Firefly SC and MZ Media Players

Version 3.2

User Manual

Trademarks

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All specifications, notices and warnings are subject to change without notice.

Firefly Safety Requirements

IMPORTANT SAFETY INSTRUCTIONS:

The following safety instructions apply to the Visual Circuits Firefly:

1. Read and follow all warning notices and instructions marked on the product or included in this manual. Opening or removing covers and/or components may expose you to dangerous high voltage points or other risks. Qualified personnel should perform all servicing.

2. The maximum ambient temperature for the Firefly is 114 degrees Fahrenheit (45 degrees Celsius). Care should be given to allow sufficient air circulation or space between units when Firefly is installed in a closed or multi-unit rack assembly because the operating ambient temperature of the rack environment must be greater than room ambient temperature.

3. Slots and openings in the cabinet (chassis) are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, maintain a minimum of 1-inch (2.5-cm) clearance on the top and sides.

4. Installation of the Firefly in a rack without sufficient airflow can be unsafe.

5. If installed in a rack, the rack should safely support the combined weight of all equipment it supports. A fully loaded Firefly weighs 4 pounds (1.5 kg).

6. The connections and equipment of the Firefly should be capable of operating safely with the maximum power requirements of the Firefly. In the event of a power overload, the supply circuits and supply wiring should not become hazardous.

7. External power supply AC power inputs are intended to be used with the three-wire grounding type plug (a plug that has a grounding pin). This is a safety feature. Equipment grounding is vital to ensure safe operation. Do not defeat the purpose of grounding type plugs by modifying the plug or using an adapter.

8. If a three-wire grounding type power source is not available, consult a qualified electrician to determine another method of grounding the equipment.

9. Install only in restricted areas in accordance with Articles 110-16, 100-17 and 110-18 of the National Electrical Code, ANSI/NFPA 70.

10. Do not allow anything to rest on the power cord and do not locate the product where persons will walk on or come in contact with the power cord.

POWER AND GROUND REQUIREMENTS:

Determine that the cumulative power requirements of the Firefly plus other equipment in the rack do not overload the supply circuits and/or wiring.

⚠ CAUTION

If using a power strip or similar supply, make sure the power requirements of the chassis, plus the cumulative power draw of any other equipment in the rack, do not overload the supply circuit.

⚠ WARNING

For safe operation, this equipment must be properly grounded.
The chassis should be reliably earth grounded to the rack equipment. This earth ground connection must be maintained when supply connection is other than direct connection to the branch circuit.

User Manual Regulatory Documentation

> ### ⚠ CAUTION
>
> **There is danger of explosion if the battery is incorrectly replaced.**
> A lithium battery on the product provides backup power for the device's timekeeping capability. The battery has an estimated life expectancy of ten years. When the battery starts to weaken, the date and time may become incorrect. If the battery fails, the unit must be sent back to Visual Circuits for battery replacement.

> ### ⚠ WARNING
>
> **An improperly grounded power supply can result in electrical shock.**
> The AC power cord provided with your system has a grounded plug. Always use a grounded power cord with a properly grounded wall outlet.

Class A Statement

FCC Part 15 (EN61000-3-2)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 (EN61000-3-2) of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his or her own expense.

The Firefly complies with Part 15 (EN61000-3-2) of the FCC rules.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference that may cause undesired operation.

⚠ WARNING

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Industry Canada

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numerique de la classe A respecte toutes les exigences du Regulement sur le materiel brouilleur du Canada.

EMC and Safety Directive Compliance

CE

The CE mark is affixed to this Visual Circuits Corporation product to confirm compliance with the following European Community Directives:

Council Directive 89/336/EEC of 3 May 1989 on the approximation of the laws of Member States relating to electromagnetic compatibility.

And

Council Directive 73/23/EEC of 19 February 1973 on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits:

Each amended by Council Directive 93/68/EEC of 22 July 1993 on the harmonization of CE marking requirements.

Class A Warning (EN55024, EN55022)

In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

> ## ⚠ WARNING
>
> **Failure to provide adequate surge protection may cause damage to the Firefly.**
> Visual Circuits does not warranty damage caused by electrical surges to the system. Surge protection should be provided when connecting any peripheral device and power to the system.

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WELCOME TO FIREFLY SC™ AND MZ

Thank you for purchasing the Firefly SC™ or the Firefly MZ™. The Firefly SC and MZ are the media players developed specifically for A/V professionals; combining the ease and familiarity, flexibility and control of a disk-based, MPEG-2 decoder. These players provide for playlist creation, time/date scheduling, graphic overlay capability, remote content updating, network compatibility and a web-based "control and monitor" interface.

In addition, the Firefly MZ when teamed with Media Messenger software permits the creation of compelling multi-zone presentations.

The Firefly SC and MZ belong to a new-generation of commercial media players that fit into a wide variety of stand alone or network attached applications, from trade shows and exhibitions to retail merchandising, education and training, corporation communications and digital signage.

The Firefly family continues to develop and evolve to meet the evolving demands of A/V contractors.

Keep up with our latest product offerings by checking our web site at www.visualcircuits.com.

Documentation Conventions

The Firefly SC and MZ are single-channel devices that share many features and capabilities. Because of these similarities, this manual, in general, does not differentiate between these two players and simply calls them either the Firefly or the player. Thus, unless specifically identified as belong to a particular player, the information in this manual applies to both.

Information specific only to the MZ is found in the section, *Firefly Multi-Zone™ (MZ)* on page 167.

Notes

An exclamation point indicates information found in a Note.

QUICK START
PLUG AND PLAY

The Firefly is a single-channel output device that is simple to con-figure and can reside on a network or stand alone.
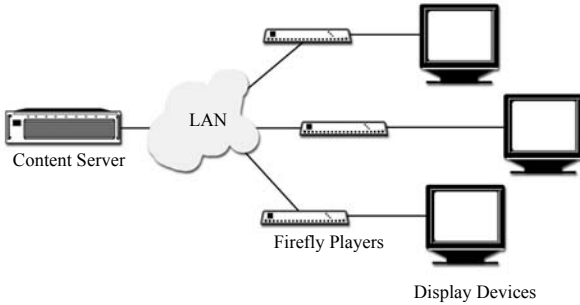
Before You Start, You Will Need

Have the following items ready before installing the Firefly MZ Media Player.

- BNC Video cables
- IP and FTP Information
     IP Addressing Mode (Static or DHCP)
     IP Address
     Hostname
     FTP Proxy IP Address and Port
     FTP Username and Password

Installation Sequence

1. Install Firefly on network.
    a. Connect your video and audio cables to the back of the Firefly.
    b. Connect the video and audio cables from the Firefly to the inputs on the monitor and audio component.
    c. Connect the power cable to the back of the Firefly and plug it in to your power source.
    d. At start up, the Firefly runs through a a short series of self-diagnostics before beginning automated playback.

        The Firefly comes loaded with sample videos that are useful as you become familiar with Firefly's features and for diagnostic purposes. Video playback is typically controlled through a "playlist" that defines which videos are played and in what order. Only one playlist can be active at any time, though any number of playlists can be stored on Firefly for later use. Whenever Firefly is turned on, the playlist that was last used is reloaded and playback begins automatically.

        The default active playlist for a new Firefly is called "factory.fpl". The fastest way to test Firefly is to simply plug it in, connect the cables and turn it on.

        > [!] The Firefly's default factory setting plays component, 1080i, and line-level audio. If your application requires the Firefly to employ a different video standard and/or video output type, use Webview to change the system settings as needed. See the section on *Video Settings* on page 71 for more information.

2. Configure Firefly for network, see page 7.
3. Install Media Messenger application, refer to Media Messenger User Manual for details.
4. Configure FTP.
5. Creating a Layout and Playlist.
6. Publishing via FTP or CD/DVD.

Install the Firefly

Power
12 VDC

USB

Serial

DVI-I

10/100
Network

AUDIO OUT

L — R — Digital

1 2 3 4 5 6

+ - + - + -

Unbalanced
(Left Right)

Digital
S / PDIF

Component
Pb   Pr   Y

COMPONENT

Pb   Pr   Y

S-VIDEO   COMPOSITE

S-Video
Y   C
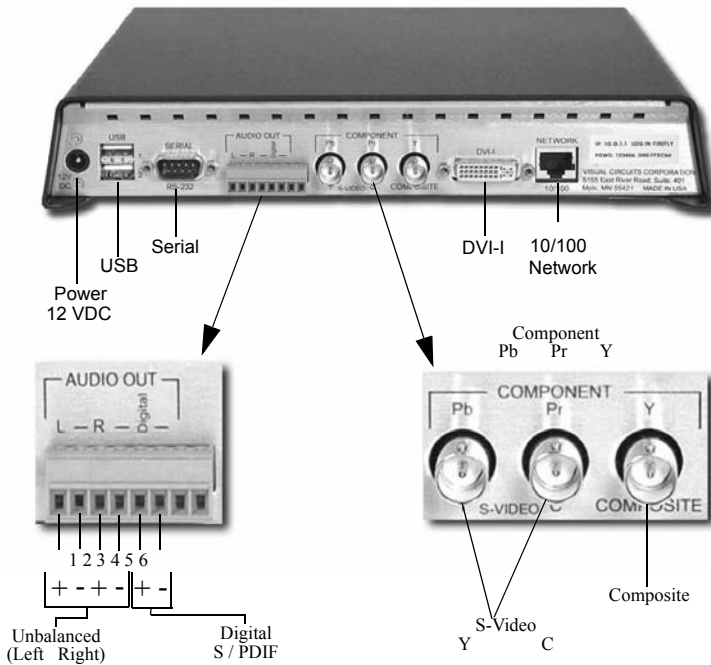
Composite

1. Attach the video cables to the Firefly.
   - ❏ **For Composite monitors:** Connect a BNC-ended composite cable (not included) to the composite connector on the back of the Firefly.
   - ❏ **For S-Video monitors:** Connect a BNC-ended Y s-video cable (not included) to the corresponding chroma (C) and luma (Y) connectors on the back of the Firefly.
   - ❏ **For Component monitors:** Connect BNC-ended component cables (not included) to the corresponding Pr, Y and Pb connectors on the back of the Firefly.

MZ RGB and Component Output

⚠ For best quality video or to putput to an anology display device, it is necessary to use the MZ's DVI output anlog with a DVI to VGA adapter, see for more details.

2. Attach the audio cables to the Firefly.
   - ❏ For an unbalanced audio connection use audio cables with stranded wire ends and connect to terminal 1 (Left +), terminal 4 (Right +), and terminals 2 and 4 (designated grounds).
   - ❏ If unbalanced audio cable lengths exceed 10 meters, use an Audio Line Amp/Balancer such as the Radio Design Labs, Stick On.
   - ❏ For a S/PDIF digital audio, use a stranded audio cables and connect to terminal 5 Digital Audio (+) and terminal 6 (-).

3. Attach video and audio cables to the video and audio inputs on the video monitor and audio component.

4. Cable the Firefly to the network.

5. Plug in the power supply and attach the power cable to the Firefly. The Firefly powers up and performs a short series of self-diagnostics and then begins automated playback

Configure for Network

Often, the Firefly TCP/IP defaults must change to accommodate the network where it will reside. The best method is to attach a computer to the media player.

> [!] Contact the Network Administrator for the correct network configuration information,

Attaching a Laptop or PC

> [!] Before beginning, verify that the computer and/or the Firefly are powered off. When connections are completed, power on the devices.

Ethernet

❏ Connect the computer directly to the Firefly using an Ethernet crossover cable.   or

Ethernet via Hub or Switch.

Ethernet via Cross-over Cable.
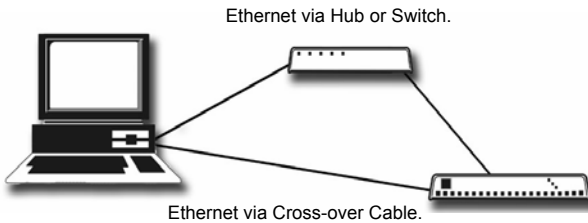
❏ Connect using standard Ethernet cables and a hub or switch.

Serial

Use a null modem cable, female DB-9 to female DB-9, RS232 cable, when connecting to the Firefly via the serial port.

Changing TCP/IP Settings

Firefly default TCP/IP settings:

> Static IP Address: 10.0.1.1
> Login (case sensitive): firefly
> Password: 123456

There are two methods for initially changing the Firefly TCP/IP settings: WebView and serial commands.

WebView via Ethernet Port

WebView is a browser-based, administration tool-kit that resides on the Firefly.

1. Set your PC's IP address to a number in the same range as the Firefly, such as 10.0.1.2.
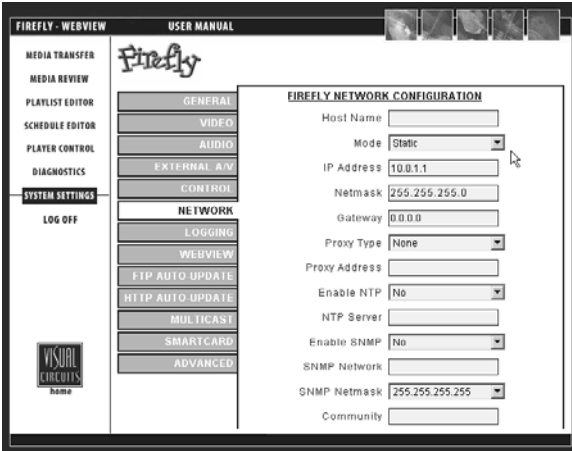
2. Open a browser and enter the default IP address 10.0.1.1 in the address field.

3. Access WebView using the default Firefly login and password, shown above.

4. Set the IP address and other TCP/IP parameters as required.

5. Click on Update Settings to save.

6. Click on Player Control.

7. Click on Restart Player.
   This initializes the new settings.

> ! Restarting the Firefly is only necessary when updating the network settings in a DHCP environment, i.e. going from Static to DHCP mode, changing the Host Name, and so on. .

External Control Commands

External control commands require that the computer has an ASCII generating control program, such as Hyper Terminal. The parameters are:

- Serial port 1
- 9600 Bps
- Echo typed letters locally

Use the following Visual Circuits commands to configure the Firefly.

FireflySetIpAddress
Syntax
`fireflysetipaddr` *IP Address*

FireflySetNetmask
Syntax
`fireflysetnetmask` *netmask*

FireflySetGateway
Syntax
`fireflysetgateway` *gateway*

FireflySetNetworkType
Syntax
`fireflysetnetworktype` *1 (DHCP) or 2 (Static)*

> ! **Filenames and External Commands**
> When using external commands to handle files, it is necessary for those files to have names without, i.e. sales_video.mpg not sales video.mpg. One convention is to use underscores in place of spaces.

For more information about External Control Commands see, *External Control Commands* on page 119, and for network configuration, see *Network Settings* on page 77.

Install Media Messenger

Install Visual Circuit's Media Messenger software from the Media Messenger CD by following the online screens and prompts. Refer to the Media Messenger User Manual for details.

> [!] Whenever the installation sequence requests the Company Name or Registration Key, enter the name and key precisely as Visual Circuits provided it.

Configure FTP

Setup on-board Firefly FTP Server

- Configure Firefly properties.
- Configure Firefly FTP server.

Configure Firefly Properties

Unique name to identify player (Host Name)

Unique ID set in player before installation, Media Messenger uses it to identify the player.

If player belongs to a group, select the group name from-list.

Physical location of the player.

Set to one for Firefly.
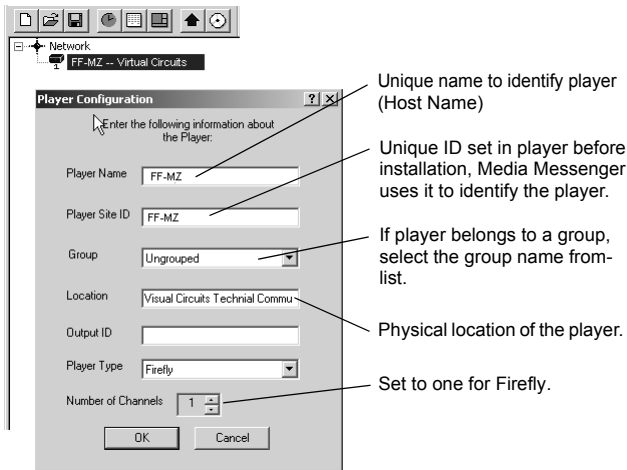
1. Open the Main window of Media Messenger.
2. Right-click in the Firefly object in the Network Pane and display Player drop down menu.
3. Click on Properties to display Player Configuration.
4. Fill in the Player Configuration fields.

Configuring the Firefly FTP Server

Network Administrator provides FTP configuration information.

This may be the Firefly or an FTP server used for storing presentation content.

When loading directly to Firefly, leave the Directory field blank and place files in FTP root directory.

Security settings provided by Network Administrator.
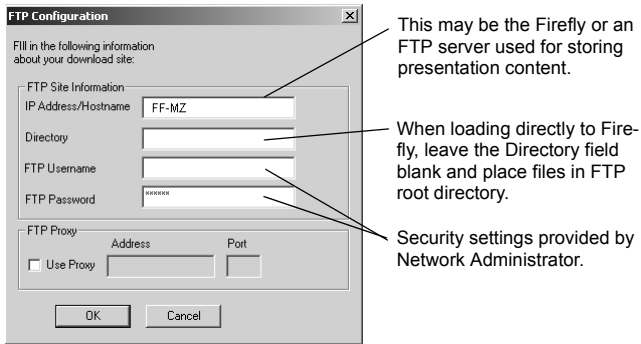
1. Click on Settings in the Main Menu list and select FTP Server Setup.
2. Fill in the FTP Site Information Fields.
   a. IP Address/Hostname.
      Network Administrator provides the IP Address and Hostname of the FTP server.
   b. Directory
      Name of the directory where the files go.
   c. FTP UserName
   d. FTP Password
3. FTP Proxy
   Check this box if using a FTP Proxy server, then add its IP address and port.

For additional information, see *Updating Video Playback* on page 103.

How To Create a Basic Playlist

Playing media on Firefly requires

1. That the MPEG videos reside on the Firefly.
2. That a valid playlist resides on the Firefly.

There are several methods for creating a layout and playlist for the Firefly.

1. WebView interface program (see *Using the Playlist Editor* on page 35).
2. Media Messenger, refer to its user manual.
3. Firefly MZ, which is an optional enhancement that works with Media Messenger, see *Using Firefly MZ to Create a Layout and Playlist* on page 170.

Publish

Via FTP

1. Open WebView, click on System Settings, and select Network. Confirm that the network and security settings are correct.

2. Return to the Media Messenger main workspace.

3. Select the target player or player group in the Network Pane.

4. Click on Publish in the Media Messenger, Main Menu List and then select Publish to FTP.
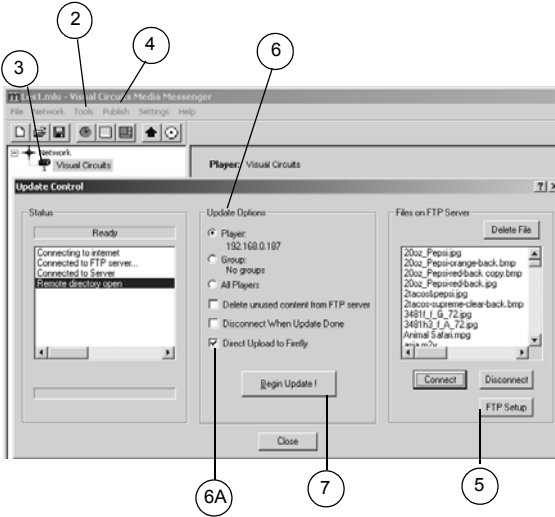
5. Confirm that the Media Messenger FTP configuration is correct for the player: click on the FTP Setup button and review setup data.

6. Select the Upload Option:
    a. a specific player,
    b. a group of players,
    c. all players,

> **!** **6A** If uploading to one specific Firefly, select the Direct Upload to Firefly option, otherwise leave unchecked.

7. Click Begin Update button.
    When the upload completes, close the Update Control window.

The Firefly MZ loads immediately and begins playing back the playlist. If using a schedule, the playback begins at the appropriate time.

Via CD/DVD

Another method of transporting playlists, schedules, and media files is to create a media update disc.This process creates the content image of an autorun disc (CD/DVD).

> ⚠ Media Messenger does not burn a CD or DVD. It prepares the necessary files so that when they are burned on to a disc, an autorun application is created.

1. Go to the Media Messenger main workspace and select the player or group that is to receive the update.
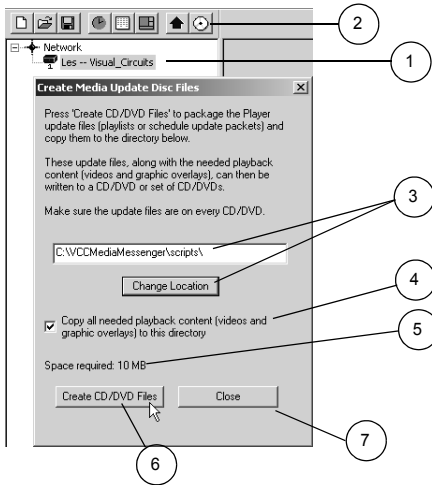
2. Select the Publish to CD/DVD icon.
3. Verify that the correct destination for the files is shown in the destination field: change if necessary.
4. Check the Copy All Needed ... box.
5. Verify that the total space required does not exceed the capacity of the CD or DVD disc.
6. Click on Create CD/DVD Files.
7. Click on Close.
8. Use CD/DVD creation application to burn files on a disc.

Software Updating

Visual Circuits is continuously looking for ways to improve and expand its features and product performance. We provide a variety of simple methods to keep your Firefly updated with the latest software for your application.

Software updates are available from www.visualcircuits.com or by requesting a CD/DVD FROM a Visual Circuits representative.

Software updates and upgrades are processed with the following methods.

1. Multicast (*optional)* updating: An active update that finds a .upd file will automatically update and restart the system. See *Multicast Updating* on page 108

2. HTTP/FTP updating: An active update that finds a .upd file in the */updates* folder will automatically update & restart the system. See *Automatic Updating:* on page 103.

3. Webview Firefly Update: Used to manually select the .upd file from your PC through the Webview interface. System automatically updates and restarts. See *Webview Software Update* on page 30

WARNING

Whenever performing a software update it is important to allow the update to complete before rebooting the Firefly.

ENCODING REQUIREMENTS AND RECOMMENDATIONS

In order to ensure proper playback on the Firefly, the MPEG content must be encoded following a particular set of encoding requirements. The *Encoding Requirements*, as well as the *Encoding Recommendations*, listed below provide a brief set of criteria to create MPEG files that will be compatible with the Firefly playback system.

Encoding Requirements

1. Files must be *program stream* MPEG2 or *system stream* MPEG1 of audio/video, or *elementary stream* MPEG2 or MPEG1 of video only or audio only.
2. Use 4:2:0, not 4:2:2 encoding.
3. In MPEG-2, both audio and video fields should be encoded. This is the normal default.
4. Audio only (Dolby Digital or MPEG Layer 2) files cannot be mixed with files containing videos (MPEG, MPEG2 program stream, video only).
5. Firefly – Standard IDE Hard Drive): The total bit rate of a Firefly player must not exceed 40 mbps.
6. The presentation time stamp (PTS) values contained in the audio and video streams in a file must be continuous and increasing. In particular, the PTS values should not reset to 0 at any point in the file. The time between the first and last time stamps in a file should reflect the actual duration of the file.
7. Files should be no less than 4 megabytes in size. If some of your files are smaller than 4 megabytes, use an editor to combine the files to create a single file at least 4 megabytes in size.
8. Files should be no larger than 2 gigabytes in size.

