FS-CF Series
Portable DTE Recorder

User Guide

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Serial Number

The serial number for this equipment is located inside the unit, in the battery compartment. Please record this serial number and keep it in a secure area.

Regulations and Safety

Focus Enhancements, Inc.
1370 Dell Avenue
Campbell, CA. 95008

Model Number: FS-CF Series Portable DTE
Recorder

Date of Manufacture:
Reference the Serial Number label attached to
the unit.

BATT-0012-01LF
(Accessory Part Number: ASYF-1323-01LF)

Date of Manufacture:
Reference the Serial Number label attached to
the unit.

Batteries

FCC Class B

This product satisfies FCC regulations when shielded cables
and connectors are used to connect the unit to other equipment.
To prevent electromagnetic interference with electric appliances
such as radios and televisions, use shielded cables and
connectors.

This equipment has been tested and found to comply within the
limits for a Class B digital device, pursuant to Part 15 of the
FCC Rules. These limits are designed to provide reasonable
protection against harmful interference in a residential
installation. This equipment generates, uses, and can radiate
radio frequency energy and, if not installed and used in
accordance with the instructions, may cause harmful
interference to radio communications. However, there is no
guarantee that interference will not occur in a particular
installation. If this equipment does cause harmful interference to
radio or television reception, which can be determined by

turning the equipment off and on, correct the interference by one or more of the following actions:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that used by the receiver.
- Consult the dealer or an experienced radio/TV technician for help.

Compliance

FS-CF Pro is a device marketed for use in industrial or business environments. The FS-CF Pro complies with the regulations the following testing agencies:

Australia and New Zealand

European Union

Safety

Symbols

Power Supply Only

This symbol indicates the presence of an un-insulated Dangerous Voltage within the product's enclosure that may constitute a risk of electric shock to persons.

In the FS-CF Pro Documentation

Caution Title
This symbol indicates important operating or maintenance (servicing) information that the user should read and understand.

ⓘNote

Note Title
This symbol indicates supplementary information about features, functions, or operations that may be of interest to the user.

Documentation

Read, Retain, and Follow Instructions

All the safety and operating instructions should be read before the product is operated.

- **Retain Documentation**
  Place documentation in a secure place for future reference on operating and safety instructions.

- **Follow All Operating and Safety Instructions**

- **Pay Attention to All Warnings**
  Warnings are provided to protect the operator, the equipment, and content.

Electrical Precautions

Do Not Expose to Moisture

Do not use this product near water or in an environment where it is exposed to dampness or there is the possibility of it getting wet.

Do Not Remove Cover

There are No User Serviceable Parts inside this unit. Servicing should be done by qualified service personnel.

Power Sources

Use only power sources that match those indicated on the marking label. If unsure of the type of power supply that is available, consult your dealer or local power company.

Do Not Overload Power Outlets

Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

Verify Power Plugs are Fully Inserted

To prevent potential electrical shock to personnel, verify that the FS-CF Pro power cord plug is fully inserted in to a grounded receptor and that the plug blades are not exposed.

ATTENTION

POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR, UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

Power-Cord Protection

- **Routing Power-Cords**
  Route power supply cords so that they are not likely to be walked on or pinched by items placed upon or against them. Avoid sharp angles in the cord, particularly at plugs, convenience receptacles, and the point where they exit the product.

- **Non-Use Period**
  During extended periods when the device is not used, unplug it from the power source and retract the power-cord.

Grounding or Polarization

- **Polarized**
  If this product is equipped with a polarized alternating current line plug (a plug having one blade wider than the other), it will fit into the outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
- **Grounded**
  If this product is equipped with a three-wire grounding type plug, a plug having a third (grounding) pin, it will only fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding type plug.

Ground Loop WARNING:

To avoid earth or ground *loops*, insure that all equipment connected to the FS-CF Pro share a common ground. Use a single, grounded outlet strip as opposed to separate outlets with the possibility of different ground potentials.

Lightning and Power Surges

During electrical storms or when left unattended and unused for long periods of time, unplug the FS-CF Pro from the power source and disconnect the antenna or cable system.

Power Lines

Do not locate an outside antenna system in the vicinity of overhead power lines, electric light or power circuits, or where it can fall onto such lines or circuits.

When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.

Maintenance and Moving

Cleaning

Unplug this product from the wall outlet before cleaning. The product should be cleaned only with a polishing cloth or a soft dry cloth. Never clean with furniture wax, benzine, insecticides or other volatile liquids since they may corrode the cabinet.

Servicing

Unplug the device from the power outlet and refer servicing to qualified service personnel under the following conditions:

- When the power-supply cord or plug is damaged.
- If liquid has been spilled, or objects have fallen into the product.
- If the product has been exposed to rain or water.
- If the product does not operate normally when following the operating instructions. Adjust only those controls that are covered by the operating instructions. The incorrect adjustment of other controls can result in damage and often requires extensive work by a qualified technician to restore the product to its normal operation.
- If the product has been dropped or damaged in any way.
- When the product exhibits a distinct change in performance.

Accessories and Replacement Parts

Use only attachments and accessories recommended by Focus Enhancements.

Use only replacement parts specified by the Focus Enhancements or of comparable quality and characteristics as the original parts.

Unauthorized substitution of parts can result in fire, electrical shock, other hazards, and loss of warranty.

Safety Check

Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

Operating Environment

- Avoid moisture, dust, extreme heat or cold.

Table of Contents

FS-CF Series Portable DTE Recorder

Introduction

Thank you for purchasing a Focus Enhancements FS-CF Series Portable Direct To Edit ® (DTE) disk recorder. The FS-CF series has been designed to be used with Canon DV and HDV camcorders and combines powerful, industry leading DTE Technology with the ability to add metadata to clips in non-linear editing (NLE) and media asset management (MAM) native formats while you shoot. The FS-CF serie's small size and powerful feature sets make it ideal for DV and HDV camcorder owners.

The FS-CF series contains two models: FS-CF and FS-CF Pro. This User Guide is for both models. All comments referring to the *FS-CF* or *FS-CF series* refer to both models. Features and functions specific to the FS-CF Pro are identified as such.

Illustrations in this guide show the FS-CF Pro because it contains all of the FS-CF Series features and functions.

DTE Eliminates Pre-edit Processing

The FS-CF Pro DTE disk recorder eliminates the need to capture, transfer or convert video clips before editing. The FS-CF Pro is a stand-alone device that records DV25, HD 720p, and HD 1080i video from camcorders equipped with a IEEE 1394 interface to a Compact Flash (CF) memory card as a NLE native file. For most DV and many HDV compatible NLE systems, when the CF card is connected to a computer the clips are immediately available for editing.

Shoot, connect, and edit: it is now that easy.

Assign Custom Metadata on the Fly

With the FS-CF, you can personalize and optimize workflow—while you shoot. With your wireless handheld device or laptop, you can access the FS-CF Pro through a browser, define metadata, and assign it to video while you're recording, eliminating the need to tag footage when the shoot is over. During postproduction, simply transfer clips—complete with metadata—from the FS-CF Pro to your NLE system or PX Media Server. All of the information that you assigned during the shoot goes with the clips, saving you hours or even days of logging time.

Unpacking

Verify that the FS-CF Pro has the following items:

1.	FS-CF Series unit	
2.	Li-Ion battery pack	BATT-0012-01LF
		(Accessory Part Number: ASYF-1323-01LF)
3.	Power adapter with connector cable.	ASYS-0660-01LF
4.	Cable, power (If required for included power supply.)	
5.	Cable, USB, 2.0, Type A-A	ASYS-0659-01LF
6.	Cable, Firewire, 6-pin to 6-pin	ASYS-0658-01LF
7.	Cable, Firewire, 6-pin to 4-pin	ASYS-0657-01LF
8.	User Guide	MANL-1170

ⓘ Note

Missing or Damaged Components

If there are missing or damaged items, contact Focus Enhancements Support for assistance.

USA
Email: support@focusinfo.com
Telephone: +1 408 866 8300 Option 4 (8:00 AM to 5:00 PM, Pacific Time)
EMEA
Email: techsupport@como.com
Phone: +49 4307-83 58 58
www.como.com - www.focusinfo.com

Features

FS-CF Series

These features are found on all FS-CF Series models.

- **Direct To CF Card Acquisition**

  Specially equipped camcorders permit the use of Direct To Edit (DTE) Technology to record directly from a camcorder while shooting and without the need of a tape.

- **True DTE Technology**

  When shooting is finished, connect the FS-CF to a computer and instantly be ready to edit in the timeline.

  Files are recorded to disk as either:

DV25	HD
RAW DV AVI 1 AVI 2 Canopus AVI Matrox AVI MXF **†** QuickTime	M2T MXF *** †** QuickTime ******

  * 720p30 and 1080i50/60 support only.

  ** 720p25/30 and 1080i50/60/24F/25F/30F support only.

  † MXF format is available only with the FS-CF Pro.

  DTE includes support for HDV camcorders with 720p and 1080i MPEG-2 capabilities and equipped with a FireWire IEEE-1394 connection.

- **Fast and Efficient Editing**

  When shooting is finished, transfer video files to the NLE by either:

  1. Mounting the FS-CF to a Mac or PC editing system like a typical USB hard disk drive. Transfer clips to your NLE's disk drive or edit instantly in real-time using the FS-CF as your media source. Data transfer rates may vary depending on type of computer and workload.

   2. Removing the compact clash card from the FS-CF unit and inserting it into a computer with a standard CF card reader, see Inserting Compact Flash Card on page 20.

- **Confidence in Recording**

  Simultaneously record to memory card and tape or memory card only while you shoot, providing an immediately available, drop out free, edit source with an archive and backup on tape.

- **Compact, Lightweight, Rugged Design**

  The FS-CF series weighs approximately 1.3 ounces (0.32 kg) including the battery and is only 1.25" (32mm) thick. You can mount the FS-CF directly to your camcorder using an optional camera mount kit. The FS-CF is designed to withstand the rigors of field shooting. The electronic shock cache ensures that video is always recorded even in the roughest of conditions.

- **CF Card Utilities**

  Format, Delete Clip and Repair Disk/Clip.

- **Easy to Use, Control and Update**

   1. The FS-CF series interfaces with the camcorder via FireWire.
   2. The FS-CF series uses USB 2.0 to connect to a computer to download video clips or upgrade software.
   3. When a tape is present in the camera, each press of the camcorder's record button creates an individual clip on the FS-CF card.
   4. Some cameras allow the FS-CF series units to be triggered into record mode from the camera without the need for a tape. Check the latest camera FS-CF compatibility chart on the Focus website.

5. The FS-CF series features a comprehensive backlit color display, menu system, scroll wheel and control buttons allowing for easy control and management of the unit and its contents.

ℹ Note

No Video Playback Through Display
Only the The FS-CF Pro provides video playback through it's color display.
To preview video using the FS-CF model, place the camera in VCR mode (video playback mode) and connect the FS-CF to the camera through the FireWire DV/IO port. Pressing PLAY on the FS-CF unit will now play the selected clip.

6. In addition, the FS-CF is upgradable in the field.

- **Flexible Capacities and Power**

  The FS-CF series supports Compact Flash Memory Cards that can offer HD or SD recording time based on the size of the compact flash card in use.
  See www.focusinfo.com for the current compact flash card capacities with each format.

- **Power the FS-CF with:**

  1. Removable Li-ion battery pack supplied with the unit.
  2. AC adapter supplied with the unit.
  3. Accepts 11-18 volt DC input.
  4. FireWire connection, 6-pin to 6-pin, between the FS-CF and computer with active FireWire port with power.

ℹ Note

FireWire Connection Is For Video I/O Only
Mounting the FS-CF to a computer is done exclusively through the USB2 interface.

- **HD DTE Formats**

  Quicktime, M2T and MXF.
  MXF is for FS-CF PRO only.

- **Multiple Control Modes**

  External, Normal, and Syncro -- coordinate control between camera and the FS-CF.

- **Multiple TimeCode Modes**

  External or Internal Free Run, Rec Run or Regen.

- **Disk Formats**

    UDF (Universal Disk Format)

    - No operating system restriction on file size allowing individual files to be larger than 2GB.

    ### ⓘ Note

    Formats Supporting Recordings Longer Than 2GB
    - M2T (HDV)
    - QuickTime (DV and HDV)
    - MXF (FS-CF Pro only)

    - Single DV/HDV file recording times of up to 1.5 hours.
    - Read Capability on Windows XP and Read/Write Capability on Mac OS 10.5 and Windows Vista

    FAT32

    - Automated new file creation at 2GB file boundaries. Frames are not dropped during creation of new files.

FS-CF Pro Features

The following features are found only on the FS-CF Pro.

- **Control Multiple FS-CF Pros at once**
    1. Control multiple units from a single web interface.
    2. Sync clocks of multiple units for matching timecode via WiFi using an optional USB WiFi or wired Ethernet adapter.
- **Expanded HD/DTE Formats with MXF**
- **LCD Video Playback**

    Playback recorded content on the FS-CF Pro LCD. Original DV/HDV recordings play back at a reduced frame rate.

- To monitor audio, use an USB audio device: headset or speaker system.
- **Metadata**

    The FS-CF Pro provides:
    1. Fast and flexible metadata generation with the ability to log metadata using a wired or wireless USB 2.0 network adapter and a device with web browser capabilities (computer, laptop, PDA, etc.)
    2. Metadata formats supported: Avid Composer version 3.5, AXIF, and User defined Custom.
    3. Log the same metadata to multiple FS-CF Pro units simultaneously using a single web interface.
- **Proxy Video Files**

    The FS-CF Pro can generate proxy video files from stored original video files. Proxy files are smaller than their original video clips and easier to share over the network or internet.

- **Retro Cache Mode with 10 Second Cache**

    FS-CF Pro's ten second Retro Cache record mode means you are always recording. This mode insures that action at the beginning of a video clip is not missed. In Retro Cache mode, the FS-CF Pro is in a state similar to Pause, except that it is continuously recording video in a loop of user-defined length: up to 10 seconds. When active recording starts, the FS-CF Pro creates a new clip and seamlessly appends the Retro Cache session to the beginning of the new clip.

- **Retro Disk Mode**

  This mode insures that action at the beginning of a video clip is not missed. In Retro Disk mode, the FS-CF Pro is in a state similar to Pause, except that it is continuously recording video in a loop of user-defined length. Maximum length of the loop depends on the size of the CF card. When active recording starts, the FS-CF creates a new clip and seamlessly appends the Retro Disk session to the beginning of the new clip.

- **Scene Marking (Reels)**

  This allows categorizing video clips into pre-named folders on the disk during a shoot.

- **Single Frame Thumbnails**

  Single frame thumbnails are created for each recording. These thumbnails appear on the FS-CF Pro LCD as well as via the web interface. Clip details are also listed including the clip name and the file wrapper type. The thumbnail format depends on the format used during recording.

- **Snap and Timelapse Record (DV Only)**

- **Wired or Wireless Networking**

  Set up and log metadata while shooting, through the FS-CF Pro's USB 2.0 interface. Mount the FS-CF Pro on either wired or wireless networks using USB 2.0 wired or wireless (802.11b/g) network adapters. Adapters are not included with FS-CF Pro.

  In addition, this permits the asynchronous file transfer of clips from the FS-CF Pro to an NLE system or PX Media Server.

Overview of this Guide

This user guide is divided into the following chapters.

Quick Start

Quick Start provides the information necessary to start using the FS-CF Series as quickly as possible.

This chapter covers the topics:

Physical Description and Controls

Front View - Controls

Unit LEDs
Disk Activity (red)
Battery Charge (green)

Display

CF Card Cover

Power

Record

Function keys
F1 F2 F3 F4

Play
Use to play video in LCD display or on the camcorder.

Stop

Pause

Soft Nav Keys
Use to:
Navigate menus
Set values

Scroll and Select Wheel
Use to:
Navigate menus
Modify values
Display list of video clips.

Display

Control Function

Wireless Signal

Battery Power

Volume - Clip Number

Recording Format

Proxy Meter

Timecode

Recording Time Left

Selected FS-CF Pro Functions

The active LCD display shows menus and recording information, such as timecode, recording format, metadata, and folder assignments. For more information about displayed data, see **Home** on page 103.

Power

The **Power** key provides two functions.

1. **Power ON** the FS-CF.
2. **Power OFF**.

   Press the Power key and hold down for five seconds to shut down the FS-CF. During power off, the unit beeps to tell the User that it is shutting down.

Record / Play Controls

Use these keys to control FS-CF Series playback and record functions. Typically, these functions are used while on the **HOME** menu.

Record ●

Press Record when the FS-CF is in **Stop** mode to start recording.

ⓘNote

Pressing Record Key During Record Mode
In all record modes, pressing the Record key while recording, causes the current clip to close and a new clip to start without dropping any frames.

Stop ■

While in the **Home** menu, and in any Record and Play modes, press the **Stop** key to Stop the FS-CF function. Refer to the section, **SETUP Menus** on page 119 for more information.

Play ▶

Press this key to start playback of the selected clip.

> **ⓘ Note**
> _____
>
> **Some HD Camcorders Require a Moment to Synchronize**
> Some HD camcorders require a moment to synchronize the
> video from an external source. Typically during this period, they
> display a solid blue or black video until synchronized.

Pause

While in the **Home** menu, and in Record or Play mode, press **Pause** to temporarily halt the function.

Pressing **Pause** a second time resumes the function.

Scroll/Select Wheel and Soft Navigation Keys

Up Soft Button
Next Video Clip

Scroll Wheel

Select Key

Left Soft Button

Right Soft Button

Down Soft Button
Previous Video Clip
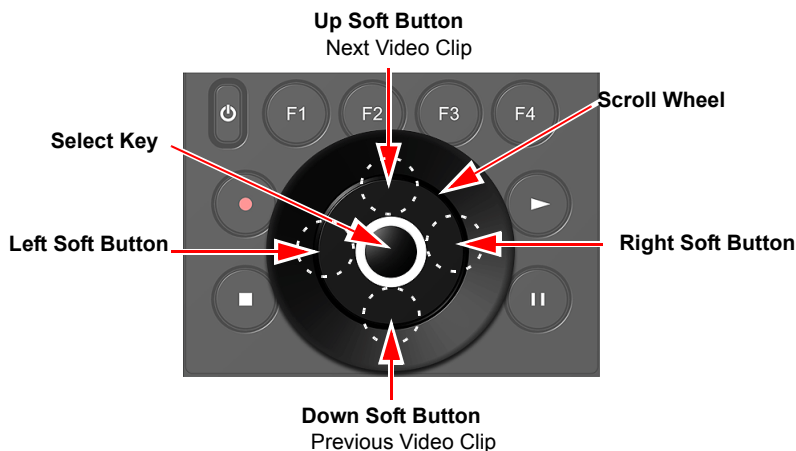
Use the Scroll Wheel, Select and Soft buttons to navigate through the FS-CF menus. The navigation keys are **Left**, **Right**, **Up**, **Down**, and **Select**.

The soft buttons are areas on the Scroll Wheel where, when pressed, act like a key.

Scroll Wheel and Select key

The Scroll Wheel has multiple functions.

- **Menu Navigation**
  Moving through the FS-CF menu tree.
- **Input Values**
  When selecting values for fields, use the **Scroll Wheel** to dial to an item in a list of options and the **Select** key to Exit input mode.
- **Return to Home Menu**
  When at the top of a menu, pressing the **Select** key returns the display to the Home menu.

Right Soft Button

To enter the menu, use either the **Right** or **Left** soft buttons.

Left Soft Button

When in a menu, pressing the **Left** soft button returns the display to the top of that menu.

When at the top of a menu, pressing **Select**, returns the display to the **Home** menu.

Up Soft Button / Next Video Clip

When in a menu, pressing the **Up** soft button moves the cursor upwards in the menu.

When in the Home menu, pressing the **Up** soft button advances to the next clip.

Down Soft Button / Previous Video Clip

When in a menu, pressing the **Down** soft button moves the cursor downwards in the menu.

When in the Home menu, pressing the **Down** soft button returns to the previous clip.

Function keys

Below the FS-CF Series LCD display are four user-defined function keys: **F1**, **F2**, **F3**, and **F4**. Use them as short-cut keys to select functions displayed at the bottom of the LCD menu. The function of these keys changes, depending on the options displayed on the LCD.

Unit LEDs

Disk ——⯆   ——⯆ Battery

FS-CF Pro **DTE** TECHNOLOGY

Disk Activity

LED State	Indicates
Red - Flashing	Disk activity.

Battery Charge

LED State	Indicates
Off	Powered Off, Adapter Connected - No Battery
Green	Charging Cycle Completed
Green Slow Flashing	Charging (fast charge)
Green Fast Flashing	Charging (topping off battery)

Battery charge level is indicated by the color of the battery symbol in the LCD display:

Green - 100% - 50%

Yellow - 50% - 25%

Red - 25% - 0
Low charge, recharge immediately.

Top View - Input/Output and Power Connectors

Video I/0
IEEE

Computer I/0
USB 2.0
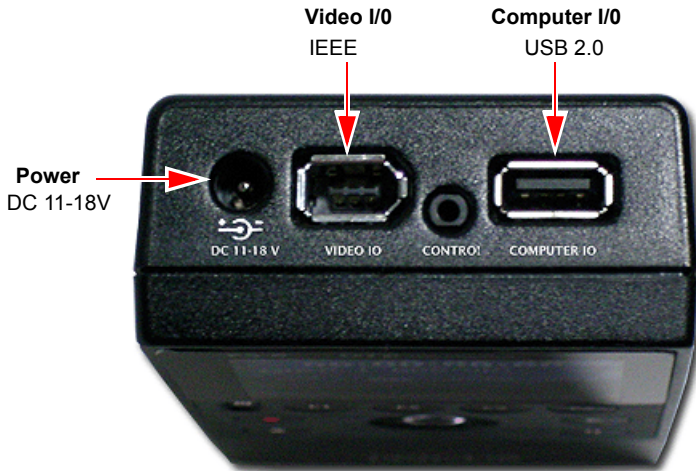
Power
DC 11-18V

Power - 11-18V DC

The primary power input is through the **Power** connector and supplied by an external adapter unit. It is possible to plug in DC power inputs from 11 to 18 volts. This allows powering the FS-CF Series with professional battery power systems

Video I/O - IEEE1394 Camera FireWire Connector

- DV/HD Video I/O
- 6-pin IEEE-1394a connector
- Isochronous 19.8/25Mbp/s DV or HDV video I/O
  FS-CF Series supports 1080i/720p video I/O when used with HDV camcorders equipped with a 1394 connection.

Note

Powering the FS-CF Series Via the FireWire Connection
The FS-CF Series can also draw power for recording, playback, and battery charging operations though the FireWire IEEE 1394 connector. This requires an active Firewire connector with power and a 6-pin to 6-pin cable.

FireWire Is Not A Data Connection
It is Not Possible to mount the FS-CF Series to a computer using the FireWire connection.

DV Audio

Audio is embedded in the FireWire signal.

- **DV25**

    2-ch (16-bit, 48kHz)
    4-ch (12-bit, 32kHz) -- Available in the Raw DV DTE file
    format only.

- **HDV**

    2-ch MPEG 1, Layer 2

i Note

**Not All Frame Rates Are Supported With All DTE File
Formats.**

Check the Focus website for the latest compatibility information:
www.focusinfo.com.

