ☐ 704x480

Image Quality: ☐ Draft ☒ Fine ☐ Excellent

Image Compression: ☐ MJPEG ☒ Enhanced MJPEG

Switching Period: 0 sec.

TV Out Switching: 0 sec.

☒ Record While Playback TV Out: CH1

In this setup CH5 (Camera 5) is assigned with 19 Frames per second recording.

Number of Camera: 16 Average Frame Rates Per Channel: 30

General Record: CH1 7 FPS. [Total: 457 FPS]

Motion Record: CH1 7 FPS. [Total: 457 FPS]

Sensor Record: ALL 30 FPS. [Total: 457 FPS]

Image Resolution: ☒ 352x240 ☐ 704x240 ☐ 704x480

Image Quality: ☐ Draft ☒ Fine ☐ Excellent

Image Compression: ☐ MJPEG ☒ Enhanced MJPEG

Switching Period: 0 sec.

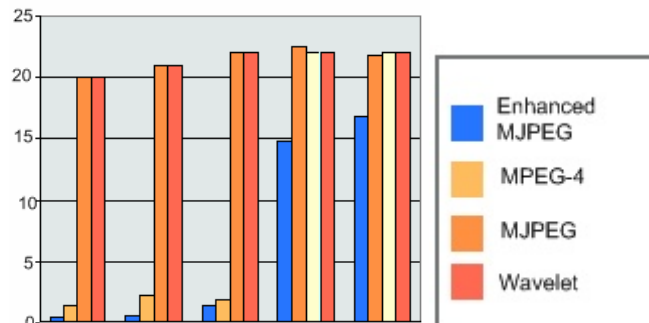
TV Out Switching: 0 sec.

☒ Record While Playback TV Out: CH1

In this setup CH1 (Camera 1) is assigned with 7 Frames per second recording, resulting in less FPS in total (457 FPS). This increases available recording days.

Compression

FX DVR server records in proprietary format called *Enhanced MJPEG*. It incorporates wider range of color using YUV 422 format, and compresses in a method similar to MPEG-4. In optimal condition, stationary and in bright environment, each image can be as small as 2 Kilo-Bytes in size. Variables, such as color range, environmental factors, and light, can affect file size dramatically. With *Enhanced MJPEG* compression each image can be compressed about 15 to 100 times smaller than the conventional image for format.



Here is something to consider.

Image size can vary dramatically with the image content and environment.

Indoor with bright light, with stationary object, condition produces least file size.

Outdoor with lots of moving objects, wide range of color, dark environment produces bigger size. Our codec detects change in pixels for optimal size. For example, with a good camera, image with no moving object and no pixel noise will produce 2 KB (KB=Kilobytes) per image. It becomes problematic if DVR is set to record at night. Most of time dark environment is captured by the camera with huge amount of noise, resulting in enormous file size. If it was pure black color, the image will be tiny, but most of dark environment makes signal noise all over the screen. This is generic rule that applies to any DVR. The point, here, is that there is no way to predict precise size of the video. Every location will produce different file size. We can only GUESS approximate outcome.

When calculating approximate data size over the network, remind yourself that bandwidth is calculated in Bits, not Bytes. 1 Byte is equal to 8 Bits. In 256 Kb-upload network, this means it is only 32 Kbytes for data calculation. It does not matter how many cameras you have. It matters what TOTAL FPS is set and used.

Example

240/240FPS Continuous 24 hour recording

Scenario 1: No moving objects. No noise. Low motion detection sensitivity.

- Each second : Image size (2 KB) x Image per second (480 FPS) = 480 KB (not kilobit)
- Each Minute : Total image size / sec (960KB) x 60 seconds = 2880 KB per minute
- Each Hour : Total image size / min (5,760 KB) x 60 minutes = 172800 KB per hour
- Each Day : Total image size / hour (345,600 KB) x 24 Hours = 4147200 KB per day

Scenario 2: Optimum condition, Indoor bright light, minimum traffic of motion, Low motion sensitivity.