Encoding Recommendations

1. Resolution: 720 X 480 or 704 X 480 in NTSC; 704 X 576 in PAL.

2. Closed GOP (Group of Pictures) with an "I-frame" every 15 frames is recommended.

3. The recommended audio bit rate is 384kbps and a sampling rate of 48khz. It is recommended to play back test files using the original source tapes to confirm audio levels *prior* to encoding an entire project. This will allow for calibration of the encoding system to obtain a standard audio level.

4. Program stream files should have one end code (00 00 01 b9) at the very end of the file. The Firefly can handle files without end codes, but it is still a good idea to include one.

5. The bit rate can affect the size and transferability of the files. The recommended bit rates for various types of video content are as follows:

Bit Rate	Video Content
4 mbps	Good quality with low motion
6 mbps	Good quality with typical motion
8 mbps	Good quality with high motion
10 mbps	High quality with demanding content

Table 1. Bit Rate Encoding Recommendations for Firefly

6. Although Firefly can transcode NTSC and PAL, it is recommended to encode to the video standard (NTSC or PAL) that you will be setting your Firefly to display.

7. When encoding files, annotate and store notes on the audio levels of both the source tape and input settings of the encoder. It will then be possible to verify audio levels of later encoding sessions. It is desirable to maintain a baseline audio level across all files of a presentation whether at single or multiple locations. If no encoding notes or data is available from previously encoded files, compare the files. When possible, measure audio levels of the source tapes and of the encoded files.   At a minimum, listen to and compare files. Even if encoding is done at the same production facility, variances between sessions may occur. Once MPEGs are encoded, the audio level of a file cannot be changed unless the file is re-encoded or a new audio track is mixed.

8. MPEG files are constructed from intertwined (i.e. multiplexed) audio and video streams. The length of video and audio stream segments within MPEG files should be identical if possible. Ending the audio segment at a .5 second interval (i.e., at an "I-frame") will ensure identical stream lengths, providing smooth and seamless looping playback.

9. When encoding SMPTE tracks it is recommended to encode these tracks "hot"--at approximately +6db. This adjustment can compensate for some SMPTE information that may be lost during compression. Not all encoders will respond in the same way. Sample testing should be done with all SMPTE tracks.

10. Standard color bars and audio test tones: MPEG files may be encoded along with the content or source files for reference and calibration. These encoded display test/tuning files should be separate files--not headers or footers of the presentation.

11. To play back still images or computer-based graphics, we recommend software encoders such as DVMPEG (www.darvision.com). Yet, whenever possible, hardware-based encoding systems are preferred.

! Multiplexing a blank audio track on all video only MPEG files is highly recommended.

WEBVIEW

The WebView interface allows you to access a Firefly over a network using only a conventional web browser. No special software is required. WebView is compatible with Microsoft Internet Explorer™ 5.5 and higher. While WebView may work with other web browsers, Visual Circuits cannot guarantee full compatibility.

Accessing the WebView Interface

Firefly-SC comes factory default with a static IP of **10.0.1.1** and can be modified to a different IP or changed to DHCP.

Login = firefly
Password = 123456

Setup Procedures:

Step 1: Connect to the Network

To begin, both the Firefly and the computer you will be using to access the Firefly must be on a common network. If you need help setting up these connections you should contact your IS department.

> **WARNING**
>
> While it is possible to use WebView over the Internet, all security provisions must be provided by the user's network. Firefly does not include any special security measures and because the user name and password can be displayed as clear text through the on-screen menu system, it is possible for anyone with physical access to the unit to obtain this information.

Step 2: Determine the Address of the Firefly

Once proper network connections are confirmed on both the Firefly and the web browser computer, you will need to know the IP address or DNS name (if your network has a DNS server) of the Firefly.

> [!] Using DHCP, you should also be able to use the address "http://hostname" or "http://hostname.yourdomain" to access the Firefly without knowing the exact IP address.

Step 3: Establishing Communication with the Firefly

To begin working with the Firefly you should launch your Internet browser program and enter the IP address (or DNS name if appropriate) in the address field. If you have successfully established communication with the Firefly, you will see a screen like the one displayed here.
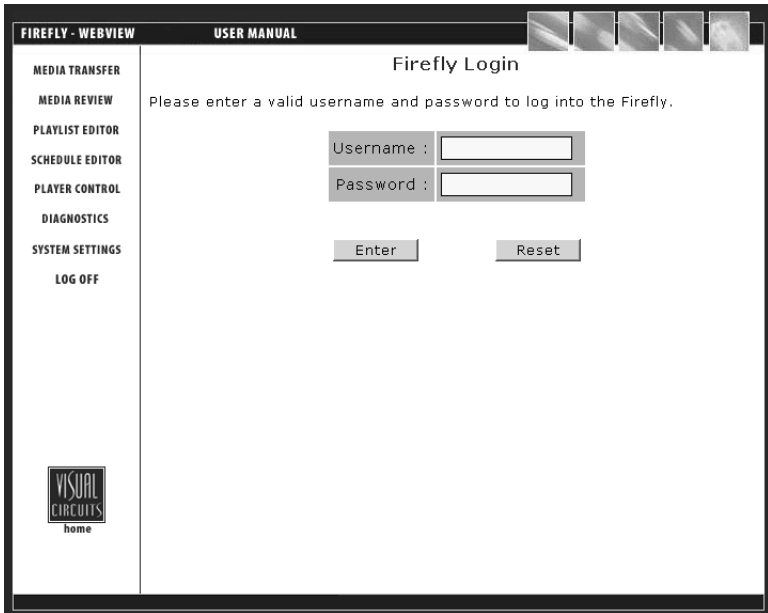
Figure 1. Login Page

Step 4: Enter Your User Name and Password

All Firefly's ship from the factory with a default user name of "firefly" and default password "123456". If you have not yet changed those defaults, you should enter them at this time. Otherwise, if you have already created a new user name and password, enter them now.

Keep in mind that both the user name and password are case sensitive and require a minimum of 6, but no more than 30, characters.

Forgot Name, Password, IP...???

If you're in a situation where you cannot get into the Webview interface because of a misplaced "User Name, Password, IP address, DNS Name, etc. Or perhaps the system was inadvertently set to DHCP when you don't even have a DHCP server. There's still hope. See *Basic Hyper Terminal Setup* on page 120 & *Networking Commands* on page 134.

WARNING
Default user names and passwords are a favorite tool of hackers. Since many people never bother to change the defaults, once hackers learn them they will try them on every like product they find. Your first layer of security should always be to change the default settings immediately.

Using the WebView Interface

Once you have logged onto the WebView Interface, your browser will go to the "Media Transfer" page as the default starting point (page 27). Along the left side of the page are the navigation buttons used to access different pages in the WebView interface. At the top is a link to download the Firefly User Manual in PDF format. There is a link to the Visual Circuits web site in the lower left corner of the page.

The Visual Circuits web site link will actually take you out of the WebView interface to Visual Circuits Internet web site. If you are not connected to the Internet through your network, this link will not work. The user manual download, however, comes directly off of the Firefly and therefore will work even without an Internet connection.

Transferring Media

From this page you can transfer media from your computer or network to the Firefly. Up to six media files can be transferred at once by simply specifying the files to be transferred in each of the Media 1 through Media 6 boxes.
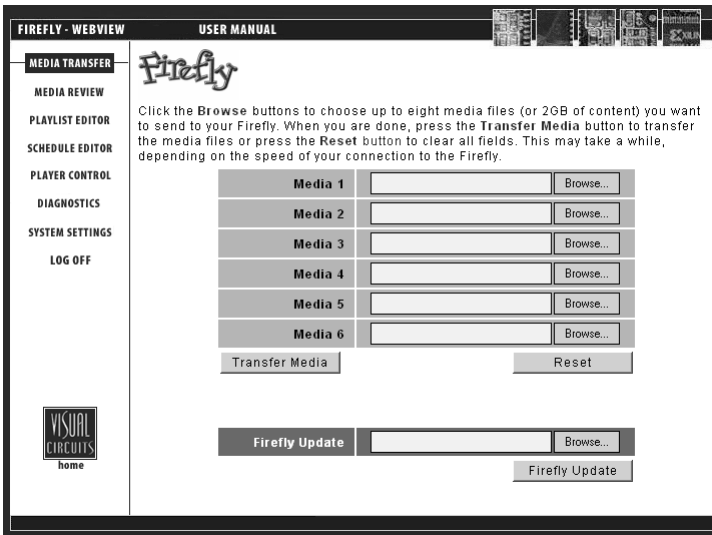
Figure 2. Media Transfer Page

If you close or select another web page during a media transfer, the transfer will terminate. If you would like to multi-task during a transfer, you may open a new web browser and log in.

WARNING

Do not use the Internet Explorer "History" function within WebView. Because the WebView interface needs to query the Firefly player to refresh, pulling the history out of the Internet Explorer cache file will cause inconsistent results. For the same reason, do not use the Internet Explorer backward or forward navigation buttons. Use the WebView navigation buttons instead.

If you cannot remember the names and locations of the files you
wish to transfer, simply click the Browse button to the right of the
box you wish to fill in. This will bring up a window that allows
you to search your hard drive(s) and network for the desired file.
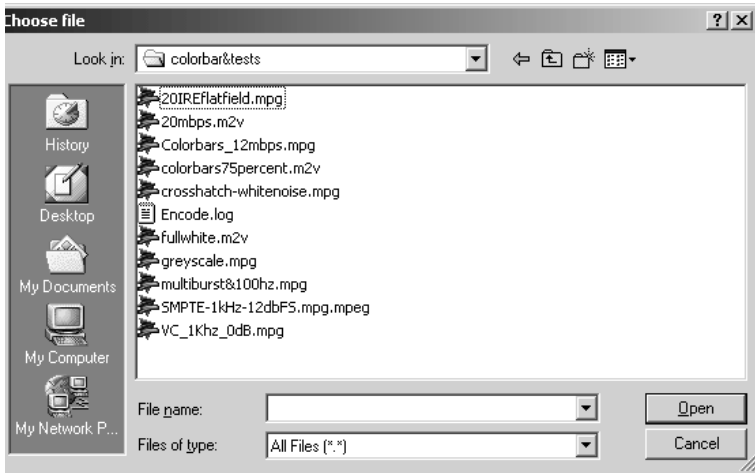
Figure 3. Browse for Files Window

After you have selected all the media files you wish to transfer to
the Firefly, clicking the Transfer Media button will initiate the
transfer. If you wish to change your selections before the transfer
begins, you can click the Reset button to clear all selections.

While copying .jpg, .gif, .tga, .png or non 256-color .bmp image files,
Firefly converts those files to a standard 8-bit, 256-color bitmap format
and reduces the image sizes, if necessary, to the system maximum of
720 x 480 for NTSC. As a result, all image files listed on the system have
the file extension .bmp. The conversion to .bmp format ensures that all
graphic overlays are consistent in appearance and functionality.

An alternative to the auto-formatting performed by the Firefly is to create
the images and convert them to the 8-bit standard mentioned above
before importing them.

When WebView begins transferring the selected files, an animated sequence of flashing circles will appear over the Visual Circuits logo in the lower left portion of the page to let you know that the transfer is in progress.

> ! Because media files can be quite large, the transfer process can take several minutes depending on the size of files you have selected and the speed of your network connection.
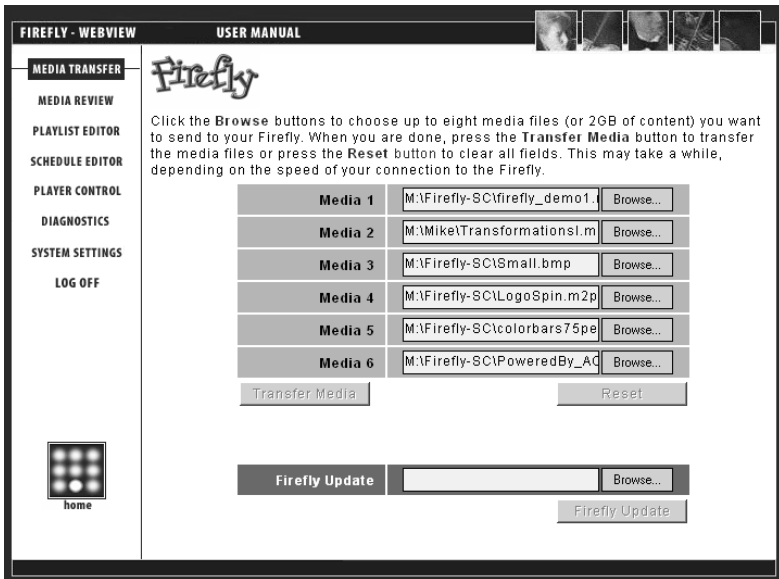

Figure 4. WebView Media Transfer In Progress

After WebView has successfully transferred all of the selected files to the Firefly, a summary page will be displayed showing what was uploaded. If you wish to transfer more files to the Firefly, you may return to the Media Transfer page by clicking the Media Transfer navigation button on the left side of the screen.

Webview Software Update

To update your Firefly using the Media Transfer-Firefly Update method, simply browse your PC for the .upd file you may have obtained from the Visual Circuits web site or CD ROM. Now select "Firefly Update". After the file has been transferred, the system will immediately begin to process the update for approx. 60 seconds and then restart the player.

You may notice some video stuttering during the update, but this is completely normal as the update requires a significant amount of processing bandwidth. After the player has restarted, verify that the system version has changed, indicating a successful update.

WARNING
Do Not Reboot the Firefly while the update is going on.

Figure 5. Media Transfer Summary Page

Reviewing, Previewing and Deleting Firefly Media

Within the WebView Media Review page, you will be able to review media and storage usage on the Firefly, preview video and graphic overlay media on the Firefly and delete media from the Firefly.
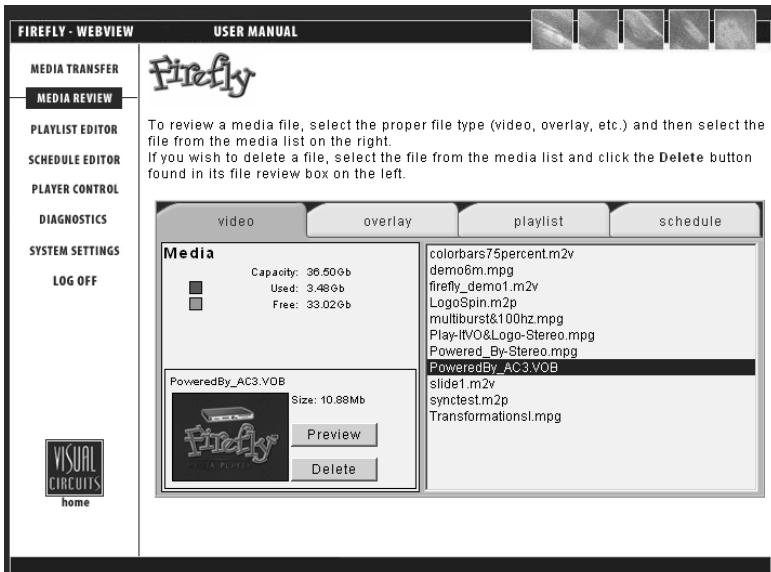
Figure 6. Media Review Page (Video)

Reviewing Media and Storage Usage on the Firefly

The Media Review page allows you to review the video and graphics overlay files that are currently on the Firefly.

To review a video or graphic overlay:

1. Select the proper file type tab (video or overlay) at the top.
2. Select the file from the media list on the right.

The media review box on the left will display the name of the file and its size (in MBs).

In addition, you will be able review the current storage status of the Firefly by observing the current "Used" space and "Free" space displayed in the upper left portion of the Media Review window.

Previewing Videos and Graphic Overlays on the Firefly

Within the Media Review page, you will be able to view basic previews (thumbnail images) of videos and graphic overlays on the Firefly.

To preview a video on the Firefly:

1. Select the video tab at the top.
2. Select the file from the media list on the right.

   The media review box on the left will display the name of the file and its size (in MBs).
3. Click the "Preview" button.

A short series of still, thumbnail images from the video will be displayed in an animated sequence. This is a useful feature for you to see what is in the video, especially when a file name is not descriptive.

After you have previewed a particular video on the Firefly once, the thumbnail images will be stored on the Firefly allowing the preview to load automatically in successive review attempts.

In some cases, certain video files will be unavailable for preview.

To preview a graphic overlay on the Firefly:

1. Select the overlay tab at the top.
2. Select the file from the media list on the right.

The media review box on the left will display the name of the file, its size (in MBs) and a thumbnail preview of the graphic overlay image.
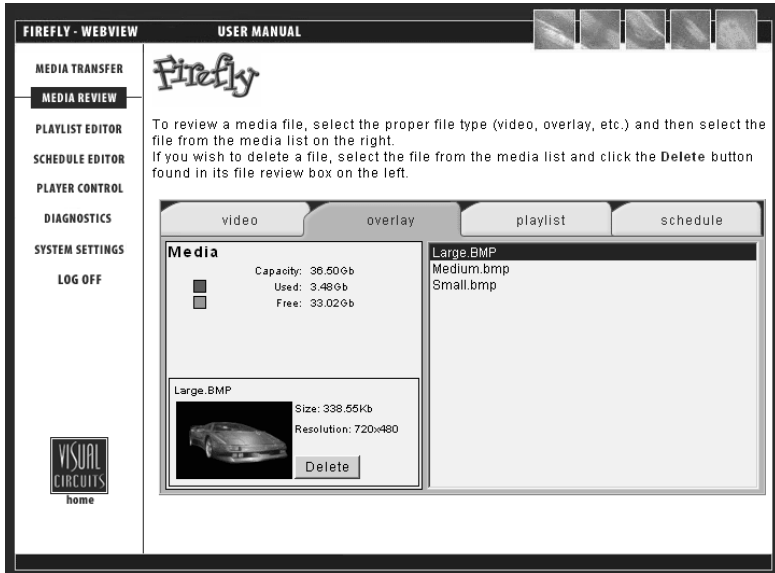
Figure 7. Media Review Page (Graphic Overlay)

Deleting Media from the Firefly

1. Select the proper file type tab (video, overlay, playlist or schedule) at the top.

2. Select the file(s) from the media list on the right. If you would like to select multiple files at the same time, you can use the standard Windows 'Shift/Control' methods.

   The media review box on the left will display the name of the file and its size (in MBs). In cases where you have selected more than one file, all of the file names will be listed along with a total combined size (in MBs) for the group of files.

3. Click the "Delete" button.

   The media file(s) will be deleted from the Firefly storage.
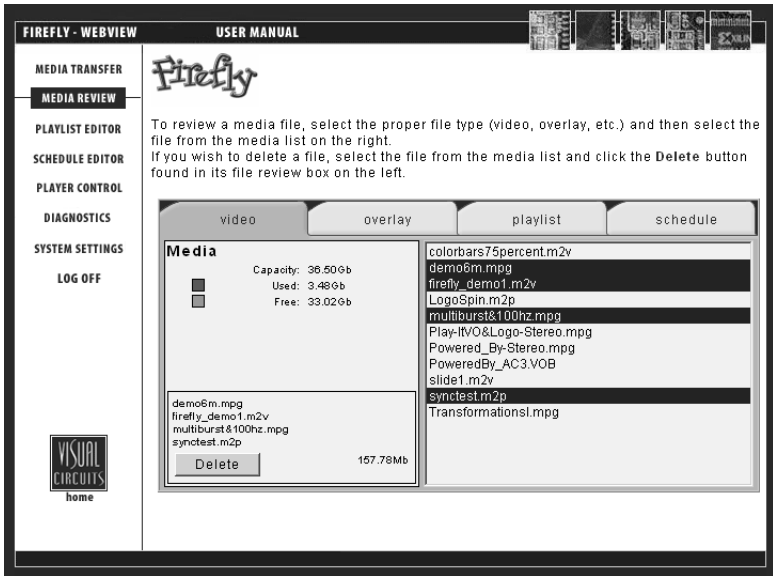
Figure 8. Media Review Page (Deleting Multiple Files)

WARNING

You may delete any or all media files from the Firefly in this fashion. This includes files that may be in use by the current playlist. If you delete a file that is currently playing, it will be allowed to finish playing before the file is actually removed. The next time it is called by the playlist it will be skipped.

There is no way to recover files after they have been deleted.

Using the Playlist Editor

Within the Playlist Editor, you will be able to arrange videos on the Firefly into a playlist. A playlist is essentially a group of videos arranged in a particular playback sequence. A playlist can be used for immediate playback or saved on the Firefly for future playback.

In addition, within the Playlist Editor, you will be able to utilize graphic overlays. A graphic overlay is a static image (.bmp, .jpg, .gif, .tif, .tga or .png) placed over an associated video. You can assign individual graphic overlays to specific videos within a playlist or to all videos within a playlist if desired. The graphic overlay feature provides an effective way to display a company logo, sale sign or any other image over your regular video playback.

To access the Playlist Editor, click on the Playlist Editor navigation button on the left side of the WebView interface.
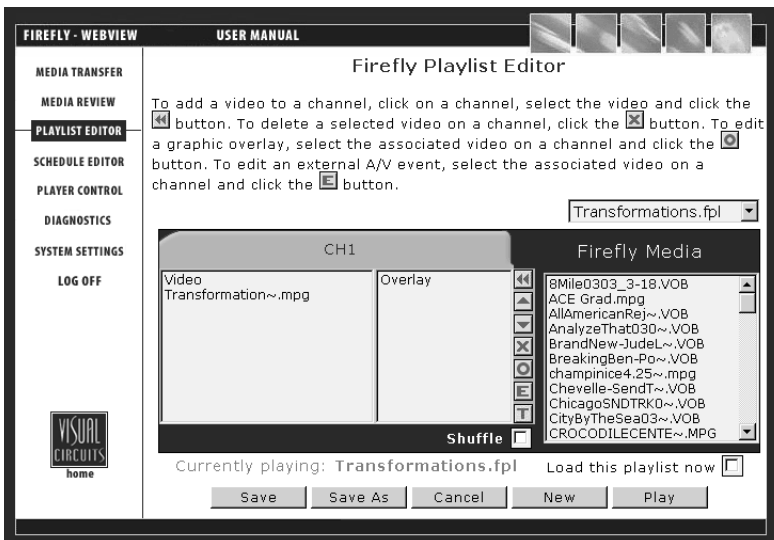
Figure 9. Playlist Editor Page

Creating a New Playlist

The process for creating a new playlist may be started in one of two ways; by choosing "New Playlist" from the "Playlist" drop down menu or by clicking on the "New" button in the lower right corner.

Adding Videos to a Playlist

To add a video to a playlist:

1. Browse the Firefly Media list to locate the video you wish to add.
2. Once you have found the video you wish to add, select it and then click on the ⏮ button located on the center buttons panel.

Additional videos you wish to add must be selected and added one at a time.

⚠️

1. The chosen video file will always be added to the end of the list and can be used multiple times.
2. All MPEG files used in a given layout need to be of the same resolution and size. This provides for a smoother transition between the videos.

Removing Videos from a Playlist

To remove a video from the playlist:

1. Select the video in the Video listbox.
2. Click on the ✖ button located on the center buttons panel. This will remove the video from that specific playlist (not from the Firefly entirely).

Additional videos you wish to be deleted must be selected and deleted one at a time.

Moving Videos Within a Playlist

While you are creating or modifying a playlist, you may find yourself wanting to modify the order of the videos.

To move a video up (towards the beginning) in a playlist:

1. Select the video (from the Video list) you would like to move.
2. Press the ▲ button until the video is where you want it within the playlist.

To move a video down (towards the end) in a playlist:

1. Select the video (from the Video list) you would like to move.
2. Press the ▼ button until the video is where you want it within the playlist.