Computer I/O - USB 2.0

The USB 2.0 connector is for all data (asynchronous) I/O:

- Connect with computers at up to 480Mb/s.
  Actual performance depends on type of network and
  network activity. Best performance is achieved when the
  FS-CF Series is connected to the computer's USB 2.0 port.

- Networks wired or wireless

  This is a FS-CF Pro Feature.

  Depending on the type of network, it is necessary to use an
  USB adapter: USB 2.0 to Ethernet or USB Wireless Network
  (802.11b or g) dongle.

  Network settings are made in the FS-CF Pro **SETUP** menu,
  see **NETWORK** on page 141.

  The FS-CF Pro auto detects the type of connection being
  made provided it is set up correctly or in **HDD** mode.

Powering the FS-CF Series

Connecting the FS-CF Series to AC Power

The FS-CF Series can operate with the battery installed or un-installed while connected to the FS-CF Series power adapter.

To do this, connect the AC power as follows:

1. Plug the cord from the power supply into the **Power** connector of the FS-CF Series.
2. Connect the line cord to the rectangular power supply.
3. Plug the line cord into an electric outlet.

Battery Operations

Before operation with battery power, it is first necessary to fully charge the battery.

Installing a Battery

Battery

1. Place the FS-CF so that the unit is face up.
2. Position the battery pack, so that the connector tab is on the upside.

   The connector tab must align with the power tab on the inside of the FS-CF.
3. Slide the battery forward, into the FS-CF until it latches.

   The FS-CF uses close tolerances to create a friction fit that holds the battery firmly in place.

Removing a Battery

Release Button

1. Depress and hold the Release button on the FS-CF's right side.
2. Give the FS-CF a light straight downward tap: the battery loosens and slides out.

Charging the Battery

The battery begins charging anytime the FS-CF is connected to the AC power adapter that is supplied with the FS-CF.

i Note

Charging Battery with FireWire Connection
The FireWire connection can provide power to the FS-CF for operation and battery charging.
The FireWire connection must be with a 6-pin to 6-pin cable to an active computer port with power.

Battery Data

- The preferred methods for charging the battery, are:

  Connect the AC adapter **with the FS-CF** unit powered off. This protects the battery by reducing internal temperature.

  Connect the FS-CF to a computer through an active, powered FireWire port.

- The Battery Charge LED flashes whenever the FS-CF has both the battery and AC power installed. This indicates that the battery is receiving a charge.

- When the battery is charged, the battery charge symbol in the LCD is solid green.

- An uncharged battery takes 2-3 hours to charge with the unit powered off.

- The battery provided with the FS-CF can supply power to the unit for a maximum of 3 hours while in continuous record or play modes. This time depends on LCD and key brightness and other devices attached to the unit, such as the wireless dongle.

Battery Use

Misuse can damage unit and/or cause injury such as burns if a conductive material like jewelry, keys, or beaded chains touch exposed terminals. Conductive material may complete an electrical circuit (short circuit) and become very hot. Use care in handling charged battery, particularly when placing it inside a pocket, purse, or other container with metal objects.

Warning: Do Not Use Unapproved Battery Chargers

Use of battery chargers not approved by Focus Enhancements could cause the battery to catch fire or explode.

Low Battery Power During Operation

If during operation, the FS-CF senses that the battery charge is low resulting in a low voltage condition, the unit alerts the user with warning beeps -- less than 3% charge remaining -- and then powers down in an orderly manner, protecting the stored video clips and metadata.

Power From External DC Battery Devices

The ability to charge the FS-CF battery when operating using an external DC battery device is dependent on the load placed on the FS-CF.

Consider the following when using external DC battery devices to power the FS-CF. The typical external DC power source for the video device is 12V or 14.4V.

ⓘ Note

When Using A WiFi Dongle, Battery Charging Is Slower.
For more information see the following Power Consumption Tables.

Power Consumption Tables

No Battery Installed - no charging current			
Volt- in	No Dongle	with Linksys Dongle	Notes
14.4 V	0.238A (3.42W)	0.328A (4.72W)	idle-LCD/Backlight at max
12.0V	0.285A (3.42W)	0.398A (4.77W)	idle-LCD/Backlight at max

Battery Installed - partially discharged, full charging current			
Volt- in	No Dongle	with Linksys Dongle	Notes
14.4 V	NA	0.608A (8.75W)	Record Mode-LCD/ Backlight at max
14.4 V	0.525A (7.6W)	0.575A (8.25W)	record for 1 hr., internal T=56 deg.C

Operation

When operating the FS-CF at 12V rather than 14.4V, the power consumed remains the same, but the current draw increases by a factor of 1.2 (14.4/12.0).

Note

FS-CF Pro

The WIFI dongle uses approximately 1.35W. This represents about 30% of the power budget when not charging the batteries.

When charging the batteries, the FS-CF series applies as much power as possible to the battery, up to a limit of about 1A charging current. However, the overall power system limits the total amount of current consumed to about 0.6 A maximum based on the 15V input adapter.

The result is that when a big load is added, such as a discharged battery and the dongle, the FS-CF series automatically reduces the amount of the charging current so that the total current through the adapter never exceeds approximately 0.6 Amps.

Compact Flash Card

Inserting CF Card

Protective Cap

1. Insert the CF card in the card slot on the right side of the device. This may be done with the unit powered off or on. The fit is tight, so that the card will not come out during operation.
2. Slip protective cap over card.
3. To remove the card, see page 26.

> ⚠️ **When FS-CF Series Is Operating**
> **Do Not Remove CF Card Without Running COMPACT FLASH Utility First**
>
> If a compact flash card is removed while the FS-CF Series is powered on and without running the COMPACT FLASH utility, video clip(s) on the card may be damaged. For the safe removal and replacement of CF cards during operation, see **Removing Compact Flash Card** on page 26.

Preparing CF Card for FS-CF Series

If the FS-CF is started without a CF card in the card slot a menu appears.

It is necessary to insert a CF card and prepare it for use and removal with/from the device.

1. Insert the CF card in the FS-CF's card slot.

2. Press **F4**/**Exit** to start preparing the card.
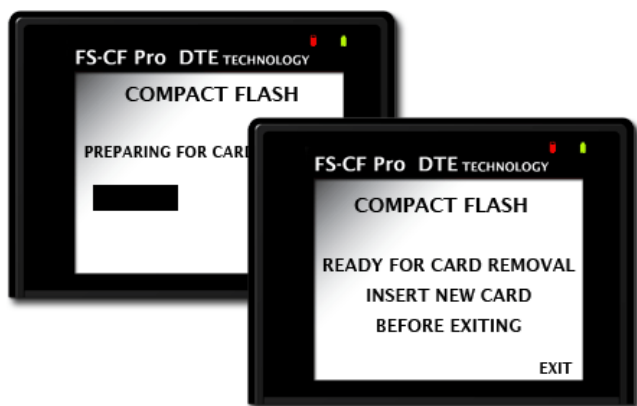
When the process completes, the Home screen appears.

Always Use the Compact Flash Utility to Remove CF Cards

To safely remove and insert CF cards in the FS-CF, always use the **COMPACT FLASH** utility, page 172.

It is also possible to use the F4 function key to run the COMPACT FLASH utility, see **FUNCTIONS Menus** on page 154.

Removing Compact Flash Card

These are the only recommend methods to use when removing a CF card from the FS-CF when it is powered on.

During a recording session it is possible to swap CF cards on the fly. To do this, use the Utility, **COMPACT FLASH**. This function allows the card to be removed safely without damage to video clips. There are two methods for safely removing/inserting a CF card:

Quick Card Removal - Using F4 Function Key

This is the quickest way to safely remove a CF card. It requires that the **F4** function key is set to its default, **CF**, see **FUNCTIONS Menus** on page 154.

On the Home Menu, press the **F4/CF** button once.

The FS-CF automatically performs the CF Card Removal procedure. When completed, remove the card from its slot and insert another card.

Remove Card Using COMPACT FLASH Utility

1. Go to **UTILITIES** and select **COMPACT FLASH**.

    The first **COMPACT FLASH** screen appears and is quickly followed by the **INSERT NEW CARD** screen. The Compact Flash procedure runs automatically.

2. Remove the card that is the in the slot.

3. Insert the replacement card.

4. Press **F4**/**EXIT**.

    The FS-CF completes the procedure and returns to the **UTILITIES** menu.

    If there are video clips on the replacement card, they are left intact and the FS-CF uses the empty storage that is available on the card.

5. Start another recording session.

ⓘNote

CF Card Write Cycles
Because compact flash card manufacturers use different methods to determine the maximum number of write cycles a card can have during its life time and the varying claims by makers, Focus Enhancements can not guarantee the number of write cycles the user can expect to get with a particular CF card and the FS-CF.

Incorrect Insertion/Removal of CF Card
If the CF card is removed while the FS-CF is powered on, but without running the COMPACT FLASH utility, video clips on the card may be damaged.
To correct this situation see **Card Removed Without Using CF Utility** on page 226.

Connecting FS-CF Series to DV/HDV Camcorder

Before performing this procedure, make sure you have installed and charged the battery, see **Battery Operations** on page 19.

1. Connect the supplied FireWire, 1394, cable to the DV I/O connector on the top of the FS-CF.
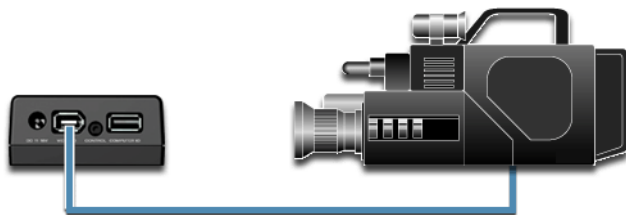
1. Locate the FireWire/DV/iLink (or similar) connector on your video camera. It is located in different places depending upon the brand of camera. If you are unclear of its location, consult your video camera manual.
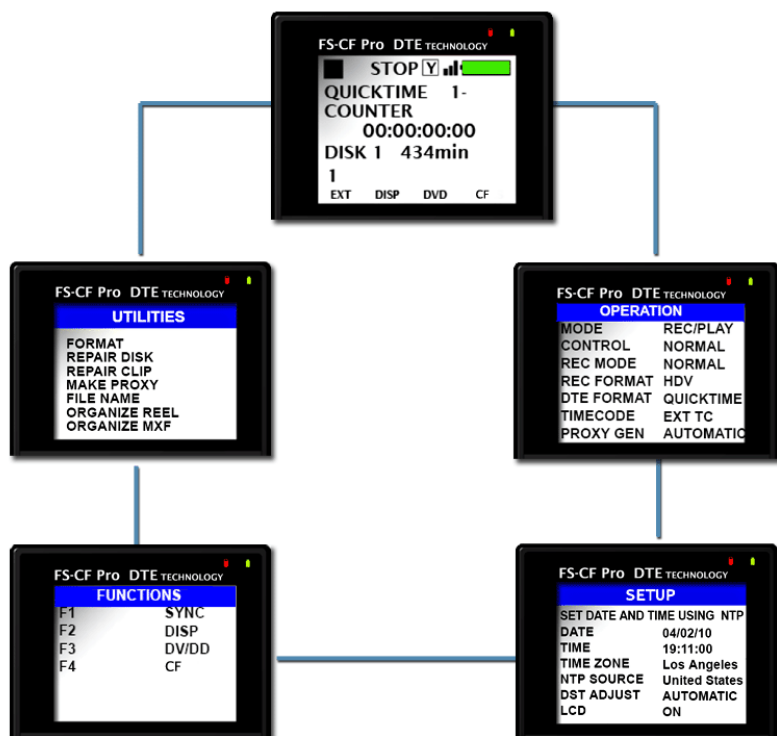
> ⓘ **Note**
>
> **FS-CF Supplied with Two FireWire Cables**
> The FS-CF is provided with both 4-pin to 6-pin and 6-pin to 6-pin FireWire cables.
> Check to see which type the camcorder requires.

2. Connect the other end of the FireWire, IEEE 1394, cable to the video camera.
3. Turn on the camera.
4. Turn on the FS-CF.

FS-CF Series User Interface

The FS-CF Series menu system provides access to all the functions available in the unit. The Welcome and Home menus come up automatically when the unit starts. All of the other menus are accessed by pressing the left or right soft buttons on the **Scroll Wheel**.

For more information on each function, go to the chapter **FS-CF Series and Pro Functions** on page 97.

> **ⓘ Note**
>
> **Returning to the Top of the Menu or to Home menu**
> To get to the top of any menu, press the **Left** soft button.
> To get back to the Home menu:
> - Highlight the menu title at the top of the menu.
> - Press the Select soft button.

Main Menu	Feature	Options	Selection
WELCOME	Only appears for a few seconds on power up.		
HOME	Gateway menu for all functions, it displays disk and operational status.		
OPERATION	**For more information see** OPERATION Menus on page 107.		
	MODE		
		REC/PLAY	
		HDD (mount to computer function)	
	CONTROL	NORMAL EXTERNAL SYNCHRO	
	REC MODE	NORMAL RETRO CACHE RETRO DISK SNAP REC **(FS-CF Pro, DV mode only)** TIMELAPSE **(FS-CF Pro, DV mode only)**	
	REC FORMAT		
		DV HDV	
	DTE FORMAT	Depends on REC FORMAT setting.	
		DV	Raw DV AVI Type1 AVI Type2 Canopus AVI Matrox AVI Quicktime MXF (FS-CF Pro only)
		HDV	M2T QUICKTIME MXF (FS-CF Pro only)
	TIMECODE	EXT TC FREE RUN REC RUN REGEN	
	PROXY GEN **(FS-CF Pro only)**	OFF AUTOMATIC	

Main Menu	Feature	Options	Selection
SETUP	**For more information see** SETUP Menus **on page 119.**		
	SET DATE AND TIME USING NTP (FS-CF Pro only)		
	DATE		
	TIME		
	TIME ZONE	Select from a list containing UTC, continental, and ocean time zone ranges.	Select a specific country, state, or city within the timecode range.
	NTP SOURCE (FS-CF Pro only)	Select a specific global region.	Select a specific nation within the region.
	DST ADJUST	AUTOMATIC STANDARD ALTERNATE	
	LCD	ON OFF AUTO	
	LCD BRIGHT	1 through 16	
	KEY BRIGHT	1 through 16 Does not control Scroll Wheel brightness.	
	ALARM	ON OFF	
	STOP	NO VIDEO	
	EXTL CTL	OFF PAUSE FRAME FILE	
	TC SET	00:00:00:00	
	UB SET	00:00:00:00	
	TC MODE	DROP NON-DROP	If FS-CF Pro in EXT TC, TC Mode has no effect.
	RETRO CACHE (FS-CF Pro only)	0 to 10 seconds	
	RETRO DISK (FS-CF Pro only)	0 to 392 minutes (Based on 100GB drive, other models may vary.)	
	TIMELAPSE (FS-CF Pro only)	00:00:00:00	Displayed only in DV mode. Set duration between single frame captures.

Main Menu	Feature	Option	Selection
SETUP	**(continued)**		
	PLAY MODE	PLAY CLIP LOOP CLIP PLAY ALL LOOP ALL	
	PLAY FROM **(FS-CF Pro only)**	TRACK REEL	
	PLAY PREF **(FS-CF Pro only)**	ORIGINAL PROXY	
	PROXIES **(FS-CF Pro only)**	SPEED QUALITY	
	UDF FS PERM	READ-ONLY READ-WRITE	
	REC START	NORMAL FAST	
	NETWORK **(FS-CF Pro only)**	MANUAL DHCP	When DHCP is set, IP ADDR, IP MASK, BROADCAST, and GATEWAY are assigned by the host router.
	IP ADDR **(FS-CF Pro only)**	MANUAL or DHCP	
	IP MASK **(FS-CF Pro only)**	MANUAL or DHCP	
	BROADCAST **(FS-CF Pro only)**	MANUAL or DHCP	
	GATEWAY **(FS-CF Pro only)**	MANUAL or DHCP	
	WIFI PRESETS **(FS-CF Pro only)**	Set manually	
	ESSID **(FS-CF Pro only)**	Set manually.	
	KEY **(FS-CF Pro only)**	Set manually **(WEP encryption only.)**	
	CHANNEL **(FS-CF Pro only)**	UNSPECIFIED 1 through 11	
	WIFI MODE **(FS-CF Pro only)**	MANAGED ADHOC (P2P)	
	FTP **(FS-CF Pro only)**	DISABLED ENABLED	
	FTP PASS **(FS-CF Pro only)**	Sets FTP password for FTP function.	Default is FS. ftp:// FS:FS@ipaddress

Main Menu	Feature	Option	Selection
SETUP	**(continued)**		
	WEB **(FS-CF Pro only)**	DISABLED ENABLED	
	AUTO ORG **(FS-CF Pro only)**	DISABLED ENABLED	
	AUTO MARK **(FS-CF Pro only)**	DISABLED ENABLED	
	REELS PREF **(FS-CF Pro only)**	FOLDER TEMPLATE	

Main Menu	Feature	Option	Selection
FUNCTIONS	**Contains user definable function key selections. Changing a setting with a Function key is identical to changing the setting in its corresponding menu. Refer to** FUNCTIONS Menus **on page 154 for more information.**		
	F1	SYNC EXTERNAL LCD SET PROXY (FS-CF Pro only) REELS (FS-CF Pro only) R1-1 etc., see REELS PREF on page 153. (FS-CF Pro only) BLANK	
	F2	DISP ALARM FILE REELS (FS-CF Pro only) R1-1 etc., see REELS PREF on page 153. (FS-CF Pro only) BLANK	
	F3	LOCK DV/DD REELS (FS-CF Pro only) R1 etc., see REELS PREF on page 153 (FS-CF Pro only) BLANK .	
	F4	LOCK CF REELS (FS-CF Pro only) R1 etc., see REELS PREF on page 153 (FS-CF Pro only) BLANK .	

Main Menu	Feature	Option	Selection
UTILITIES	**For more information see** UTILITIES Menus **on page 159**.		
	FORMAT		
	REPAIR DISK		
	REPAIR CLIP		
	MAKE PROXY (FS-CF Pro only)		
	FILE NAME		
	ORGANIZE REEL (FS-CF Pro only)		
	ORGANIZE MXF (FS-CF Pro only)		
	UPGRADE		
	DELETE CLIP		
	SYSTEM RESET		
	DIAGNOSTIC		
	STATUS		
	VERSION		
	CALIBRATE CLOCK (FS-CF Pro only)		
	COMPACT FLASH		

Types of FS-CF Series Displays

The FS-CF has three types of menus:

- **Informational**

  These menus provide information only and do not permit setting values: examples, **WELCOME** and **VERSION** (see page 170).

- **Select an Option**

  These interactive menus provide a list of items that the User can select. In some cases, selecting an item leads to a second menu where settings are selected or values entered.

  To do this:

  1. Use either the Soft Down or Up keys or the Scroll Wheel to move about in the menu.
  2. Pick an item by pressing on the Select key.

     Selecting an item may open other menus with more options.

- **Enter Value**

  These interactive menus permit the User to enter user-defined values. To do this:

  1. Use the Soft right key to advance between data fields.
  2. Use the Scroll Wheel to dial in the correct values.
  3. Press the Select key to save changes and return to the **SETUP** main menu
  4. Clicking **UNDO** cancels changes and returns to the **SETUP** main menu.

Record and Playback

Before using the FS-CF, set up the unit as outlined in the following sections:

The values set in these procedures are fixed and persist through power cycles. To change them, repeat the steps outlined above.

Set Up the FS-CF

Power On FS-CF

1. Press and release the **Power** key to power on the unit.

2. The **Welcome** menu appears and displays while the FS-CF initializes.

Set Date and Time

ⓘ Note

Date and Time Must Be Set
The date and time must be set because they are used in the FS-CF file naming function.

1. Press the **Right** soft button several times until the **SETUP** menu appears.
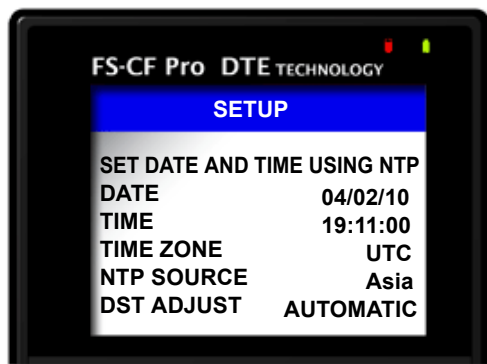
2. Use the **Down** soft button to highlight the date and press the **Select** key to access the **DATE** menu.

3. Use the **Right** and **Left** soft buttons to highlight the Month, Day, and Year. Use the **Scroll Wheel** to change the value.
4. When complete, press the **Select** key.
    The display returns to the **SETUP** menu which displays the new date.

5. Use the **Down** soft button to highlight **TIME** and press the **Select key to access the TIME setup menu**. The following menu appears:

6. Use the **Right** and **Left** navigation keys to highlight the Hour, Minute, and Second. (Time is indicated in 24hr. mode.) Use the **Scroll Wheel** to change the value.

7. Press the **Select** key.

The display returns to the SETUP menu which displays the new time.

For more information on the Setup function, refer to the section, **SETUP Menus** on page 119.

8. Return to the Home menu.

For more information see **Home** on page 103 for more details

9. Press the **Right** soft button on the Scroll Wheel once to display the **OPERATION** menu.
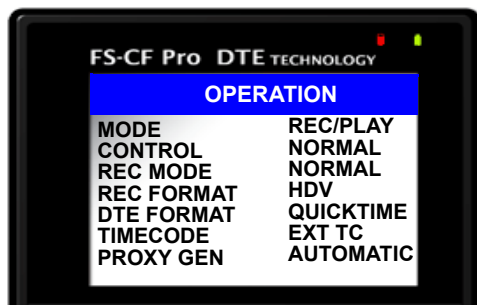
By default, the FS-CF is setup for the most typical recording situations. The Operation defaults are:

OPERATION	FUNCTION	Reference
MODE	REC/PLAY	See MODE on page 108.
CONTROL	NORMAL	See CONTROL on page 109.
REC MODE	NORMAL	See REC MODE on page 110.
REC FORMAT	HDV	See REC FORMAT on page 114.
DTE FORMAT	QUICKTIME	See DTE FORMAT on page 115.
TIMECODE	EXT TC	See TIMECODE on page 116.
PROXY GEN	AUTOMATIC	See PROXY GEN on page 118.

If it is necessary to change any of these settings, refer to the following few pages.

Select Record/Play Mode

1. Use the Up or Down soft buttons to select **MODE**.
2. Press the Select key in the center of the Scroll Wheel.
   A list of operation modes appears: **REC/PLAY** or **HDD**.
3. Pick **REC/PLAY** and press the Select key.
   The display returns to the **OPERATION** menu.

Select the Control Mode

This determines which controls, the FS-CF's or the camera's, are used during either recording or playback, see **CONTROL** on page 109. Select the mode to use and the display returns to the **OPERATION** menu.

NORMAL

Control mode using the FS-CF's transport keys.

EXTERNAL

Controls the FS-CF recording with the video camera controls, whether using tape or tapeless.

With most modern HDV and DV cameras, **EXTERNAL** mode is the preferred control method. Check the latest camera compatibility matrix on the Focus website: **www.focusinfo.com**.

SYNCHRO

Most often used with older camcorders that require the presence of a tape in the camcorder's tape deck.