- Each second : Image size (5 KB, rough average) x Image per second (480 FPS) = 1200 KB (Kilobytes, not kilobit as used in bandwidth calculation)
- Each Minute : Total image size / sec (2,400 KB) x 60 seconds = 72000 KB per minute
- Each Hour : Total image size / min (144,000 KB) x 60 minutes = 4320000 KB per hour
- Each Day : Total image size / hour (8,640,000 KB) x 24 Hours = 10368000 KB per day

From this basic calculation you can measure rough numbers for application.

For network, FX DVR streams image at about 4-5 KB per image. That means about 32-40 Kbytes for 8 frames (Since it will be 16 cameras), and will require 256-320 Kilobit bandwidth per second to get 16 frames per second (16cameras 1 second). Theoretically if you select 1 camera only while monitoring you will get 16 fps for each camera.

Remember this is 352 x 240 1 CIF setting ! 704 x 240 is 2 CIF, so it doubles in each image size. 704 x 480 is 4 CIF, it is 4 times bigger! Another thing to note is that Total Frame number is important! Since 704 x 480 is 4 CIF, (This image is made of 4 frames), total frame goes down from 240 FPS to 60 FPS. THIS IS A GENERIC RULES FOR DIGITAL IMAGE. Over the remote you will need 4 times more bandwidth to get 16 images per second. (1023 -1280 Kilobits !!)

Recording time will not change since you will have to reduce the total FPS accordingly.
(i.e. 352x240 480 FPS = Same size = 704x480 120FPS)

Draft is 10 % lower in size.

Fine is normal original.

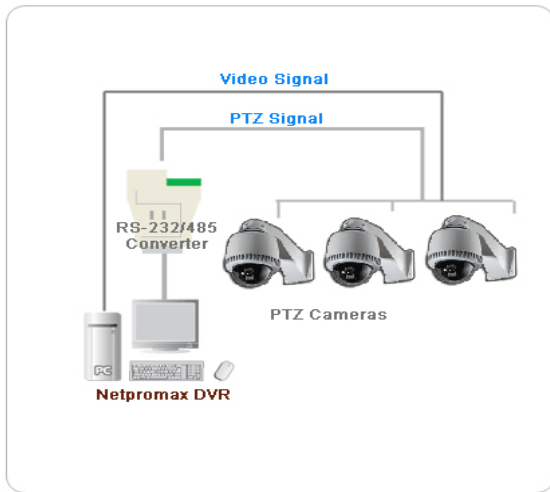
Excellent is 10 % bigger in size.

Also note that when each video is converted to AVI format, it will be uncompressed into generic format, which is about 20-100 times bigger in size.

D. Pan / Tilt / Zoom

1. PTZ Cameras & Protocols

You can connect up to 16 PTZ cameras to FX DVR sever. FX DVR server serves basic functions of panning, tilting, and zooming according to the protocol given. Preset is limited certain manufacturer and model types. This preset function might not function even with the correct protocols. Sophisticated controls and programming must be performed using model-specific controllers.



Protocols supported

- Pelco "D"
- Pelco "P"
- Pelco ASCII
- Kalatel - KTD 312
- PIH - 717/7000/7600/7625
- Speed Dome
- LPT-A100L
- PT 100/200
- SECUMERA
- Delta Vision SCC-643
- Samsung SCC-643
- Toshiba "D"
- Toshiba "P"
- Everfocus PTZ 1000

PTZ Installation Checklist

- ☒ Check supported protocols on PTZ cameras.
- ☒ Check what types of power it uses (24AC/12DC)
- ☒ Check required equipments for connection (i.e. RS232/485 Converter).
- ☒ Make sure the manual explains installation clearly.
- ☒ Choose reliable brand with good support.
- ☒ Check the distance to the camera.
- ☒ Install with appropriate wiring.
- ☒ Clear the area from lightning hazard.