Continue using the method outlined above to move other videos in order to create your desired playlist.

Shuffling Video Playback on a Channel

Occasionally, you may want to vary the playback order of your videos for a given playlist. The Shuffle playback feature within the Playlist Editor allows you to do just that. By activating Shuffle playback, videos within the playlist you are working with will be played back in random order.

To turn Shuffle playback "On" or "Off" for a playlist, simply check (for On) or uncheck (for Off) the Shuffle checkbox located at the bottom right of the applicable playlist.

Adding Graphic Overlays to a Playlist

The process for adding graphic overlay files to a playlist is basically the same as the process of adding video files. The one significant difference, however, is that a graphic overlay is always linked to a particular video. Where adding a video creates a new line at the end of the playlist, adding a graphic overlay attaches the overlay to the currently selected video entry in the Video listbox. Therefore, at least one video must be in the Video listbox before you can add any type of graphic overlay.

There are two ways you can add a graphic overlay to a video.

The first method is as follows:

1. Click on the video within the playlist that you would like the overlay to associate with.

2. Locate and then click on your desired graphic overlay from the Firefly Media list.

3. Click on the ⏮ button to add the graphic overlay.

The graphic overlay you selected will appear across from its associated video in the Overlay listbox. The properties of the overlay will be set to the default settings. If you wish to modify the graphic overlay properties at this point, select either the video or the graphic overlay and then click on the ⏺ button to display the Graphic Overlay Properties page. You may make your desired changes in this screen (see *Working With Graphic Overlays in a Playlist* on page 39 for details).

> ⚠ If a graphic overlay is added while a video that already has an associated graphic overlay is selected on the playlist, the new selection will replace the original contents.

The second method, which allows you to review and/or adjust the graphic overlay properties before saving, is as follows:

1. Click on the video within the playlist that you would like the overlay to associate with.

2. Click on ⏺ button to display the Graphic Overlay Properties window.

3. Click on the Overlay Filename drop down menu to locate and select your desired graphic overlay from the Firefly Media list.

4. Review and/or adjust the overlay properties (see *Working With Graphic Overlays in a Playlist* on page 39 for details on this).

5. Click the OK button.

The graphic overlay you selected will appear across from its associated video in the Overlay listbox.

Working With Graphic Overlays in a Playlist

As previously noted, graphic overlays exist in a playlist as attributes of specific video entries. The only image types that are compatible with Firefly are .bmp, .jpg, .gif, .tga or .png.
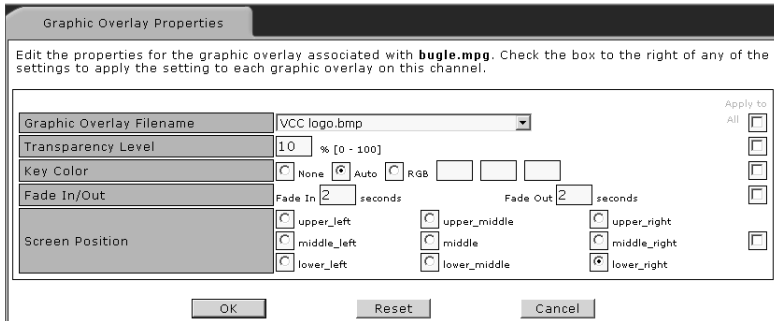
Figure 10. Graphic Overlay Properties Page

While copying .jpg, .gif, .tga, .png or non 256-color .bmp image files, Firefly converts those files to a standard 8-bit, 256-color bitmap format and reduces the image sizes, if necessary, to the system maximum of 720 x 480 for NTSC. As a result, all image files listed on the system have the file extension .bmp. The conversion to .bmp format ensures that all graphic overlays are consistent in appearance and functionality.

An alternative to the auto-formatting performed by the Firefly is to create the images and convert them to the 8-bit standard mentioned above before importing them.

The process for altering the characteristics of a specific graphic overlay is as follows:

(Skip steps 1 and 2 if you have already selected a graphic overlay and are within the Graphic Overlay Properties page).

1. Select the video you would like the graphic overlay to be associated with and then click on the button to display the Graphic Overlay Properties page.

2. Click on the Overlay Filename drop down menu to locate and select your desired graphic overlay from the Firefly Media list.

3. If desired, select a level of transparency between 0 and 100%. This value will adjust to what extent the graphic overlay covers the video below. If you want the graphic overlay to blend in with the video, you may select a higher transparency level. Conversely, if you would like the graphic overlay to stand out, you may select a lower or zero-value transparency level.

4. If desired, adjust the key color. The key color property deals with blocking out or cropping specified colors within the graphic overlays. For example, if the image you are using is your company logo (in color) and is placed on top of a white rectangular background, you may only want to display the company logo, instead of the logo on top of the white background.

   Within the key color property, there are three options: None, Auto Key or RGB. You can choose None to not use the key color option at all. You can choose Auto Key have the system automatically make transparent the background color. The system selects the color in the upper left most corner of the image to determine which color to remove. In most instances, Auto Key will be the easiest to use and most effective "make transparent" method. Or you can choose to manually set the RGB (Red, Green and Blue) key color level. The RGB option requires you to know the specific RGB value of the color you would like to "make transparent"

> ⚠️ Use a solid background (one color) in your graphic overlays for the Auto key feature to work properly.
>
> Entering your own RGB values for the key color feature only works with 8 bit bitmap graphics less than or equal to 720x480 resolution.

5. If desired, adjust the rate (in seconds) at which you would like the graphic overlay to fade in and/or out on the screen.

6. If desired, select the position on the screen where you would like to have the graphic overlay located (example: left bottom).

7. If desired, use the check boxes on the right side of the screen. The check boxes correspond to each of the graphic overlay properties. These check boxes can be used to copy the properties in their associated frames to all of the existing graphic overlays across all channels in a playlist. For example, if you would like ensure that all existing graphic overlays for a given playlist always appear in the lower right corner, then you would set the screen position attribute to right bottom and would check the "Apply to All" box to the right of that frame. If, for example, you would like to have the same graphic overlay with all of the same properties applied to all of the videos in a given playlist, you would check each of the "Apply to All" boxes to the right of the option frames (Overlay Filename, Transparency, Key Color, Fade In/Out and Position on Screen).

8. Click the OK button to save your changes and to return to the Playlist Editor screen.

Adding Scrolling Text to a Playlist

The process for adding scrolling text to a playlist is basically the same as the process of adding video files. The one significant difference, however, is that scrolling text is always linked to a particular video. Where adding a video creates a new line at the end of the playlist, adding scrolling text attaches the text to the currently selected video entry in the Video listbox. Therefore, at least one video must be in the Video listbox before you can add any text.

> [!] The Graphic Overlay & Scrolling Text features cannot be used simultaneously on a single video file.

Adding Scrolling Text:

1. In the Playlist Editor page, select the video file which you want to associate the scrolling text with and then select the [T] icon.
2. The Scrolling Text properties page will appear as seen in Figure 11 on page 43.
3. You can type or paste text from another file into the "Scrolling Text String" window. A maximum of 500 character spaces is allowed.
4. Select OK, then Play to preview. Once you are satisfied, make sure to *Save your work.*
5. Once you are satisfied with the results, select 'Save' or 'Save As' another Playlist.

The properties of the scrolling text will be set to the default settings. If you wish to modify the properties at this point, select either the video or the scrolling text file and then click on the [T] button to display the Scrolling Text Properties page. You may make your desired changes in this screen (See *Working With Scrolling Text in a Playlist* on page 43 for more details).

> [!] Characters & symbols, other than what is currently displayed on most keyboard key caps, are not supported. Be aware of Word Processing programs that have the "AutoCorrect" feature enabled.

Working With Scrolling Text in a Playlist

As previously noted, scrolling text exist in a playlist as attributes of specific video entries.

Figure 11. Scrolling Text Properties Page

The process for altering the characteristics of a specific text file is as follows. Select the video you would like the scrolling text to be associated with and then click on the [T] button to display the Scrolling Text Properties page:

Transparency Level

1. **All** - If desired, select a level of transparency between 0 and 100%. This value will adjust to what extent both background and text will "overlay" the video. If you want the background & text to blend in with the video, you may select a higher transparency level. Conversely, if you would like them both to stand out, you may select a lower or zero-value transparency level.

2. **Background** - The same rules apply here as "All" except only the background is affected.

3. **Reverse** - When Reverse is selected to the on position, the Text assumes the position of Background & visa versa.

> ⚠️ Entering your own RGB values for the background feature only works with 8 bit bitmap graphics less than or equal to 720x480 resolution.

Saving a Playlist

Once you have finished editing a playlist, you may save changes by clicking either the "Save" or "Save As" buttons at the bottom of the screen.

- ❏ Clicking the "Save" button will overwrite the original playlist file using the same file name.
- ❏ Clicking the "Save As" button will bring you to a screen where you will need to enter a new file name (maximum of 14 characters).
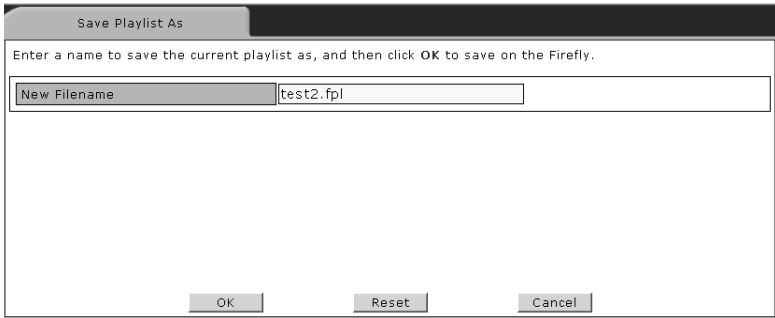
Figure 12. Save Playlist Dialog Box

After entering the new file name, click the OK button to save the modified playlist and to return to the Playlist Editor main page.

- ❏ If you check the "Load this playlist now" check box (found below the Firefly Media list), the modified playlist will begin playing on the Firefly as soon as you save it. If you do not check this box, the playlist will be saved, but playback will not be started until the playlist is later selected for playback.

Playing a Playlist Quickly

If you are browsing through your playlists and find one you would like to play right away, simply click the "Play" button, which is located in the lower right portion of the Playlist Editor screen.

Clicking the "Play" button will overwrite the original playlist file using the same file name and will begin designated playback on the Firefly immediately.

Using the Schedule Editor

Within the Schedule Editor, there are two separate pages: the Playlist Events Editor and the Video Dates Editor.

Within the Playlist Events Editor you will be able to work with playback schedules. A schedule is a group of one or more playlist events. An event is composed of a single playlist with adjustable playback properties. Beyond simple start and stop times, events can be set to play on certain days of the week, interrupt other events, play just once or at certain repeating intervals.

The Video Dates Editor allows you to assign a specific start date, end date or both a start *and* an end date for an individual video. This is especially useful when you have time sensitive media that you cannot have played before a certain date, after a certain date or outside a certain date range.

To access the Schedule Editor, click on the Schedule Editor navigation button on the left side of the WebView interface. By default, the Playlist Events Editor will open.
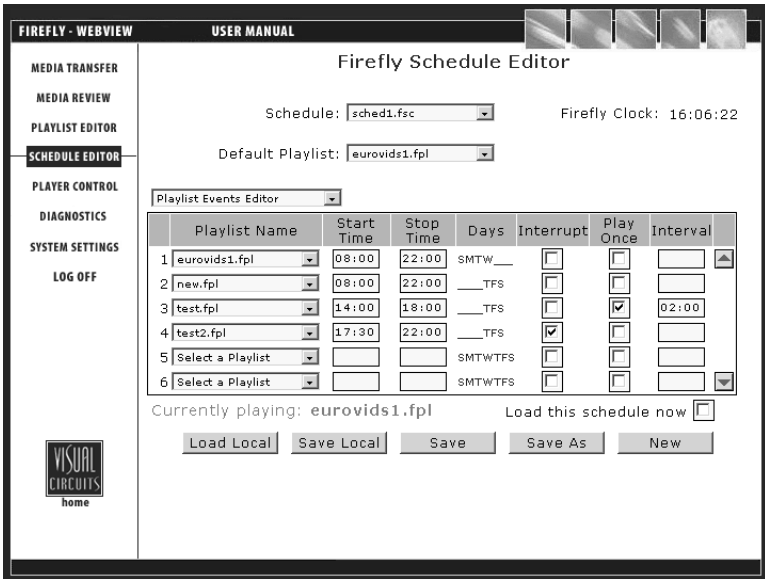
Figure 13. Schedule Editor - Playlist Events Editor Page

Creating a New Schedule

The process for creating a new schedule may be started in one of two ways; by choosing "New Schedule" from the Schedule drop down menu or by clicking on the "New" button in the lower right corner.

Within the Playlist Events Editor page, you will have to option to: add an event to a schedule, delete an event from a schedule, or edit an event within a schedule. In addition, (using the Video Dates Editor) you will be able to assign date rules to individual videos if desired.

Each of the major tasks in the Playlist Events Editor involve adjusting the event property fields. The following table provides basic overviews and examples for each of the event property fields:

Property	Description
Playlist Name	Designates which playlist to play. Example: "I'd like to have my product demonstration playlist selected to play".
Start Time	Designates time to start playing playlist. Example: "I'd like to have my playlist start playing at 9:00".
Stop Time	Designates time to stop playing playlist. Example: "I'd like to have my playlist stop playing at 18:00".
Days	Designates days of week to play playlist. Example: "I'd like to have my playlist play only on Thursdays, Fridays and Saturdays".
Interrupt	Option to cut off video playing in previous playlist instead of waiting for video to finish playing. Example: "I'd like to have the video in my sales promotion playlist interrupt the video in my product demonstration playlist".

Property	Description
Play Once	**Option to play playlist exactly once and then return to previously scheduled playlist.** *Example: "I'd like to play my one hour specials playlist just once during the business day".*
Interval	**Option to repeat a "play once" event periodically at a specified interval.** *Example: "I'd like to play my one hour specials playlist once every 2 hours throughout the business day".*

Table 1. Event Property Field Examples

Adding an Event to a Schedule

To add an event to a schedule:

1. Edit the event properties as described below.
    a. **Playlist Name:** Choose a playlist from the "Select a Playlist" drop down menu.
    b. **Start Time:** Set the specific start time for the playlist using the number keys on your keyboard.
    c. **Stop Time:** Set the specific stop time for the playlist using the number keys on your keyboard.
    d. **Days:** Click on any of the days to display the "Days of the Week" dialog box.

Figure 14. Days of the Week Dialog Box

Click on which days of the week you would like the playlist to play on. A "checked" box indicates the day is selected and an "unchecked" box indicates the day is not selected. If you would like to clear all of the day selections, click the Reset button. When you are done making any desired changes, click the OK button to return to the Schedule Editor screen.

e. **Interrupt:** Click on the Interrupt check box to have the first video in a scheduled playlist start playing precisely at its schedule time (interrupting or "cutting off" the video playing in the previously scheduled playlist). This is useful if you have a time sensitive playlist. A "checked" box indicates that Interrupt is selected, interrupting the previous video and an "unchecked" box indicates that Interrupt is not selected, allowing the video to finish playing before the new playlist begins playing.

f. **Play Once:** Click on the Play Once check box to choose to have the playlist played back only once (regardless of its time allotment). A "checked" box indicates that Play Once is selected and an "unchecked" box indicates that Play Once is not selected.

g. **Interval:** Click on the Interval check box to choose to have a Play Once event played back once at a designated time interval. Set the interval time using the number keys on your keyboard.

2. Once you have finished editing the schedule, you may save your changes by following the instructions found in *Saving a Schedule* on page 52.

Deleting an Event from a Schedule

To delete an event from a schedule, use the following steps:

1. Locate the event (under playlist name) you would like to delete.
2. Change the playlist to "Select a Playlist" from the playlist name drop down menu. When done, this will delete the playback event and its associated properties from the schedule.
3. Once you have finished editing the schedule, you may save your changes by following the instructions found in *Saving a Schedule* on page 52.

Editing an Event within a Schedule

To edit an event within a schedule, use the following steps:

1. Edit the event properties as described below.
   a. **Playlist Name:** Choose a playlist from the "Select a Playlist" drop down menu.
   b. **Start Time:** Set the specific start time for the playlist using the number keys on your keyboard.
   c. **Stop Time:** Set the specific stop time for the playlist using the number keys on your keyboard.
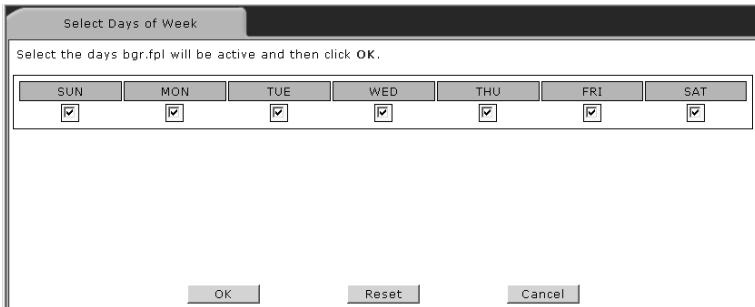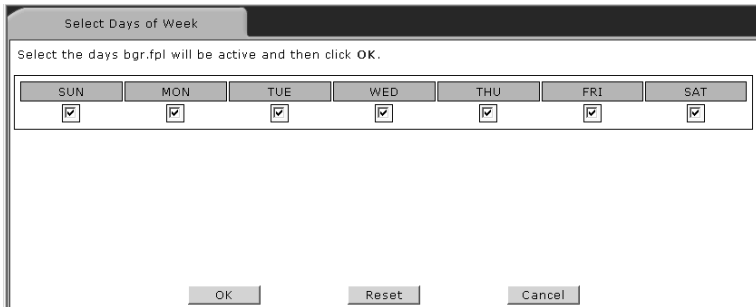   d. **Days:** Click on any of the days to display the "Days of the Week" dialog box.

Figure 15. Days of the Week Dialog Box

Click on which days of the week you would like the playlist to play on. A "checked" box indicates the day is selected and an "unchecked" box indicates the day is not selected. If you would like to clear all of the day selections, click the Reset button. When you done making any desired changes, click the OK button to return to the Schedule Editor screen.

    e. **Interrupt:** Click on the Interrupt check box to have the first video in a scheduled playlist start playing precisely at its schedule time (interrupting or "cutting off" the video playing in the previously scheduled playlist). This is useful if you have a time sensitive playlist. A "checked" box indicates that Interrupt is selected, interrupting the previous video and an "unchecked" box indicates that Interrupt is not selected, allowing the video to finish playing before the new playlist begins playing.

    f. **Play Once:** Click on the Play Once check box to choose to have the playlist played back only once (regardless of its time allotment). A "checked" box indicates that Play Once is selected and an "unchecked" box indicates that Play Once is not selected.

    g. **Interval:** Click on the Interval check box to choose to have a Play Once event played back once at a designated time interval. Set the interval time using the number keys on your keyboard.

2. Once you have finished editing the schedule, you may save your changes by following the *Saving a Schedule* instructions found below.

Saving a Schedule

Once you have finished editing a schedule, you may save changes on the Firefly by clicking either the "Save" or "Save As" buttons at the bottom of the screen.

- ❏ Clicking the "Save" button will overwrite the original schedule file using the same file name.
- ❏ Clicking the "Save As" button will bring you to a screen where you will need to enter a new file name (maximum of 14 characters).
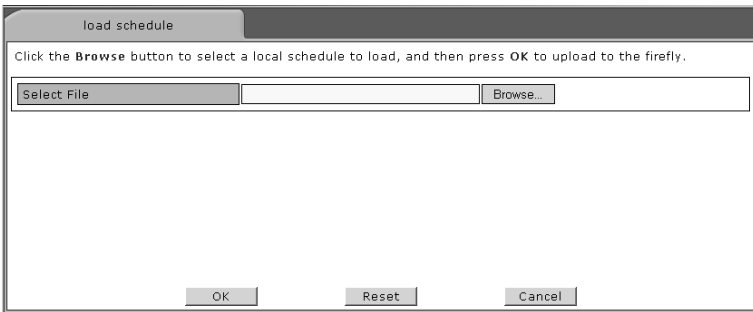
Figure 16. Save Schedule Dialog Box

After entering the new file name, click the OK button to save the modified schedule and to return to the Schedule Editor main page.

- ❏ If you check the "Load this schedule now" check box (found above the New button), the modified schedule will begin playing on the Firefly as soon as you save it (if the active schedule coincides with the current day and time). If you do not check this box, the schedule will be saved, but playback will not be started until the schedule is later selected and scheduled for playback.

Additional Saving and Loading Methods

Beyond the standard saving and loading methods directly to and from the Firefly, there are two local options available to you.

Save Local:

The Save Local option allows you to save a copy of the schedule file currently being edited to your local computer or network (examples: hard drive, floppy drive). This is a useful feature for transferring files to other Firefly's or for backing up important data.

To perform a local save:

1. Click on the "Save Local" button at the bottom of the Schedule Editor screen. The following dialog box will appear:
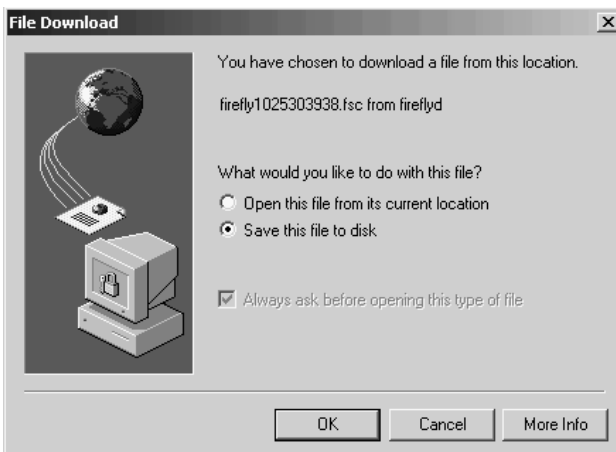
Figure 17. Save Local File Download Dialog Box

2. Select "Save this file to disk" and click the "OK" button.
The following Save As dialog box will appear:
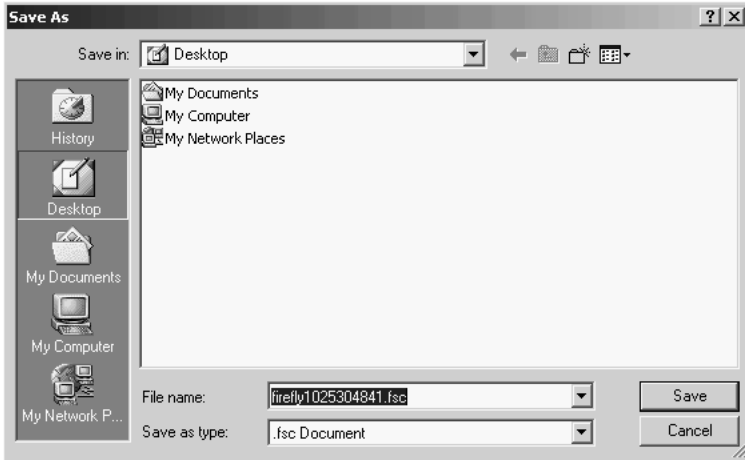
Figure 18. Save As Local Dialog Box

   3. Type in your desired name for the schedule file and click the "Save" button.

> When saving a schedule locally, you must add the schedule file extension ".fsc" to the end of all file names.

Once saved, you will be returned to the Schedule Editor main screen.

Load Local:

The Load Local button allows you to load a schedule file from your local computer or network as opposed to directly from the Firefly. This is a useful feature because your schedule file(s) may only be available on another computer or removable media.