Select the Recording Format (REC FORMAT)

This determines which recording format, **DV** or **HDV**, the FS-CF uses. The camera must support the recording format selected.

Select the format type and the display returns to the **OPERATIONS** menu.

Select the DTE Format

This determines which NLE compatible format the FS-CF uses when recording. The DTE formats displayed depend on the **REC FORMAT** selected in the last step.

Select the DTE format and the display returns to the **OPERATION** menu.

DTE Formats That Support Recordings Larger than 2GB

- RAW DV
- AVI TYPE1
- AVI TYPE2
- CANOPUS AVI
- MATROX AVI
- QUICKTIME

Recording Using UDF or FAT File Systems

The FS-CF Series can record continuously for long periods using either FAT or UDF file systems. However:

- FAT limits individual file size to a 2GB maximum.
  If while recording, the FS-CF reaches the FAT 2GB file size limit, the unit automatically starts a new file without dropping a frame. The clips are sequentially named.
- UDF expands the individual file size to approximately 1hr 30 minutes per clip.

DV24p and PAL 25p Modes

- 24p modes are only for use with camcorder's that are capable of DV-24p Advanced mode.
- 24p is compatible to DV QuickTime and AVI Type 2.
- PAL 25p camcorders require no special 25p DV format
- There are different FS-CF Series models for NTSC and PAL recording.

Select the Timecode

This operation determines the source of the timecode to be embedded in the recording.

Selecting the timecode returns the display to the **OPERATION** menu.

ⓘNote

EXT TC Overrides SETUP TC MODE Settings

When EXT TC is selected, the FS-CF Series follows the timecode mode of the camera, **Drop Frame** or **Non Drop Frame**, regardless of the setting in the SETUP menu. For more information, see: **TC MODE NTSC only** on page 133.

Recording with the FS-CF Series

Do Not Disconnect Power or FireWire Cable

Never disconnect the power or the FireWire cable during a recording. This will cause file corruption.

Loss of Power During Recording

If power is lost during recording it is possible to repair the damaged file or files, refer to **REPAIR DISK** on page 161 and **REPAIR CLIP** on page 162.

Before beginning recording, verify that:

1. Time and date are set.

2. Recording format is set.

3. DTE Format is set.

4. The FS-CF is connected to the video camera according to the explanation in **Connecting FS-CF Series to DV/HDV Camcorder** on page 28.

5. Camera and FS-CF are powered on.

6. Tape is loaded in the camera, if:

   - Camera requires a tape in its transport before it triggers FS-CF record.
   - If the User wants to record to both tape and disk, see the following note.

iNote

EXTERNAL Operation

If the camera supports external operation, tape does not need to be loaded, refer to **CONTROL** on page 109.

Troubleshooting: Counter Not Incrementing

If the Counter does not increment while recording to the FS-CF, it indicates that there is no active connection between the FS-CF and the camera.

- Verify that FS-CF IEEE-1394 DV I/O and camera connections are secure. It may be necessary to unplug and then reconnect them. When a good connection is made, the Counter will increment and recording will start.
- Verify that FS-CF and camera settings are correct.
- Power down both the camera and FS-CF series unit. Next, reboot the camera first and the FS-CF second. This ensures a clean sync connection between the devices.

Verify Record Mode Matches Source Video Content and Format

- If in DV Record mode, HD content will not record properly.
- An NTSC or PAL DV source records only on a matching NTSC or PAL unit.

NORMAL Recording

Use the FS-CF's tape transport buttons to control recording.

1. Set the video camera to **Camera** or **Cam** mode.
2. Connect the FS-CF to the camcorder with the provided FireWire cable.
3. Verify that an image appears in the viewfinder.
4. On the FS-CF, press **Record** ●.

   The FS-CF begins to record. The counter values display on the menu. To display Timecodes see **DISP Information Fields** on page 105.

5. Press **Pause II** once to put the FS-CF to **Rec-Pause** mode.
6. Press **Pause II** again and the FS-CF begins to **Record** again in the same clip.
7. Press **Stop** ■ to stop the recording.
8. Press **Record** ● to begin recording a new clip.

Creating a New File without Dropping Frames

When in record mode, it is possible to break the recording into a separate, new file without dropping frames.

While recording, press **Record** ● again and the FS-CF automatically creates a new clip.

EXTERNAL Recording

Use the camcorder's trigger to control recording with the FS-CF.

1. Verify that the FS-CF is in **Stop** mode.
2. From the FS-CF Home menu, press the **Right** soft button once and the **OPERATION** menu appears:

3. Use the **Down** soft button to highlight **Control** and press the **Select** key to access the Control options.

    Default value is **NORMAL**.
4. Use the **Down** soft button to select **EXTERNAL**.
5. Use the scroll wheel to highlight **EXTERNAL**, then press the **SELECT** key.

    The Operations menu appears.
6. Press the **Left** soft button twice to return to Home menu.

    The menu appears displaying a **STOP** indicator in the upper left-hand corner. Next to it is an **E** that indicates the FS-CF is now in external control mode. The camcorder can now control the FS-CF's record function.

Proceed with recording using the camcorder trigger.

1. Press the camcorder's trigger once to begin recording. The FS-CF starts recording video from the camera.
2. Press the camera trigger again to place the FS-CF in **RECORD-PAUSE** mode.
3. Press the camera trigger once more to begin recording a new clip.
4. Press the FS-CF's **Stop** button to stop FS-CF recording.

SYNCHRO Recording

Synchro recording allows the FS-CF to mimic camcorder operations by monitoring the state of the camcorder's tape recorder controls.

ⓘNote

SYNCHRO: For Camcorders Without External Trigger Control
SYNCHRO mode should only be used with older camcorders that do not have external trigger controls. Check the latest camera compatibility matrix on the Focus website.

1. Verify that the FS-CF is in **Stop** mode.
2. From the FS-CF Home menu, press the **Right** soft button once and the **OPERATION** menu appears:

3. Use the **Down** soft button to select **Control**.
   Default value is **NORMAL**.
4. Use the **Down** soft button to select **SYNCHRO**.
5. Press the Scroll Wheel **Select** key.
   The Operation menu appears.
6. Press the **Left** soft button twice to return to the Home menu.
   The Home menu appears displaying a **Pause** indicator in the upper left-hand corner. Next to it is a **Y** that indicates that the FS-CF is following the state of the camcorder's tape controls, i.e. record when the camcorder records and Record-Pause when it is in record-pause.
7. Now the FS-CF will respond to the camcorder's tape controls. The recording signal goes both to the tape in the camera and to the FS-CF.

Recording Timecode in the File

1. Locate and highlight the **Timecode** operation using the **Down** or **Up** soft buttons. Press the **Select** key to display the
    Timecode menu.
2. Select **EXT TC**.

    This option records the video camera timecode in the file. For other available timecode options refer to **TIMECODE** on page 116.

    To view the source timecode (TC) from the camera, press the **DISP** key, **F2** default, until the format type appears, e.g. 1080/60i TC.

ⓘ Note

EXT TC
When in EXT TC mode the FS-CF follows the camera's timecode, and the Drop/Non-Drop Frame in SETUP menu has no effect on the recorded video's timecode.

When using EXT TC, set the camera's timecode to FREE RUN.

Function keys
The tasks discussed above are available for programming into the function keys. For information on setting up function keys, refer to the section, **FUNCTIONS Menus** on page 154

Viewing Video Clips

Playback from FS-CF to Camcorder Viewer

Verify that both the video camera and the FS-CF are powered on and that they are connected together with the FireWire cable from the FS-CF DV/IO port to the camcorder 1394 port.

ℹ️ Note

Feature Availability on PAL Cameras
This feature is not available on some PAL cameras.

1. Set the video camera to VCR or Playback mode.
2. Navigate to the video clip to preview, using the FS-CF. **Down** and **Up** soft buttons.
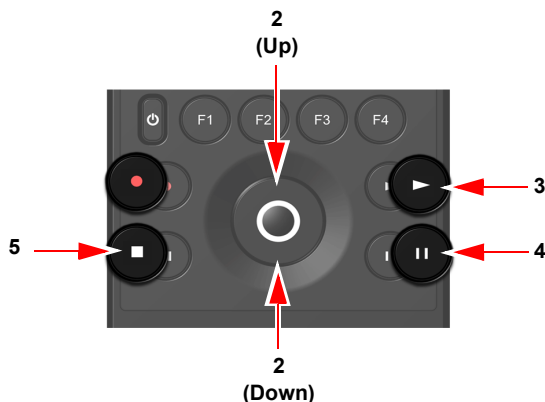
3. Press the **Play** key.
4. Press **Pause** to pause playback.
5. Press **Stop** to end playback of the clip.

Refer to **Scroll/Select Wheel and Soft Navigation Keys** on page 14 for more information on the function of these controls.

ℹ️ Note

Camcorder Compatibility with External Players
Some HD camcorders are not compatible with the external player functions Forward/Reverse Search and Pause.

Playback on the FS-CF Pro
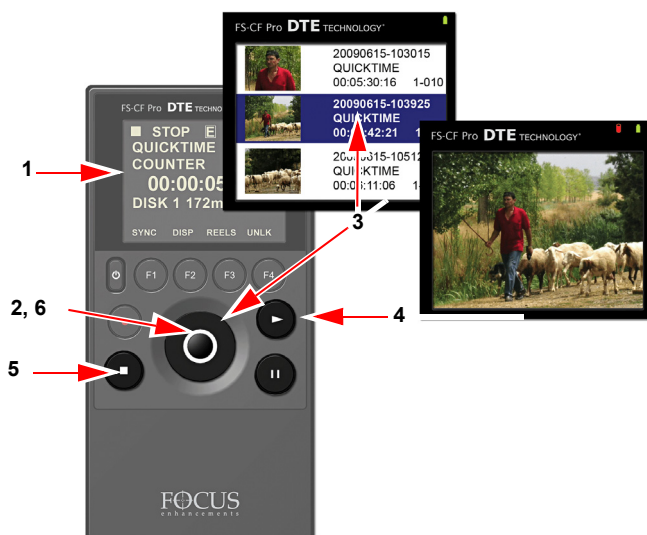
The FS-CF Pro provides the user the ability to playback video clips, DV or HDV, and proxy files on its color LCD. Each clip has a thumbnail still image which is displayed along with clip data in list. In addition, clip data and metadata are viewable through the FS-CF Pro's web interface.

To view a video or proxy file on the FS-CF Pro:

1. Go to the **Home** menu.
2. Press the **Select** key.

   A list of the video clips with thumbnails and clip information appears.

   If there are no video clips, the viewer will not open and the **Home** menu remains displayed.

> **i Note**
>
> **Setting Playback Preference**
> The FS-CF Pro offers the ability for the User to determine which file, the original DTE format or its proxy, displays when Play is selected. Refer to **PLAY PREF** on page 137.

3. Locate the file to view using the **Scroll Wheel** or the **Up** and **Down** soft buttons.

4. Press the **Play** key to start playback.

    The original DV or HDV recording plays back at a reduced frame rate, between 10 and 15 frames per second depending on the video type, such as HDV or DV, 1080i or 720p, etc.

    Use the **Play** and **Pause** keys to control playback.

5. Press **Stop** to end playback and return to the video clip list.

6. Press the **Select** key to return to the **Home** menu.

Thumbnails

A single frame thumbnail image is automatically created for each recording. These thumbnails and accompanying video clip information are viewable as a list on the FS-CF Pro LCD. In addition, the thumbnails, clip information, and clip metadata are available via the FS-CF Pro web interface.

The thumbnail menu lists the filename, file wrapper type (MXF, QuickTime, etc.), the duration, and track number. To exit the thumbnail menu, simply press the center button on the scroll wheel.

Viewing Thumbnails on the Web

1. Log on to the FS-CF Pro web server.

    Use the standard procedure to log into FS-CF Pro via WiFi or an USB to Ethernet adapter: see **Logging Onto the FS-CF Pro Web Server**, in the **Metadata** chapter of the user guide.

2. On the **Entry** web page, select the **Review** tab.

3. Click on the **Show All Thumbnails** button.

    Thumbnails for all clips on the FS-CF Pro along with their track names appear on the web interface.

4. Clicking on a thumbnail image displays a larger thumbnail and additional clip information: metadata. In addition, metadata can be added or modified.

Skip Forward or Backward During Playback

During playback, skip forward or backward in one minute increments. Using the kebaord keypad:

*   Press **DOWN** to skip forward. Press again to skip again.
*   Press **UP** to skip backward. Press again to skip again.

For more information, see **Review** on page 73.

Proxy Audio Playback

To listen to proxy file audio, attach an USB headset to the FS-CF Pro and playback proxy files.

Volume is controlled through the USB headset.

iNote

Plug In USB Headphones Before Starting Playback
To hear the audio it is necessary to plug-in the USB headphones before starting playback. There is no sound if headphones are plugged-in during playback.

Creating A Proxy File

This procedure is for generating a proxy video file from a selected video clip.

The FS-CF Pro provides the videographer the ability to create smaller proxy files to accompany the native format video clips. These proxy files are easy to share over networks or the internet and provide visual records for evaluating the larger native format clips.

ⓘ Note

Recommendations

- Based on the quality setting, Proxy creation can take some time to complete.
- If Proxies are not required by the user, Focus recommends leaving this setting **OFF**.
- When using the UDF recording format, Focus recommends leaving the **PROXY GEN** setting **OFF**.

To create an individual proxy file it is necessary to:

1. Determine that proxy generation is enabled.

From the Home menu, press the **Right** soft button once to go to the **OPERATIONS** menu.
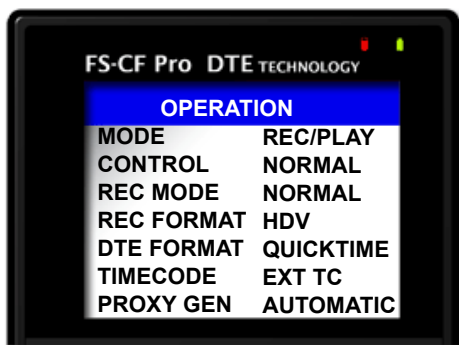
Verify that **PROXY GEN** is set to **Automatic**.

For information about proxy file settings, see **PROXY GEN** on page 118.

2. Select the quality of the proxy video file.

   From the Home menu, press the **Right** soft button twice to go to the **SETUP** menu.
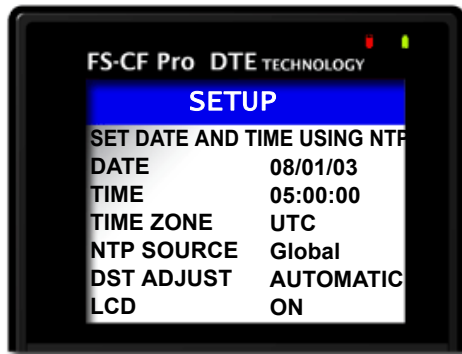
Scroll down the list of options and select **PROXIES**.

• **SPEED**

Proxy video is lower resolution and has a smaller file size.

• **Quality**

High resolution video proxy, larger file size, and takes longer to generate.

3. Generate proxy file.

From the Home menu, press the **Left** soft button once to go to the **UTILITIES** menu.

Select **MAKE PROXY**.

1. Enter the video clip number using the **Scroll Wheel**.
2. Press **F3/YES** to start proxy generation.

   A status display appears, indicating the file is being generated. When done the **COMPLETED** system message appears.
3. Press **F4/BACK** to return to the **Utilities** menu.

Proxy File Formats

The format of the proxy file depends on the format of the parent video clip.

Original File Format	Proxy File Format
AVI (DV all variants)	AVI (.avi)
M2T (HDV)	MP4
MXF (DV/HDV)	AVI (.avi)
QuickTime DV/HDV	QuickTime (.mov)
Raw DV (DV)	MP4

For technical information about proxy files, see **Proxy Videos** on page 76.

FS-CF Pro Metadata Functions

This chapter contains:

Overview

Metadata is an important part of modern video production. Metadata is information that is attached to a content file and describes some characteristic or attribute of that content, i.e. video, graphic, audio, etc. Metadata uniquely identifies each content item, creating a data hierarchy that facilitates the searching and grouping of content in as many useful ways as possible. Video metadata is either timecode or video clip-based.

The advent of tapeless based acquisition devices, like the FS-CF Pro which can produce files in a variety of video formats, makes the proper labeling of video content critical. Metadata promotes the efficient handling of content within NLE systems and content retrieval in asset management or archive solutions.

There are many standards of metadata types and labels. The most common is the Apple XML Interchange Format, which the FS-CF Pro supports.

Useful metadata should reflect the processes and vocabulary of the organization using it. The easiest metadata implementation is to use simple descriptions (tags) of the content (e.g. scene description or number, production name, take number, good shot, etc.) These metadata tags should be the same as the tags that are added to the content when using an NLE's log or log-capture functions.

The FS-CF Pro Metadata utility is a web-based application that provides the user the ability to:

- Add video clip-based and timecode-based metadata to video clips during recording or playback.
- Use a default or custom metadata entry template.
- Export clip-based and timecode-based templates to ProxSys Media Servers and NLE applications such as Avid and Final Cut Pro.

Note

FS-CF Pro Web server and Database Provide Metadata Functions

The FS-CF Pro has a resident web-based Metadata application that permits the configuring of metadata templates and metadata logging using a simple web browser.
Connect to FS-CF Pro's web server utilizing an USB 2.0 to 802.11 b/g WIFi dongle or a USB 2.0 to Ethernet adapter. Any device with networking capabilities and web browser functionality -- computer, laptop, PDA, etc. -- can log into FS-CF Pro's web server.

FS-CF Pro metadata logging is flexible because it can be either timecode-based or video clip-based.

Metadata Categories

There are three categories of metadata: descriptive, administrative, and structural. Some metadata, such as Project ID is not limited to one category.

Descriptive

Descriptive metadata is used to promote rapid search and recovery of content. Often it is in a form that is familiar to the greatest number of users, enterprise-wide. Descriptive metadata can include:

- Name of released project.
- Subject tags -- sports, medicine, history and such.
- Name of videographer.
- Location of recording.
- Project ID.

Often, descriptive metadata values are added during recording or when transferred to the NLE. Some descriptive metadata may be added at different stages of production/post-production to indicate content status.

Administrative

Administrative metadata is video clip based and is used to manage the content within the content library and backup repository. This metadata links all content to its parent files and identifies where it may be archived. Examples of administrative metadata may include:

- Library archive number.
- Project ID.

Structural

Structural metadata is video clip-based and used primarily for storage of objects in the production library and for presentation. This metadata assists users during production and post production steps and can be added or changed according to where the content is in the workflow.

Structural metadata can include:

- Camera.
- Clip number.
- Name of videographer.
- Project ID.
- Storyboard frame number.
- Sequence start/stop (timecode-based)
- Frame location (timecode-based)

Structural metadata is added during recording and subsequent editing. Often this metadata is timecode-based, which defines or describes specific frames within a clip.

Templates

A template is an xml form into which job specific data is entered. For example, a news crew will have at least one template available for each story type covered: accident, fire, interviews, sports-baseball, sports-football, and weather.

A metadata template can include:

- Fields into which data is entered,
- Lists of predetermined metadata from which values are selected,
- Setting the type of metadata, timecode based or not,

It is possible to create metadata templates that conform to the Apple XML Interchange Format and custom templates.

Metadata entered through the template is stored in a database on the FS-CF Pro.

Default Templates

The FS-CF Pro has three default metadata templates based on popular metadata standards.

- Apple XML Interchange Format (AXIF)
- Avid Media Composer (3.5)
- FCP

These templates can be modified and saved for project specific applications.

AXIF and FCP

Many NLEs use AXIF, or a version of it, to provide metadata capabilities. Final Cut Pro is one such editor. The FS-CF Pro provides default AXIF and FCP templates. When video clips with metadata logged via these templates are exported to an NLE, two files are created:

- Video clip
- XML document file containing the metadata

These files are imported directly into a NLE such as Final Cut Pro or the ProxSys media asset management system. For more information, see **Final Cut Pro** on page 216.

Avid

The default Avid MXF template is functionally similar to the other FS-CF Pro metadata templates. The User can select which metadata tags to use, determine the type of input they receive, or assign predefined values.

When the FS-CF Pro prepares Avid MXF files for importing into the Avid Media Composer, it embeds the metadata in the MXF wrapper. There is only one file to import into the NLE. For more information, see **Avid Media Composer** on page 213.

Custom Template

The FS-CF Pro provides the capability for the User to create custom templates by modifying Avid and FCP templates or entering unique fields into an empty template.

Imported Template

Templates created in one FS-CF Pro can be exported and then imported into other FS-CF Pro units.

Format Function May Remove Custom and Imported Templates

Depending on the **Templates** setting in the **Format** function, the Custom and Imported templates may be removed and only the default template will remain, see **FORMAT** on page 160.

As a precaution, **Export** and archive all non-FCP Example templates. After formatting, it is necessary to re-import them.

Video Production
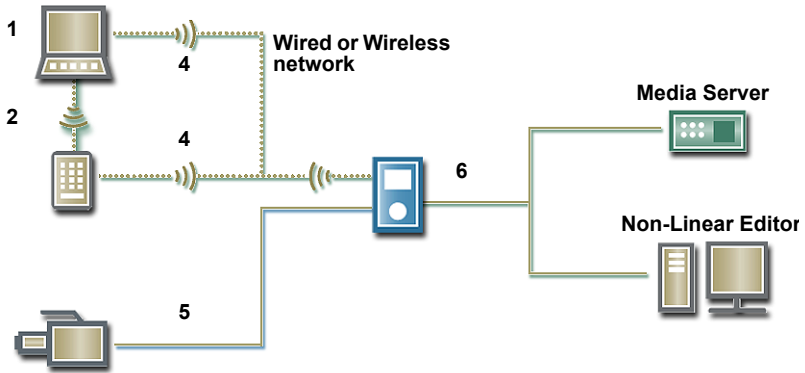
Pre-production

Pre-production includes the setup of equipment for recording the production, see **Connecting FS-CF Series to DV/HDV Camcorder** on page 28, and defining the metadata template(s) used, its metadata fields and values.

For the FS-CF Pro this involves:

1. Set up the xml metadata template.
    - Using the FS-CF Pro web-based interface, open the metadata template on a laptop or PDA.
    - Setup the metadata template values and settings by logging into FS-CF Pro's web server using a computer or laptop.

    Template settings and metadata reside on the FS-CF Pro, in the FS-CF Pro database in the directory: **/log/fs_3.db**.

Production

Production involves the recording of video, logging both clip and timecode metadata based on the templates that were defined in the pre-production phase. In addition, clips can be played back and verified -- through the camera -- and additional metadata can be defined if required.

For the FS-CF Pro this involves:

2. Record video.

   During recording, use the FS-CF Pro's web server interface and template to log predefined or dynamically input metadata values.

3. Playback video.

4. During playback, use the FS-CF Pro's web server interface and template to log predefined or dynamically input metadata values.

Post-production

The post production phase includes exporting logged metadata that is stored in the FS-CF Pro database into a format that can be used with an NLE or ProxSys Media Asset Management system along with the recorded content.

FS-CF Pro metadata is viewable and searchable. It includes links to the video content in the NLE or ProxSys media management system.