2. PTZ Troubleshooting

You must match channel ID on PTZ to the channel number on FX DVR screen. PTZ set as '1' must be connected to the CH '1' of FX DVR. Make sure wiring is done correctly before testing PTZ. RX+/- or TX +/- setting must match between PTZ camera and RS-232/485 converter. Some PTZs or Converters have Flow control modified. Check its manual. Some PTZs have default ID of '0' or '2'. In Samsung PTZs ID '0' camera must be connected to the CH '1' on FX DVR. Some Kalatel PTZs may not work without the use of KTD-312 Data converter. Many PTZ camera brands use their own communication method. You must check all the specs before installing it to FX DVR server.

9. Network

Networking capability is one of the most useful features of FX DVR server. With Windows XP OS in background, FX DVR follows all of Windows' advanced network functionalities. Networking FX DVR requires careful guideline that must be done by Security Administrator or Authorized IT personnel.

9.1 Before Networking FX DVR

Networking FX DVR is similar to networking PCs in local, wide, or Virtual Private Network. Special considerations must be met to ensure proper connections and to understand bandwidth bottleneck. FX DVR uses following ports for transmission.

2002 : Video data

2003 : Audio data

2004 : POS and Automatic Alert data

In general, open ports 2002~2004 on the server or router. You can alter port numbers in Network window of the Setup. Open ports on network respectively after you change ports on the server.

Any customized network environment, such as Virtual Private Network, must be administered by IT professional. In order to execute such secure and customized settings exit into windows

9.2 Basic Setup Check List

Check following factors before starting network setup on FX DVR.

- ☒ Check wiring ?
- ☒ Static or Dynamic Public IP ?
- ☒ Static or Dynamic Local IP ?
- ☒ How many DVRs in one location ?
- ☒ How many DVRs to monitor in total ?
- ☒ Enough bandwidth size ?
- ☒ Modem or router ?
- ☒ Have access to the router or network server ?
- ☒ Any special equipments ?
- ☒ How many users ?
- ☒ Set up Email / Phone Alert ?
- ☒ Any firewall settings ?
- ☒ Virtual Private Network ?