To perform a local load:

   1. Click on the "Load Local" button at the bottom of the Schedule Editor screen. The following dialog box will appear:
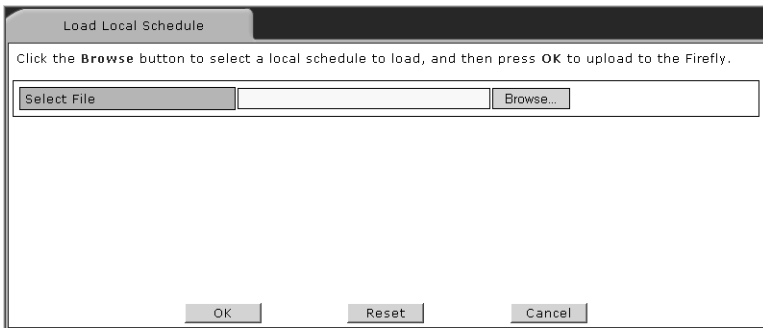
Figure 19. Load Local Browse Dialog Box

  2. Click the "Browse" button.

The following Choose File dialog box will appear:
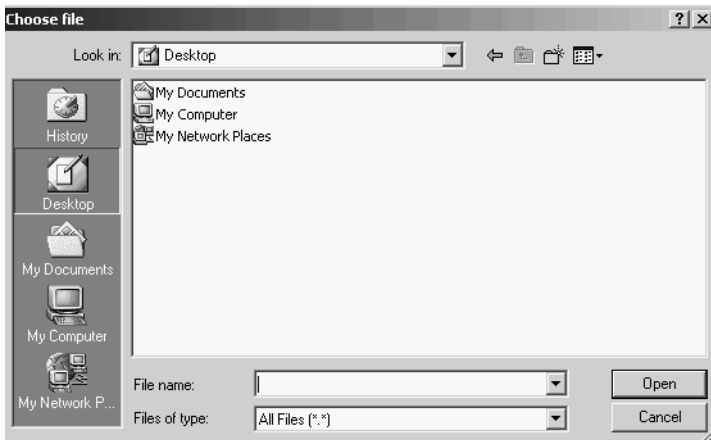
Figure 20. Load Local Save As Dialog Box

  3. Locate your desired schedule file (.fsc). Once found, highlight it and click the "Open" button.

  4. The field will be populated with your desired schedule file name. If the file appears correct, click the "OK" button.

You will be returned to the Schedule Editor main screen. The schedule you just loaded will be open on your screen, ready for modifications if desired.

Assigning Dates for Video Playback

The Video Dates Editor allows you to designate the actual date(s) a particular video is allowed to play. By selecting a start date, an end date or both a start *and* an end date you can establish a "date rule" for the playback of a particular video.

Figure 21. Schedule Editor - Video Dates Editor Page

Depending on your application, you may have a need for using any or all of the three previously mentioned date rules. The table below provides some "real world" examples for using the Video Dates Editor.

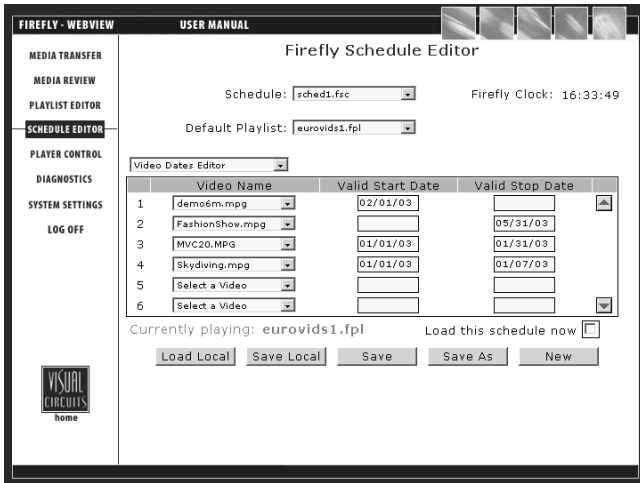| Start Date	Stop Date	Description
02/01/03	- -/- -/- -	Start date with no stop date. Example: "I want my product demonstration video available to playlists the day the product is released, but no sooner than that".
- -/- -/- -	05/31/03	No start date with stop date. Example: "I want my new marketing campaign video available to playlists from now until the end of the spring months".
01/01/03	01/31/03	Both start date and stop date. Example: "I' want my January promotions video available to playlists only during the month of January".

Table 2. Video Date Rule Examples

To add a date rule for a video, use the following steps:

1. (From the Schedule Editor main screen) Select the Video Dates Editor from the drop down menu. The Video Dates Editor screen will be displayed.

2. From the "Select a video" drop down menu, select the video you would like to assign a date rule to.

3. If desired, set the specific start date for the video using the number keys on your keyboard.

4. If desired, set the specific stop date for the video using the number keys on your keyboard.

5. Repeat steps 2 through 4 to add date rules to additional videos if desired.

6. Once you have finished adding date rules, you may save your changes by following the instructions found in *Saving a Schedule* on page 52.

To delete a date rule for a video, use the following steps:

1. (From the Schedule Editor main screen) Select the Video Dates Editor from the drop down menu. The Video Dates Editor screen will be displayed.

2. Locate the video (under Video Name) you would like to delete the date rule for.

3. Change the video to "Select a Video" from the Video Name drop down menu. When done, it will delete any previous video date rule.

4. Repeat steps 2 and 3 to delete date rules for additional videos if desired.

5. Once you have finished deleting date rules, you may save your changes by following the instructions found in *Saving a Schedule* on page 52.

To edit a date rule for a video, use the following steps:

1. (From the Schedule Editor main screen) Select the Video Dates Editor from the drop down menu. The Video Dates Editor screen will be displayed.

2. From the "Select a video" drop down menu, select the video you would like to assign or modify a date rule to.

3. If desired, set or modify the specific start date for the video using the number keys on your keyboard.

4. If desired, set or modify the specific stop date for the video using the number keys on your keyboard.

5. Repeat steps 2 through 4 to edit date rules for additional videos if desired.

6. Once you have finished editing date rules, you may save your changes by following the instructions found in *Saving a Schedule* on page 52.

Exiting the Schedule Editor

At any point while you are working within the Schedule Editor you may exit by clicking on any of the menu navigation buttons on the left side of the screen. Any unsaved changes you have made will be lost.

Using the Player Control Panel

The Player Control panel mirrors the basic functionality of the Firefly remote control. You will be able to Play, Pause and Stop the currently playing file (displayed on the output window). In addition, you will be able to skip to the Previous and Next video in a playlist using the respective Previous and Next buttons.
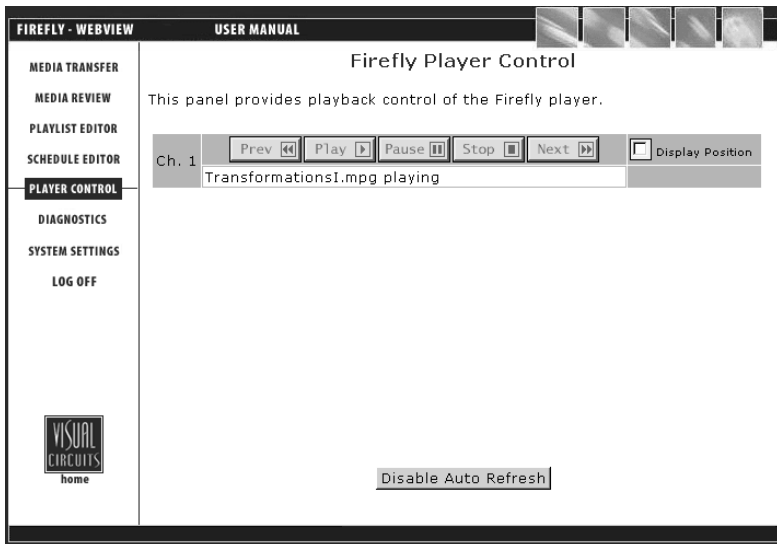
Figure 22. Player Control Panel

In addition to using the standard player controls, the Display Position checkboxes allow you to display the position bar. The Display Position indicator shows the current playback position within the file.

Diagnostics

The Diagnostics pages display a number of statistics about what the Firefly is doing at a fairly technical level. The information found within these pages can serve as a tool to help the Visual Circuits technical support team work with you over the phone in the event that you are experiencing problems.

> The Diagnostics pages provide a snapshot of the system status at the time the pages were entered. The pages do not automatically update the information unless you click on the "Enable Auto Refresh" button.

The Diagnostics pages contains four types of information: General, Video, Playback and Advanced.

By default, when you click on the Diagnostics navigation button you will be routed to the Firefly Diagnostics - General page. Within this page you will find basic information about the Firefly and the media being played on it.

Figure 23. Diagnostics - General Page

Diagnostics - General

Player version:Displays the version of the Firefly (incorporating both hardware and software).

Currently loaded schedule:Displays the file name of the currently loaded schedule (if applicable) on the system.

Currently loaded playlist:Displays the file name of the currently loaded playlist on the system.

Video loaded:Displays the file name of the currently loaded video.

Last FTP Update:Displays the date and time of the last FTP update.

Last FTP Connect:Displays the date and time of the last FTP connect.

Watchdog Restarts:Displays the number of times the Watchdog system has restarted the Firefly.

System Starts:Displays the number of times the Firefly has been started.

Figure 24. Diagnostics - Video Page

Diagnostics - Video

Horizontal Size:Defines the horizontal resolution of the currently playing MPEG file in pixels.

Vertical Size:Defines the vertical resolution of the currently playing MPEG file in pixels.

Video Bitrate:Defines the Video Bitrate or data rate of the currently playing MPEG file.

Audio Bitrate:Defines the Audio Bitrate or data rate of the currently playing MPEG file.

Audio Frequency:Defines the frequency of the Audio stream.

Frame Rate:Defines the frame rate of the currently playing MPEG file. The standard NTSC frame rate of 29.97 fps is shown as 2997.

Current Frame:Displays the current frame number playing within the MPEG file (analogous to the timecode field but with a greater level of accuracy).

Timecode:Displays the current timecode within the playing MPEG file offset so that all files start at 00:00:00.

File Type:Displays the type of MPEG file being played on the channel. The possible types are: mpeg1 - mpeg1 system stream, mpeg2 - program stream, mpg1v - mpeg1 video only, mpg2v - mpeg2 video only, mpg1a - audio only, ac3 - ac3 audio only, ??? - unknown type or no file loaded.

Figure 25. Diagnostics - Playback Page

Diagnostics - Playback

Interrupts:Displays the number of interrupts that have been received from the MPEG decoder.

AV Syncs:Displays the number of times the audio or video streams had to be adjusted to maintain proper synchronization. (It is not uncommon for this to be a high number as this is a running total. Many functions such as fast forward, rewind and seek can cause large numbers of av syncs. It is only of concern if you see this number growing quickly during routine playback).

Last Sync:Displays the number of frames that had to be skipped or repeated during the last av sync to bring the audio and video back into proper synchronization.

Video Data:Displays the amount of data currently in the MPEG decoder's video data buffer.

Audio Data:Displays the amount of data currently in the MPEG decoder's audio data buffer.

Raw Data: Bytes of MPEG data in RAM.

Disk Underflow:Displays the number of disk underflows that have occurred. A disk underflow occurs when the Firefly is unable to get the data off the disk fast enough to keep the disk buffers from becoming empty.

Data Underflow:Displays the number of data underflows that have occurred. A data underflow occurs when the Firefly is unable to transfer data into the MPEG decoder buffers fast enough to keep them from becoming empty. Note that during regular playback conditions it is normal to have a small number of Data Underflows in this field

Diagnostics - Logging

At the top of the Logging page, from the "Select Logfile" drop down menu, you can select the log file you would like to view.

The two buttons located at the bottom of the Logging page, "Refresh" and "Auto Refresh", allow you to manually refresh or have the system automatically refresh the logfile data as you view it.

Refer to *Log File Reporting* on page 115 for information on setting up how your Firefly works with logfiles.

Run Logs

Run logs provide a record of which videos played (with which graphic overlays, if applicable), on which channels, starting at what dates/times, playing back what percentage of the video and for how long.

Figure 26. Diagnostics - Logging Page (Run log)

Once in the Run logfile viewer, the video playback data will be listed with one video per line and will be sorted by playback time (using Firefly's internal 24-hour clock). You may move to the previous or next pages by clicking on the respective <<Prev or Next>> links. You can also move to view the playback data for a certain time of day by entering either hours, minutes and/or seconds in the time boxes and then clicking the "Go" button.

Time:Displays the time of day the event was logged based on Firefly's internal 24-hour clock.

Filename:Displays the filename of the video.

Overlay:Displays the filename of the graphic overlay that was associated with the video (if present).

Duration:Displays the total amount of time (HH: MM: SS) that a video played.

%:Displays the percentage played of the video.

Diagnostic Logs

Diagnostic logs can be used to view a record of all media update transactions and any system errors on a Firefly.

Information contained in the diagnostic log include:

❏ FTP/DVD Updating data: Tracks date, time of connection/ disconnection, errors- yes/no, files, sizes, percent transferred and FTP permission errors.

❏ Storage Cleanup data: Records what media have been deleted by the automatic storage cleanup routine, including file names, sizes and dates.

❏ Missing Elements Log: Records all missing media referenced by an active playlist or schedule, including date, time and file element.

❏ Error Summary data: Records important user player diagnostic information, including the number of system restarts, number of watchdog restarts, the player version, etc.

❏ Serial Commands: Records most incoming and outgoing external control commands.

Figure 27. Diagnostics - Logging Page (Diagnostic log)

Once in the Diagnostic logfile viewer, the data will be listed with one diagnostic event per line and will be sorted by playback time (using Firefly's internal 24-hour clock). You may move to the previous or next pages by clicking on the respective <<Prev or Next>> links. You can also move to view the diagnostic data for a certain time of day by entering either hours, minutes and/or seconds in the time boxes and then clicking the "Go" button.

Time:Displays the time of day the event was logged based on Firefly's internal 24-hour clock.

Source:Displays the source of the diagnostic event (playback, multicast, system, etc.).

Event:Displays the diagnostic event.

System Settings

Within the System Settings menu, the following options are available:

General Settings
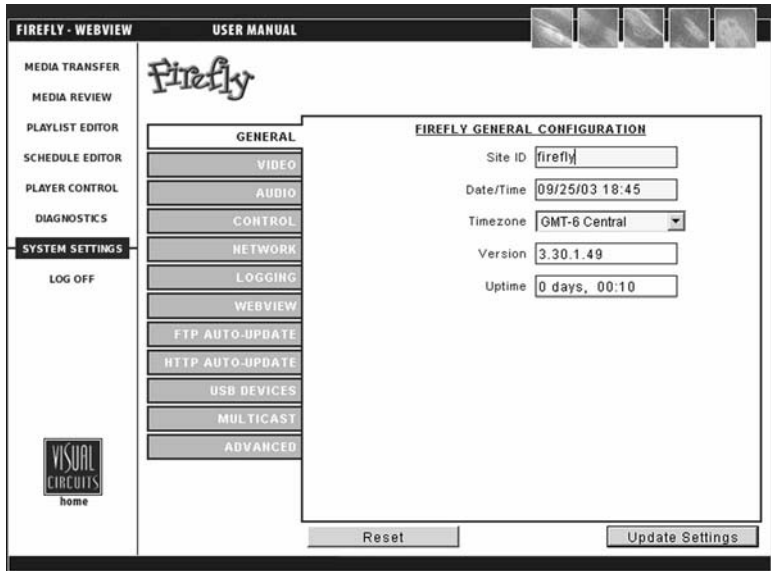
Figure 28. Settings-General

> [!] When a field is edited in any one of the following Settings Categories, the text for that category will turn red until you update the settings.

Site ID

The Site ID uniquely identifies the Firefly as it updates via FTP. It is also used for Media Messenger software to enable automated management of content, playlists & schedule updates.

Date/Time

Sets the Firefly internal clock for date and time.

Time Zone

Allows you to select the appropriate time zone (measured in hours and minutes plus or minus Greenwich Mean Time) for where the Firefly is being used.

Version

This is where to reference the software version for technical support purposes or verifying version change following a "software update".

Uptime

This value indicates how long the unit has been in operation since the last power cycle.

Video Settings
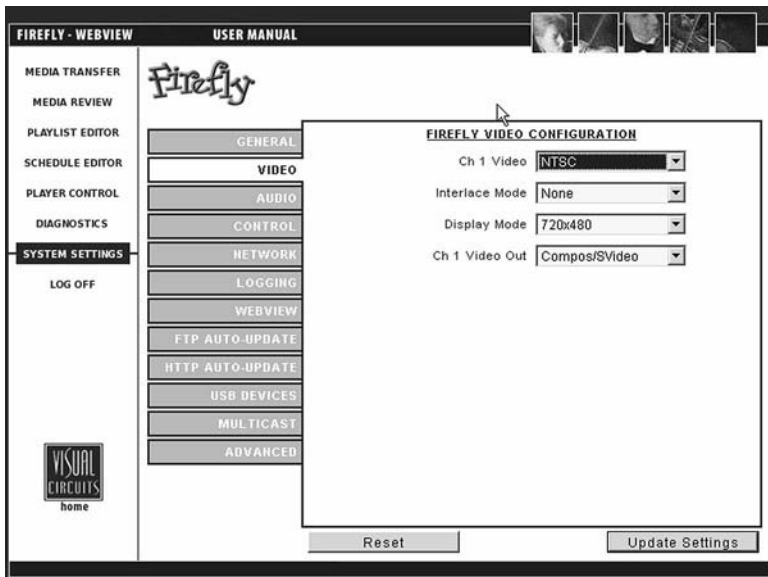
Figure 29. Settings-Video

Channel 1 Video

Selects the standard for video output:
- ❏ NTSC (USA)
- ❏ PAL (European)
- ❏ 480p
- ❏ 576p
- ❏ 720p
- ❏ 1080i
- ❏ NTSC Cropped
- ❏ PAL Cropped

Interleave Mode

When change frame size, select whether to use interleaving or not and the type.
- ❏ None
- ❏ Interleave

❏ Bob (Bob and Weave)

Display Mode

❏ 720 x 480
❏ 720 x 560
❏ 640 x 480
❏ 800 x 600
❏ 840 x 480
❏ 1024 x 768
❏ 1024 x 852

Channel 1 Video Out

Selects the type of video output: Composite/S-video or
Component. Composite and S-Video signals can be used
simultaneously.

Audio Settings
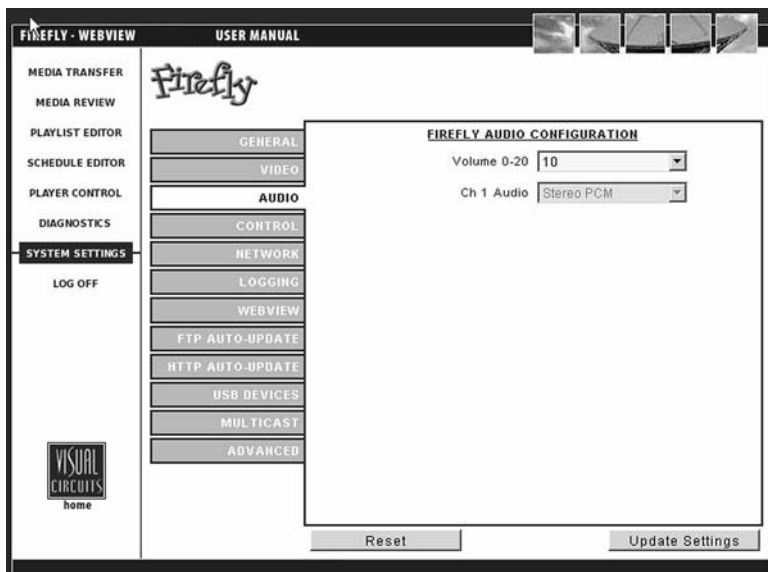
Figure 30. Settings-Audio

Volume

This setting allows you to set the volume level for audio played back on the Firefly. The default volume setting is 10 on the 0-20 scale.

Audio Output

Firefly gives you several audio output options depending on the configuration you use (see Table 3 on page 74). Standard MPEG layer-2 files will output from both the digital and stereo analog outputs. Dolby Digital (AC3) files will output from the digital outputs only. However, by upgrading your unit/s. you can "mix down" AC3 files to the stereo analog outputs. If your application requires a 2-channel (stereo) mix of AC3, please contact a Visual Circuits representative for more information.

	Firefly Audio Configurations			
Config	MPEG Audio Type	Firefly Audio Setting:	Digital Output	Stereo Analog Output?
1	MPEG Layer 2 Stereo Audio	Dolby Digital	S/PDIF	Yes
2	MPEG Layer 2 Stereo Audio	Stereo PCM	S/PDIF	Yes
3	Dolby Digital Audio (AC3)	Dolby Digital	S/PDIF (Dolby Digital)	No
4	Dolby Digital Audio (AC3)	Stereo PCM (w/opt Upgrade)	S/PDIF Stereo	Yes (Decoded)

Table 3. Firefly Audio Configurations

Firefly Dolby Digital D/A decoding is only available when using the *optional* Dolby Digital Software Upgrade (config #4).

Control Settings
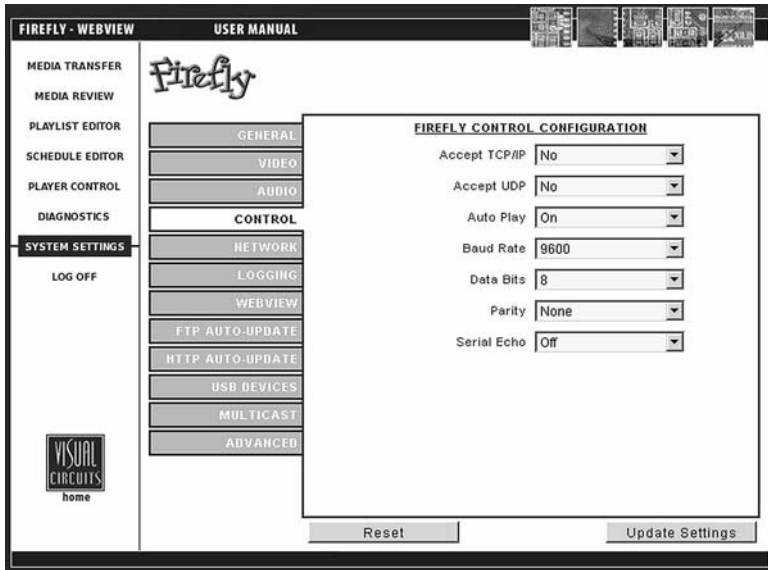
Figure 31. Settings-Control

Accept TCP/IP

In conjunction with RS232 serial communication, TCP/IP allows the user to remotely operate the Firefly by sending operation commands through a network or locally using an external PC or show controller (see *External Control Commands* on page 119).

> **WARNING**
>
> For security reasons, "Accept TCP/IP" is factory defaulted to "No". Be aware that if you decide to use this feature over a large network (namely the Internet), the potential for outside intervention (hacking) is greatly increased because there is literally no security (protection) on this port. Enabling this option will open port 2180.

Accept UDP

Select to use User Datagram Protocol (UDP).

Auto Play

Upon initial start up, Firefly will begin playing the latest loaded playlist/schedule automatically. Following start up, if you choose to begin playback manually via External commands, you can default this option to "Off" to deactivate automatic playback.

Baud Rate

Select an identical value to your external controller. The following options are available: 1200, 4800, 9600, 38400 & 115200. It is recommended starting with a Baud Rate of 9600 for your Hyper Terminal connection.

Data Bits

Select an identical value to your external controller. The following options are available: 5, 6, 7, & 8.