For the FS-CF Pro this involves:

5. Export metadata from FS-CF Pro database to xml file.

   The FS-CF Pro provides two methods for taking the metadata from the on-board database and exporting it as an xml file:

   • **AUTO ORG** function that automatically exports an xml file based on the current template and logged metadata.

   • Manual metadata export function using the FS-CF Pro's web interface. During export, it is possible to determine the type of export file to create: compatible with a particular NLE or project on a ProxSys media server.

6. Import the xml file into a NLE or ProxSys Media Server. Use the NLE or ProxSys Media Server interface to import the xml file into the application. In either case, NLE or ProxSys system, it is only necessary to import the xml file.

During the import process, the application locates and identifies all video clips associated with the xml file and imports them too. In addition, the metadata logged during recording or playback is added to the video clip(s).

Metadata has many uses during post-production.

- Identify individual video clips, clip xml files, cameras -- position and lens.
- Provide for rapid creation and display of the video dailies from film or digital footage.
- Determine the sequence that the dailies are shown and create text generator slates before each shot.
- Merge subtitles with scenes.
- Group and archive all video clips belonging to each project.
- Facilitate rapid search and retrieval of raw footage and related video clips used in projects.
- Version-tracking of video clips and sequences.
- Find and replace video clips with other clips.
- Track processes applied to video sequences, for example chromakey effects.

Logging Onto the FS-CF Pro Web Server

Logging onto the FS-CF Pro web server provides access to the metadata settings and logging functions. The pages and functions available depend on the type of device accessing the FS-CF Pro.

1. Connect the FS-CF Pro to a wired or wireless network through its USB port using a USB to Ethernet adapter or 802.11b/g wireless dongle. Depending on the type of connection, refer to the following:
   - **FS-CF Pro to Wired (Ethernet) Network** on page 176.
   - **FS-CF Pro to a Managed Wireless Network** on page 177.
   - **FS-CF Pro Peer-to-Peer Networking (Wi-Fi)** on page 178.
2. Determine the FS-CF Pro's IP address, see **IP ADDR** on page 142.
3. Open a web browser and enter the FS-CF Pro's IP address in the browser's Address window.

   The **Entry** page appears.

   This is the first page that a PDA displays. The appearance of this page varies depending on the device used to view it.

Metadata Pages and Functions

FS-CF Pro Metadata has four pages that are divided into two groups of functions: **User** and **Admin**. To display the hidden group, click on the **User** or **Admin** tab.

- **Admin** group includes the pages:

  Template - for creating and managing templates,

  Settings - template export/import and reel matching parameters,

- **User** group includes the pages:

  Entry - for entering and setting metadata values in a template,

  Export - for specifying the export of metadata based on template type.

Template

Not accessible with PDA type devices.

Use the **Template** page to create, modify, and manage the metadata templates stored in the FS-CF Pro database:

- Display an existing template.
- Enable or disable specific metadata fields on a template.
- Edit predefined values for specific fields.
- Duplicate an existing template and assign it a new name.
- Create a new template using either the Apple XML Interchange Format or a Custom format.

Settings
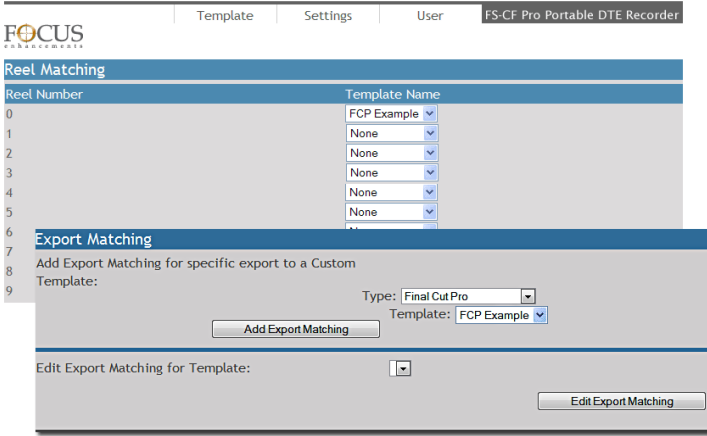
Not accessible with PDA type devices.

Clicking on **Settings** opens a page with the functions:

- **Reel Matching**

  This function allows the User to assign specific metadata templates to particular FS-CF Pro **REEL**s. The REEL then has the template's name.

  The User can, without leaving the Home screen, employ one of the function keys to quickly select a template by picking a REEL with the template's name. The **Entry** page automatically changes to the template assigned to the REEL.

  This function requires that the **SETUP** menu > **REELS PREF** option **TEMPLATE** be selected, see **REELS PREF** on page 153.

- **Template Export/Import**

  This function permits the User to export a template from the FS-CF Pro database to the FS-CF Pro drive where it is available for downloading.

  In addition, the User can import from the input device templates created in other FS-CF Pros.

- **Delete Template**

  This function allows the User to select and delete templates from the FS-CF Pro.

Entry

Use the **Entry** page to enter metadata to video clips.

- **STATUS**

    Indicates the mode the FS-CF Pro is currently in: **Rec**, **Stop**.

- **Counter**

    Displays timecode during recording.

- **Track**

    Displays current track (clip) number.

- **Default Template**

    Initially the Entry page displays the metadata template selected as the default. Its name appears in the **Default Template** field.

    To use a different template, select it from the **Default Template** dropdown menu. The new template appears and is active once the FS-CF Pro is in Record, Pause or Playback mode.

    A template must be selected before recording or playback begins.

- **Control**

    Use the **Rec/Stop** button to start and stop recording from the Entry page, rather than the FS-CF Pro or the camcorder.

    Delayed Start in Sec.

    This sets the time between when **Rec** is pressed and actual recording begins: range, 0 - 999 seconds.

- **Update Button and Metadata Fields**

  During record or playback information can be entered in the metadata fields. Press **Update** to log the metadata for the video clip.

  For information about logging metadata, see **Entering Metadata** on page 75.

- **ADD**

  Clicking on ADD displays the **Link Units** workspace.

  Use Link Units to connect to one or more secondary FS-CF Pros and:

  > **Copy** a metadata template to the secondary FS-CF Pros.

  > **Log** metadata on to multiple FS-CF Pros: primary and secondary.

  > **Control** synchronized recording operations of multiple FS-CF Pros using the primary.

  For information about logging metadata on multiple FS-CF Pros, see **Logging Metadata into Multiple FS-CF Pros** on page 77.

  For information about simultaneously controlling recording on multiple FS-CF Pros, see **Logging Metadata** on page 198.

Review
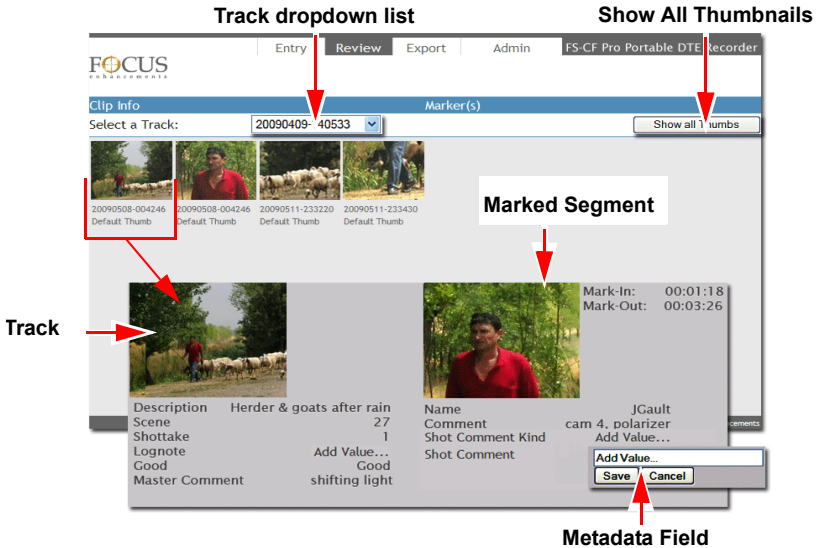
Use **Review** to examine video clip thumbnails, metadata, timecode, and in/out markers.

When the Review page first appears, it is empty.

To view information about a video clip the user can select a track to view by:

- Pick a track (clip) from the **Track** dropdown list.
- Click on **Show All Thumbnails** to display a set of video clip thumbnails with filenames and video formats.

  Click on a thumbnail to display a larger thumbnail and all information about the video clip. If a segment has been marked, its thumbnail is enlarged too.

Marked Segment Thumbnail and Data

If In/Out Markers have been set in the video clip, an additional thumbnail appears in the display. It has the same file name as the parent clip.

Add or Change Metadata

Click on a metadata field to add or change data.

Troubleshooting Tip - Missing Templates Thumbnails

If while working on the **Entry**, **Review**, or **Template** pages, thumbnails or metadata templates are missing it is necessary to run the **Format** utility, see **FORMAT** on page 160.

Be certain that the **Templates** option is set to **Clear**.

Save all video clips before formatting.

Export
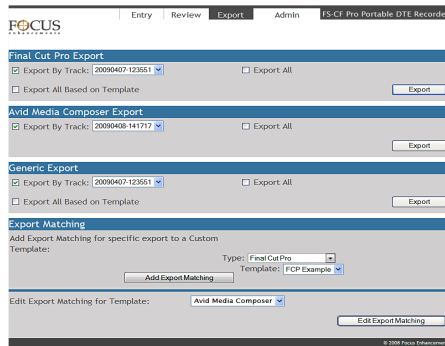
Use **Export** to manually export video clip metadata files from the
FS-CF Pro database to User accessible xml files. The file name of
the xml file identifies it as belonging to a specific video clip.

Specific NLE Editors

Export creates xml metadata files for specific NLEs such as Final
Cut Pro and Avid Composer 3.5 or a User defined Custom
template.

Avid Media Composer

Before importing MXF files into Avid Media Composer from
the FS-CF Pro, it is first necessary to run the FS-CF Pro Utility,
ORGANIZE MXF. This utility creates the Avid MXF directory
structure and moves the metadata in the MXF files into the
folders.

The video files are then ready to import into Avid Media
Composer.

Running **Avid Media Composer Export** takes the metadata
from the folders and embeds it in the MXF wrapper.

In Avid Media Composer, use the Media Tool to import the
MXF files into a specified bin. Because the metadata is
embedded in the Avid MXF wrapper, both the video content
and metadata are imported together.

The video clip's metadata appears in the bin column selection
window.

For more information see Importing Video and Metadata Into
Avid on page 74.

Final Cut Pro

In Final Cut Pro, the User drags or imports the xml file(s) into the Final Cut browser, see **Importing Video Clip and Metadata** on page 217. The application automatically locates the associated video clips and imports them into the editor browser. From there the User can insert the video files into the Final Cut timeline. The User can review the video metadata in the Final Cut browser and use Final Cut to search for and through the video clips.

For more information about NLEs refer to **Non-Linear Editors (NLEs)** on page 209.

ProxSys Media Servers

Using the ProxSys Media Transfer Utility, the User can select the xml files and import them into ProxSys systems. ProxSys automatically locates the video clips associated with the xml file(s) and imports them into the ProxSys system where the metadata provides search capability. For more information refer to the ProxSys Media Transfer Utility User Guide.

Entering Metadata

Metadata may be entered into a single FS-CF Pro or simultaneously into multiple FS-CF Pros.

These procedures assume that there is a ready to use template, such as the **FCP Example** or **AVID MXF** that are supplied with the FS-CF Pro. And that it is not necessary to modify or create a new template.

Entering Metadata into a Single FS-CF Pro

Use the following steps to enter metadata during Record, Play, and Stop modes.

1. Open the metadata function using a web browser and the FS-CF Pro web-based interface.

    Initially, the **Entry** page is empty.
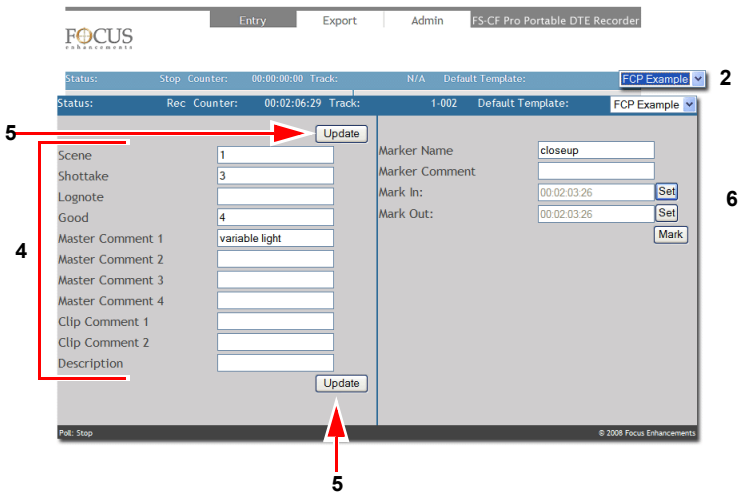
The style of FS-CF Pro user interface displayed depends on the type of device used to access it: iPod Touch, iPhone or other.

2. Select the **Template** to use.

    This must be done before recording begins.

3. Begin to record or playback or enter **Stop**.

> **Note**
>
> **Entering Metadata During Stop Mode**
> Metadata entered during Stop mode is assigned to the previous video clip.

The fields of the selected metadata template appear on the **Entry** page.

4. Enter data into the metadata fields.
This sets the video clip-based metadata.

The type of data entered depends on the type of input allowed by the field: variable, predefined, and mixed. For definitions of input types see **Creating A Custom Template** on page 88.

5. Click **Update**.

6. Set timecode markers.

It may be necessary to set and save markers to indicate the location of a particular frame or sequence of frames in the video clip. The names of the markers depends on the template used and the template type. Generally, there is an In (Start) marker for the beginning and an Out (Stop) for the end of the marker selection.

- Clicking on a **Set** button places the marker and displays its timecode location. Set does not save the marker.
- Clicking on the **Mark** button saves the marker setting and then resets the markers to 00:00:00:00.

Continue recording until finished.

> **Note**
>
> **Updating Metadata - One Set Per Video Clip**
> During recording, if different data is entered in the metadata fields and the Update button clicked, the new data replaces the previous entry for the video clip.

Repeat the procedure to insert the same or different metadata for each video clip recorded.

Saving Metadata

There is no distinct Save step.

Clicking on the **Update** or **Mark** buttons writes the metadata to the FS-CF Pro database and into a specific record assigned to the video clip. Changing the metadata in the template changes the video clip's record in the database in real time.

Logging Metadata into Multiple FS-CF Pros
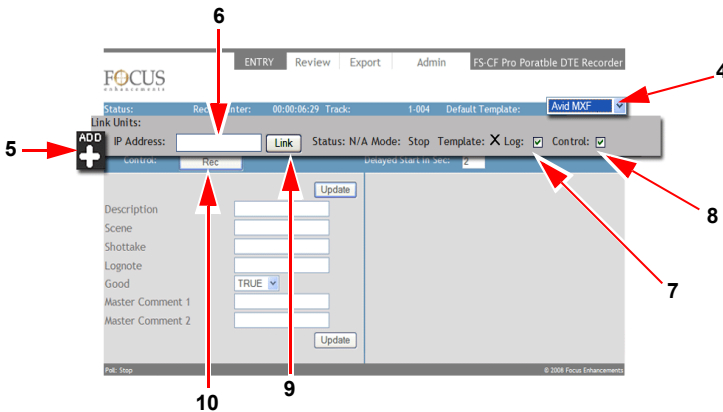
The FS-CF Pro provides the ability to simultaneously log the same metadata to multiple FS-CF Pros located on the same network.

For precise logging of metadata, it is necessary that the FS-CF Pro units have their clocks synchronized, see **Synchronizing Clocks on Multiple FS-CF Pros** on page 202.

To log metadata onto multiple FS-CF Pros:

1. Begin by mounting at least two FS-CF Pro units on a network.

2. Select one of the FS-CF Pros to be the host.

3. Log on to the host and go to its **Entry** page.

4. Select the metadata template to use from the **Default Template** dropdown list.

5. Click the **ADD** button.

The Link Units workspace expands to show link parameters for the first client FS-CF Pro.

Notice that the **Template** option is permanently check-marked. Any time the host FS-CF Pro links to another unit, it transfers the currently selected template to the client, regardless if the other link options are selected or not.

6. Enter the **IP address** for the client FS-CF Pro.

7. Check-mark **Log** if the host unit is to log metadata on the client unit. Then any metadata entered on the host appears on the client too.

8. Check-mark **Control** if the host unit is to control the **Record**, **Playback**, and **Pause** operations on the client unit.

9. Click **Link** to connect to the client unit.

    The Status and Mode messages will change indicating that the connection is made.

    Repeat steps **5** through **9** for each client unit.

    The linked FS-CF Pros are now ready. Enter metadata as described in the FS-CF Pro User Guide.

10. To start recording on multiple units, press the **Record** button on the **Entry** page.

    For information about the specific metadata fields, refer to **Entering Metadata into a Single FS-CF Pro** on page 75.

Reel Matching and Templates

The **REEL**s function permits the User to group video clips into Reels, see **Assigning Clips to Reels** on page 158.

The Reel matching function requires that the **SETUP** menu > **REELS PREF** option **TEMPLATE** be selected, see **REELS PREF** on page 153.

Reel Matching is a function that allocates a template to a specific reel or reels. When a video clip is assigned to a Reel the matched template is applied to the clip and when recording begins, the designated template automatically appears in the **Entry** window.

1. Click on the **Settings** tab to display **Reel Matching**.
    The Settings page appears.
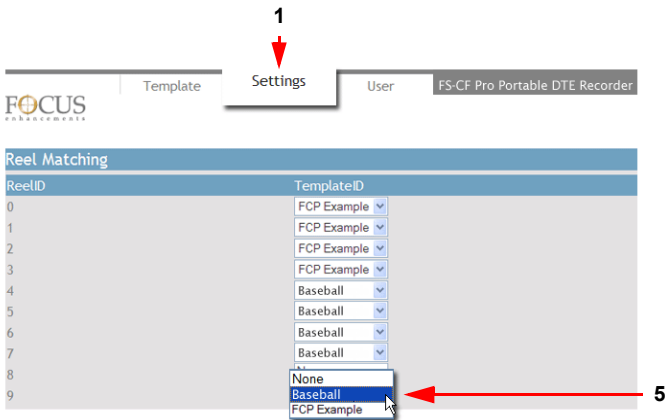
2. For each of the Reels, click on its **Template ID** dropdown menu and select a template. From now on, by assigning a clip to a particular reel, the reel will have that Reel's template.
    Later, if a matched reel is assigned to a Function button and selected with that button, the template's name appears on the Home screen.

PDAs Can Not Access the Settings Page

Because of their limited functionality, PDA type devices can not access the Settings or Metadata Template pages.

Performing **Reel Matching** must be done with a computer.

Creating A Template

Note

PDAs Can Not Access the Metadata Admin Template Page
Because of their limited functionality, PDA type devices can not access the Metadata Admin Template or Settings pages.
Creating templates must be done with a computer.

It is possible to create a new template by:

- Constructing a new template using the Apple XML Interchange Format.

  This method creates a template that conforms to the selected xml format and with all the metadata fields set to their defaults. The User is restricted to disabling/enabling the metadata fields or changing their predefined values.

- Duplicating and modifying an existing template.

  The duplicate template has the same metadata fields and settings as the original. The User is restricted to disabling/enabling the metadata fields or changing their predefined values.

- Build a new template using an empty custom template.

  This procedure permits the User to create a unique template by adding metadata fields and defining their values and type of input.

- Import a template created on another FS-CF Pro

  This procedure provides the ability to import templates stored on the input device -- computer or PDA.

Note

Currently, FS-CF Pro Custom Templates Are Not Compatible with Avid or FCP.

Creating A New Template

This method uses the Apple XML Interchange Format listed in the **Template Type** dropdown menu.

1. Enter a unique name in the **Template Name** field.

2. Verify that the Display Template field is set to **None**.

3. Place a check in the **New** check box.

4. Select the metadata template to use from the **Template Type** dropdown menu.

   Apple XML Interchange Format is the default xml document type.

5. Click **Add**.

   The template opens displaying all of the metadata fields available in the xml template. The fields are set to their default states and values.

> **Note**
>
> **AXIF Template and Final Cut Pro**
> The information logged into the AXIF template is viewable using the FCP application browser window, once it is imported into FCP.

6. Verify that the necessary metadata fields are enabled.

i Note

Enable Only Necessary Fields

When logging metadata in the field, it may be difficult to log more than a few metadata fields for a given shot (although it is possible to log as many as you need with FS-CF Pro). To be more efficient, disable non-critical fields so that they do not distract while logging.

The **Disable/Enable** button is a toggle switch. Its label indicates the action that will occur, if it is selected.
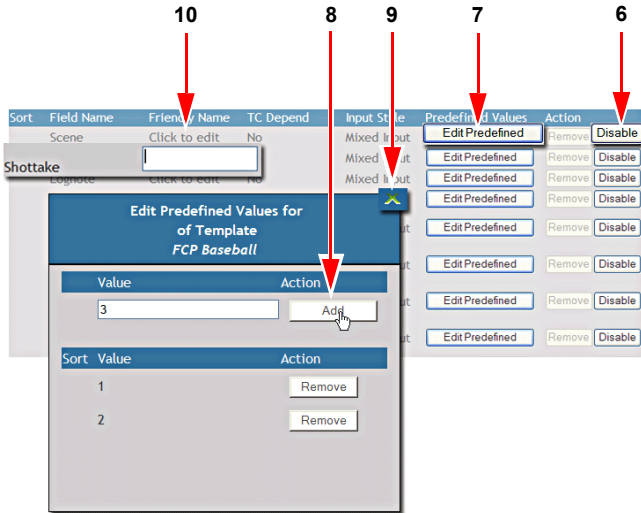
7. Define the metadata values for each metadata field.

For greater efficiency, determine what metadata values are available for a field before going into the field. This simplifies data entry during recording.

Click on the **Edit Predefined** button to view or edit the metadata values for specific metadata fields.

The **Edit Predefined Values** dialog box appears.

i Note

Predefined Values

Predefined values offer the User a list of set items that makes logging more consistent and quicker.

8. **Add** and **Remove** predefined values.

   Enter values, one at a time and click on **Add**.

   Add values in the order they are to appear.

9. Click on **X** to close the **Edit Predefined** window.

10. (Optional) Replace the metadata item's Field Name with a more meaningful **Friendly Name**. This name only appears in the FS-CF Pro's web interface and not in the NLE.

    Click on **Click to Edit** in the Friendly Name column.

    A text field appears where the User can enter a more meaningful label for the metadata Field Name. The Friendly Name replaces the Field Name on the Entry page. The Friendly Name does not change the Field Name in the FS-CF Pro database or in the NLE.

The template is now ready for use.

TC Depend and Input Style In AXIF and FCP

In Apple XML Interchange Format (AXIF) templates the settings for the **TC Depend** and **Input Style** fields are grayed out because their settings are fixed and can not be changed.

- By default, most but not all of the metadata fields are set as not timecode dependent.
- All the metadata fields have their Input Style set as Mixed Input which permits the use of both predefined and variable, user entered, values.

Avid Media Composer and FCP support these settings because they are template defaults.

For more information, see **Creating A Custom Template** on page 88.

Duplicating a Template

1. Enter the name of the new template in the **Template Name** field.

2. Place a check mark in the **Duplicate** check box.

3. Select the template to duplicate from the **Based On** dropdown menu.

4. Click **Add.**

   - The new template appears with all of the metadata fields found in the parent template.
   - The new template's name appears in the **Display Template** dropdown menu.