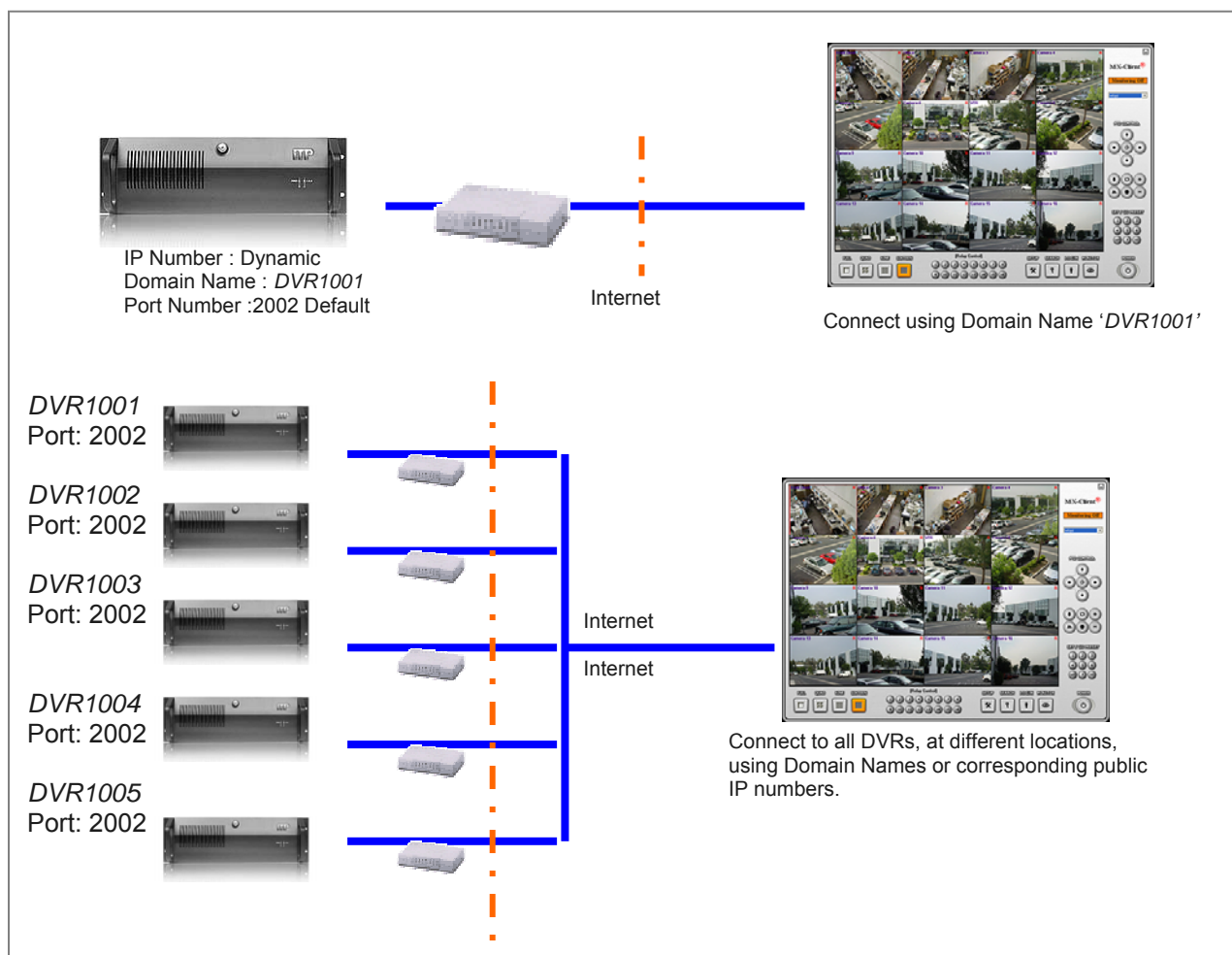
9.3 Basic Networking Example: A Single FX DVR Server

When a single FX DVR server is installed in one location, networking is straight forward. Use default port range of 2002 to 2004 unless specified by the security administrator.

If there is no local LAN or a router to the modem, just create a Domain Name with server, or use static IP given by ISP.

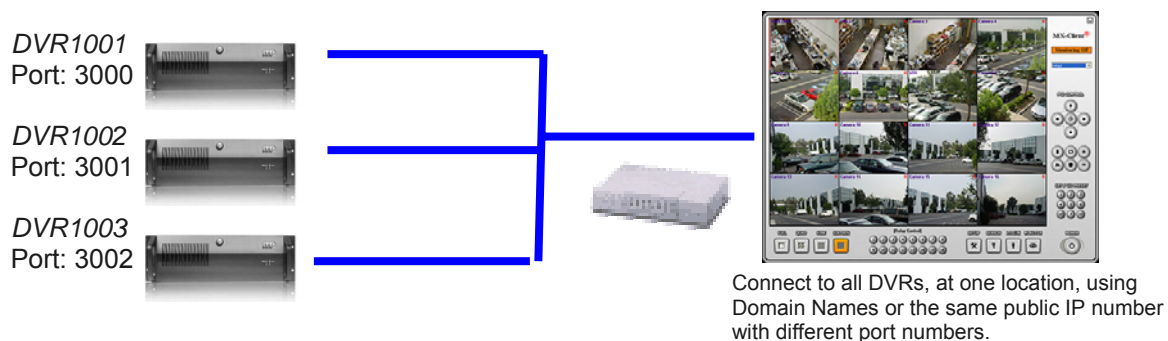
Using a Domain Name Registration feature can be very helpful in identifying DVR location. Its application is not limited to dynamic IP connection. The user can remember the site easily, and each DVR can be strategically named for convenience in multiple location schemes.