Parity

Select an identical value to your external controller. The following options are available: None, Odd & Even.

Network Settings

Figure 32. Settings-Network

Host Name

Choose a unique name that identifies each Firefly unit on the network.

Mode

DHCP (Dynamic Host Configuration Protocol) - A TCP/IP service protocol that offers dynamic leased configuration of host IP addresses and distributes other configuration parameters to eligible network clients. DHCP provides safe, reliable, and simple TCP/IP network configuration, prevents address conflicts, and helps conserve the use of client IP addresses on the network. DHCP uses a client/server model where the DHCP server maintains centralized management of IP addresses that are used on the network. DHCP-supporting clients can then request and obtain lease of an IP address from a DHCP server as part of their network start up process. *See your Network Administrator for further information.*

STATIC -For a local area connection (LAN), in IP address, Subnet mask, and Default gateway, type the IP address, subnet mask, and default gateway addresses. For all other connections, in IP address, type the IP address. *See your Network Administrator for further information.*

IP Address

A 32-bit address used to identify a node on an IP internetwork. Each node on the IP internetwork must be assigned a unique IP address, which is made up of a network identifier and a host identifier. This address is typically represented in dotted-decimal notation, with the decimal value of each octet separated by a period, for example, 192.168.7.27.

You can configure the IP address statically or dynamically through DHCP. *See your Network Administrator for further information.*

Netmask

Specify a range that falls on subnet boundaries.

Most TCP/IP networks use subnets in order to manage routed IP addresses. For the range specified in From and To, Windows 2000 calculates the closest matching subnet. The range of addresses in the closest matching subnet may exceed the range specified. Unless the addresses specified in From and To are subnet boundaries, the range based on the calculated subnet will be larger than the range specified. To avoid this, specify a range that falls on subnet boundaries, For example, if you are using the 10.0.0.0 private network ID for your intranet, a range that falls on subnet boundaries is 10.0.1.168 to 10.0.1.175. Or, if you are using the 192.168.0.0 private network ID for your intranet, a range that falls on subnet boundaries is 192.168.1.0 to 192.168.1.255. *See your Network Administrator for further information.*

Gateway

A service that allows Firefly to connect to other servers. Creating a gateway also allows client computers running only Microsoft client software to access server resources through the gateway. *See your Network Administrator for further information.*

Nameserver

The IP address for the server, local or ISP, that handles URL name resolution for the network. Contact you system administrator for this information.

FTP Proxy Type

Select the type of FTP proxy best suited for application, i.e. None, Socks4, Socks5, USER usr@hst p, USER usr@hst:p, SITE usr@hst p, SITE usr@hst:p, NetCache or NAT Firewall.

Note: The NAT Firewall setting will put the FTP client in passive mode.

FTP Proxy IP

Enter the address for the proxy, in IP format.

FTP Proxy Port

The number of the port to be used to access the FTP proxy server. Contact you system administrator for this information.

HTTP Proxy Type

Select the type of HTTP proxy best suited for application.

HTTP Proxy IP

Enter the address for the proxy, in IP format.

HTTP Proxy Port

The number of the port to be used to access the HTTP proxy server. Contact you system administrator for this information.

NTP Server

The IP address of the NTP server the Firefly will time-sync with on the network.

Enable SNMP (Simple Network Management Protocol)

Allows you to enable or disable the SNMP feature. SNMP can be used to monitor the Firefly on your network. You can also retrieve and change settings on the Firefly in addition to monitoring the unit by using the Firefly MIB file.

SNMP Network

Designates the IP address of the system(s) you wish to be able to monitor and change settings on the Firefly. Notation must be dotted-decimal as with all IP settings on the Firefly. To allow an individual machine to control the Firefly, set to a specific IP address, (Ex. 1- 192.168.0.100). To allow a group of machines to control the Firefly, set the IP to a range, (Ex. 2 - 192.168.0.0).

SNMP Netmask

Designates the Netmask information for the system(s) that will be able to monitor and control the Firefly. So for the individual example above you would set, (Ex. 1- 255.255.255.255) and for the range example above (Ex. 2- 255.255.255.0).

Community

The SNMP Community name defines the relationship between an SNMP server system (your Firefly) and the client systems. This acts like a password to control the clients' access to the Firefly.

Security Name

SNMPv3 feature: Defines the security name for the authentication and encryption for SNMP transmissions.

Auth Passphrase

SNMPv3 feature: Provides authentication but no encryption on SNMP information.

Priv Passphrase

SNMPv3 feature: Provides authentication and encryption on SNMP information.

Logging Settings
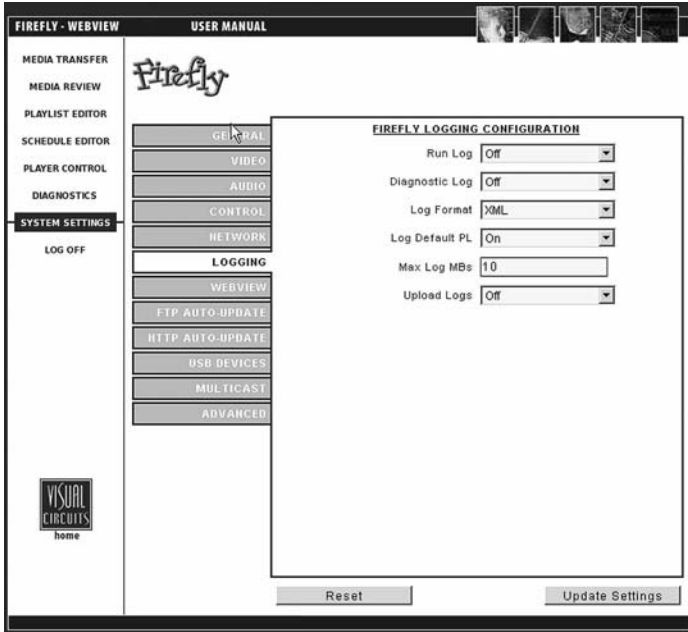
Figure 33. Settings-Logging

Run Log

Allows you turn to "On" or "Off" the run log. The run log provides a record of which videos played (with which graphic overlays, if applicable), starting at what dates/times, playing back what percentage of the video and for how long.

Diagnostic Log

Allows you to turn "On" or "Off" the diagnostic log. The diagnostic log can be used to view a record of all media update transactions and any system errors on a Firefly.

Information contained in the diagnostic log include:

❏ FTP/DVD Updating data: Tracks date, time of connection/disconnection, errors- yes/no, files, sizes, percent transferred and FTP permission errors.

❏ Storage Cleanup data: Records what media have been deleted by the automatic storage cleanup routine, including file names, sizes and dates.

❏ Missing Elements Log: Records all missing media referenced by an active playlist or schedule, including date, time and file element.

❏ Error Summary data: Records important user player diagnostic information, including the number of system restarts, number of watchdog restarts, the player version, etc.

❏ Serial Commands: Records most incoming and outgoing external control commands.

Log Format

Allows you to set the output format of the run log file to either.CSV or.XML.

Sample from a .CSV format run log:

12-07-02 20:30:07,1,05saturn.mpg,3_ser220.BMP,1,00:01:01,100

Sample from a .XML format run log:

<mpeg datetime="12-07-02 20:32:57" chan="1" filename="05saturn.mpg" overlay="3_ser220.BMP" loop="1" duration="00:01:01" percent="100" />

The format of the diagnostic log is in a simple "time - event" per line format.

Log Default Playlist

Allows you to designate whether or not the default playlist playback is included in the playback log file data. Choosing "Yes" includes the default playlist in the playback data. Conversely, choosing "No" excludes the default playlist from the log file data.

If you are not using the scheduling feature (single playlist mode), note that the playlist will not be logged.

Max Log MBs

Allows you to set a value (in megabytes) for the maximum size a log file is able to reach. The default value is 10 MB. You may want to keep this value relatively small if you wish to maintain a large amount of free space for videos and graphic overlays. However, if you do not reserve enough space, Firefly will delete the oldest residing logs in order to make room for the new ones.

When the log files exceed the maximum amount of defined storage space, an automatic cleanup process will delete the oldest file as required to contain the total log file space under the set limits. In addition, files will be deleted (cut) after they are transferred to the FTP server or downloaded from the Firefly player.

Upload Logs

Allows "Yes" or "No" choice for uploading log files to the "logfiles" directory on your FTP server.

If you choose "Yes" to have the log files uploaded, you may download the log files to your choice of storage options, such as a database you have designated for Firefly media playback data, from your FTP server.

> **!** After log files have been successfully uploaded to your FTP server, they will be deleted from the Firefly.

WebView Settings
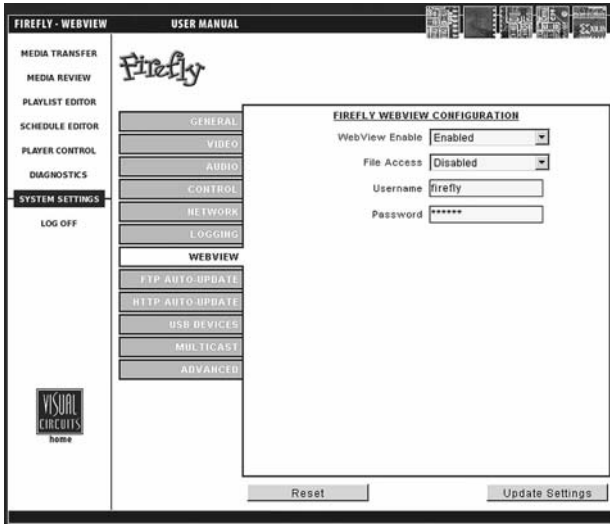
Figure 34. Settings-Logging

WebView Enable

This feature gives the user access to Firefly over a network using a conventional web browser (see *WebView* on page 23).

File Access

Enable/Disable - Accesses the Firefly directly with an FTP client.

Username

Enter at least 6 (but no more than 15) alphanumeric characters here. This field is case sensitive.

> ⚠️ The user name and password are used for *both* WebView and the FTP server.

Password

Enter at least 6 (but no more than 15) alphanumeric characters.
This field is case sensitive.

WARNING

It is strongly recommended to change the user name and password
from their original default values for system security.

FTP Auto-Update Settings

Figure 35. FTP Auto-Update Settings Screen

FTP IP Address

Enter the FTP server IP Address here.

FTP Port

Allows you to enter the port for the FTP server. If left blank during an update, this field will continue to show a blank value, and FTP will use port 21. Once you enter a value for the port and save, your new value will populate this field.

Username

Enter the FTP server username here. Leave this blank if no username is present.

Password

Enter the FTP server password name here. Leave this blank if no user password is present.

Directory

It is advised that you leave this blank and use the home directory of your FTP account to place your media, playlists, schedules and/or updates folders. In the case where you are using multiple Firefly's with different content for each unit, single and or multiple directories can come in handy.

Update Interval

Allows you to schedule FTP updates every 30 minutes, 1, 2, 4 or 12 hours, 1 day or at a fixed time.

Fixed Update Time

Allows you to set an actual fixed time (on an hourly basis) for an FTP update (Example: 14:00). In order for this feature to be accessible, you must have the Update Interval set to "Use fixed time".

Delete Content

FTP Update Now

Firefly will immediately download any new media, playlists, schedules and/or updates.

HTTP Auto-Update Settings
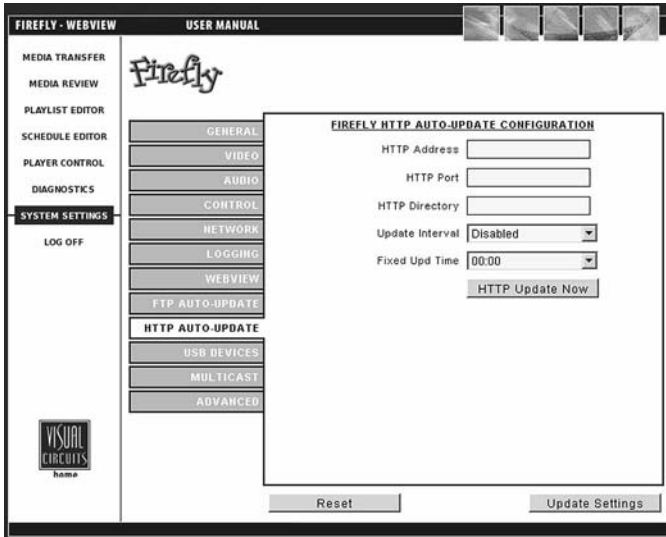
Figure 36. Settings-HTTP Auto Update

HTTP Address

Enter the HTTP server IP Address here.

HTTP Port

Allows you to enter the port for the HTTP server. If left blank
during an update, this field will continue to show a blank value,
and HTTP will use port 80. Once you enter a value for the port and
save, your new value will populate this field.

HTTP Directory

It is advised that you leave this blank and use the home directory of
your HTTP account to place your media, playlists, schedules and
or updates folders. In the case where you are using multiple
directories can come in handy.

Update Interval

Allows you to schedule HTTP updates every 30 minutes, 1, 2, 4 or 12 hours, 1 day or at a fixed time.

Fixed Update Time

Allows you to set an actual fixed time (on an hourly basis) for an HTTP update (Example: 14:00). In order for this feature to be accessible, you must have the Update Interval set to "Use fixed time".

HTTP Update Now Button

By pressing this button in Webview will initiate the Firefly to immediately download any new media, playlists, schedules and or updates.

USB Devices
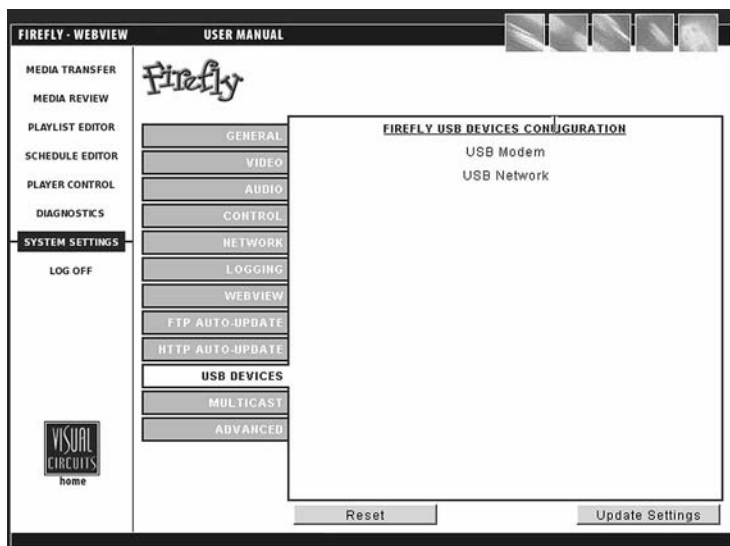
Figure 37. Settings-USB Devices

USB Devices Settings
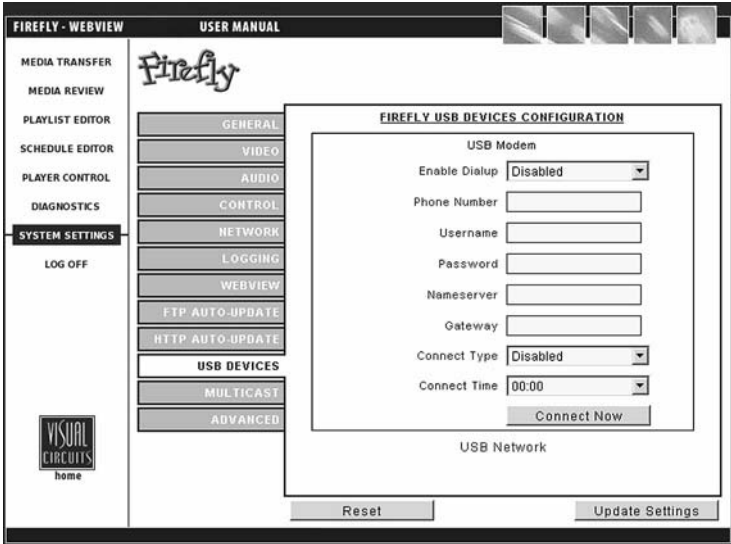
Figure 38. Settings-USB Modem

Enable Dialup

If dialup is required.

Phone Number

Username

Enter the USB server username here. Leave this blank if no username is present.

Password

Enter the password required for access to the USB server.

Nameserver

The IP address for the server, local or ISP, that handles URL name resolution for the network. Contact you system administrator for this information.

Gateway

A service that allows Firefly to connect to other servers. Creating a gateway also allows client computers running only Microsoft client software to access server resources through the gateway. *See your Network Administrator for further information.*

Connect Type

❏ Disabled
❏ On Demand
❏ Use Fixed Time

Connect Time

USB Network Settings
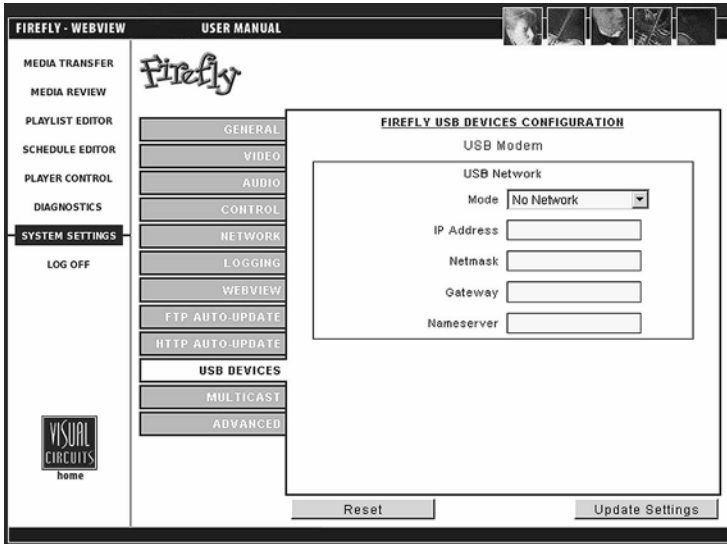
Figure 39. Settings USB Network

Mode

Type of network being accessed: Dynamic or Static.

IP Address

A 32-bit address used to identify a node on an IP internetwork. Each node on the IP internetwork must be assigned a unique IP address, which is made up of a network identifier and a host identifier. This address is typically represented in dotted-decimal notation, with the decimal value of each octet separated by a period, for example, 192.168.7.27.

You can configure the IP address statically or dynamically through DHCP. *See your Network Administrator for further information.*

Netmask

Specify a range that falls on subnet boundaries.

Most TCP/IP networks use subnets in order to manage routed IP
addresses. For the range specified in From and To, Windows 2000
calculates the closest matching subnet. The range of addresses in
the closest matching subnet may exceed the range specified.
Unless the addresses specified in From and To are subnet
boundaries, the range based on the calculated subnet will be larger
than the range specified. To avoid this, specify a range that falls on
subnet boundaries, For example, if you are using the 10.0.0.0
private network ID for your intranet, a range that falls on subnet
boundaries is 10.0.1.168 to 10.0.1.175. Or, if you are using the
192.168.0.0 private network ID for your intranet, a range that falls
on subnet boundaries is 192.168.1.0 to 192.168.1.255. *See your
Network Administrator for further information.*

Gateway

A service that allows Firefly to connect to other servers. Creating a
gateway also allows client computers running only Microsoft client
software to access server resources through the gateway. *See your
Network Administrator for further information.*

Nameserver

The IP address for the server, local or ISP, that handles URL name
resolution for the network. Contact you system administrator for
this information.

Multicast
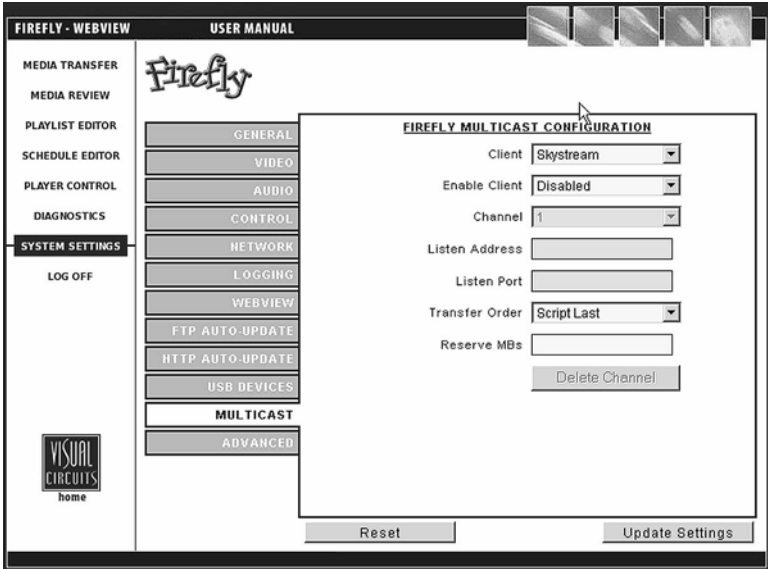
Figure 40. Settings-Multicast

Multicasting is an optional feature enabled by a software upgrade.

If your Firefly does not have the *optional* Multicasting feature (menu items are "grayed out") and your application requires it, contact a Visual Circuits representative at 1-800-250-5533.

Client

Select the name of the content provider.

Client Enable

Allows option to enable or disable the multicast client.

Note that if you make changes to other Multicast settings, you must also toggle the Client Enable setting from "Disabled" to "Enabled" for the changes to apply.

For more information on multicasting, see *Multicast Updating* on page 108.

Channel

Like presets, you can assign a Channel number for each "Listen" configuration. This allows you to easily recall up to 99 Channels of Listen Address & Port combinations.

Listen Address

The IP address that the multicast client will listen on. The value must be a Class D multicast address, which will typical start with 224.xxx.xxx.xxx.

Because some addresses may be reserved (see below), consult your networking specialist for assistance.

> - 224.0.0.0/24 is reserved by RFC.
>
> - 224.0.1.0/24 is used by specific applications (NTP).

Listen Port

The port address that the multicast client will listen on.

Transfer Order

Allows the option to choose the order in which items are transferred: package mode (see page 109 for details) or script last mode (see page 110 details).

> Multicasting is an optional feature enabled by a software upgrade.
>
> If your Firefly does not have the Multicasting feature (menu items are "grayed out") and you would like to purchase it, contact a Visual Circuits representative at 1-800-250-5533.

Reserves MBs

Allows you to allocate a fixed amount of Firefly's internal storage space for receiving a multicast update. To determine this value, you will need to estimate the largest multicast update you will ever receive (example: 1000 MBs). Then, double that amount (example: 1000 MBs x 2 = 2000 MBs) to allow room for both the compressed archive and the extraction process. Once you have determined this value, enter it for the Reserve MBs.

Delete Channel

Quickly defaults back to blank "Listen" fields for the chosen deleted Channel.

Advanced Settings
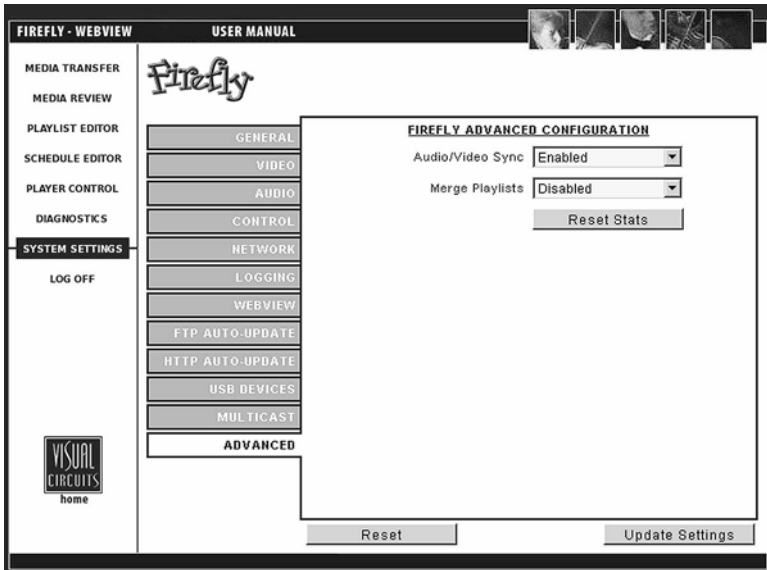
Figure 41. Settings-Advanced

Audio/Video Sync

Turns audio/video synchronization on and off. Turning the audio to video synchronization or "lip sync" off, sometimes eliminates stuttering video playback. This may however result in poor audio to video synchronization. Consult with a Visual Circuits representative if the problem continues.