5. Determine which fields are active in the template.

   It is possible to **Disable/Enable** each of the metadata fields in the template by clicking on its Action button. The button label indicates the action available. If it is grayed-out it is inactive.

6. Define the metadata values for each metadata field.

   Click on the **Edit Predefined** button to view or edit the metadata values for specific metadata fields.

7. (Optional) Replace the metadata item's Field Name with a more meaningful **Friendly Name**. This name only appears in the FS-CF Pro's web interface and not in the NLE.

   Click on **Click to Edit** in the Friendly Name column.

   A text field appears where the User can enter a more meaningful label for the metadata Field Name. The Friendly Name replaces the Field Name on the Entry page. The

Friendly Name does not change the Field Name in the FS-CF Pro database or in the NLE.

The **Edit Predefined Values** dialog box appears.
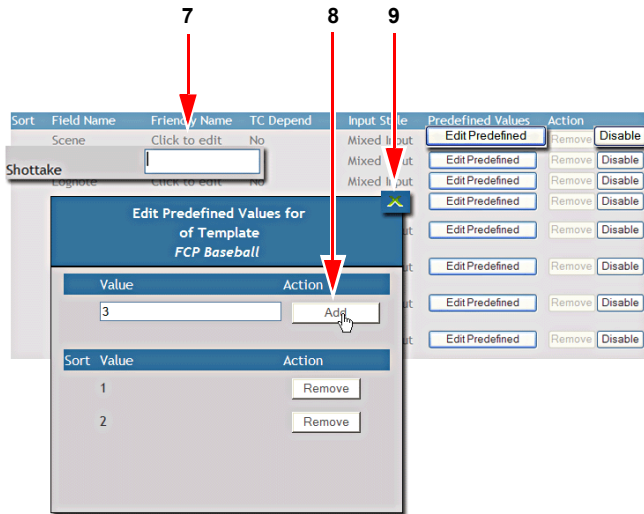
8. **Add** and **Remove** predefined values.

   Enter values, one at a time and click on **Add**.

   Add values in the order they are to appear.

9. Click on **X** to close the **Edit Predefined** window.

The template is now ready for use.

Creating A Custom Template
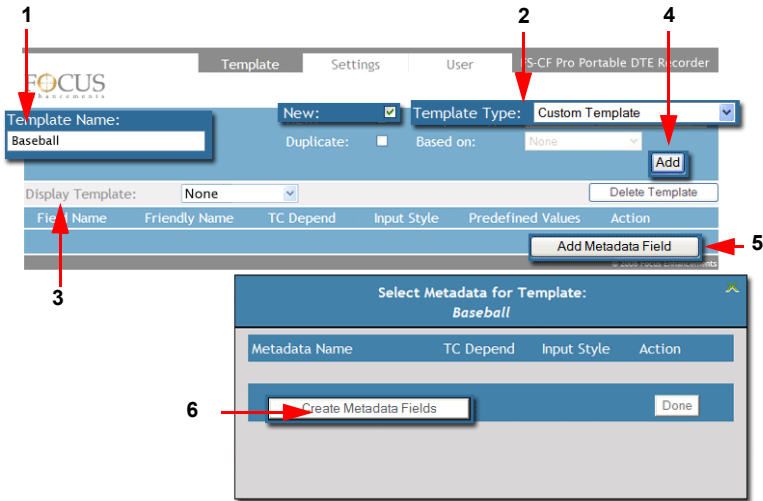
Create custom templates when importing metadata into an NLE that is not supported by the FS-CF Pro.

Suppose that it is necessary to create a metadata template for recording baseball games, that is then used in a proprietary NLE. To assist the producer and editor the metadata must be specific to the game of baseball.

To create a new custom template:

1. Enter the name for the custom template, for example Baseball, in the **Template Name** field.

2. Change **Template Type** to **Custom**.

3. Verify that **Display Template** is set to **None**.

4. Click on **Add** to create the empty template.

The name of the template appears in the Display Template field along with the template's column header.

5. Click on the **Add Metadata Field** button.

The Select Metadata for Template dialog box appears. This box is empty.

6. Click on the **Create Metadata Fields** button.

A new window appears with a work space for creating metadata fields.

7. Enter a name for the metadata field.

8. Set timecode dependence

   yes - if metadata relates to timecode.

   no - if metadata is independent of time, i.e. notes, remarks, etc.

9. Set the Input Style, this is required.

   This is the type of value input.

   Variable

   The user may enter any character string.

   Predefined

   This creates a dropdown list of predefined terms that the user selects from. After the field is submitted and appears in the list, it is necessary to add the predefined values: refer to **Step 15**.

   Mixed Mode

   This is a combination of **Predefined** and **Variable** inputs. The User first selects a term from a dropdown list and then can enter more data as a text string in an open field.

   After the field is submitted and appears in the list, it is necessary to add the predefined values: refer to **Step 15**.

10. Click **Submit** to post the new fields to the list.

    The metadata field appears as a new item in the list below.

11. Click on the **Edit Predefined** button for a metadata field to add **Predefined** or **Mixed** variables.

The Edit Predefined Values dialog box opens.
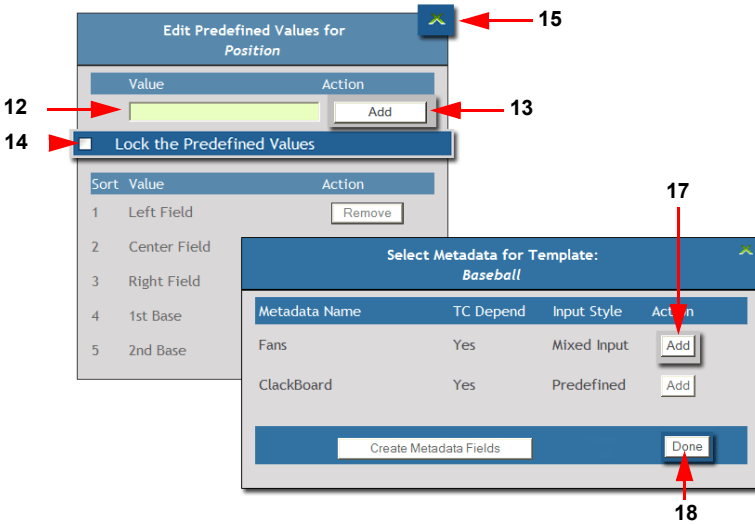
12. Enter each value separately.

13. Click **Add** to place value in list.

   Add the values in the order they should appear.

   Click on the **Remove** button to delete a value.

14. Click on **Lock the Predefined Values** box to prevent the User from adding other data to the list during metadata entry.
   - This restricts the list to only those values already entered.
   - Default is that the User can add other values to the list.

15. Click on the **X** (upper right corner) to close the dialog box.

16. Metadata fields appear in the list of fields from which to select.

17. Click a field's **Add** button to place it on the template.

   When a field is added to the template, it is removed from the list and, if a field is removed from the template, it reappears on the select list.

18. Click on **Done** to finalize adding the fields to the template.

   The fields now appear in the new template and the Select Metadata for Template dialog box closes.

19. Close the Add Metadata Window and the template is now ready for use.

Importing FS-CF Pro Templates
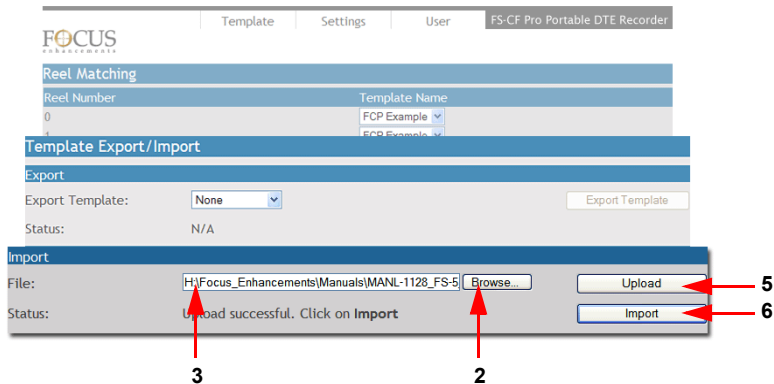
This function is not available for PDA devices.

The FS-CF Pro provides the ability to import templates created on other FS-CF Pro units and stored on a local computer or network drive.

1. Open the **Settings** page.

2. Click on the **Browse** button in the Import section and locate the template to import.

   A standard file system browser opens.

3. Select the template file.

   The file must be a template exported from a FS-CF Pro using the **Template Export** function. The file is identified by the **.fst.xml** at the end of the filename.

4. Click the **Open** button in the file browser.

   The path and filename of the template appear in the **Browse** field.

5. Click **Upload** button.

   A message appears below the **Browse** field, indicating if the upload was successful and, if so, to click on **Import**.

6. Click on the **Import** button.

   A system message appears below the Browse field, indicating that the import was successful.

Removing Metadata Fields

Removing A Metadata Field Deletes All Data Stored In Field In All Records!

Use extreme caution when removing metadata fields.

This applies to metadata fields added by the User and accompanied by the Remove button.

Making Metadata Into XML Files

FS-CF Pro Drive

Shooting directory for storing video clips.

Directory named for template used.

Video clip and xml file moved to template directory from shooting directory.

During a recording session, video clips are placed in a directory automatically created by FS-CF Pro. Metadata is entered into the FS-CF Pro database through the use of xml templates.

To make that data accessible, it is necessary to export it from the database into a xml file and link it to its video clip. This is done after the recording and data entry are completed.

There are two methods for doing this.

- **AUTO ORG**

  If **AUTO ORG** is enabled, after video is recorded, run HDD to mount FS-CF Pro to a computer, and the video clips and xml files are placed in the folder with the same name as the template. In addition, a template xml file is created at the root level of the drive. This xml file includes links and metadata for all the clips that were recorded with that particular template loaded.

- **Export**

  Export is a function that allows the User to export the video clip's metadata to Apple XML Interchange Format, Avid Composer 3.5, or a Custom formatted xml document.

Export

Export to NLE XML Document

There are three NLE export options:

- **Final Cut Pro Export**

  Use this function to create metadata xml documents for FCP, using the Apple XML Interchange Format.

- **Avid Media Composer**

  Use this function to prepare video and metadata for importing by Avid Media Composer.

- **Generic Export**

  This option creates a metadata xml document based on the Custom template created.

Exporting Metadata

All three NLE export functions use the following steps.

Export By Track

> **ⓘ Note**
>
> **Final Cut Pro**
> This step is only necessary if **AUTO ORG** is set to **DISABLED** in the
> **SETUP** menu.

Use this method to export individual tracks (video clips) with
metadata.

1. Place a check mark in the box **Export by Track**.
2. Select the **Track** (clip) to export.
3. Click on **Export**.

The clip and its metadata document are placed in a directory on
the FS-5 with the name of the template used.

Export All

Similar to **Export By Track**, except clicking **Export** processes all
the waiting video clips.

Export Based on Template

Use this method when a variety of metadata templates were
used during the recording session. This option processes all
video clips of a specific template type: Avid Media Composer,
Final Cut Pro, Custom.

Export Matching

Export matching allows the user to match similar metadata field content between Custom and NLE templates.

1. Select the NLE **Template Type** to match the Custom template from the dropdown menu.

2. Select the Custom template from **Template** dropdown menu.

3. Click **Add Export Matching** to create a database pivot table of metadata fields. This creates lists from which matches can be made.

4. Select the Custom template from the Edit Export Matching Template dropdown menu.

5. Click **Edit Export Matching**.

   A dialog box opens with the NLE metadata fields listed. Beside each field is a dropdown menu with a list of the Custom template fields.

6. Select those Custom fields that match to the NLE field. If there is no match, leave the field at **None**.

7. Click Done when all matches are made.

Exporting a Template
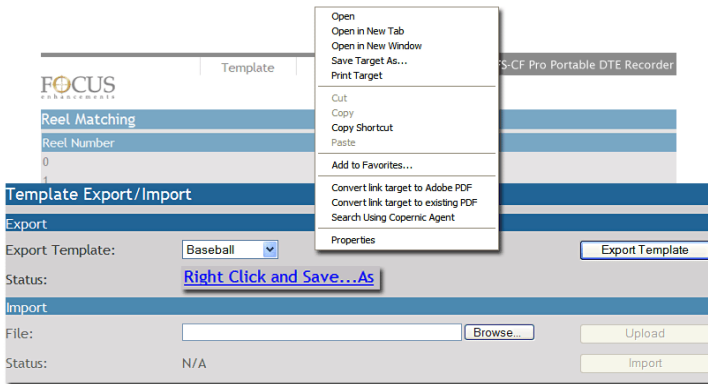
The FS-CF Pro provides the capability of exporting a xml template to a drive in the input device, computer or PDA, or on the network.

It is first necessary to create the template and then run HDD to mount the FS-CF Pro to the network. The process of running HDD outputs the template data from the FS-CF Pro database as xml template files to the FS-CF Pro directory.

To export the template from the FS-CF Pro:

1. Go to the **Settings** page.
2. Select the template to export from the **Export Template** drop-down menu in the Template Export/import section.
3. Click on the **Export Template** button.
   A link **Right Click and Save ... As** appears beneath the dropdown menu.
4. Right-click on the link.
   A system file options menu appears.
   The menu provides the ability to view, print, and save the xml file.
5. Click on **Save Target As ...** .
   A system file browser appears.
6. Locate the destination for the template and **Save**.

The template now resides on a disk drive. A template exported from a FS-CF Pro can be identified by the last 8 characters of its filename: **.fst.xml**.

FS-CF Series and Pro Functions

This section contains information on the following LCD menus:

Organization and Navigation

FS-CF Series menus are organized in a flat hierarchy. Every menu has a unique name, and it is possible to cycle continuously through the menus using the **Left** and **Right** navigation buttons.

Use the **Scroll Wheel** or **Up** and **Down** navigation buttons to cycle through menu items (selections).

Use the Scroll Wheel **Select** button to make a choice.

ⓘ Note

Navigation Tip: Jump to Top of Display Using the Left Button
When navigating through the LCD displays and scrolling down into the menu, press the **Left** navigation button on the front panel and immediately return to the top of the display, which allows navigating to other menus.
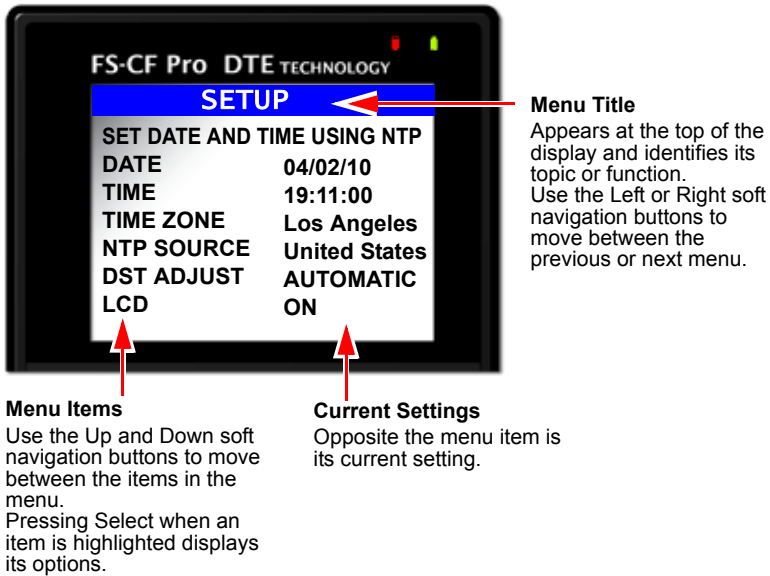
Jump to Home display Using Select Button
To return immediately to the Home menu, navigate to the menu title at the top of the menu and press the Select button.

General Menu Information

The FS-CF Series LCD menus are organized by function with each menu displaying a list of items. An item can be:

- A value that can be set, such as the date.
- A switch similar to a check box. It can be enabled along with other options in the display.
- A switch similar to a radio button, that belongs to a family of options, in which only one can be active at any time.

FS-CF Pro DTE TECHNOLOGY

SETUP

SET DATE AND TIME USING NTP
DATE	04/02/10
TIME	19:11:00
TIME ZONE	Los Angeles
NTP SOURCE	United States
DST ADJUST	AUTOMATIC
LCD	ON

Menu Title
Appears at the top of the display and identifies its topic or function.
Use the Left or Right soft navigation buttons to move between the previous or next menu.

Menu Items
Use the Up and Down soft navigation buttons to move between the items in the menu.
Pressing Select when an item is highlighted displays its options.

Current Settings
Opposite the menu item is its current setting.

Selecting a menu item displays its setting options.

Navigate to the correct option or enter its parameters and press the **Select** button to set the option and return to the menu.

> ### Note
>
> **FS-CF Pro Date and Time Functions**
> The following date and time items are found only on the FS-CF Pro.
> - SET DATE AND TIME USING NTP.
> - NTP SOURCE
> For a list of both FS-CF series and FS-CF Pro functions, see **FS-CF Series User Interface** on page 29.

Welcome

The Welcome menu appears briefly after boot-up, and automatically switches to the Home menu when the FS-CF Series is ready for operation.

Home

The Home menu combines displaying operation information and providing function controls through the function buttons. To leave the Home menu use either the **Left** or **Right** Navigation button.
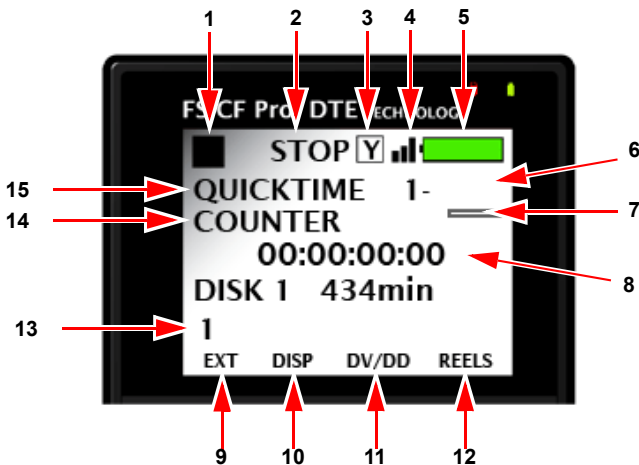
1. **Current Function**: symbol and description.

2. **Operational Status**

   This indicates the current record/playback status.

3. **F1 Function Active**

   Indicates the FS-CF Series control setting:
   - **Y** Sync
   - **E** External

4. **Wireless Network Connected**

   This is a FS-CF Pro function.

   Symbol indicates that FS-CF Pro is receiving wireless signals.

5. **Battery Life Gauge**

   This gauge is accurate only when the unit is powered exclusively from the battery.

6. **Volume and Clip Number**

   The volume number is always **1**.

   Number of the current video clip, i.e. 001 for clip 1.

7. **Proxy Progress Bar**

   This is a FS-CF Pro function.

   When partially filled, indicates that the Proxy creation process is active.

8. **Timecode Display**

   The format of code displayed depends on the data type selected using the **F2 DISP** Functions button, see **DISP Information Fields** on page 105.

9. **F1** Functions with **EXT** as the default.

10. **F2** Functions with **DISP** as the default.

11. **F3** Functions with **LOCK** as the default.

12. **F4** Functions with **CF** as the default.

> **Note**
>
> For more information about 8, 9, 10, and 11, see **FUNCTIONS Menus** on page 154.

13. **Reel Display**

    This is a FS-CF Pro function.

    In **Record** or **Playback** modes, this item displays the particular REEL that a clip is located in or, has been marked to. If in **PLAY FROM** > **REEL** mode, the REEL appears in brackets for example, [REEL]. This area is blank if **NO REEL** has been selected.

14. **DISP** information field displays data type or Recording Format. Use the DISP function button to switch between the displays.

15. **DISP** information field that displays current DTE format.

DISP Information Fields

It is necessary for the **F2** function button to be set to **DISP** (display) before using the following feature.

Use the **DISP** function button to display current operation information fields 7 and 13. The data shown depends on the mode of operation: **DV** or **HDV**.

Pressing the **DISP** button advances the display to the next category of information. Following is a table of the data types and data available with **DISP**..

Field Number	Data Type / Data Description
14	COUNTER
8	Shows frame count, incrementing up, of current video clip during record or playback.
14	REMAINING
8	**Record**: counts down number of available frames remaining, as time, on a specific disk. **Playback**: displays time remaining of the current clip.
14	DV (NTSC or PAL) or HD (see note following this table)
8	**Record**: displays the external timecode value being generated by a camcorder or other device during a recording session. **TIMECODE** mode must be set to **EXT TC** for this function to operate, refer to **TIMECODE** on page 116. **Playback**: displays the embedded DV timecode value in a particular track.
14	UB NTSC (User Bit timecode) is a user-defined set of letters and/or numbers that uniquely defines a clip, refer to **UB SET** on page 132.
8	Displays the set user bit value for a particular clip.
14	ABSOLUTE

Field Number	Data Type / Data Description
8	Displays an absolute timecode value for the particular session: the sum of all COUNTER timecodes on connected volumes.

Note

DV (NTSC or PAL) and HD

The information displayed in fields 7 and 13 depends, in part, on which Record Mode is set.

DV RECORDER

Line 14 displays the Standard Digital (SD) video format. It can not be changed.

HD RECORDER

While recording, line 13 displays the HD resolution of the current track. This depends on the camcorder in use with the FS-CF unit. Possible values are:

- 1080i50/60 TC
- 720/30p TC
- 720/25p TC
- 720p24 TC
- 720p50/60 TC
- 576/50p TC
- 480/60p TC

Refer to the camcorder manual for supported resolutions

FS-CF System Information Menus

The FS-CF series automatically creates information menus to indicate conditions such as high temperature, power remaining, or drive capacity remaining.

Press **OK** to clear the menu and return to the last menu.

OPERATION Menus
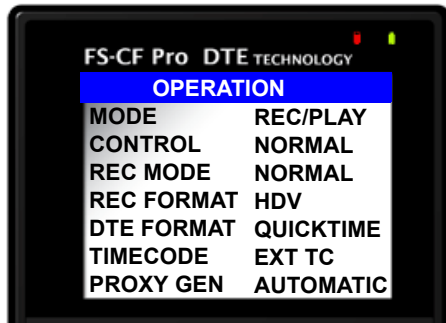
The Operation menu provides access to settings that control recording features and functions and provide information.

Item	Default	Options
MODE	REC /PLAY	REC /PLAY HDD
CONTROL	NORMAL	NORMAL EXTERNAL SYNCHRO
REC MODE	NORMAL	NORMAL RETRO CACHE RETRO DISK SNAP REC (DV REC Mode only) TIMELAPSE (DV REC Mode only)
REC FORMAT	HDV	DV HDV
DTE FORMAT	QUICKTIME	DV RAW DV AVI TYPE1 AVI TYPE2 CANOPUS AVI MATROX AVI QUICKTIME MXF HDV M2T QUICKTIME MXF
TIMECODE	EXT TC	EXT TC FREE RUN REC RUN REGEN
PROXY GEN	AUTOMATIC	OFF AUTOMATIC

MODE

- **REC/PLAY Default**

  Use this option to set the FS-CF Series controls to disk recorder mode. This is default.