If there is a router, router-built-in-modem, or network server, you must identify DVR's Local IP number first. Consult with authorized IT personnel to determine availability of IP number.



9.4 Basic Networking Example: Multiple FX DVR Servers

Installing multiple FX DVR Server in one location is done by assigning custom ports for each server's video. In Network section, you can assign any available port number to the DVR.



You can assign IP number manually in System/ Disk Information window or in Windows after exiting the program.

Drive	Type	Data Storage	Total Space	Free Space
C:\	Hard Disk	No	10.487 GB	8.52 G
D:\	Hard Disk	Yes	309.574 GB	170.182 G
E:\	Hard Disk	Yes	320.62 GB	319.982 G
F:\	Hard Disk	Yes	320.62 GB	319.984 G
G:\	Hard Disk	Yes	320.62 GB	319.984 G
H:\	Hard Disk	Yes	320.62 GB	319.984 G

Post a warning message when the free disk space is below than 2 Giga Byte.

Add Printer Exit

You can check IP number assigned, either through DHCP or static, to DVR here.

Click here to configure network settings manually.

Registering Domain Name for FX DVR

1. Click here to assign Name for FX DVR.

2. Type in unique name that is easy to remember

3. Click here to see if the name exists. Type in another name if it is not available.

4. Register to complete.

5. Exit to save.

Assign desired port number here if necessary. Make sure 'Allow Tcp/IP Access' is checked. Ethernet Adapter must show correct device as well.

Assign desired port numbers here only if necessary. Make sure 'Allow Tcp/Ip Access' is checked. Check if networking device is displayed correctly.

9.5 Access User List

You can create up 256 users on each FX DVR server.

Most common problem with user name and password is wrong spelling. Please note the user name and password on memo.

1. Click on NEW button to make a new user.
2. Type in name and password (Alphabet, numeric, space, and/or symbol)
3. Choose Level
Level 1: Live View, Search, Setup
Level 2: Live View, Search
Level 3: Live View
 Level 2 or 3 are recommended for end-users or operators. Level 1 should be given to the administrator only.
4. Select channel to hide channels remotely.
5. Click OK to finish.
6. Click New button to add more access users.

If the name and password are entered wrong on FX-Client, you will get 'Access Denied' error message. Retype in FX-Client or check on FX DVR server to resolve the issue. Making a new user is often a good solution in this case.

9.6 Email & Cell Phone Alert

Email and cell phone alert functions can serve as tools to verify false alarm. Email alert requires valid SMTP server. Free email services, such as Yahoo or Hotmail, will not work since SMTP server name is not provided. Many email services nowadays provide built-in spam control. This is one of the most common causes for email alert failure. Cell-phone alert was created with the US based carriers. This feature is limited to the companies provided in list.

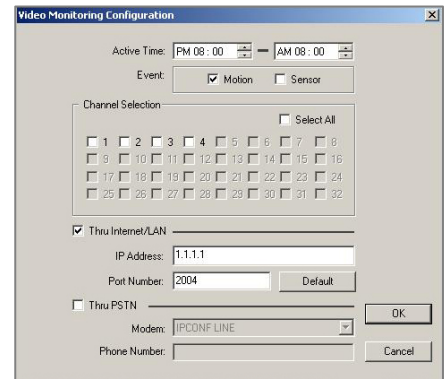
Email Alert : Sends captured images to specified email address.

Cell-Phone Alert : Sends text message to specified cell phone number.

Incorrect alert scheduling can result in **massive data transmission** to email or cell phone. Inappropriate motion sensitivity can also result in the same problem. This can lead to 1. Undisputable service charge (i.e. Text messaging is charged per character or call), 2. Service block, 3. Service halt, and 4. System malfunction.