Merge Playlists

The behavior of the "Merge Playlists" feature depends upon which mode you are in (Single Playlist Mode vs. Schedule Mode) with your Firefly.

If you are in "Single Playlist Mode", the existing playlist is ignored, i.e., the incoming playlist is merged with the current playing one regardless of the playlist filename.

If you are in "Schedule Mode", if a new playlist has the same filename as a playlist already on the system, then any empty channels on the new playlist will utilize the channels from the original playlist.

Reset Stats

Allows you to reset the basic system statistics (number of Watchdog Restarts and System Starts) as viewable in the WebView Diagnostics/General page may be reset to zero.

NETWORKING

Overview

Firefly players can be deployed as a network of media playback nodes. Because Firefly can be placed on a network, standard network setup (i.e. establishing a Username, IP configuration, etc.) is fully supported. Firefly comes standard with fully integrated FTP functionality.

Developing a network of centrally managed and controlled Fireflys virtually creates a private broadcast network. This network can be used to advertise, educate, instruct or entertain. With centralized control and unattended playback, Firefly nodes respond as directed. Modular in design, Firefly is an ideal addition to any existing network or for creation of a new network.

Getting Started

The following questions should be considered when establishing a network:

- ❏ Number of Fireflys and update method?
- ❏ Bandwidth of communication to each Firefly?
- ❏ Playback programming: scripted/show controller/ combined?
- ❏ Creation of MPEG2 videos. (Pre-production/ Post-production)?
- ❏ Service and maintenance of deployed systems?
- ❏ Installation of displays, cabling, control devices, etc.?

To simplify the process of Firefly network management, Visual Circuits developed a software system called Media Messenger, see the following page.

Media Messenger™ Software

Visual Circuits Media Messenger™ software (sold separately) combined with Firefly Media Player creates a simple, yet powerful, end-to-end solution for the distribution and utilization of high-quality digital media.

Product Features:

- ❏ Windows XP/2000 compatible
- ❏ Firefly Network Manager - for grouping and organizing Firefly Media Players graphically
- ❏ Playlist Editor - for generating customized playlists of videos and graphic overlays
- ❏ Schedule Editor - for scheduling target programming by date and/or time
- ❏ Media Messenger Publisher - for publishing unique content centrally via FTP
- ❏ Media Messenger CD/DVD Creator - for creating Media Update Discs for global or site-specific content distribution

Benefits:

- ❏ Provides centralized management of a network of Firefly Media Players
- ❏ Creates diverse programming by integrating video and graphics into playlists
- ❏ Facilitates easy playback and updating of programming based on date, time, region or sub-grouping of locations
- ❏ Delivers content rapidly over the internet using FTP
- ❏ Manages content centrally while allowing for local updating
- ❏ Eliminates system intervention at local venue level
- ❏ Publishes content via CD/DVD, minimizing networking and distribution expenses
- ❏ Supports scalable expansion

To learn more about Media Messenger, contact a Visual Circuits representative at 1-800-250-5533 or visit our web site at www.visualcircuits.com.

UPDATING VIDEO PLAYBACK

Firefly players can be updated in a variety of ways using a couple different interfaces. These updating processes include both automatic (minimal interaction) and manual methods.

Automatic Updating:

❏ **FTP, HTTP & Multicast Auto-Update** - allows regular scheduled updating via FTP of any new media, playlists, schedules and/or system updates.

Manual Updating:

❏ **WebView** - web-based interface that can be used to transfer media from your computer and/or network to the Firefly, in addition to being able to create, edit or delete playlists and/or schedules on the Firefly.
❏ **Direct File Access** - accesses the Firefly directly with an FTP client.

FTP Updating

FTP (File Transfer Protocol) is a standardized convention to deliver digital data via TCP/IP. TCP/IP is a set of common network protocols for communicating digital data and is commonly used by networking systems, such as the internet.

Using FTP, each Firefly can update itself automatically when connected to a static network connection. New media, playlists, schedules and/or system updates can be downloaded using this connection to an FTP site. A static network connection may be a DSL, cable modem, or a connection to a Local Area Network

(LAN). Often LAN connections have access to the internet, but be sure to check with a networking specialist for information on setting up an account if internet access is required to reach the FTP server. Often internet access from a LAN requires the use of a proxy server and fire wall permissions.

Although there are many types of FTP software packages available, Visual Circuits recommends Serve-U. You can download a trial version at www.Serve-U.com

FTP Server

FTP servers are programs that reside on a PC and may be Windows, Unix, or Linux-based. FTP servers monitor users that log in to it and regulate what folders and videos a user may access. When a Firefly performs an update, the FTP server sees it as a user.

> ! Each Firefly should be setup with its own site ID established prior to installation. Update files created for Firefly can then be named according to the unique Firefly ID.

In order for a Firefly to perform an update, the Firefly must be configured with the network address of the FTP server and login information (username and password) of an account on the FTP server. The account should have read and write permission on the FTP server.

Player Management

Scripts and videos must be posted in the correct directories at the update location. Usually the person performing this update will be familiar with the videos to be shown and how the presentation should appear (i.e. which files should play on which channel and their sequence within that list, if more than one).

This person does not need to be familiar with how the network is maintained technically, or how the Firefly nodes are serviced and maintained. What is crucial is the quality assurance and review of the videos. This review of videos and scripts is critical prior to posting for update to make sure that the intended results are achieved. It is likely that this person is not the network administrator or web master. Only access to the network and a working knowledge of the network is required.

Creating a Firefly FTP Update Account

After Firefly logs in, it will be looking for the following directories for updating:

/

All media files are posted in the login directory, unless the Directory setting in FTP Auto-Update Settings is used (see *Directory* on page 88), in which case the Firefly will change that directory after logging in.

/scripts

All update packet files with .tar, .fpl or .fsc extensions are posted here.

> In most instances, either a single update packet will be posted for all players to download or a playlist will be posted for each Firefly. Each time a download occurs, playback will be momentarily interrupted for several seconds as playback is reset with the new playlist.

/updates

System software updates, files with a .upd extension, are posted here. This software update for the player will automatically take effect and reset playback. The system software has a version.

FTP Update Process

When an FTP update is initiated on the Firefly, either by selecting Update Now or by a regular update interval or fixed time trigger, the Firefly will try to establish communications with the specified FTP site. If communication is established, the Firefly will first search the *update packets* directory under the home directory of the FTP site for a .tar file in the scripts directory targeted specifically for this Firefly. This is done by checking for a .tar file with a name that matches the site ID of this Firefly. If for example, the site ID of the Firefly is set to "location1", Firefly will look for a file by the name of "location1.tar" If such a file is found, it will be copied to the Firefly and the Firefly will move on to the playlist parsing routine.

If Firefly does not detect an update packet with a name matching the site ID, it will next search for a generic package file by the name of "firefly.tar". If this package is found, it will copy it to the Firefly and move on to the parsing routine.

File Name	Definition
siteid.*	a specific Firefly player
firefly.*	any Firefly player

Alternatively, instead of a package file, you may also use a playlist (.fpl) or schedule (.fsc) file.

File Extension	Definition
.tar	schedule/playlist package file
.fsc	single schedule file (playlist must already reside on Firefly player)
.fpl	single playlist file

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FTP Updating Order

The Firefly system will look for an update file following a specific order. It will proceed sequentially through this order until it finds a matching file and will then proceed to the *When moving font files (.ttf) via FTP, set FTP mode to binary.* on page 107.

1. *siteid*.tar
2. firefly.tar
3. *siteid*.fpl
4. firefly.fpl
5. *siteid*.fsc
6. firefly.fsc

FTP Font Files (.ttf)

When moving font files (.ttf) via FTP, set FTP mode to binary.

Playlist Parsing Routine

Once the new playlist(s) has been copied to the Firefly, it is analyzed to determine which MPEG video files are required to play it. Firefly then checks its own storage to determine if any of these videos are already present. Any files that are not present are copied from the FTP site. Any files that are found to exist already on the Firefly's hard drive are compared against the file by the same name on the FTP site. If the file on the FTP site is found to be identical in size, this file is not copied. If the file on the FTP site is found to be of a different size, the file is copied from the FTP site to overwrite the pre-existing file. The file size is chosen as the key in this decision as it is virtually impossible to create two MPEG files with different content that come out to be exactly the same size. This is a much more reliable indicator than creation date or other conventional means.

Once all of the required video files are copied from the FTP site, the Firefly will begin playing the new playlist or schedule.

System Update Check

After Firefly has finished its update routine it will search the
/updates directory under the home directory of the FTP site for
any valid software updates. If it finds a file in this directory with
the extension ".upd" this file will be copied to Firefly's internal
storage and executed. A .upd file is a file designated for making a
software update to Firefly(s). For more on the behavior of each
.upd file refer to the software release notes that came with the
update file.

Firefly Storage Cleanup Routine

While you copy files to Firefly's internal storage, Firefly compares
the total amount of space required to copy the files against the
available storage space on the Firefly. If the Firefly player
determines there is inadequate space to copy a file, it performs a
cleanup routine to make room. This cleanup routine deletes the
oldest MPEG files on the system that are not used by any incoming
playlists. The criteria used to identify the oldest videos on the
Firefly is simply the date the videos were originally transferred to
the system (regardless of the media transfer method used).

Multicast Updating

Firefly Media Player is equipped with a multicast client (optional
feature). The multicast client handles the task of receiving and
writing media files to Firefly's internal storage.

Note that for this section of the Firefly user manual, it is assumed
that you have basic knowledge of multicasting and networking.

In addition, throughout the Multicast Updating section, there will
be various references to the term "script". For the purpose of this
section, a script may be made up of a playlist (.fpl) file and/or an
update packet (.tar) file.

> If your Firefly does not have the Multicasting feature (menu items are
> "grayed out") and you would like to purchase it, contact a Visual Circuits
> representative at 1-800-250-5533.

Overview

Each Firefly on your network must have a unique serial number. This serial number will be used to identify the individual Firefly during a multicast update to ensure that the proper media goes to the correct player.

Within Firefly multicasting, two multicast modes are available: Package Mode and Script Last Mode.

Package Mode:

In Package Mode, a package must be created and sent to the Firefly system. It must contain a script (playlist .fpl / update packet .tar) and the inclusion of videos and graphic overlays is optional. Any videos or graphic overlays not referenced by the script will be deleted upon arrival.

After the transfer is complete, the standard cleanup routine will take place to reduce the amount of content on the system to maintain a "Reserve MBs" of free space. This extra free space is needed to ensure that the next incoming multicast transfer has adequate space to complete. The amount of free space you will need to maintain will need to be twice as much as your largest ever anticipated update. See *Reserves MBs:* on page 111 for details.

Standard "SiteID" naming of scripts can be used with Package Mode to remove unneeded content on the Firefly(s) if you wish to send the same package to all Fireflys in your network.

Script Last Mode:

In Script Last Mode, individual files can be sent to the Firefly. Any content will be stored on the system (unless none of its files are on the system). Any .tar/.fpl sent will be processed and played as long as it has at least one content file on the Firefly.

Script Last Mode allows you to simply "send content" to the Firefly to load it, without the need for a script. This is made possible because auto-deletion of content is not performed, other than the standard cleanup routine. See *Firefly Storage Cleanup Routine* on page 108 for details.

Whether all content is sent to all sites is determined by your head end software.

Moreover, note that with multicast updating, new schedules and playlists play immediately on the Firefly.

> **!** Be sure not to mix update files (.upd) with content files when completing multicast updating.

Software Update Check

A software update check searches for any valid software updates. If it receives a file in this directory with the extension ".upd" this file will be copied to Firefly's internal storage and executed. A .upd file is a file designated for making a software update to Firefly(s). For more on the behavior of each .upd file refer to the software release notes that came with the update file.

If a Firefly receives a .upd file during a multicast transmission, the system will apply the update.

WARNING
Do Not Reboot the Firefly during the update process.
The Status LED on the Firefly MZ will turn red and flicker indicating that a update is in process. The SC does not.

System Settings for Multicasting

The System Settings for Multicasting detailed below are accessible via either the remote control, WebView or Front Panel interfaces.

Client Enable:

Allows option to enable or disable the multicast client.

Note that if you make changes to other Multicast settings, you must also toggle the Client Enable setting from "Disabled" to "Enabled" for the changes to apply.

Listen Address:

The IP address that the multicast client will listen on. The value must be a Class D multicast address, which will typical start with 224.xxx.xxx.xxx.

Because some addresses may be reserved (see below), consult your networking specialist for assistance.

224.0.0.0/24 is reserved by RFC.

224.0.1.0/24 is used by specific applications (NTP).

Listen Port:

The port address that the multicast client will listen on.

Transfer Order:

Allows the option to choose the order in which items are transferred: package mode (see page 109 for details) or script last mode (see page 110 details).

Reserves MBs:

Allows you to allocate a fixed amount of Firefly's internal storage space for receiving a multicast update. To determine this value, you will need to estimate the largest multicast update you will ever receive (example: 1000 MBs). Then, double that amount (example: 1000 MBs x 2 = 2000 MBs) to allow room for both the compressed archive and the extraction process. Once you have determined this value, enter it for the Reserve MBs.

Manual Updating

WebView Updating

WebView is a web-based interface that can be used to transfer media from your computer and/or network to the Firefly. See *Transferring Media* on page 27 for instructions on transferring media to the Firefly using the WebView interface.

In addition, WebView may be used to create, edit or delete playlists and/or schedules. See *Using the Playlist Editor* on page 35 for information on working with playlists or *Using the Schedule Editor* on page 46 for information on working with schedules.

Forgot Name, Password, IP...???

If you're in a situation where you cannot get into the Webview interface because of a misplaced "User Name, Password, IP address, DNS Name, etc. Or perhaps the system was inadvertently set to DHCP when you don't even have a DHCP server? All is not lost (see *Basic Hyper Terminal Setup* on page 120 & *Networking Commands* on page 134).

! While copying .jpg, .gif, .tga, .png or non 256-color .bmp image files, Firefly converts those files to a standard 8-bit, 256-color bitmap format and reduces the image sizes, if necessary, to the system maximum of 720 x 480 for NTSC. This is necessary to ensure that all image files used for graphic overlays are consistent in appearance and functionality. As a result, all image files listed under "Loaded Media" will appear with ".bmp" as their extension.

If you do not want your images to be converted by Firefly, create them according to the parameters outlined above before transferring.

Direct File Access Updating

Direct File Access (enabled in "Web" screen within Firefly System Settings) can be used to update the Firefly directly with an FTP client. Programs such as FlashFXP (see description below) may be used.

Figure 1. Example of Direct File Access Using FlashFXP

Direct File Access is a powerful way to work with your Firefly. Using a program such as FlashFXP, your PC hard drive or computer network will appear on the left pane with the Firefly appearing on the right.

WARNING

The File Access feature is disabled by default because of an inherent security risk. By enabling File Access, you are opening the FTP port, which opens your Firefly up to potential unauthorized access via a network, such as the internet. Understand that all security provisions must be provided by your network. Firefly does not include any special security measures for this feature.

Some of the options available to you include:

- ❏ Viewing the contents of your Firefly.
- ❏ Deleting files from your Firefly.
- ❏ Downloading files from your Firefly to your PC or network.
- ❏ Uploading files from your PC or network drive to the Firefly.

WARNING

While using an FTP client, keep in mind that you will be able to view and access special system file sub-directories that should remain unaltered. To prevent potential damage to the operation of your Firefly Media Player, do not open or delete any files from these system file sub-directories.

LOG FILE REPORTING

Overview

The logging of playback verification data, as well as diagnostic data, provides for easier and more powerful management of a Firefly Media Player network.

There are two types of data logs available on the Firefly: run logs and diagnostic logs. You can enable or disable these capturing of these logs in any combination.

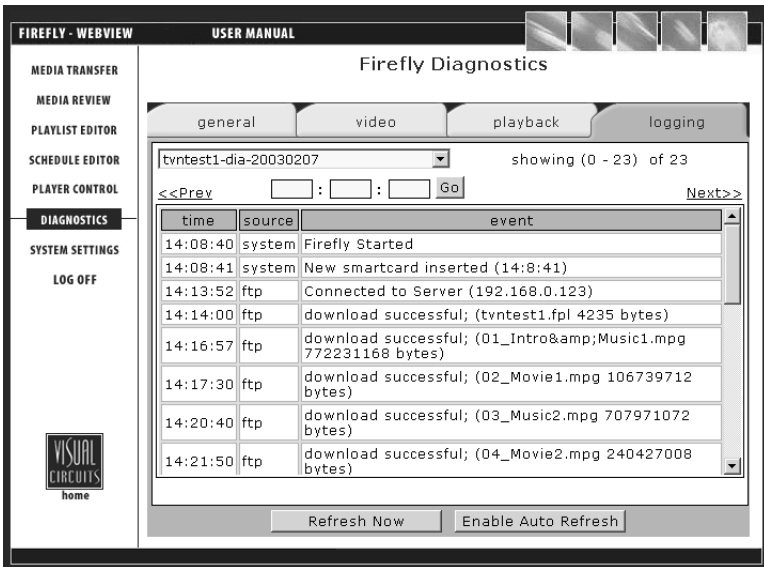Each of the settings related to log file reporting are found in the System Settings menu, accessible via WebView.

Figure 1. Example of WebView's Logfile Viewer (see *Diagnostics - Logging* on page 65 for more information)

Run Logs

The run log provides a record of which videos played (with which graphic overlays, if applicable), on which channels, starting at what dates/times, playing back what percentage of the video and for how long.

The primary uses for this feature are for verification of playback schedules and for compliance to paid playback agreements. The resulting data can be used for something as simple as 'X' video played at 'Y' time for a total of 'Z' occurrences or for more detailed reports, taking into account graphic overlays, playback duration and channels numbers.

Diagnostic Logs

The diagnostic log can be used to view a record of all media update transactions and any system errors on a Firefly.

Information contained in the diagnostic log include:

- ❏ FTP/DVD Updating data: Tracks date, time of connection/disconnection, errors- yes/no, files, sizes and percent transferred.
- ❏ Storage Cleanup data: Records what media have been deleted by the automatic storage cleanup routine, including file names, sizes and dates.
- ❏ Missing Elements Log: Records all missing media referenced by an active playlist or schedule, including date, time and file element.
- ❏ Error Summary data: Records important user player diagnostic information, including the number of system restarts, number of watchdog restarts, the player version, etc.
- ❏ Serial Commands: Records most incoming and outgoing external control commands.

The create diagnostic log option (On or Off) is found in WebView System Settings.

Log Format

Run Logs

The available output formats for a Firefly run log file are either .CSV or .XML

Sample from a .CSV format run log:

12-07-02 20:30:07,1,05saturn.mpg,3_ser220.BMP,1,00:01:01,100

Sample from a .XML format run log:

<mpeg datetime="12-07-02 20:32:57" chan="1" filename="05saturn.mpg" overlay="3_ser220.BMP" loop="1" duration="00:01:01" percent="100" />

Diagnostic Logs

The format of the diagnostic log is in a simple "time - event" per line format.

DTDs (Document Type Definition)

DTDs can be used to import data from a log file into a database.

Log Default Playlist

You have the option to designate whether or not the default playlist playback is included in the playback log file data. Choosing "Yes" includes the default playlist in the playback data. Conversely, choosing "No" excludes the default playlist from the log file data.

Maximum Log File Sizes

You have the option to set a value (in megabytes) for the maximum size a log file is able to reach. The default value is 10 MB. You may want to keep this value relatively small if you wish to maintain a large amount of free space for videos and graphic overlays.

When the log files exceed the maximum amount of defined storage space, an automatic cleanup process will delete the oldest file as required to contain the total log file space under the set limits. In addition, files will be deleted after they are transferred to the FTP server or downloaded from the Firefly player.

Uploading Log Files

You have a "Yes" or "No" choice for uploading log files to the "logfiles" directory on your FTP server.

If you choose "Yes" to have the log files uploaded, you may download the log files to your choice of storage options, such as a database you have designated for Firefly media playback data, from your FTP server.

EXTERNAL CONTROL COMMANDS

Within this chapter, there are two types of external control commands that are described: Visual Circuits Corporation (VCC) control commands and Laserdisc emulation (LDV) control commands. Please note that the VCC control commands are proprietary in nature, and therefore are not designed to be mixed with LDV control commands. Doing so, could cause inconsistent results and is not recommended.

The following list of commands may be sent via RS232 or TCP/IP to Firefly to direct playback. Any standard show control system or ASCII generating control program may be used. For RS232 it is recommended to use a null modem cable. For TCP/IP connections consult the control device specification to see if a cross over network patch cable is required.

Connecting via RS232

❏ The RS232 9-pin D-sub connector is located on the back of the Firefly between the audio connectors and the USB connectors.

❏ Configure the Firefly Control Settings (see *Control Settings* on page 75) to be compatible with your show controller.

Connecting via TCP/IP

❏ Set "Accept TCP/IP" to "Yes" within the Firefly Control Settings screen. This allows anyone on the network to send commands to the Firefly if they know its network address.

❏ The TCP/IP (ethernet) connector is located on the back of the Firefly under the Video In connector, to the right of the RS232 connector.

❏ Configure the network settings (see the section on *Network Settings* on page 77 for details on how to do this).

❏ Connect to port 2180.

Basic Hyper Terminal Setup

You will need a PC with Hyper Terminal (all Windows machines contain this under "Start/Programs/Accessories/Commuications") and a <u>null modem cable</u> (female 9 pin 'D" to female 9 pin D - RS-232 cable). Connect cable and start Hyper Terminal. Select Serial Port 1 & 9600BPS. Hit the enter key and you should see a "NAK" appear on the screen. If this takes a long time or not at all, you need to recheck connection and be sure that COM 1 is enabled in your BIOS setting. Also make sure nothing else is using COM 1. Once you've established connection, select File/Properties/Settings Tab/ASCII Setup button. Check the "Echo typed characters locally" box and select OK twice. Now you can proceed with typing in the Syntax desired. A correct responce will return "ACK". If you mispell, hit enter and try again (i.e., don't try to correct). Please consult the Hyper Terminal Help file or see your Network Administrator for further assistance.

> ⚠ Upon initial start up, Firefly will begin playing the latest loaded playlist/ schedule automatically. Following start up, if you choose to begin playback manually via External commands, you can default this option to "No".

VCC Control Commands:

!

Filenames and External Commands
When using external commands to handle files, it is necessary for those files to have names without, i.e. sales_video.mpg not sales video.mpg. One convention is to use underscores in place of spaces.

Playlist Playback Commands

Playlistload

This command allows you to preload a playlist preparing it for playback. Playlistload loads up a playlist preparing it for playback. This command allows you to initiate playback when precision timing is desired. An mpgPlay or mpgPlayAll command is required to start playback.

Syntax
`Playlistload` *name once*

Parameters (optional)
name

Name of the playlist file (e.g., loop1.fpl). You do not need to include the .fpl extension.

once

0 loops the playlist endlessly (default). *1* plays the playlist once through and stops.