- **HDD**

  Use this option when connecting the FS-CF Series to a computer. The FS-CF Series functions as a volume visible to the computer.

  Selecting this option displays the **HDD BYPASS** menu.

  As long as this message appears, the FS-CF Series is mounted on the computer.

Exiting HDD

Before exiting HDD mode, safely remove the FS-CF Series from the network:

1. Use the host computer's operating system Eject or Safely Remove Hardware function to dismount the FS-CF Series.
2. Unplug the USB cable.

3. Press **F4/EXIT**.

CONTROL

The **CONTROL** menu provides the capability of enabling the FS-CF Series to operate in three different control modes during record and playback.

- **NORMAL Default**

    Record and Play modes are controlled through the FS-CF Series controls.

    This is default.

- **EXTERNAL**

    Use **EXTERNAL** when controlling recording through an external device. The mode is used most often with newer DV and HDV camcorders.

- **SYNCHRO**

    This mode is most often used with older camcorders.

    In **SYNCHRO** a camcorder and the FS-CF Series follow the camcorder's record state. It requires a tape to be in the camcorder. To use this mode, refer to the section, **SYNCHRO Recording**
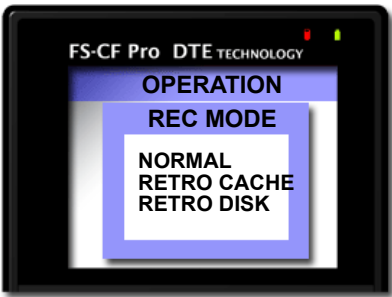
REC MODE

The **REC MODE** menu permits setting the FS-CF Series to various recording modes see **REC MODEs with Home Menu Indicators** on page 110.

Once a recording mode is selected, the recorder remains in that mode until a different mode is chosen. Exiting the **REC MODE** menu and returning to **Home**, enables the selected recording mode.

To verify that the digital recorder is set to the correct recording mode, refer to the upper left-hand of the Home menu where the recorder mode is displayed.

REC MODE Indicator
(RETRO CACHE)

REC MODEs with Home Menu Indicators

Mode	Top Line Displayed In Home Menu			
NORMAL	■		STOP	1-001
RETRO CACHE	■	C	STOP	1-001
RETRO DISK	■	L	STOP	1-001

NORMAL **Default**

This is the standard recording mode.

- All control is from the FS-CF Series front panel.

  Initially, the **Home** menu displays ■ **STOP**.
- Pressing Record ● puts the FS-CF Series into record mode.
- Pressing Pause **II** stops recording.
- Pressing Pause **II** a second time resumes recording to the original video clip.
- Pressing Stop ■ stops recording and puts the FS-CF Series into **STOP** mode.

RETRO CACHE

Retro Cache is a FS-CF Pro function that is available in all control modes.

The Retro Cache mode insures that important material at the very start of a recording session is captured. Retro Cache stores in the on board memory a continuous loop of video captured by the video camera during pauses.

To initiate Retro Cache:

1. Press Record ● and the FS-CF Pro goes into **REC-PAUSE** mode and starts caching video.

   When caching, the Home menu displays ●**II REC C**.
2. Press Record ● a second time and the FS-CF Pro begins active recording at the last frame stored in the cache. The resulting video clip has the cached video at the beginning.

Setting Length of RETRO CACHE

1. Go to the **SETUP** Menu.

   See **RETRO CACHE** on page 134.
2. Select the item **RETRO CACHE**.
3. Select the time field.

   Use the scroll wheel to set the length of video that the **RETRO CACHE** should store.

   Set the length of video in 1-second increments from 0. The maximum time allowed is 10 seconds.

RETRO DISK

Retro Disk is a FS-CF Pro function.

The Retro Disk mode records video in a continuous loop to a user-defined portion of disk space. Pressing record ● seamlessly begins active recording. The Retro Disk session is appended to the beginning of the new clip. The result is a set of clips beginning with the cached video and continuing with the newly recorded video.

- When calculating the amount of hard disk space needed for a Retro Disk record session, always include additional space beyond the recording requirements. The added space depends on the length of the loop.
  - Loops less than 60 minutes need an additional 1 minute of unused disk space.
  - Loops 60 minutes and greater require an additional 2GB of unused disk space.
- When looping less than one hour, Retro Disk records the loop in a series of 1 minute clips.
- Retro Disk is available in all record modes.
- When Retro Disk is set the symbols ■ **STOP L** appear in the FS-CF Pro display.

To initiate Retro Disk:

1. Press Record ● and the FS-CF Pro goes into **REC-PAUSE** mode and starts caching video.

   When caching, the Home menu displays ●**II REC L**.

2. Press Record ● a second time and the FS-CF Pro begins active recording at the last frame stored in the cache. The resulting video clip has the cached video at the beginning.

Setting Length of RETRO DISK

1. Go to the **SETUP** Menu.
2. Select the item **RETRO DISK**.

   See **RETRO DISK** on page 134.

3. Select the time duration field.

   Use the scroll wheel to set the length of video that the Retro Disk should store:

   Set the length of video in 1-minute increments. The maximum time allowed depends on the amount of available disk space.

SNAP REC

Only available in FS-CF Pro **DV REC MODE**.

Use **SNAP** to record individual frames. In SNAP mode, pressing record captures a single frame. Each record SNAP session captures the individual frames into a single file. To start a new Snap record session place the unit in **STOP** between Snap records.

- Use **SNAP** in **NORMAL** control mode.
- Removing power from the FS-CF Pro in the midst of a SNAP recording session causes the FS-CF Pro to return to NORMAL recording mode when it powers back up.

TIMELAPSE

Only available in FS-CF Pro **DV REC MODE**.

TIMELAPSE provides the ability to record a single frame at specific time intervals, for example one frame per minute, **00:01:00:00**. Time Lapse applications can include capturing the traffic on city streets, the growth of a plant from seed to maturity, and construction projects.

Features of the TIMELAPSE function include:

- All the captured frames are recorded in a single clip.
- The time between recording periods can be set in frames, seconds, minutes, and hours.

The maximum time between recorded frames is 24 hours.

Setting Duration of TIMELAPSE

1. 1. Go to the **SETUP** menu.
2. 2. Select the item **TIMELAPSE**.
3. 3. Select the time field.

   Use the **Scroll Wheel** to set the length of time between frame captures.

   Set the length of video in 1-frame increments.

   The maximum time between frames is **24** hours.

REC FORMAT

Select either:

- **DV**
- **HDV** Default

DTE FORMAT
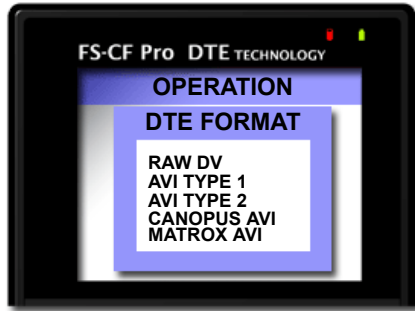
Depending on which **REC FORMAT** was selected, this menu displays a list of available Direct To Edit formats: above, display for **DV**.

DV Formats

- **RAW DV**
- **AVI TYPE 1**
- **AVI TYPE 2**
- **CANOPUS AVI**
- **MATROX AVI**
- **QUICKTIME**
- **MXF**

HDV Formats

- **M2T**
- **QUICKTIME** Default
- **MXF**

The latest DTE supported applications and file formats are listed on the Focus Enhancements website: **www.focusinfo.com**.

TIMECODE

The FS-CF Series provides four timecode functions in HDV mode when the **DTE FORMAT** is set to **QUICKTIME** or **MXF**.

In HDV M2T mode, all timecode modes act as **EXT**.

The following are timecode functions:

- **EXT TC Default**

  Records the incoming source timecode. If the timecode is not running, the FS-CF Series will record the same timecode number in each recorded frame. Choose **EXT TC** mode to clear any stored number.

ⓘNote

SETUP Menu Overridden by EXT TC Settings
When EXT TC is selected, the FS-CF Series follows the timecode mode of the camera, **Drop Frame** or **Non Drop Frame**, regardless of the setting in the SETUP menu.

- **FREE RUN**

  This function causes the FS-CF Series to begin counting from the value stored by **TC SET**. To enter a value in **TC SET**:

  1. Go to the **SETUP** menu.
  2. Select the **TC SET** item.
  3. Enter values using the **Right** soft key and Scroll Wheel.
  4. Press the Select button to enter values and return to the **SETUP** menu.

     A number entered via **TC SET** is not stored until it is selected and the display returns to the **SETUP** menu. Then the FS-CF Series begins counting using that number.

- **REC RUN**

    This function creates a timecode number for the first frame of the next recording.

    Take the last timecode recorded and add 1.

    The FS-CF Series stores the last recorded timecode in its non-volatile memory, so it can persist across recording sessions.

- **REGEN**

    When the FS-CF Series powers up in **REGEN** mode, it:
    - Reads the timecode of the last track recorded.
    - Adds 1 to the number.
    - Stores the new timecode as the number that will be assigned to the first frame of the next recording session.

    If the drive is empty, i.e. no existing recordings, the FS-CF Series uses the **TC SET** value.

PROXY GEN

This is a FS-CF Pro function.

This operation controls how video proxy files are created.

The DTE format of the parent video clip determines the wrapper (AVI, MP4, QuickTime) of the proxy file.

- **OFF**

    Disables the **PROXY GEN** function.

- **AUTOMATIC Default**

    Automatically generates proxy files for all video clips during the recording session.

Note

Proxy Files

Proxy files are significantly smaller size than the native format video files from which they are generated. Proxy files can be shared quickly via the internet or network. This provides directors, editors, and others fast access video rushes.

UDF and Proxies

If you using the UDF file format and do not require the need of Proxy files, it is recommended that PROXYS be turned to OFF with UDF recording."

Proxy Clips Not Required for Playback

It is not necessary to create a Proxy clip to playback and watch a clip on the FS-CF Pro unit. Set **PROXY PLAY PREF** to **ORIGINAL**, the original recorded clip will playback on the FS-CF Pro instead of the Proxy.

For more information about proxy file settings, see **PLAY PREF** on page 137 and **PROXIES** on page 138.

SETUP Menus
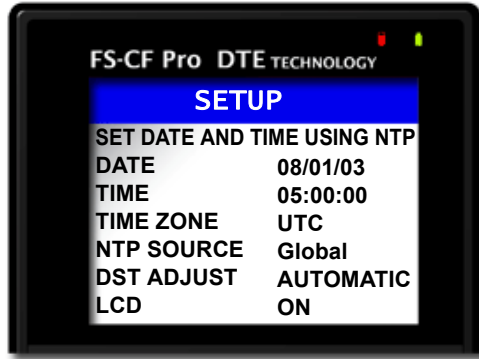
The items in the Setup menu are grouped by function. Within the function the items act like radio buttons, i.e. when one is active the others are not.

In some cases, such as the **Date**, a new menu appears with parameters to set. To return from a parameters menu, use the **UNDO** function button.

The Setup menu items are:

Item	Default	Options / Comments
SET DATE AND TIME USING NTP (FS-CF Pro only)		Initiates NTP setup.
DATE	08/01/03	Must be set for FS-CF Series to function.
TIME	05:00:00	Must be set for FS-CF Series to function.
TIME ZONE	UTC	Select time for specific time zone by selecting geographical region and city.
NTP SOURCE (FS-CF Pro only)	Global	Use this list to locate the NTP pool to sync for date and time info.
DST ADJUST	AUTOMATIC	AUTOMATIC STANDARD ALTERNATE

(continued on following 2 pages)

Item	Default	Options / Comments
LCD	ON	ON OFF AUTO
LCD BRIGHT	16	1 -16
KEY BRIGHT	16	1 - 16 This setting does not control Scroll Wheel brightness.
ALARM	ON	ON/OFF
STOP	NO VIDEO	FRAME (only in DV mode) GRAY (only in DV mode) NO VIDEO
EXT CTL	OFF	OFF PAUSE FRAME FILE
TC SET	00:00:00:00	
UB SET	00:00:00:00	
TC MODE	NON-DROP	DROP NON-DROP
RETRO CACHE **(FS-CF Pro only)**	5 seconds	
RETRO DISK **(FS-CF Pro only)**	1 minute	
PLAY MODE	PLAY CLIP	PLAY CLIP LOOP CLIP PLAY ALL LOOP ALL
PLAY FROM **(FS-CF Pro only)**	TRACK	TRACK REEL
PLAY PREF **(FS-CF Pro only)**	ORIGINAL	ORIGINAL PROXY
PROXIES **(FS-CF Pro only)**	SPEED	SPEED QUALITY
UDF FS PERM	READ-ONLY	READ-ONLY READ-WRITE
REC START	NORMAL	NORMAL FAST

Item	Default	Options / Comments
NETWORK (FS-CF Pro only)	DHCP	MANUAL DHCP (When DHCP is set, IP ADDR, IP MASK, BROADCAST, and GATEWAY are assigned by the host router.)
IP ADDR (FS-CF Pro only)	0.0.0.0	When set to DHCP, 0.0.0.0. When set to MANUAL, 192.168.10.25
IP MASK (FS-CF Pro only)	0.0.0.0	When set to DHCP, 0.0.0.0. When set to MANUAL, 255.255.255.0
BROADCAST (FS-CF Pro only)	0.0.0.0	When set to DHCP, 0.0.0.0. When set to MANUAL, 192.168.10.255
GATEWAY (FS-CF Pro only)	0.0.0.0	When set to DHCP, 0.0.0.0. When set to MANUAL, 192.168.10.1
WIFI PRESETS (FS-CF Pro only)	FSCF	
ESSID (FS-CF Pro only)	FSCF	
KEY (FS-CF Pro only)		WEP encryption code required by the wireless network.
CHANNEL (FS-CF Pro only)	UNSPECIFIED	UNSPECIFIED 1 - 11
WIFI MODE (FS-CF Pro only)	MANAGED	MANAGED ADHOC, PEER-TO-PEER, (P2P)
FTP (FS-CF Pro only)	ENABLED	DISABLED ENABLED
FTP PASS (FS-CF Pro only)	FS	
WEB (FS-CF Pro only)	ENABLED	DISABLED ENABLED
AUTO ORG (FS-CF Pro only)	ENABLED	DISABLED ENABLED
AUTO MARK (FS-CF Pro only)	DISABLED	DISABLED ENABLED
REELS PREF	FOLDER	FOLDER TEMPLATE

SET DATE AND TIME USING NTP

This is a FS-CF Pro function.

It uses the Network Time Protocol (NTP) to synchronize the FS-CF Pro system clock to an internet time server. Before running this function, it is necessary to first set:

- **TIME ZONE** on page 124,
- **NTP SOURCE** on page 125,

The FS-CF Pro must be connected to the internet or an NTP enabled network for this function to work, see **FS-CF Series with Other Devices** on page 171.

Selecting the function **SET DATE AND TIME USING NTP** automatically initiates the process.

DATE

Default is 06/15/08.

TIME

Default is 05:00:00

Note

Date and Time Must Be Set
The date and time must be set. They are used in the FS-CF Pro file naming function.

TIME ZONE

For FS-CF Series time features to accurately display local time, it is necessary to select the time zone where the FS-CF Series is to operate. This setting is necessary for the function, **SET DATE AND TIME USING NTP** on page 122 to accurately set the FS-CF Series clock.

In addition, **DST ADJUST** on page 126 depends on this setting.

Default is **UTC**, Universal Timecode.

1. Select a **TIME ZONE** geographical region.
2. Press the **Right** soft button to advance to the **TIME ZONE City** list.
3. Use the **Scroll Wheel** to locate a city located in the same time zone as the recording session.
4. Press the **Select** key.

The display returns to the **SETUP** menu.

NTP SOURCE
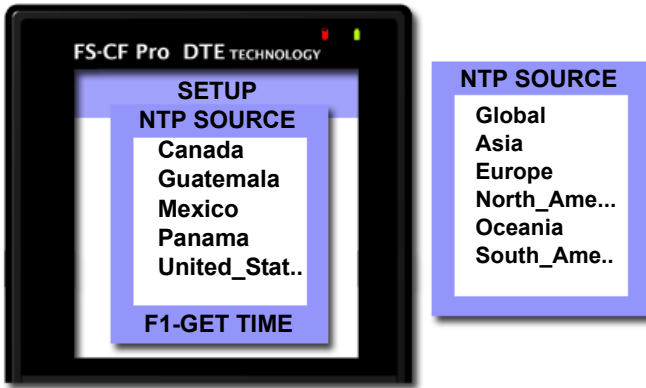
This is a FS-CF Pro function.

For FS-CF Pro time features to accurately display local time, it is necessary to select the NTP source that the function **SET DATE AND TIME USING NTP** employs to set the FS-CF Pro clock.

Default is **Global**.

1. Select an **NTP SOURCE** continent/geographical region.

2. Press the **Right** soft button to advance to the country list.

3. Use the **Scroll Wheel** to locate a nation located in the same time zone as the recording session.

4. Press the **Select** key.

    The display returns to the **SETUP** menu.

DST ADJUST

This function provides control over time zone changes that occur when entering or leaving a location using Daylight Savings Time. There are three settings:

- **AUTOMATIC Default**

    The FS-CF Series automatically adjusts to and from daylight savings time.

    TIME ZONE must be set to location of operation.

- **STANDARD**

    Locks the FS-CF Series to Daylight Standard Time for the location identified in **TIME ZONE**.

- **ALTERNATE**

    Locks the FS-CF Series to Daylight Savings Time for the location identified in **TIME ZONE**.

ⓘNote

Using STANDARD or ALTERNATE
STANDARD and ALTERNATE are useful during a transition between daylight standard and daylight savings times. Using either setting for the day of the transiting, eliminates the time-jump effects when the transition occurs. The effects of time-jump include the assignment of file names, and the creation/modification times in the FAT32 file system.

This function requires setting **SET DATE AND TIME USING NTP** on page 122.

LCD

These items enable or disable the FS-CF Series's LCD backlight.

- **ON Default**

  Permanently sets LCD backlight to **ON**.

- **OFF**

  Permanently sets LCD backlight to **OFF**.

- **AUTO**

  Turns off the backlight after one minute.
  On the FS-CF Series, pressing any button pad button turns the backlight back on. Any information menu turns the backlight on.

LCD BRIGHT

Sets the brightness of the LCD display: range of 1 to 16 with 16 the brightest.

Default is **16**.

KEY BRIGHT

Sets the brightness of the FS-CF Series control keys: range of 1 to 16 with 16 the brightest. This control does not effect the Scroll Wheel brightness.

Default is **16**.

ALARM

Toggle switch controlling the Alarm.

- When the alarm is enabled, pressing any button on the FS-CF Series produces audio feedback.
- The FS-CF Series alarm triggers when conditions such as low battery charge, low disk space, or over heating occur.
- When Alarm is set to **OFF**, the audio feedback for the buttons is disabled. However, the alarm still sounds for low power, high heat, or low disk space conditions.

Default is **ON**.

STOP

These settings depend on the REC FORMAT selected and determine which video is output from the FS-CF Series when using the **Search Index** Soft button to view recorded clips.

In **DV** Mode the options are:

- **FRAME Default**

  Displays the first frame of the clip.

- **GRAY**

  Displays a black frame.

- **NO VIDEO**

  Video output is **OFF**.

In **HDV** mode:

- **NO VIDEO**

  The camcorder LCD displays its default menu.

EXT CTL

These external control options permit the use of a device to control the FS-CF Series using a simple contact closure.

- **OFF** Default

  Use this option when connecting an external device with an RS232C cable.

  This requires the use of a a 3.5mm-to-DB9 adapter cable, plugged into the FS-CF Series **Control** port.

The following options permit control functions to occur from a simple contact closure.

- **PAUSE**

  Controls **Pause** and **Resume** during a record or playback session.

- **FRAME DV Mode Only**

  Captures a single frame of video and records it to a file. Each time this function is triggered, it sequentially adds another frame to the same file until stopped.

- **FILE**

  Creates a new file during a record session without losing any frames.

TC SET

Default is 00:00:00:00.

The Timecode set parameter stores a user defined Timecode in the FS-CF Series's non-volatile memory. This value is available for use by the FS-CF Series immediately after exiting **TC SET.**

- **FREE RUN**

  The FS-CF Series uses this value on the next recording after it is set in **TC SET**.

- **REGEN**

  This is the starting value when using an empty CF memory card for recording.

- **REC RUN**

  This is the value used to begin every recording session after a power cycle.

ⓘ Note

TC SET and UB SET Can Be Set at the Same Time
Both parameters, TC SET and UB SET, may be set.

UB SET

Default is 00:00:00:00.

The User Bit Set function provides the ability to change the user bits in the Timecode recorded in the video files.

- Timecode values are not set when in **TC EXT** mode.

UB Set is an early method for creating simple metadata. Professional applications employ user bits to add metadata to recordings to assist in post production. For example, multiple cameras are used during a shoot. Each FS-CF Series has a unique UB setting that identifies it and the camera it serves. Later, the user bits are used to determine from which camera station the footage was recorded.

TC MODE **NTSC only**

These parameters are only available for NTSC and only one may be enabled at a time. Drop and non-drop enable and disable the drop-frame function that modifies how the Timecode is calculated during recording.

- **DROP**

  Enables the drop-frame function and frames **00** and **01** are dropped from each minute of video recorded, with the exception of the first minute of the hour.

- **NON-DROP Group Default**

  Disables drop-frame.

  No frames are dropped during recording and the Timecode reflects the actual time during recording.

ⓘ Note

If the FS-CF Series is in EXT TC mode, the TC MODE selection has no effect on the recorded video's Timecode.

RETRO CACHE

Select between 0 and 10 seconds.

Default is **5** seconds.

RETRO DISK

Default is **1** minute.

Maximum setting depends on the capacity of the CF card used.

TIMELAPSE

Timelapse is available in DV mode only.

0 to maximum available in retro hard disk space. This is slightly less than the entire remaining hard drive space.

Default is **00:00:00:00**.

Explanation

Timelapse provides the ability to record a single frame at specific time intervals. This gives the user the ability to control the amount of frames recorded per second, minute or hour. For example, one frame per minute 00:01:00:00 would mean that in 30 minutes, a full 1 second clip is recorded.

Timelapse applications can include capturing the traffic on city streets, the growth of a plant from seed to maturity, and construction projects: long duration events appear to occur rapidly.

Features of the Timelapse function include:

- All the captured frames are recorded in a single clip.
- The time between recording periods can be set in frames, seconds, minutes and hours.
- The maximum time between recorded frames is 24 hours.

PLAY MODE

- **Play Clip** Default

  In this mode, the FS-CF Series plays the selected clip from start to finish when you press the PLAY button. At the end of the particular clip, the FS-CF Series pauses.

- **Loop Clip**

  In this mode, the FS-CF Series plays the selected clip from start to finish. Immediately after completing the clip, the FS-CF Series begins playing the clip again without a pause. It stays in this state until stopped.

- **PLAY ALL**

  In this mode, the FS-CF Series plays the entire contents of the disk (all clips) in order, from start to finish. At the end of the last clip, the FS-CF Series pauses.

- **LOOP ALL**

  In this mode, the FS-CF Series plays the entire contents of the disk (all clips), in order, from start to finish. At the end of the last clip, the FS-CF Series begins to play from the beginning of the first clip again without a pause. It stays in this state until stopped.