9.7 Automatic Alert Notifications

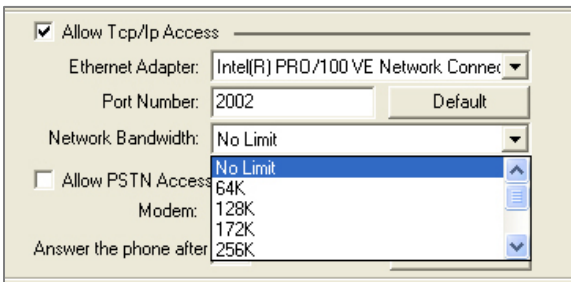
Automatic Alert Notification is a feature that enables automatic transmission of video to static IP designated in setup. This feature requires remote PC with Static IP, and with FX-Client launched on screen. FX DVR and FX-client will establish connection automatically when Motion or Sensor triggers recording in specified time period. This feature is useful when central monitoring is involved. FX DVR in essence is not built for such function in details.



Automatic Alert function is often confused with Email/Cell phone alert. This feature is not related to Email/Cell alert or live monitoring. This is stand-alone feature that works only with FX-Client in Central Monitoring schemes. **Do not enable this feature.**

9.8 Bandwidth Control

You can control bandwidth with FX DVR Network setup.



Refer to Chapter 8-5.C to calculate data size for network bandwidth. This is important especially when multiple DVRs are connected in 10/100 Mb network environment. Reduce the number to avoid bottleneck. In general, '**No Limit**' or '**256 K**' option can be selected. (**No Limit** is ideal for small network)

9.9 Common Problems and Troubleshooting

This is a list of errors you can see on FX-Client.

Error Message	Cause	Solution
<i>Connection Failure</i>	Incorrect Port-Forwarding parameters or Firewall settings.	Correct forwarding on router or the network server. Set firewall to accept designated ports and the software.
<i>Access Denied</i>	Incorrect user name or password.	Type in correct name and password, or make a new user on the server.
<i>Can not reach the server</i>	Service blocked by firewall or other security software.	Open ports or enable software service in firewall settings. Customize security software to permit FX-client to connect.
<i>Server cut down connection</i>	Server down. Low upload speed.	Check the server's condition if it is on. Check
<i>Server cut down connection, Access Denied</i>	Low upload speed	Check upload speed. Minimum of 256 Kb Upload is recommended.
<i>FX-Client.exe has failed...</i>	File corruption	Reinstall FX-Client. Clean registry.
<i>Black screen</i>	Monitoring prohibited	On Access User List of FX DVR, uncheck cameras for the user.
<i>Other irregular malfunctions</i>	Incorrect settings	Check group settings. If necessary, clean registry, and set up connection list again.
<i>How to Clean Registry</i>		
<ol style="list-style-type: none"> 1. Close FX-Client. 2. On Windows XP, [Start]->[Run]-> Type in 'regedit' -> Press 'OK' 3. Go to [H_KEY_Local_MACHINE]->[Software] 4. Right click on [Netpromax], and delete a whole folder 'Netpromax'. 		

Frequently Asked Questions

a) How can I set the static IP address to my system?

There is network setup on the FX DVR system setup screen. If you click [System/Disk Information] button, you are going to see the small dialog box. The dialog box contains computer name, software version, IP address and disk information. If you see the IP address like 169.xxx.xxx.xxx, your system has no available IP address to other system. Please refer to 8.5 E.4, Network setup.

b) How long is the DVR system able to record with a 40 G hard disk?

The average image size of FX DVR system is around 15KB. If you setup as record 5 frames per second for each 8 cameras and you have an available 40G hard disk space, then it would save image for less than 1 day. The calculation is like the following.

$$15\text{KB} * 5 \text{ FPS} * 60 \text{ Sec.} * 60 \text{ Min} * 24 \text{ Hours} * 8 \text{ Channels} = 51,840,000 \text{ K} = 51\text{G}$$

c) What happens when the hard drives are full?