Playlistplay

This command initiates playback as soon as the files are fully queued up and loaded. There may be a slight delay between this command and playback.

The Playlistplay and Playlistload commands behave the same except Playlistplay starts playback automatically, whereas Playlistload only loads up the playlist. Yet, an Mpgplayall command is required to actually start playback. Playlistload is for when you need to control the exact time the playback begins.

Syntax
```
playlistplay name once
```

Parameters (optional)

name

> Name of the playlist file (e.g., loop1.fpl). You do not need to include the .fpl extension.

once

> *0* loops the playlist endlessly (default). *1* plays the playlist once through and stops.

Playing Individual Files

To accurately control the playback of individual videos, the following commands are used:

The *channel* parameter is required for certain commands. These same External Control Command parameters are also used in Visual Circuits multi-channel products. The default channel for the Firefly-SC (single channel player) should always be '0'.

mpgLoad

This command loads an MPEG file for playback on the specified channel. This command does not play the file.

Syntax
```
mpgLoad 0 channel videoname
```

Parameters
channel
> The channel on the Firefly (0)

videoname
> The storage path and video name of the MPEG file to load. If no path is designated, Firefly will default to local storage.

Return Values
This command returns **ACK** if the file load was started successfully, or **NAK** if the file could not be loaded (e.g., the file was not found).

mpgLoadNext

This command queues an MPEG file to play when the current video file finishes. This file will play once.

Syntax
```
mpgLoadNext 0 channel videoname
```

Parameters
channel
> The channel on the Firefly (0)

videoname
> The full path and video name of the MPEG file to load. (See description for mpgLoad.)

Return Values

This command returns **ACK** to indicate that the file was loaded successfully, or **NAK** to indicate that the file could not be loaded (e.g., the file was not found).

mpgLoadDef

This command loads an MPEG file for playback on the specified channel. This command does not play the file. Videoname should include the storage path. If files are stored locally on Firefly no storage path designation is required. This command will loop the file indefinitely.

Syntax
```
mpgLoaddef 0 channel videoname
```

Parameters
channel
> The channel on the Firefly (0)

videoname
> The storage path and video name of the MPEG file to load. If no path is designated, Firefly will default to local storage.

Return Values
This command returns **ACK** if the file load was started successfully, or **NAK** if the file could not be loaded (e.g., the file was not found).

mpgLoadNextDef

This command queues an MPEG file to play when the current video file finishes. This command adds file to a looping playlist.

Syntax
`mpgLoadNextdef 0 ` *`channel videoname`*

Parameters
channel
> The channel on the Firefly (0)

videoname
> The full path and video name of the MPEG file to load. (See description for mpgLoad.)

Return Values
This command returns **ACK** to indicate that the file was loaded successfully, or **NAK** to indicate that the file could not be loaded (e.g., the file was not found).

mpgClearDef

This command clears the default (looping) playlist. This cancels the playlist defined by mpgLoadDef and mpgLoadNextDef and the playlist loaded by the Firefly at startup.

Syntax
`mpgClearDef 0 ` *`channel`*

Parameters
channel
> The channel on the Firefly (0)

Return Values
This command returns **ACK** if the file load was started successfully, or **NAK** if the file could not be loaded (e.g., the file was not found).

mpgPlay

This command plays a previously loaded MPEG file on the specified channel. The file must have already been loaded using the **mpgLoad** command.

Syntax
mpgPlay 0 *channel*

Parameters
channel
    The channel on the Firefly (0)

Return Values
This command returns **ACK** if playback was started successfully, or **NAK** if playback could not be started (e.g., no file previously loaded).

mpgStop

This command stops playback of an MPEG file that is currently playing on the specified channel.

Syntax
mpgStop 0 *channel*

Parameters
channel
    The channel on the Firefly (0)

Return Values
This command returns **ACK** if playback was stopped successfully, or **NAK** if playback could not be stopped (e.g., no file currently playing).

mpgPlayAll

This command starts playback on all channels simultaneously. The files for each channel to play must have been previously loaded using the **mpgLoad** command.

Syntax
`mpgPlayAll`

Parameters
None

Return Values
This command returns **ACK** to indicate that playback was started successfully, or **NAK** to indicate that playback could not be started on all channels.

mpgSetInitOnOpen

This command controls the video loading behavior of all channels.

Syntax
`mpgSetInitOnOpen` *on*

Parameters
on
on=1, output goes black, playback memory is cleared.
on=0, seamless transition to new video, no output reset. Last played frame of video remains until next video is played. May reduce display rolls or opening flicker.

mpgBlack

This command covers MPEG video on a channel, causing the corresponding video displays to go "black." Note: This black may not be recognized by all displays as a true video signal.

To cover the video again, use the mpgUnblack command.

Syntax
```
mpgBlack 0 channel
```

Parameters
channel
    The channel on the Firefly (0)

Return Values
This command returns **ACK** if mpgBlack was started successfully, or **NAK** if mpgBlack could not be started.

Remarks
Video playback is completely independent of whether the video is muted with mpgBlack. Videos will play "underneath" the black normally, audio will be unaltered and callbacks will be sent normally.

If a playlist is played with one of the commands, such as playlistPlay, unused channels (channels with no video files) will be set to the blackened state. Therefore, you must call mpgUnblack on those channels if you intend to play video on them with commands such as mpgLoad/mgpPlay.

See *mpgUnblack* for more information on "unblacking" video.

mpgUnblack

This command uncovers MPEG video, reversing the effects of the mpgBlack command.

To cover the video again, use the *mpgBlack* command.

Syntax

mpgUnblack 0 *channel*

Parameters

channel
    The channel on the Firefly (0)

Return Values

This command returns **ACK** if mpgUnblack was started successfully, or **NAK** if mpgUnblack could not be started.

Remarks

See *mpgBlack* on page 128 for more information on "blacking out" video.

Using Serial Commands To Create Playlists

You can create a playlist "on the fly" with the mpgLoadDef and mpgLoadNextDef commands. These two commands are used to define a "default" (i.e. looping) playlist of MPEG files.

To make a playlist:

- ❏ call mpgClearDef to clear the old default playlist.
- ❏ call mpgLoadDef to specify the first file in the list.
- ❏ call mpgLoadNextDef once for each additional file, the order they should play.
- ❏ wait a few seconds for the files to load.
- ❏ call mpgPlay to start playback.

If you want to create a playlist that only plays once, use the mpgLoad and mpgLoadNext commands as follows:

- ❏ call mpgClearDef to clear the old default playlist.
- ❏ call mpgLoad to specify the first file in the list.
- ❏ call mpgLoadNext once for each additional file, the order they should play.
- ❏ wait a few seconds for the files to load.
- ❏ call mpgPlay to start playback.

To interactively insert "one time" files into the default playlist you can use the mpgLoad and mpgLoadNext commands *without* calling mpgClearDef. A list of files specified with these commands will interrupt the default playlist and play once. When the last file specified ends, the default playlist will resume, from the point where it was interrupted.

The last value passed to mpgSetInitOnOpen effect the type of transition when mpgLoad or mpgLoadDef is called. For seamless transitions, send mpgSetinitOnopen 0 before the load commands.

Firefly System Commands

fireflyFtpUpdate

This command enables Firefly to update video content, playlists/
schedules and software via an FTP server (see *FTP Updating* on
page 103 for more information).

fireflyRestart

This command restarts the entire Firefly system. This process
normally takes about 1 minute to complete.

Callback Commands

mpgCallback

Turns on/off callback (play complete).

Syntax
`mpgCallback` *on*

Parameters
on
on=1, send callbacks (default off).

Play Complete Callback

Each time a file ends and another file is started, a string is sent back to the controller over the serial port. This string has the following format:

CB 0 *channel* 2

 "0" is the Firefly channel and "2" equals the end of the file.

Audio and Video Setting Changes

mpgSetVolumeLeftRight

The *mpgSetVolumeLeftRight* command sets the left and right audio volumes independently. The default volume level is 124. Lowering this value will make the volume softer or raising this value will make the volume louder.

```
mpgSetVolumeLeftRight 0 channel leftVolume rightVolume
```

Parameters

channel

0 based index of the channel on the Firefly.

leftVolume

0-255 the audio level on the left channel.

rightVolume

0-255 the audio level on the right channel.

mpgMute

The *mpgMute* command turns off the audio.

```
mpgMute 0 channel
```

Parameters

channel

0 based index of the channel on the Firefly (0).

mpgUnMute

The *mpgUnMute* command turns on the audio.

```
mpgUnMute 0 channel
```

Parameters

channel

0 based index of the channel on the Firefly (0).

Networking Commands

FireflySetDefault

This command sets the networking back to it's *factory state*:

IP Address - 10.0.1.1

Gateway - 255.255.255.0

Netmask -

Network Type - Static (2)

Web Enable - On (0)

Web User Name - firefly

Web Password - 123456

Syntax

fireflysetdefault

Parameters

None

Remarks

This command is useful for situations where you simply would like to "clean house" and start over. If you've forgotten an IP address, password, etc., you mightfind the following network commands more useful.

FireflySetIpAddr

The *FireflySetIpAddr* command will allow you to change the players IP Address.

Syntax

fireflysetipaddr *IP Address*

Parameters

IP Address

> 32 bit address used to identify a player on any Network.

FireflySetGateway

The *FireflySetGateway* command will allow you to change the players network Gateway.

Syntax
`fireflysetgateway gateway`

Parameters

Gateway

A service that allows Firefly to connect to other servers. Creating a gateway also allows client computers running only Microsoft client software to access server resources through the gateway.

FireflySetNetmask

The *FireflySetNetmask* command will allow you to change the players Netmask parameter.

Syntax
`fireflysetnetmask netmask`

Parameters

Netmask

Defines a subnet boundry range.

FireflySetNetworkType

The *FireflySetNetworkType* command defines whether the media player is on a Network using a DHCP server or simply set up Statically.

Syntax
`fireflysetnetworktype 1 (DHCP) or 2 (Static)`

Parameters

DHCP   (Dynamic Host Configuration Protocol) - A TCP/IP service protocol that offers dynamic leased configuration of host IP addresses and distributes other configuration parameters to eligible network clients.

Static   For a local area connection (LAN), in IP address, Subnet mask, and Default gateway, type the IP address, subnet mask, and default gateway addresses.

FireflySetWeb_Enable

The *FireflySetWeb_Enable* command gives the user the option to turn on & off network communication to Webview.

Syntax

`fireflysetweb_enable` *0 (enable) or 1 (disable)*

FireflyGetIpAddr

The *FireflyGetIpAddr* command retrieves current setting.

Syntax

`fireflygetIpAddr`

FireflyGetGateway

The *FireflyGetGateway* command retrieves current setting.

Syntax

`fireflysetgateway`

FireflyGetNetmask

The *FireflyGetNetmask* command retrieves current setting.

Syntax

`fireflygetnetmask`

FireflyGetNetworkType

The *FireflyGetNetworkType* command retrieves current setting.

Syntax

`fireflygetnetworktype`

FireflyGetWeb_Enable

The *FireflyGetWeb_Enable* command retrieves current setting.

Syntax

fireflygetweb_enable

Remarks

0 = Enabled

1 = Disabled

Media Calls

mpgDir

This command returns the names of all files on the Firefly.

Syntax

```
mpgDir
```

mpgDelete

This command permanently removes a media file from the Firefly.

Syntax

```
mpgDelete name
```

Parameters

name

> The full name of the media file (video or graphic overlay) to remove. The list of all media can be obtained with the mpgDir command.

Information Calls

infoGetFile

Syntax
`infoGetFile 0 ` *`channel`*

> Returns the file playing the channel.

Parameters
channel
> The channel on the Firefly (0)

infoGetPlaylist

Syntax
`infoGetPlaylist 0 ` *`channel`*

> Returns the current playlist.

Parameters
channel
> The channel on the Firefly (0)

infoGetSchedule

Syntax
`infoGetSchedule 0 ` *`channel`*

> Returns the current schedule (or None).

Parameters
channel
> The channel on the Firefly (0)

infoGetState

Syntax

`infoGetState 0` *channel*

Returns the current playback state of the player.

Parameters

channel

The channel on the Firefly (0)

Return Values

"STATE_PLAY",

"STATE_STOP",

"STATE_PAUSE",

"STATE_REW",

"STATE_FF",

LDV Control Commands

Introduction

Firefly may be controlled serially via the Laserdisc emulation control set described in this section. This interface sends commands to Firefly dictating video playback, player settings or to report back system information. Commands received and recognized by Firefly will return an "R" (ACK). Commands not recognized will be reported back to the controller as an error. The following sections describe setting up communication and programming the show controller.

As previously noted, the Visual Circuits Corporation (VCC) control commands are proprietary in nature, and therefore and not designed to be mixed with Laserdisc emulation (LDV) control commands. Doing so, could cause inconsistent results and is not recommended.

COM Port Settings

Any serial device controller may be used to control Firefly. Some manufacturers of these controllers include Crestron, AMX, Triad, Alcorn McBride and Sky Skan. This list of controllers is not all inclusive nor is it an endorsement of any one device.

The controllers communication port, or COM port, should be configured to properly communicate data to Firefly. These commands are ASCII characters either upper and/or lower case. Other ASCII arguments such as <CR> (carriage return) are used.

The Firefly's COM port is set up with the following factory default settings:

Field	Setting
Baud Rate	9600
Parity	None
Stop Bit	1
Data Bit	8

Other optional settings include:

Field	Setting
Baud Rate	Either 4800 or 1200
Parity	Odd or Even
Stop Bit	2
Data Bit	7

Be sure that the control device and Firefly's COM port settings are the same.

> For Laserdisc Video serial communications, "LDV" must be selected in the Command Mode under System Settings."VCC" is set for factory default.

Error Codes

If Firefly acknowledges a command, the return from the player will be <R>. Anytime an invalid command or address argument is received, that command will be ignored and an error code will be returned. In the event that the command was global, again each channel will report back independently.

The following table describes the system error codes:

Code	Message	Meaning
NAK	Communication Error	Command or address argument cannot be parsed - invalid syntax.
E06	Missing Argument	Necessary parameter is not specified.
E11	Playlist not loaded	This error will occur any time a player control command is received while no playlist is loaded.
E12	Search Error	Search or stop marker address cannot be found.

Command Syntax

All commands shown in this section will be upper case. There are no spaces in the command argument itself. However, between commands there will be spaces. A sequence such as <command1>(space)<command2>(space)<command3>(space) <command4><CR> would indicate four separate commands to be executed. Some address arguments are optional and some are required to execute a command. Where an address is optional, it will be shown as "(address)". Whenever an address is required for a command, it will be shown as "<address>".

Address Arguments

Some commands permit or require address arguments. These arguments can be used to specify a position (frame or timecode) address within a video or an address which identifies the position or sequence order of a video within a list of videos. A list of videos playing back to back are commonly referred to as a playlist.

Laserdisc refers to a video playlist as a Chapter or CH. To specify a file address within a chapter, the sequential position is indicated by "x". CH5, for example, would indicate the fifth file in the playlist or chapter. Designating the file position "x" is also accepted.

It is also possible to define an address within a video itself. FRx indicates a frame number within a video where "FR" denotes frame and "x" refers to the frame number. FR3000, for example, would refer to the frame 3000 of the current video. This equates to 100 seconds or 1 minute 40 seconds into the file. The frame number refers to actual video frames and calculating at 30 frames per second non drop, which is the NTSC standard, gives you the time elapsed at this frame of video.

TMx indicates a time code value using the format HHMMSSFF within the video.

H=Hour
M=Minute
S=Second
F=Frame

For example, TM1263212 would refer to the point at 1 hour, 26 minutes, 32 seconds and 12 frames in the video. The TM values will always be interpreted as a right justified value so TM 3415 would reference the position 34 seconds and 15 frames into the video.

Command Summary

Remember all commands are either upper case or lower case characters as well as other ASCII characters. Some address arguments are optional and will be designated by () whereas mandatory addresses will be designated by <>.

The channel parameter is required for certain commands. These same External Control Command parameters are also used in Visual Circuits multi-channel products. The default channel for the Firefly-SC (single channel player) should always be '0'.

Playback Commands

Play (PL)

Command:

Plays from the current file position and continues to play until the (address) value is reached. If no (address) is specified, play mode continues indefinitely.

Format:

(address)PL<CR>

Response:

R<CR>

Explanation:

This command is used to begin playback from the current file position. If an address value is included in the command, this will define the point at which playback is to automatically pause. If a PL command with an address is received while playback is already in progress, playback will continue uninterrupted and the pause address will be set as specified. If a PL command with no address is received while playback is already in progress playback will continue uninterrupted and any previously set pause address will be cleared. In the event that a play command is received with an out of range address value (i.e. – time code greater than the length of the current file or chapter number higher than the number of files in the playlist) the play command will not be processed and the error code "E12" will be returned.

Examples:

0@TM13000PL<CR>
Play from the current file position until the time code reaches 1 minute 30 seconds 0 frames and then pause.
0@CH5PL<CR>
Play from the current file position until the head of chapter 5 is reached and then pause
PL<CR>
Start playing from the current file positions and continue playback until receiving another command. If a pause address had been set in any channel, clear that pause address.Play (PL)

Reject "Stop" (RJ)

Command:

Stops playback and resets the file pointer to the head of the playlist (equivalent to a stop button on a DVD or CD player).

Format:

RJ<CR>

Response:

R<CR>

Examples:

RJ<CR>

Stops playback and resets playback pointers to head of playlist.

Pause (PA)

Command:

Pauses the current file position and blacks out the picture.

Format:

PA<CR>

Response:

R<CR>

Explanation:

The PA command will pause playback, Scan Reverse or Scan Forward. While having no visible effect on screen, it should also transition from Stop to Pause holding on frame 1 of the first file of the playlist. This is simply for compatibility with LDV devices which can use PA as a means of spinning up the disc without actually beginning playback. By transitioning from Stop to Pause the Firefly will

give the control system the expected response if a status request is made later. In all cases, PA results in video being blacked out until another command is received. The Blackout will only remain in effect for as long as the unit is in Pause mode. Any command which transitions out of Pause mode will also unmute the video.

Examples:

PA<CR>
Pauses the Firefly and blacks out the video outputs.

0@PA<CR>
Pauses the Firefly and blacks out the video output.

Still (ST)

Command:

Pauses the current file position and freezes the picture.

Format:

ST<CR>

Response:

R<CR>

Explanation:

ST is treated exactly the same as PA except that instead of the video output going black, the current video frame is held on screen. If an ST command is received after a PA the effect will simply be to unmute the video output. Likewise, if a PA is received after an ST, the effect will simply be to mute the video.

Examples:

ST<CR>
Pauses the Firefly and freezes the current frame on each video output.

0@ST<CR>
Pauses the Firefly and freezes the current frame video output.

Search (SE)

Command:

Jumps to the specified position within the current MPEG file or playlist.

Format:

<address>SE<CR>

Response:

R<CR>

Explanation:

The Search command can jump to any I-frame within the current file or the head of any other file within the playlist. After executing the search command the video will transition to Still mode until another command is received. In the event that a search command is received with an out of range address value (i.e. – chapter number higher than the number of files in the playlist) the search command will not be processed and the error code "E12" will be returned.

Examples:

0@CH15SE

Jumps to the head of the 15th file in the playlist and then transitions to still mode. If there are fewer than 15 files in the playlist an error code E12 is returned and no change is made.

Multi-Track Jump Forward (JF)

Command:

Jumps forward in the current MPEG file or playlist by the amount specified in the <address> argument.

Format:

<address>JF<CR>

Response:

R<CR>

Explanation:

The Jump Forward command is similar to the search command accept that the address argument is interpreted relative to the current file and playlist position and the new position is always forward of the current position. In the event that a Jump Forward command is received with an out of range address value (i.e. – chapter number greater than the remaining number of files in the playlist) the Jump Forward command will not be processed and the error code "E12" will be returned.

Examples:

0@CH3JF
Jumps to the head of the file 3 places down in the playlist and then transitions to still mode. If for example file 1 is currently playing, this command would advance to the head of file 4. If there are fewer than 3 files remaining in the playlist for channel 2 error code E12 is returned and no change is made.

Multi-Track Jump Reverse (JR)

Command:

Jumps backward in the current MPEG file or playlist by the amount specified in the <address> argument.

Format:

<address>JR<CR>

Response:

R<CR>

Explanation:

The Jump Reverse command is similar to the search command accept that the address argument is interpreted relative to the current file and playlist position and the new position is always before the current position. In the event that a Jump Reverse command is received with an out of range address value (i.e. – chapter number greater than the current file in the playlist) the Jump Reverse command will not be processed and the error code "E12" will be returned.

Examples:

0@CH1JR
Jumps to the head of the current file and then transitions to still mode. The only condition under which this command could generate an error code would be if video was stopped or if no playlist was loaded.

0@CH3JR
Jumps to the head of the second file before the currently playing file and then transitions to still mode. If for example file 4 is currently playing, this command would advance to the head of file 2. If the currently playing file is less than the third file in the playlist error code E12 is returned and no change is made.

Display Control (DS)

Command:

Turns the on screen status display on or off .

Format:

xDS<CR>

Response:

R<CR>

Explanation:

This command is used to call up a graphic overlay. All elements of that overlay except the border box around the edge of the picture are included. A value of 0 for x will turn on the graphic overlay while a value of 1 will turn off the graphic overlay. Any other value is considered invalid and will return an error code of NAK without changing the state of the graphic overlay.

Examples:

0DS

Turns on the graphic overlay for the Firefly. If the graphic overlay was already enabled on a channel at the time this command was received, no change is made.

0@0DS

Turns off the graphic overlay. If the graphic overlay was already off, no change is made.

Frame Number Request (?F)

Command:

Requests the file position in the current MPEG file in frame number format.

Format:

?F<CR>

Response:

<framenumber><CR>

Examples:

Command	Response
0@?F <CR>	02045 <CR>

Time Code Request (?T)

Command:

Requests the file position in the current MPEG file in time code format.

Format:

?T<CR>

Response:

<timecode><CR>

Explanation:

This command can be global specific. If received as a global command, the Firefly will respond with the file position.

Examples:

Command	Response	Meaning
0@?T <CR>	0123329 <CR>	0Hr 12Min 33sec 29Fr
?T <CR>	0011402 <CR> 1081622 <CR> 0000612 <CR> 0103729 <CR>	0Hr 1Min 14Sec 2Fr 1Hr 8Min 16Sec 22Fr 0Hr 0Min 6Sec 12Fr 0Hr 10Min 37Sec 29Fr

Chapter Number Request (?C)

Command:

Requests the position in the current playlist.

Format:

?C<CR>

Response:

<filenumber><CR>

Explanation:

This command can be global specific.

Examples:

Command	Response
0@?C <CR>	3 <CR>
?C <CR>	3 <CR> 1 <CR> 3 <CR> 7 <CR>

Player Active Mode Request (?P)

Command:

Requests the current mode.

Note: The state after a reject command (RJ) will be P05 (stilled), not P01 (stopped).

Format:

?P<CR>

Response:

Response	
P01	indicates video is stopped
P04	indicates video is playing
P05	indicates video is stilled (paused with image frozen)
P06	indicates video is paused (paused with black screen)
P08	indicates video is in fast forward or rewind

Examples:

Command	Response	Meaning
1@?P <CR>	P04 <CR>	Playing
?P <CR>	P04 <CR>	Video is Playing

Firefly Model Request (?X)

Command:

Requests the software version.

Format:

?X<CR>

Response:

<channels>V<softwarever><CR>

Explanation:

This command is always global specific.