PLAY FROM

This FS-CF Pro menu permits the user to select from where clips playback: track directory or reel. There are two choices:

- **Play From Track Default**

  Clips playback in the order in which they were recorded. Playback order is based on the order of the file names.

- **Play From Reel**

  Clips in a selected folder are played back. This function provides the ability to choose between any folders on the disk. Folders can appear with their user assigned folder name (if used).

PLAY PREF

The FS-CF Pro setting determines which version of the selected video clip plays back on the FS-CF's viewscreen.

- **Original Default**

- **Proxy**

PROXIES

This FS-CF Pro setting determines the type of proxy file to be created:

- **SPEED** Default

  This proxy has a lower resolution and smallest file size.

- **QUALITY**

  This proxy is higher resolution and largest proxy file size.

UDF FS PERM

Use this setting to determine the read-write capabilities of the UDF file system.

- **READ-ONLY Default**

  Use for Windows XP operating system.

- **READ-WRITE**

  Use for MAC OS 10.5 and Windows Vista operating systems.

> **ⓘ Note**
>
> **UDF Perm Default Set to Read-Only.**
> When using Mac OS10.5 and UDF FS Perm is set to Read-Write, it may take several minutes for the FS-CF Pro to mount on the computer. Setting to Read-Only permits faster mounting times.
>
> **UDF, MXF and AVID Media Composer**
> When using the UDF file format with MXF and AVID Media Composer, make certain that the FS-CF unit is set to **READ/WRITE** before mounting to a computer.

For more information about operating systems, see **Windows and MAC Operating Systems** on page 175.

REC START

The Record Start is a FS-CF Series function that provides two modes when using Canon HDV cameras with tape and operating in external control mode.

- **Normal Default**

  Use in normal conditions. There is a brief delay between record trigger and actual beginning of recording. This ensures an error free recording at the beginning of a clip.

- **Fast**

  This mode begins FS-CF Series recordings as quickly as possible after the record trigger has been pressed. It is possible that the first 1-2 frames may have some corruption, but the clip is usable in the NLE.

When Shooting Without Tape, Use FAST Mode
When shooting without tape in the camera, it is recommended that the FAST setting be used as frame corruption does not occur when tape is not used.

NETWORK

Use this is a FS-FC Pro menu to select the method to use to assign a network IP address to the FS-CF Pro.

- **MANUAL**

  The first time that the FS-CF Pro is turned on, it is necessary to manually enter its default fixed (static) settings. After that, when **MANUAL** is selected, the FS-CF Pro automatically fills in the default values for:

  IP ADDR: 192.168.10.25

  IP MASK: 255.255.255.0

  BROADCAST: 192.168.10.255

  GATEWAY: 192.168.10.1

  ESSID: FSCF

- **DHCP Default**

  Select DHCP if IP address is automatically assigned by the network server.

i Note

Networking, FTP, and Web Functions are FS-CF Pro Only

IP ADDR

This is a FS-CF Pro function.

When set to DHCP, the default address is 0.0.0.0.

Manual default is 192.168.10.25.

IP MASK

This is a FS-CF Pro function.

When set to DHCP, the default address is 0.0.0.0.

Manual default is 255.255.255.0.

BROADCAST

This is a FS-CF Pro function.

When set to DHCP, the default address is 0.0.0.0.

Manual default is 192.168.10.255.

GATEWAY

This is a FS-CF Pro function.

When set to DHCP, the default address is 0.0.0.0.

Manual default is 192.168.10.1.

WIFI PRESETS

This is a FS-CF Pro function.

WIFI PRESETS saves the WiFi configuration for a particular network as a collection of settings that can be re-installed at any time.

The settings saved are:

- **ESSID**
- **PASSWORD**
- **WIFI MODE**
- **NETWORK (DHCP/MANUAL)**
- **IP ADDRESS**
- **IP MASK**
- **BROADCAST**
- **GATEWAY**

Default is **FSCF**.

ESSID
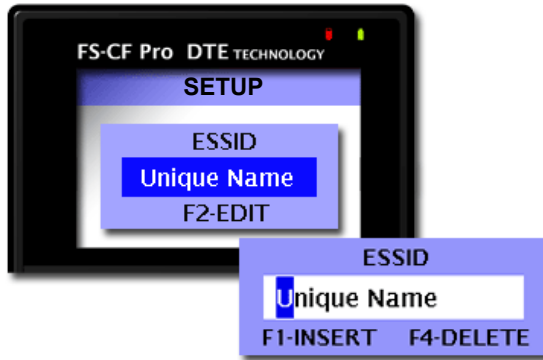
This is a FS-CF Pro function.

Set the ESSID (Extended Service Set Identifier) depending on how it is used:

- Peer-to-Peer connections, where the ESSID must be the same for all members of the network.
- Infrastructure -- network -- where the ESSID distinguishes one wireless network from another. It is a unique name that identifies a wireless network, specifically, the wireless access point.

The ESSID can contain upper and lower case alphabetical characters, some special characters, spaces, and numerals.

1. Select **ESSID** from the **SETUP** menu.
2. Press the **F2** function button to enter or edit the ESSID.
3. Use the Right and Left soft buttons to go between the ESSID characters.
4. Use the Scroll Wheel to dial in the desired character.
5. Press **F1** to insert a space.
    Press **F4** to delete a character or space.
6. Press the Select button to save the ESSID and return to the previous ESSID display.
7. Press the Select button again to return to the SETUP menu.

Default ESSID is **FSCF**.

KEY

This is a FS-CF Pro function.

The KEY is a code sequence required by the wireless network.

This can only be WEP encryption.

CHANNEL

This is a FS-CF Pro function.

When in ADHOC (Peer-to-Peer) mode, it may be necessary to change channels to eliminate slow performance caused by interference from nearby WiFi devices that are not part of the ADHOC network. This is because some WiFi channels overlap.

To correct this situation:

1. Select a channel from the list, 1 through 11.
2. Set the devices on the ADHOC network to the chosen channel.
3. Test to verify that performance improves.

    If performance does not improve, try another channel.

There are 12 options.

*   **UNSPECIFIED Default**

    This allows the FS-CF Pro to select an active WiFi channel.
*   **Channels 1 through 11**

    User can select a specific 802.11b/g WiFi channel.

    For more information, see **WIFI MODE** on page 148.

Default is **UNSPECIFIED**.

WIFI MODE
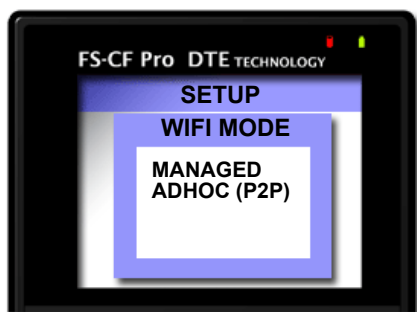
This is a FS-CF Pro function.

This function sets the type of wireless connection that the FS-CF Pro uses.

- **MANAGED**

  Managed mode is used when making a wireless connection to a structured LAN where central access points are used and devices are managed through the network.

- **ADHOC or Peer-To-Peer (P2P)**

  ADHOC mode is a method for connecting wireless devices directly to each other. Successful implementation of ADHOC mode requires that:

  - All wireless adapters must be configured for ADHOC mode.
  - All ADHOC wireless adapters must use the same ESSID.
  - Only a small number of devices, within close range, can be in the ADHOC network. As number of devices and range increase, performance falls.
  - All wireless devices within range must be able to discover and communicate in peer-to-peer fashion without employing central access points. This includes broadband wireless routers that use central access points.
  - ADHOC networks cannot bridge to wired LANs or to the Internet without installing a special gateway.

FTP

This is a FS-CF Pro function.

This function enables only the FS-CF Pro's FTP Read capabilities. FTP can not be used to write to the FS-CF Pro.

ⓘ Note

Do Not Use FTP and the FS-CF Pro Web Server Simultaneously.

Default FTP password is FS. To change the FTP password, see below.

Default is **ENABLED**.

FTP PASS

This is a FS-CF Pro function.

This function sets the FTP password.

Default is **FS**.

WEB

This is a FS-CF Pro function.

This function must be enabled to use the FS-CF Pro's WEB capabilities: allowing the User to access FS-CF Pro features through the FS-CF Pro's web server and metadata pages.

Default is **ENABLED**.

AUTO ORG
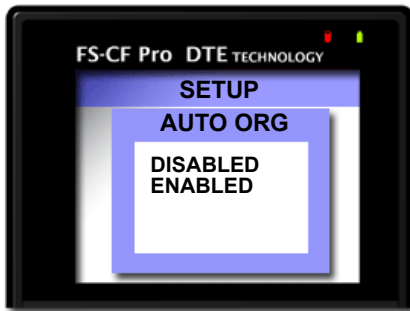
This is a FS-CF Pro function.

This function enables the FS-CF Pro to automatically organize structured files by moving clips and related files from the current clips folder to an assigned template folder. This must be done before the FS-CF Pro is mounted on a computer or the files are imported into an NLE.

In addition, when enabled, **AUTO ORG** automatically creates xml metadata files when **HDD** is run.

Default, is **ENABLED**.

Note

Disable AUTO ORG Before Recording MXF Clips
After recording MXF clips, run ORGANIZE MXF before mounting FS-CF Pro to computer.

Metadata Embedded In Avid MXF File Wrapper
Using the FS-CF Pro's web server function AVID MEDIA COMPOSER EXPORT, the metadata is incorporated into the Avid MXF wrapper and not maintained as a separate xml document.
See **Avid Media Composer** on page 75.

AUTO MARK

This is a FS-CF Pro function.

When **AUTO MARK** is enabled, the FS-CF Pro continues to mark future clips to the same REEL that was previously selected.

Default is **DISABLED** and the User must assign each clip to a folder manually.

REELS PREF

This is a FS-CF Pro function.

Use this function to select the method by which a folder is identified:

- **FOLDER Default**

   This option uses Reel numbers to name the folders: R-0,R-1. R-2, and so on, up to R-9.

- **TEMPLATE**

   This option provides the ability to give folders unique names based on xml templates stored in the FS-CF Pro database.

Setting one of the Function buttons, F1 - F4, to the REEL option shows the folder or template designation in the Home menu display, see **FUNCTIONS Menus** on page 154.

Default is **FOLDER**.

FUNCTIONS Menus

Reel receiving clips
Reels Functions are
FS-CF Pro only.

F1   F2   F3   F4
Function Groups
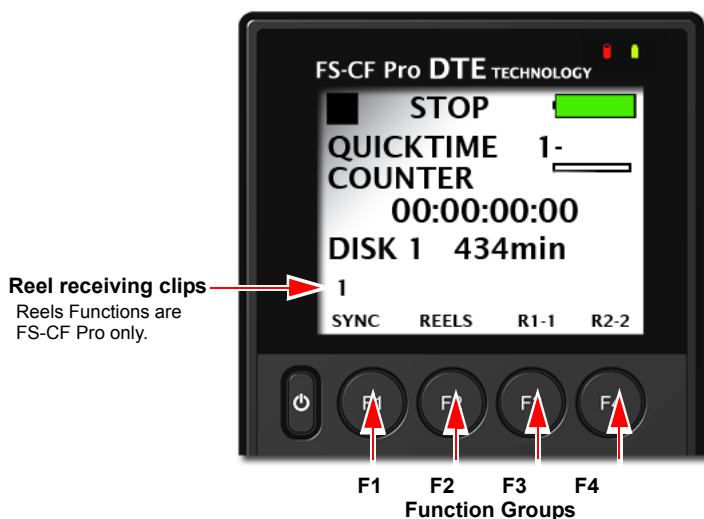
The Functions keys **F1**, **F2**, **F3**, and **F4** provide convenient Home menu shortcuts that act as toggle switches for specific system settings. The Functions menu below is an example of the information displayed.
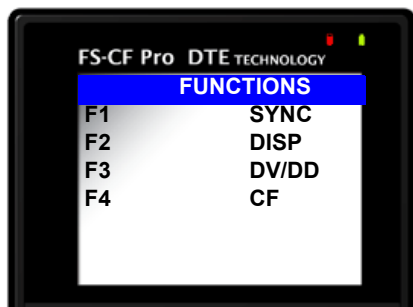
Function settings are user-assignable and available in the Functions menu. Changing a setting with a Function button has the same effect as manually changing the setting.

- There are four groups of functions **F1**, **F2**, **F3**, and **F4** displayed via the Functions menu.

- The function groups are independent of each other.

- In each group only one selection is active at a time.

Functions List

A list of the Function button menu, with defaults, is below.

MENU	Appears on LCD as…
F1 Button	
F1 SYNC	SYNC Toggles between SYNCHRO and LOCAL record control.
F1 EXTERNAL	EXT (Default) - toggles between external TRIGGER and LOCAL control.
F1 LCD SET	Sets the LCD display to A = AUTO, 1 = ON, 0 = OFF, see LCD on page 127.
F1 PROXY	Displays MAKE PROXY menu. (FS-CF Pro only)
F1 REELS	REEL Increments current reel number, (FS-CF Pro only)
F1 R0-0	R0 Marks Current Clip to Reel 0, (FS-CF Pro only)
F1 R1-1	R1 Marks Current Clip to Reel 1, (FS-CF Pro only)
F1 R2-2	R2 Marks Current Clip to Reel 2, (FS-CF Pro only)
F1 R3-3	R3 Marks Current Clip to Reel 3, (FS-CF Pro only)
F1 R4-4	R4 Marks Current Clip to Reel 4, (FS-CF Pro only)
F1 R5-5	R5 Marks Current Clip to Reel 5, (FS-CF Pro only)
F1 R6-6	R6 Marks Current Clip to Reel 6, (FS-CF Pro only)
F1 R7-7	R7 Marks Current Clip to Reel 7, (FS-CF Pro only)
F1 R8-8	R8 Marks Current Clip to Reel 8, (FS-CF Pro only)
F1 R9-9	R9 Marks Current Clip to Reel 9, (FS-CF Pro only)
F1 BLANK	No Function.
F2 Button	
F2 DISP	DISP (Default) - toggles the different TC display modes.
F2 ALARM	ALARM/MUTE Turns the FS-CF Series alarm on or off.
F2 FILE	FILE (Toggles display between Home menu and the file name screen.).
F2 REELS	REEL Increments current reel number, (FS-CF Pro only)
F2 R0-0	R0 Marks Current Clip to Reel 0, (FS-CF Pro only)

MENU	Appears on LCD as…
F2 R1-1	R1 Marks Current Clip to Reel 1, (FS-CF Pro only)
F2 R2-2	R2 Marks Current Clip to Reel 2, (FS-CF Pro only)
F2 R3-3	R3 Marks Current Clip to Reel 3, (FS-CF Pro only)
F2 R4-4	R4 Marks Current Clip to Reel 4, (FS-CF Pro only)
F2 R5-5	R5 Marks Current Clip to Reel 5, (FS-CF Pro only)
F2 R6-6	R6 Marks Current Clip to Reel 6, (FS-CF Pro only)
F2 R7-7	R7 Marks Current Clip to Reel 7, (FS-CF Pro only)
F2 R8-8	R8 Marks Current Clip to Reel 8, (FS-CF Pro only)
F2 R9-9	R9 Marks Current Clip to Reel 9, (FS-CF Pro only)
F2 BLANK	No Function.
FS Button	
F3 LOCK	(Default) - LOCK/UNLK Locks the buttonpad - toggles between LOCK and UNLK
F3 DV/DD	Connects FS-CF Pro to computer and mounts it as a volume, see MODE on page 108.
F3 REELS	REEL Increments current reel number, (FS-CF Pro only)
F3 R0-0	R0 Marks Current Clip to Reel 0, (FS-CF Pro only)
F3 R1-1	R1 Marks Current Clip to Reel 1, (FS-CF Pro only)
F3 R2-2	R2 Marks Current Clip to Reel 2, (FS-CF Pro only)
F3 R3-3	R3 Marks Current Clip to Reel 3, (FS-CF Pro only)
F3 R4-4	R4 Marks Current Clip to Reel 4, (FS-CF Pro only)
F3 R5-5	R5 Marks Current Clip to Reel 5, (FS-CF Pro only)
F3 R6-6	R6 Marks Current Clip to Reel 6, (FS-CF Pro only)
F3 R7-7	R7 Marks Current Clip to Reel 7, (FS-CF Pro only)
F3 R8-8	R8 Marks Current Clip to Reel 8, (FS-CF Pro only)
F3 R9-9	R9 Marks Current Clip to Reel 9, (FS-CF Pro only)
F3 BLANK	No Function.

MENU	Appears on LCD as…
F4 Button	
F4 LOCK	LOCK/UNLK Locks the buttonpad - toggles between LOCK and UNLK
F4 CF	(Default) - Starts the COMPACT FLASH Utility, see COMPACT FLASH on page 172.
F4 REELS	REEL Increments current reel number, (FS-CF Pro only)
F4 R0-0	R0 Marks Current Clip to Reel 0, (FS-CF Pro only)
F4 R1-1	R1 Marks Current Clip to Reel 1, (FS-CF Pro only)
F4 R2-2	R2 Marks Current Clip to Reel 2, (FS-CF Pro only)
F4 R3-3	R3 Marks Current Clip to Reel 3, (FS-CF Pro only)
F4 R4-4	R4 Marks Current Clip to Reel 4, (FS-CF Pro only)
F4 R5-5	R5 Marks Current Clip to Reel 5, (FS-CF Pro only)
F4 R6-6	R6 Marks Current Clip to Reel 6, (FS-CF Pro only)
F4 R7-7	R7 Marks Current Clip to Reel 7, (FS-CF Pro only)
F4 R8-8	R8 Marks Current Clip to Reel 8, (FS-CF Pro only)
F4 R9-9	R9 Marks Current Clip to Reel 9, (FS-CF Pro only)
F4 BLANK	No Function.

For information about the FS-CF Pro function Assigning Clips to Reels, see page 158.

Assigning Clips to Reels

Current Reel   Function Bar

F4 Assigned to R2-2

F3 Assigned to R1-1

F2 Assigned to REELS
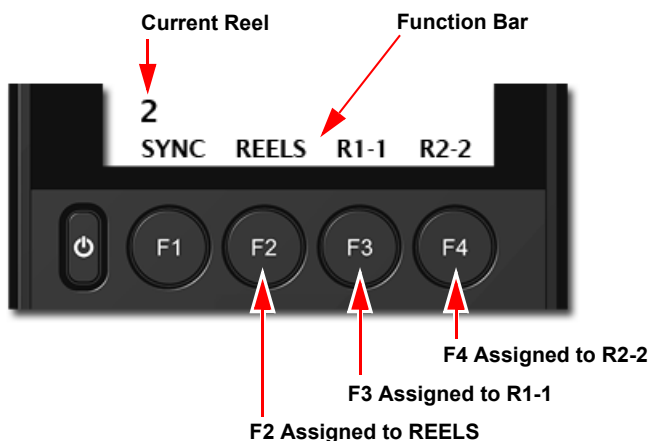
To enable this function, **REELS PREF** must be set to **FOLDER**: see **REELS PREF** on page 153.

When a disk is formatted, the FS-CF Pro creates 10 folders, numbered 0-9, on the disk. Each folder is a **REEL**. Alternately, if the User wants to use names rather than REELs, the named folder can still be assigned to a Function Button because of the number associated with it.

Clips can be assigned to a Reels during record, stop, or playback.

The function keys can be set to assign video clips to particular reels (folders). There are two functions for assigning clips to reels:

- **REELS**

  To allocate a clip to one of the folder/reels **0** - **9** assign the **REELS** function to a function key.

  To Select the reel that the clip should belong to, press the **REELS** function key to increment the reel that the current clip is assigned to. The number of the reel appears in the lower left-hand area of the display, just above the functions bar.

  Example

  In the illustration above, **F2** is assigned to **REELS**. The videographer wants to assign the current clip to Reel 2. To assign this action, Reel 2 is selected by pressing the F2 key until the FS-CF Pro marks the clip to the currently selected reel. The current reel is indicated in the line **above** the F1 function reel selection.

UTILITIES Menus
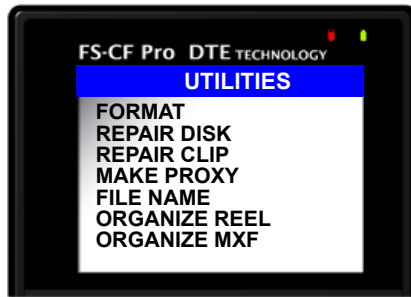
Item	Default	Comment
FORMAT	UDF	Backup data before using. No Undo.
REPAIR DISK	Not Applicable	Use to repair the file structure of hard drive.
REPAIR CLIP	Not Applicable	Use to repair the end of a damaged video clip.
MAKE PROXY (FSPCF Pro only)	Not Applicable	Create Proxy files for selected clip.
FILE NAME	Not Applicable	Displays the number assigned to the video clip.
ORGANIZE REEL (FSPCF Pro only)	Not Applicable	Places all Assigned To Reels video clips into proper folders.
ORGANIZE MXF (FSPCF Pro only)	Not Applicable	Moves MXF files into Avid media files directory.
UPGRADE	Not Applicable	Upgrades the unit software.
DELETE CLIP	Not Applicable	Deletes and removes selected clip from unit. **No Undo**.
SYSTEM RESET	Not Applicable	Resets unit to factory defaults.
DIAGNOSTIC	Not Applicable	Use to assist Focus Technical Support in diagnosing issues.
STATUS	Not Applicable	Provides details of power state and internal temperature of unit.
VERSION	1.0.0.B112309	Displays the current software version for the unit.
CALIBRATE CLOCK (FSPCF Pro only)	Not Applicable	Precisely synchronize clocks of multiple FS-CF Pros.
COMPACT FLASH	Not Applicable	Use to safely replace CF cards.

FORMAT

Format Type
UDF / FAT

Templates
CLEAR / RETAIN
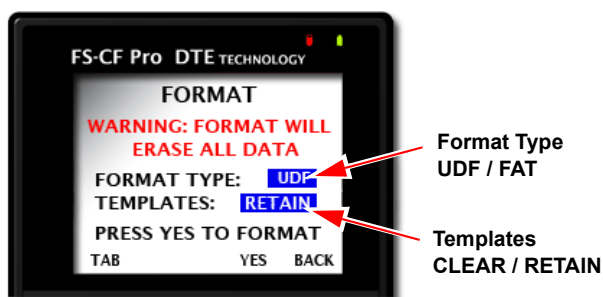
Prevent lost frames due to file fragmentation by formatting the FS-CF Series before each recording session.

⚠️ **Save Files Before Formatting with Clear Option**

The formatting process erases all data on the CF card and is not reversible. If the **CLEAR** option is selected, the templates are also deleted. Before formatting, backup all files and clips from the CF card to a computer.

To format the CF card while inserted in the FS-CF Series:

1. From the **Utilities** menu, Select **Format**.
2. Select the type of formatting: **UDF** or **FAT**.
   The format type is shown in the blue field: UDF is default.
   Use the Scroll Wheel to change the format type.
3. Press F1/TAB to move between the options Format Type and Templates.
4. Select to keep or delete non-default templates: **RETAIN** or **CLEAR**.
   Use the Scroll Wheel to change template selection.
5. Select **YES** to begin formatting.
   A status menu displays progress of the formatting and at successful completion the FS-CF Series reboots.
   The FS-CF Series issues an error message if format does not complete successfully.