FX DVR system will find the oldest time data among the hard drives and overwrite onto that space. There is no need for you to clean up disk space manually.

d) How can I change the current time at the DVR system?

There is a clock that shows the current time on the bottom side of main screen. Place your mouse pointer inside the clock box and double click then you will see the Date/Time properties dialog box. Of course, you can change the current time at the ROM-BIOS setup. If you press Delete Key when the system shows “If you want to go to the BIOS setup, press Delete Key”, the System goes to the BIOS setup.

e) Why do I get “Board not found” message?

Board not found message usually comes from missing drivers. Please check the specification page and install correct drivers.

f) Why doesn't my DVR display pictures?

- Please check your camera power and cable in between DVR and the camera.
- Go into SETUP and click on RECORD SPEED button. Make sure the number of cameras on top shows the number of cameras connected to the DVR.
- Make sure your screen resolution is on 1024*768 (1280*1024 for 32 Channel system), and set your color quality to Highest 32bit.

g) Why can't I connect to DVR using FXClient?

- Check if you have internet access on your DVR system. If there is no connection, please contact your Internet Service Provider.
- Make sure that allow TCP/IP access is checked on from NETWORK inside SETUP.
- Check your network information (IP, Subnet, Gateway, and DNS)

LIMITED WARRANTY

We, hereby warrants, subject to the conditions here in below, set forth in paragraphs numbered 1 through 5, that should this product become defective by reason of improper workmanship or material defect during the specified warranty period, we will repair the same, effecting all necessary parts without charge for either parts or labor, or replace the unit at our option.

THE WARRANTY PERIOD IS AS FOLLOWS

Labor: ONE (1) Year from the date of original purchase from authorized Re-seller.

Parts: ONE (1) Year from the date of original purchase from authorized Re-seller.

CONDITIONS OF WARRANTY

1. UNAUTHORIZED REPAIR, ABUSE, ETC.

The unit must not have been previously altered, modified, repaired or serviced by anyone other than the service facilities authorized by Netpromax to render such services. The seal/serial number on the unit must not have been altered or removed. Any attempt to open and/or alter products shall void said warranty and purchaser waives any rights to make any claim. The unit must not have been subject to natural disaster, power failure, accident, misuse, abuse, or operation contrary to the instructions provided. The opinion of Netpromax with respect to this matter shall be final. This warranty does not extend to broken and damaged accessories, batteries and exposed antennas and to parts wearing out due to normal wear and tear.

2. PROPER DELIVERY

The unit must be shipped, freight prepaid or delivered to our Service facility, in either its original package or similar package, affording an equal degree of protection and with instructions indicating the location within United States to which the unit will be returned. The repaired unit will be returned to the customer freight prepaid unless the conditions of section one (above) have not been met. All accessories that are enclosed with the unit must be listed individually on the packing slip for the shipping documentation. We will not accept any liability, for loss or damage to such accessories if they are not listed. Proof of purchase from an Authorized Re-seller, (i.e.: photocopy of invoice), must be included with each item sent back to us.

3. PROOF OF DATE OF PURCHASE

This warranty applies and commences to our products, from the original date of purchase from an Authorized Re-seller. Proof of purchase (i.e.: photocopy of invoice), must be included with product when submitting for warranty repair.

4. SUBJECT PRODUCTS

This warranty may be enclosed with and be applicable to all products manufactured by Netpromax.

5. WARRANTY LIMITATIONS

This warranty does not cover maintenance or check-ups, if required. This warranty gives you specific legal rights and you may also have other rights, which vary from state to state. Some states do not allow the exclusion or limitation of incidental or consequential damages or limitations on how long an implied warranty lasts, therefore the above exclusions or limitations may not apply to you. We are not responsible or liable for indirect, special, incidental or consequential damages arising out of or in connection with, the use or performance of the product or other damages with respect to loss of property, loss of revenues or profit, or cost of removal, installation or reinstallation.

Thank you for purchasing Digital Video Recording System

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