Examples:

Command	Response	Meaning
?X <CR>	4V2.00<CR>	4 channels ver 2.00 software
?X <CR>	2V3.12 <CR>	2 channels ver 3.12 software

Load Playlist/Schedule (LD)

Command:
Loads a playlist/schedule.

Format:
"<filename>"LD<CR>

Response:
R<CR>

Explanation:
This command is used to load a new playlist/schedule. When this command is received a check is done to be sure the specified filename actually exists on the Firefly hard drive. If it does not exist, then the error code E12 is returned and playback continues uninterrupted with the previous playlist/schedule.

If the specified playlist/schedule is found on the hard disk, then playback of the previous playlist/schedule is halted and the new playlist/schedule is loaded.

If "Auto Play" is enabled, playback will automatically start when a new playlist/schedule is loaded via the LD command. However, if "Auto Play" is disabled, playback will NOT automatically start; playback of the playlist/schedule must be started with the play (PL) command.

Examples:
"Tuesday.fpl"LD
Halts playback and loads the playlist named "Tuesday.fpl".

"Summer1.fsc"LD
Halts playback and loads the schedule named "Summer1.fsc"

Note that the LD command requires quotes around the playlist/schedule name.

External Control Commands Quick Reference Guide:

VCC Commands:

Playlistload
Playlistplay
mpgLoad
mpgLoadDef
mpgLoadNextDef
mpgLoadNext
mpgClearDef
mpgPlay
mpgStop
mpgSetInitOnOpen
mpgBlack
fireflyFTPUpdate
FireflySetDefault
fireflySetIPAddr
fireflySetGateway
fireflySetNetmask
fireflySetNetworkType
fireflySetWeb_Enable
fireflyGetIPAddr
fireflyGetGateway
fireflyGetNetmask
fireflyGetNetworkType
fireflyGetWeb_Enable
mpgCallback
Play Complete Callback
mpgSetVolumeLeftRight
osdLoadBMP
osdShow
osdHide

osdSetXYMix
genSetVideo
genSetAudio 0 chip Source
mpgDir
infoGetFile
infoGetPlaylist
infoGetSchedule
infoGetState

LDV Commands:

Play (PL)
Reject "Stop" (RJ)
Pause (PA)
Still (ST)
Search (SE)
Multi-Track Jump Forward (JF)
Multi-Track Jump Reverse (JR)
Key Lock (KL)
Display Control (DS)
Frame Number Request (?F)
Time Code Request (?T)
Chapter Number Request (?C)
Player Active Mode Request (?P)
Firefly Model Request (?X)
Load Playlist/Schedule (LD)

TROUBLESHOOTING

General Issues

No Power to Firefly

Firefly should automatically start up when power is applied and begin playing back video.

If there is no power indicator:

1. Confirm power sources by plugging in another electrical device.
2. Verify that electrical plug is fully seated in power supply and or the video player.
3. Test power cable in alternate device or use different power cable.
4. If there is still no power, please contact your technical support representative.

No Video Playback

Firefly should automatically begin playing videos when power is applied. Videos play off of the internal storage of the player.

If there is power to the Firefly, but no video playback:

1. Run "Play Test File"
2. To stop the test file playback, simply press any button on the front of the player. For further instructions, refer to the "Front Panel Display" chapter of this user manual.

"Latent Images" or "Flashing" During Playback

1. *Incorrect timecodes or improperly closed encoding session*. If the incorrect timecode is given for a particular file it is possible to actually encode a frame or two of the trailer or header information from the source. Often this "extra" frame is seen only briefly and may appear as a "flash" on the screen. Review the original source of the encoding and determine if the timecodes are correct or if the encoding session was actually closed on the proper frame.

2. *Playing MPEG 1 and MPEG2 files back to back*: The resolution switch from MPEG 1 files (342X240) to MPEG2 files (720X480) causes a "latent image" or a "quadrant display" of the last played file's image. The only way to perform seamless playback when using a playlist of files is to insert an encoded "black file" with blank audio track, between MPEG 1 and MPEG 2 files. The black MPEG file preceding the playback file should be of the same standard. In other words, prior to an MPEG 1 file the "black file"--again with a blank audio track--should be MPEG 1 and vice versa.

Stuttering Files During Playback

Irregular playback can be caused by a number of conditions:

1. *Mixed video only MPEG files with MPEG with video and audio data:* Confirm that all files are either video only, audio only, or audio/video files. It is recommended to have a "blank" audio track encoded with all MPEG files--even if no audio is present on the source material. This will ensure compatibility, if MPEGs with audio/video information are introduced at a later date.

2. *Dolby Digital files:* Dolby Digital files can not be mixed with any other type of file. Ensure that all of the file types are the same.

3. *The bit rate of the MPEG files being played exceed the system capabilities:* The Visual Circuit MPEG decoder boards and digital servers all have a maximum sustained bit rate that can be delivered. Refer to the system capabilities above for basic information. Consult your Visual Circuits representative prior to encoding or designing your installation if there are any questions.

4. *Uneven audio to video track lengths*: Confirm the length of the audio track to the length of the video track. The Visual Circuits driver aggressively synchronizes the audio and video data of the MPEG file to maintain Audio/Video (AV) Sync. If the MPEG file's audio and video tracks are uneven in length, the driver's attempt to synchronize these uneven tracks will result in poor performance. *Mismatched AV track lengths will result in overall degradation of system performance. Often a "bad" file will cause uneven or stuttering playback on other channels of the system as well.* Through digital editing, MPEG 2 files can be "demultiplexed" (separating the audio from video information). The audio and video tracks can then be edited to match. The two tracks can then be "multiplexed" back together. Always test files individually if a file (or system) is suspected to have playback problems.

Some files in the playlist do not play

1. *All files on a playlist channel must be the same type*.

   If some are elementary stream (video only) and others are program stream (audio & video), some files will be automatically skipped in order to keep playback running smoothly.

2. *Filenames and External Commands*

   When using external commands to handle files, it is necessary for those files to have names without, i.e. sales_video.mpg not sales video.mpg. One convention is to use underscores in place of spaces.

Smooth Transitions

For smoother transitions, MPEG files in the same playlist should be encoded at the same resolution and size (height x width).

SMPTE time codes are not recognized properly

Some SMPTE tracks loose information during compression and may not "trigger" events as required. It is recommended to encode these tracks "hot"--adding approximately +6 db to the track while encoding. Again, testing is essential to account for variances in encoders and SMPTE devices involved. Note: Simple audio filters and or unbalanced to balanced transformers, used at the installation site, are also useful in eliminating "noise" and cleaning up the SMPTE signal.

Filename Already Exists

This is considered a non-fatal error and you will be given the opportunity through the dialog box below to make the decision as to how to handle this condition.

FTPing Font Files (.ttf)

When FTPing font files (.ttf) set FTP to binary files.

Insufficient Disk Space

A check for this condition will be performed after you confirm the intent to copy files, but before the actual copying begins. This check compares the total amount of space required to copy all selected files against the available disk space on the internal storage. A safety margin of 300 MB available disk space will have to remain after the copy for this test to pass.

Forgot Name, Password, IP...???

If you're in a situation where you cannot get into the Webview interface because of a misplaced "User Name, Password, IP address, DNS Name, etc. Or perhaps the system was inadvertantly set to DHCP when you don't even have a DHCP server? All is not lost (see *Basic Hyper Terminal Setup* on page 120 & *Networking Commands* on page 134).

Preventing Cabling and Connection Problems

The suggestions listed below provide basic tips for preventing or minimizing problems related to cabling and connections to and from the Firefly.

- ❏ Use the best cable you can afford.
- ❏ Use the shortest cables possible.
  For composite video, PAL or NTSC, RG-59 cable can be used for distances of up to 20 meters between the video source and the acceptor. No signal deterioration should show on the screen. For longer distances, up to 30 meters, use RG-11 type cable. For s-video, standard, inexpensive cables allow operating distances of 5-7 meters. Very little deterioration is apparent. For component video, RG-59 cables are suitable for up to 10 meters. For longer distances, up to 20-25 meters, a better cable should be used, such as RG-11.
- ❏ Check that impedance of the cable really matches your application. Firefly is terminated at 75 ohms.
- ❏ Check the connectors on the cables. Poor quality connectors may have worse effects than the cables themselves.
- ❏ Use appropriate amplifiers if needed. Because Firefly-SC uses unbalanced audio, it is recommended that distances over 10 meters use a "Audio Line Amp/Balancer", such as Radio Design Labs "Stick On".
- ❏ Keep cables away from sources of interference - electric motors, main cables, transmitters, light dimmers, etc.

FIREFLY MULTI-ZONE™ (MZ)

Installing the MZ
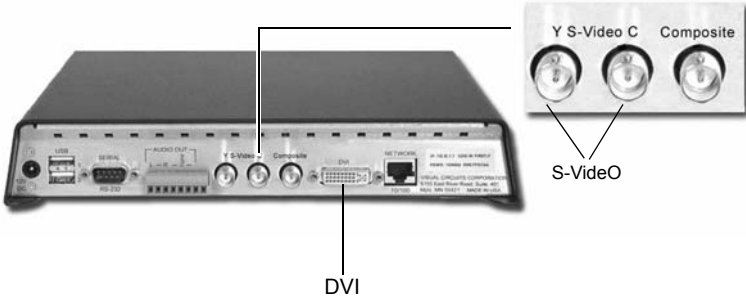
Video Output

For best quality video out put and for output to analog displays, it is necessary to attach a DVI to VGA adapter to the MZ's DVI output.

This connector is provided with the Firefly MZ.

Functionality

Firefly Multi-Zone™ functionality is available through the Media Messenger Multi-Zone Layout Editor that provides the ability to integrate high-resolution, rich-content graphics with dynamic video and scrolling text in a simultaneous display. The Layout Editor does this by dividing the screen into a variety of content zones. These zones are extremely flexible as to their content type and their size and position within the display area.

Content Type	Format
Video Standards	NTSC and PAL
Video	MPEG-1, MPEG-2, Unencrypted DVD
Graphics	BMP, GIF, JPG, PNG, TGA, TIF

Table 1. Media Formats

The sequence of steps for creating a playlist and distributing it to a Firefly MZ Media Player are:

1. Set Display Parameters, see *Setting Display Parameters* on page 170.
2. Create the layout, *Creating the Layout* on page 170.
3. Create a playlist and add content to it, *Creating the Playlist* on page 173.
4. Create a schedule for the Playlist (optional).
   Refer to the Media Messenger online Help for details.
5. Link the playlist or schedule, if used, or to the Firefly MZ, *Link the Playlist to the Firefly* on page 175.
6. Upload playlist and files to Firefly MZ via FTP, *Publish* on page 14.

Firefly MZ offers the capability to create a variety of professional, high-quality layouts from the simple to the dynamic. Below are two layout examples.

Software Update

The MZ handles software updates in the same manner as the SC.
There is one diffence, however.

Status LED

The MZ Status LED displays RED while an update is occuring
while te SC does not indicate that a update is in progress.

WARNING

Do Not Reboot Firefly SC or MZ during an update.

Using Firefly MZ to Create a Layout and Playlist

Creating a Playlist requires:

1. Setting Display Parameters.
2. Creating the MZ (multi-zone) layout.
3. Creating a playlist and attaching layout to it.
4. Adding content to playlist.
5. Creating a schedule for the Playlist (optional).
   Refer to the Media Messenger online Help for details.
6. Linking the playlist or schedule (if used) to the Firefly MZ.

Creating the Layout

The layout is a template used to position and size the playlist content. A playlist has only one layout.

Setting Display Parameters

Set the Layout Editor workspace to the appropriate video standard and resolution for the display device.

1. Open Media Messenger.
2. Click on the Layout button.
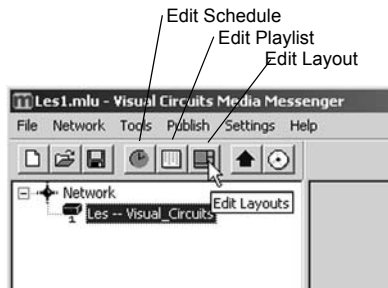
3. Select the New Layout, give the layout a name, and click OK
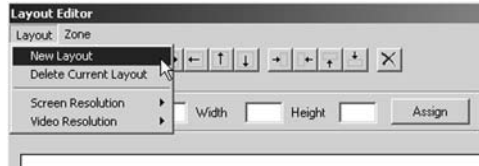
4. Return to the Layout button, select Screen Resolution and choose the appropriate setting.
5. Next select Video Resolution and choose the appropriate video standard.
6. Save.

Creating a MZ (multi-zone) Layout

Go to the Layout Editor workspace:
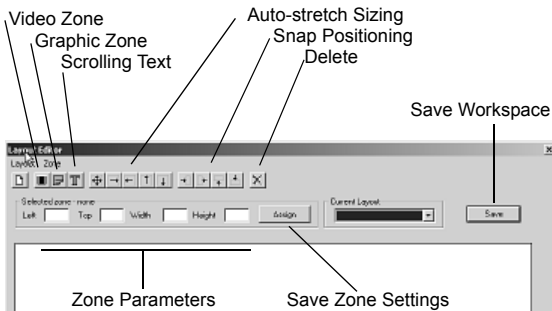
Position Zones in Layout Workspace

1. Create the Video Zone first.

> [!] Video Zone
> The Layout must have a video zone with a video file to function.
> There is only one video zone in a layout.
>
> Scrolling Text Zone
> There is only one scrolling text zone per layout.
> Scrolling text zones can overlay the video or graphics zones.
>
> Graphics Zones

2. Add Scrolling Text Zone if required.
3. Add Graphics Zones
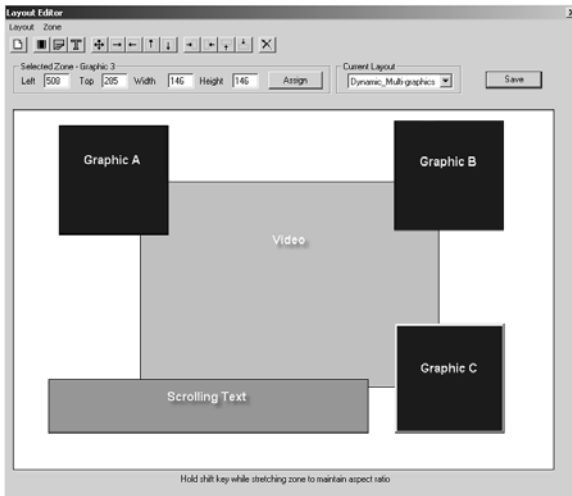
> [!] To eliminate the potential of left over images after a transition
> from one playlist layout to another, create a black graphic zone
> that masks all unused areas within the layout.

4. Save the layout.

Creating the Playlist

Navigation Pane   Playlist Menu   Scheduling Pane

              Playlist Pane   Schedule Menu
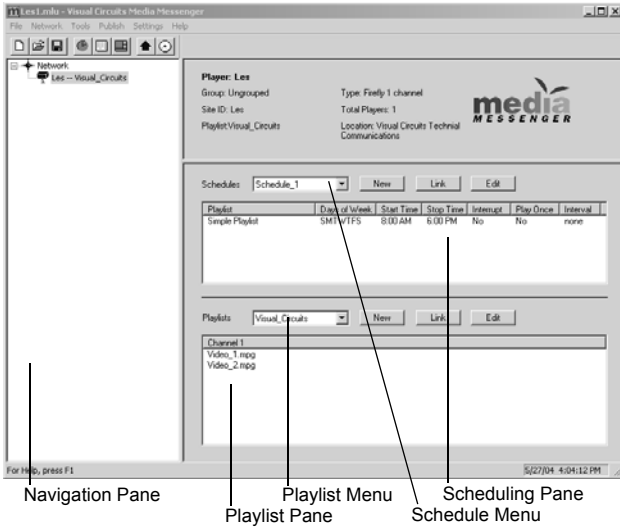
1. Return to the Media Messenger main workspace.
2. Open the Playlist Editor.
3. Verify that the correct playlist is shown in the Playlist Menu field.

4. Verify that the Navigation Pane lists the layout content zones.
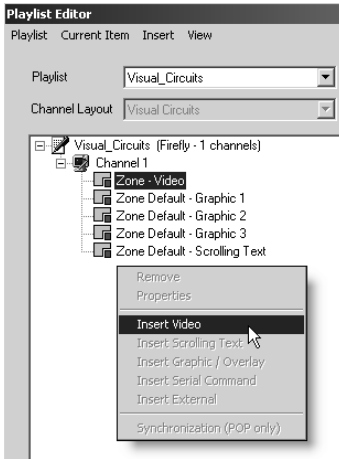
5. Right-click on the Default Video Zone and insert a video file.

.To locate files to insert into the content zone, use the file browser or, if the file is already resident on the Firefly MZ Media Player, enter the filename with its extension when it is requested by application. The full path is not required provided that all the files for the playlist are transferred to the same directory on the player

File Formats

Video: Mpeg-1, Mpeg-2, Unencrypted DVD

Graphics: BMP, GIF, JPG, PNG, TGA, TIF

6. If required, add content to the default Scrolling Text and Graphics Zones.

7. Insert additional video files in to the video zone to create the rest of the playlist.

Each new video zone is a parent to a family of child content zones that are clones of the default zones.

Child content zones display at the same time as the parent video.

A default content zone displays whenever one of its clones is left empty.

If both the default and one of its clones are left empty, the presentation background displays.
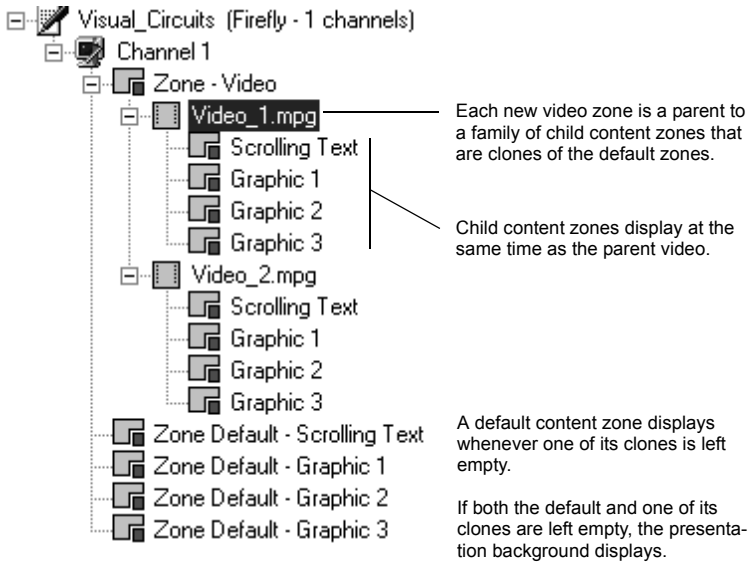
8. Insert he graphic or scrolling text objects belonging to each video.
9. Save the playlist by clicking on the Close button in the Playlist Editor workspace.

Refer to the Media Messenger Help for more information about playlists, schedules, and updating the Firefly media player.

Link the Playlist to the Firefly

With the playlist completed, publish it to the Firefly. This involves linking the playlist or a schedule to the player.

• Link the playlist to the player, if only this playlist is to playback.

• If multiple playlists are to playback on the Firefly, create a schedule. Use Media Messenger to generate a schedule that determines when and for how long each playlist runs on the player. Refer to Media Messenger Help for details about setting up schedules.

This procedure links the playlist to the player. Linking a schedule to the player is similar but initiates through the Schedules Pane.

1. Return to main Media Messenger workspace..
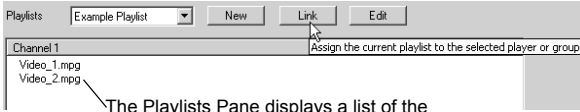
The Playlists Pane displays a list of the videos used in the playlist.

2. Verify that the correct playlist is displayed in the Playlists Pane.

3. Select the player by clicking on its icon in the Network Pane.

4. Click on the Link button. This instructs the player or group of players to playback that particular playlist.

Firefly MZ Tips

1. A layout has only one Video and one Scrolling Text zone.

2. A layout can have unlimited graphics zones although large numbers do impact performance.

3. The Video Zone can have multiple video files inserted into it, n which case, they play in the order they appear in the playlist.

4. Each video file has a set of content zones cloned from the original default zones.

5. Zone shapes are modified in three ways.

   Manually, by dragging a side or corner.
   To maintain the aspect ratio of zone, hold down the Shift key while dragging.

   Automatically, by using the Auto-stretch buttons.

   Precisely, by using the Width and Height fields. Save the size settings by clicking the Assign button.

6. Zone positions are modified in three ways.

   Manually, by dragging the zone to its position.

   Automatically, by using the Snap buttons.

   Precisely, by using the Left and Top fields. Save the position settings by clicking the Assign button.

7. Graphic or Scrolling Text zones can overlay the Video.

8. To view the layout associated with a particular video instance, click on that video object in the Network Pane.

9. Graphics Quality
   Most often, the automatic sizing and color-depth conversion performed by the Firefly meets the needs of the presentation. Occasionally however, it may be necessary to adjust a graphic so that it displays precisely as required. For the highest quality rendition of a graphic it is important to consider two things: color-depth and precise sizing.

   a. Color-depth
      The Firefly MZ is a 16-bit color device that maps the native color of the graphic to the player's 16-bit display buffer.For best results convert graphics to a standard (1-, 2-, 4-, 8-, or 24-bit) JPEG or PNG format before inserting it into a content zone.

   b. Sizing Graphics
      For highest quality results, make certain that the dimensions are the same for the content zone and source graphic. Sizing a graphic by dragging a content zone handle or changing the content zone dimensions does not always produce the best visual results. There are two sizing methods that provide the most precise images:

      Create the layout design in Media Messenger using the content zone objects and then size the graphics to fit in the zones.

      Create a layout design in another program such as Adobe Photoshop, with the graphics and other elements sized exactly as they should appear when displayed. Then, using the sizing information from that design, create a corresponding multi-zone layout using the Layout Editor in Media Messenger.

10. Animated GIFs (classifed as graphics)Animated GIF files must be non-optimized. In addition, the MZ does not support transparency for these files.

11. Smooh Video Transitions
    MPEG files used in a layout should be of the same resolution
    and size (height x width).

TECHNICAL SPECIFICATIONS

Option	Description
Basic Configuration	40GB HDD storage NTSC, PAL Decodes all 18 ATSC formats up to 1920x1080p 4:3, or 16.9 aspect ratios Composite, Component (PbPrY), S-video 32-bit OSD; 256-level transparency 32-bit high-resolution accelerated graphics
Video Output	Composite, S-video, Component
Audio Output	Stereo or Dolby Digital™ via S/PDIF; stereo analog MPEG Layers 1, 2, 3
Networking	10/100 Mbps Ethernet Integrated KenCast FAZZT™ client (option) FTP, HTTP auto-updating
Software	WebView — HTML-based setup, monitor and control interface. Requires Internet Explorer 5.5 or higher. Media Messenger — for managing and distributing media via FTP or HTTP to a single Mantis MC server Media Messenger Multi-player version (optional) — for managing and distributing media via FTP, HTTP or multicast to groups of networked Mantis, Firefly or POPVideo servers
Video	MPEG-1 ISO 11172 MPEG-2 ISO/13818-2 Program, transport and elementary streams NTSC/PAL transcoding Constant or variable bit rate decoding 45 Mbps maximum bit rate (includes text)
Dimensions	1.75 in. (4.45 m) high (1RU) x 10 in. (25.4 cm) wide x 8.25 in. (20.1 cm) deep
Weight	Approximately 3.5 lbs. (1.59 kg)
Power	100 ~ 240v, 50 - 60Hz, 14W @ 115VAC
Temperature Range	0° - 40° Celsius continuous operation (0° - 65° C short-term)
Certification / Regulation	FCC - Part 15, Class A; CE

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