To return to the **Utilities** menu without doing a format, press the **F4/ BACK** key.

REPAIR DISK

Use this function if a recording session does not complete properly and there is a question that the file may be damaged. For example, recording terminates due to a sudden loss of power to the FS-CF Series. Repair Disk scans the entire memory card checking for and repairing file errors and incomplete files. When the file is repaired it can be used in the NLE system.

Note

Corrupted Files May Need More Repairs
After running Repair Disk some files may still need further work to restore them. In such a case, run the utility Repair Clip, refer to the following page.

Using Repair Disk with Less Than 300 Mb Free Space
If it is necessary to run Repair Disk, but the FS-CF Series disk has 300 Mb or less free space, it is necessary to install a USB memory stick in the FS-CF Series's USB port.

To repair a disk:

1. In the Utilities menu, Select **Repair Disk**.

2. Select **YES** and the FS-CF Series begins repairing the disk. A status menu displays the progress of disk repair and at completion displays the message.
    - **Complete** indicating that the disk repair was successful.
    - **Aborted** indicating that there were errors and the repair did not complete.

3. Press **BACK** to return to the Utilities menu.

Note

After Using REPAIR DISK Move Content and Re-Format
After using the REPAIR DISK utility, the content must be moved from the FS-CF Series's drive and the FS-CF Series utility **FORMAT** run before resuming recording. Refer to **FORMAT** on page 160.

REPAIR CLIP

Clip Number

Use this function to repair a specific file that may be damaged or incomplete. For example, recording terminates due to a loss of power to the FS-CF Series and a specific file may be damaged. Repair Clip scans the specified file checking for and repairing file errors and incomplete files. When the file is repaired it can be used in the NLE system.

1. In Utilities menu, Select **Repair Clip**.

2. Use the Scroll Wheel to pick the number of the clip to repair.

3. Press **YES** and the FS-CF Series begins repairing the file. A status menu displays the progress of clip repair and at completion displays the message:

    • **Complete** indicating Repair Clip was successful.

    • **Aborted** indicating that there were errors and the repair did not complete.

4. Press **BACK** to return to the Utilities menu.

ⓘNote

After Using REPAIR CLIP Move Content and Re-Format

After using the REPARAIR CLIP utility, the content must be moved from the FS-CF Series's drive and the utility **FORMAT** run before resuming recording. Refer to **FORMAT** on page 160.

MAKE PROXY

Clip Number

Use this utility to create proxy files from selected original DTE formatted video clips.

1. From the Utilities menu go to **MAKE PROXY**.

2. Enter the video clip number using the **Scroll Wheel**.

3. Press the **F3/YES** to start generating the proxy file.

   A progress menu displays while the file is created. To cancel and return to the main Utilities menu during the MAKE PROXY process, press the **F1/QUIT**.

   When it is done the **COMPLETE** message appears.

4. Press the **F4**/**BACK** to return to the main Utilities menu.

FILE NAME

Clip Number

Original Clip Name

This function displays a file name but does not permit changing it.

1. From the Utilities menu, go to **FILE NAME**.

2. Enter the file's clip number using the **Up** and **Down** soft navigation buttons.

   The base file name is dynamically displayed as a function of the clip number.

   When a clip has multiple files, the first Base file name is displayed

3. Press **BACK** to return to the **Utilities** menu.

ORGANIZE REEL

This is a FS-CF Pro function.

This function places all files identified as a REEL clip during recording or playback into the appropriate reel folder. The clip may be marked by using either **REEL** or **Re-x**.

It is possible to import REEL folders directly into most DV NLE bins.

ORGANIZE MXF

This is a FS-CF Pro function.

When utilizing MXF with some NLEs, such as Avid Media Composer, it is necessary to run **ORGANIZE MXF** before importing the clips.

The **ORGANIZE MXF** utility moves all MXF audio and video files into the /Avid MediaFiles/MXF/1 directory.

ⓘ Note

Disable AUTO ORG Before Recording MXF Clips.
After Recording MXF Clips but Before Mounting the FS-CF Pro to a Computer, Run ORGANIZE MXF.

Metadata Embedded In Avid MXF File Wrapper
Using the FS-CF Pro's web server function AVID MEDIA COMPOSER EXPORT, the metadata is incorporated into the Avid MXF wrapper and not maintained as a separate xml document.
See **Avid Media Composer** on page 75.

UPGRADE

Check Focus Enhancements website for upgrades and latest software updates, go to **www.focusinfo.com**.

> ⚠️ **Reformat CF Card FAT 32 Before Upgrading System Software**
>
> It is necessary to reformat the FS-CF Series CF card as a FAT 32 file system **BEFORE** upgrading the system software. Remember to copy all data from the drive before reformatting.

To upgrade system software:

1. Attach the FS-CF Series to AC power before upgrading. A secure power source is necessary.
2. Download the latest upgrade file to a local computer.
3. Rename the upgrade file to:

   FS-CF.bin for FS-CF model.

   FS-CFPRO.bin for FS-CF Pro model.

   Some computers attempt to decompress, unzip, or unpack this file when it is downloaded. Set the download application so that it will not automatically unzip files as they download.
4. Connect the FS-CF Series to the local computer using the USB 2.0 cable provided with the FS-CF Series.
5. To access the FS-CF Series root directory.
   Go to **OPERATION** > **MODE** and select **HDD**, see **MODE** on page 108.
6. Copy or drag the .bin upgrade file to the FS-CF Series root directory.

7. Exit the FS-CF Series from **HDD** mode and navigate to the Utilities menu.

8. Select the utility **Upgrade**.

9. Press **F3/YES**.

   The **UPGRADING** menu appears. This menu continues to display until the upgrade completes.

   This process may take approximately 10 minutes.

10. On successful completion of the upgrade, the FS-CF Series displays the message, **UPGRADE COMPLETE** and automatically restarts.

11. Format the unit once the FS-CF Series has rebooted.

UPGRADE ABORT

If the upgrade fails, the FS-CF Series displays the message:

If the upgrade aborts:

1. Re-mount the FS-CF Series to a computer.

2. Verify that the upgrade file name is appropriate for the model (FS-CF.bin or FS-CF Pro.bin) and that it is in the CF card's root directory.

3. Dismount the FS-CF Series from the computer.

4. Retry initiating upgrade.

DELETE CLIP

Use this item to delete a selected clip.

1. In the Utilities menu, Select **DELETE CLIP**.
2. Use the Scroll Wheel to pick the number of the clip to delete.
3. Press the **F3/YES** function key.
4. The selected clip is deleted.
5. Press **BACK** to return to the **Utilities** menu.

When a clip is deleted, the FS-CF Series re-organizes and displays the remaining clips in sequence. For instance, if there are three clips on the disk: 001, 002, 003. If clip 002 is deleted, the remaining clips are reorganized and clip 003 becomes clip 002. However the base file names are not affected.

ℹ Note

Use Delete Function Sparingly
The delete function should be used sparingly. It is suggested that the DELETE CLIP utility be used only when absolutely necessary. It can cause disk fragmentation that can lead to file playback and record issues. If more space is required you must transfer your content from the FS-CF Series and perform the **FORMAT** utility. Refer to **FORMAT** on page 160.

SYSTEM RESET

The System Reset feature restores the factory default settings for the FS-CF Series unit. This feature is useful for diagnosing problems with the unit.

System Reset

A System Reset can not be reversed.

System Rest does NOT erase clips or content from the FS-CF unit.

DIAGNOSTIC

DO NOT CHANGE THE SETTINGS OF THIS FUNCTION

This function is included to help Focus Enhancements Technical Support diagnose problems that may occur with the FS-CF Series.

STATUS
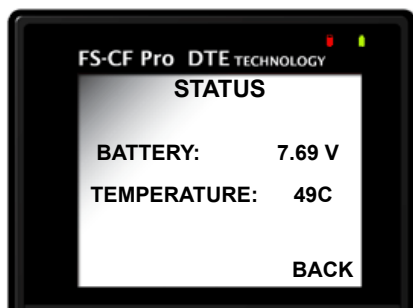
The FS-CF Series Status menu provides details of the FS-CF Series's power state and internal temperature. This menu may help Focus Enhancements Technical Support in determining power and thermal problems with the unit.

VERSION

This menu displays:

- FS-CF Series Firmware version
- Video standard of the unit.
- FS-CF Series model

CALIBRATE CLOCK
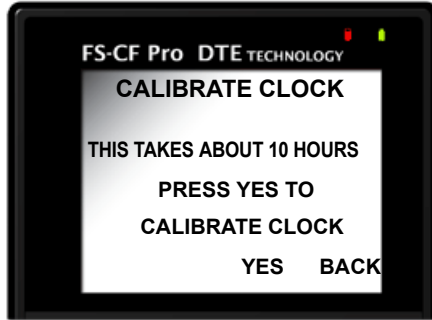
This is a FS-CF Pro function.

Use this utility if precise synchronization of multiple FS-CF Pros is required, see **Synchronizing Clocks on Multiple FS-CF Pros** on page 202.

This utility calibrates the FS-CF Pro's internal clock. It requires access to a NTP network or internet time server.

⚠️ **Calibrate Clock Takes 10 Hours**

The FS-CF Pro can not be used while this utility is running.

Plan to calibrate the clock at a time when the FS-CF Pro is not needed.

COMPACT FLASH

Use this utility to replace CF cards during a recording session. For more information, see **Remove Card Using COMPACT FLASH Utility** on page 27.

> ⚠️ **Use This Utility Whenever Removing/Inserting A CF Card**
>
> To protect video clips from damage, it is necessary to run the COMPACT FLASH utility every time a CF card is removed from the FS-CF Series.
>
> If the F4 function key is set to CF, pressing F4 runs this utility. For more information see **FUNCTIONS Menus** on page 154.

FS-CF Series with Other Devices

Once video clips are recorded to the FS-CF Series, they can be edited in most computer based DV/HDV NLE systems. This section contains:

In the past, to get footage into an NLE system, it was necessary to capture / digitize the footage using a video capture card. The FS-CF Series's DTE functionality eliminates the capture stage. All that is necessary is the moving of the video files from the FS-CF Series to a computer.

There are two ways to do this: mount the FS-CF Series to a computer or transfer the CF card from the FS-CF Series to a computer.

Mounting the FS-CF Series to a computer requires:

- Connecting the FS-CF Series directly to a computer through a USB A-A connection.
- Mounting the FS-CF Series to the computer's file system.
- Using the FS-CF Series HDD Bypass mode, refer to **Initial Setup** on page 177 for more information.

The FS-CF Series is compatible with any computer system that can read FAT 32 or UDF volumes, see **FAT32** on page 175 and **UDF** on page 176.

Windows and MAC Operating Systems

The FS-CF Series's default file system is UDF, Universal Disk Format. However, the FS-CF Series provides the ability to format the drive in either the **FAT32** or **UDF**. Selecting which drive format to use depends on the operating system and workflow.

Operating System	Version	FAT32	UDF read/write
Windows	XP	Read/Write	Read Only
Windows	VISTA	Read/Write	Read/Write
MAC OS	10.x	Read/Write	Read Only
MAC OS	10.5 Leopard	Read/Write	Read/Write

i Note

Improving Mounting Time for Mac OS 10.5 and Later
When there are a large number of files on the FS-CF Series and it is set to **UDF Read/Write** mode, it can take several minutes to mount the FS-CF Series to the Mac desktop.

To shorten mounting time, set the FS-CF Series to **Read Only**.

FAT32

The FAT32 file system limits an individual file's size to a maximum of 2GB or approximately 9 minutes of recording time.

i Note

Recording Time Depends on Recorder Mode and Resolution
The number of minutes per 2G file depends upon the recorder mode and resolution:
- DV - 9 minutes,
- 720p (MOV) - 10 minutes,
- 720p (M2T) - 13 minutes,
- 1080i (M2T) - 9 minutes,
- 1080i (MOV) - 8 minutes (1080/60i) or 7.5 minutes (1080/50i),

When clips exceed 9 minutes in length, the FS-CF Series automatically creates a new, file without dropping any frames. The two files have the same root filename but have different two digit suffixes that indicate the order of their creation, -01, -02, and so on. This process can produce as many sequential 2GB files as the drive can hold.

With most NLE systems it is possible to use clips within the timeline. Select the clips on the source volume, i.e. the connected FS-CF Series, and import them directly into the NLE bin.

If the NLE supports the drag-and-drop function, drag and drop the clips from the FS-CF Series directly into the timeline. This makes the clips immediately available in the NLE timeline.

The high transfer speed of the FS-CF Series drive permits direct streaming of the clips to the NLE, thus eliminating the need to copy or transfer the clips before their use.

UDF

UDF does not have the 2GB limitation on file size which permits the FS-CF Series to record clips of up to 20GB depending on the format used, see the note **DTE Formats That Support Recordings Larger than 2GB** on page 43.

UDF FS Perm Default Set to Read-Only.
When using Mac OS10.5 and UDF FS Perm is set to Read-Write, it may take several minutes for the FS-CF Series to mount on the computer. Setting to Read-Only permits faster mounting times.

Initial Setup

The FS-CF Series can be accessed by computer in three ways:

- Directly by USB cable.
- Through a wired (ethernet) network.
- Through a wireless network.

FS-CF Series to Computer

Video I/O   **Computer I/0**
IE 1394   **USB 2.0**
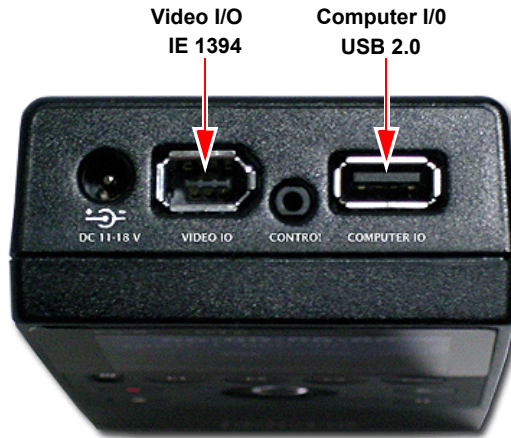
1. With FS-CF Series powered off, connect the FS-CF Series through its **COMPUTER I/O** USB 2.0 port to the computer system.

   Use the USB 2.0, type A to A, cable provided with the unit.

2. Power up FS-CF Series.

3. Mount the FS-CF Series drive on the computer.

   For more information see **Mounting FS-CF Series to Windows or MAC** on page 192.

FS-CF Pro to Wired (Ethernet) Network

This procedure applies only to the FS-CF Pro and requires the use of a USB 2.0 to Ethernet Extender.

1. With the FS-CF Pro powered off, use an USB 2.0 to Ethernet Extender to connect the FS-CF Pro to the network.

2. Power on the FS-CF Pro and wait for the Home menu to appear.

3. Go to the **SETUP** menu and locate **IP ADDR**.

    If the network employs DHCP, the **SETUP** options **IP ADDR**, **IP MASK**, **BROADCAST**, and **GATEWAY** display the network assigned addresses.

4. Open an IE or Safari web browser.

5. Enter the FS-CF Pro's **IP ADDR** into the browser's IP address bar and enter.

    The FS-CF Pro **Templates** web page opens.

FS-CF Pro and FTP

To access the FS-CF Pro via FTP, follow the same steps above.

In Step 5, enter the address **ftp://FS:FS@** and then the **IP ADDR** from SETUP.

For more information about FTP password, see **FTP PASS** on page 149.

FS-CF Pro to a Managed Wireless Network

A managed wireless network employs a wireless router to manage connected Wi-Fi devices. The router provides DHCP services to the network in a way similar to the DHCP server on a wired network.

Setting up the FS-CF Pro is similar to that of attaching the FS-CF Pro to the ethernet network mentioned before. There are a few items to note:

- Verify that FS-CF Pro is set to DHCP.
  SETUP > **NETWORK** > **DHCP**.
- Insure that the proper **ESSID** is set,
  SETUP > **NETWORK** > **ESSID**.
  Use ESSID to browse available networks.
- Insure that the **KEY** is set.
  The **KEY** is the wireless network password.
  SETUP > **NETWORK** > **KEY**.
  This is WEP encryption only.
- Verify that FS-CF Pro's **WIFI MODE** is set to **MANAGED**.
  SETUP > **WIFI MODE** > **MANAGED**.

FS-CF Pro Web and FTP

Like the wired network, the FS-CF Pro can be accessed by web browser or FTP.

FS-CF Pro Peer-to-Peer Networking (Wi-Fi)

Peer-To-Peer is the ability to connect the FS-CF Pro with other Wi-Fi capable devices without going through a separate wireless router. This permits the videographer to use FS-CF Pro's metadata function in the field with a minimum of equipment, the FS-CF Pro and another WIFI device.

It is necessary to establish an ad-hoc, peer-to-peer network: the connection between FS-CF Pro and other Wi-Fi capable devices are networked only for the duration of the session and while they are in Wi-Fi range.

Note

Current Technical Requirements

Presently, Peer-To-Peer networking requires the use of the latest firmware and an 802.11 USB dongle which utilizes the RaLink chip set. Use one of the following:
- Focus Enhancements WIFI adapter ASYF-1343-01LF
- ASUS WL-167G

A list of tested USB dongles will be available soon from www.focusinfo.com.

Example

This example uses an iPod Touch and a Wi-Fi capable Mac running Safari.

Setting FS-CF Pro

1. Connect an approved 802.11 USB dongle to the FS-CF Pro.
2. Power up FS-CF Pro.
3. Go to the **SETUP** > **NETWORK** and Select **MANUAL**.

4. If needed, scroll to **SETUP** options **IP ADDRESS**, **IP MASK**, **BROADCAST** and **GATEWAY** and modify their settings.

5. Set **ESSID**.

SETUP > **ESSID** > Select **ESSID**.

The **ESSID** display lists wireless networks within range of the FS-CF Pro. If the network is not displayed, press F2 and enter it, see **ESSID** on page 145.

Default ESSID and wireless network are **FSCF**.

6. Pick the network and press Select button.

The display returns to the **SETUP** menu.

7. Set **KEY**.

SETUP > **KEY** > Select **KEY**.

The key is the wireless equivalent of the network password.

8. Enter the Key code and press Select, see page 146.

The display returns to the **SETUP** menu.

A key code is a WEP encryption convention and is not always required.

9. Set **WIFI MODE**.

   SETUP > **WIFI MODE** > Select **ADHOC (P2P).**

10. Verify that **WEB** is enabled.

    SETUP > **WEB** > **ENABLE.**

Setting Up iPod Touch (or iPhone)

Use similar settings on other Wi-Fi devices.

1. Unlock the iPod Touch.
2. Select the **Settings** button.
3. In **Settings**, select the **Wi-Fi** setting (**ON**).

4. Under **Choose a Network...** Locate the **ESSID** set on the FS-CF Pro and select it buy touching the name. In this example, FS-CF Pro.

   A check mark appears next to the selection.
5. Press the right arrow in the blue circle to open the Network setting for this Wi-Fi selection.

6. Press the **STATIC** button at the top of the menu.
7. Select an IP address with it's last value within 20 or 30 of that set on FS-CF Pro. Do Not Set the IP to the same IP as the FS-CF Pro.

   Example of appropriate IP addresses:

   If FS-CF Pro's IP address is 192.168.10.25.

Set the iPod Touch to 192.168.10.20.

8. Set **SUB NET MASK** to match the value on FS-CF Pro (usually 255.255.255.0.

9. Set **ROUTER** to the IP address of FS-CF Pro (for example, 192.168.10.1).

10. Exit this window by pressing the middle key at the base of the iPod display.

11. Launch the Safari web browser.

12. Enter the FS-CF Pro's IP address in the URL window. The FS-CF Pro web page now appears.

Setting Up a Mac

Use similar settings on other Wi-Fi capable computers.
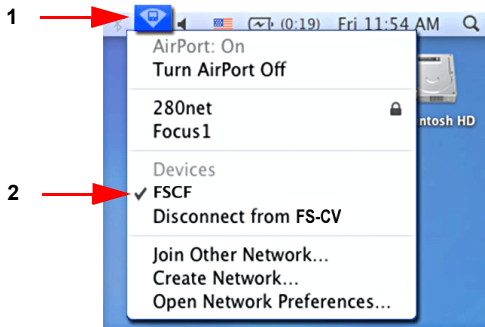
1. Select the Wi-Fi selector on the right side of the Mac's menu.
2. Under Devices, select the ESSID assigned on the FS-CF Pro earlier.

    The Wi-Fi symbol on the menu bar will change to a Wi-Fi device symbol.
3. Open the Mac's **SYSTEM PREFERENCES**.
4. Located under **INTERNET AND NETWORK**, open **NETWORK**.
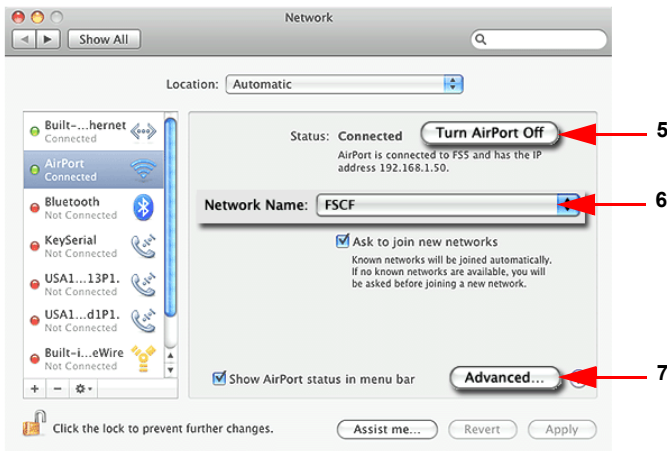
5. Select **AirPort** network icon.
    ON appears.

6. Verify that the FS-CF Pro **ESSID** selected in Step 2 is the current Network name. If it is not, select it.

7. Click the **ADVANCED** button.
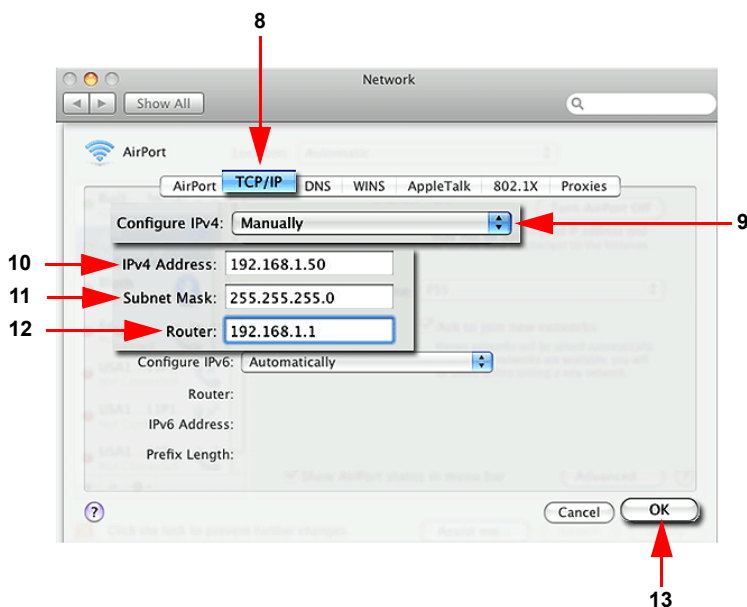
8. Click on **TCP/IP**.

9. Set **CONFIGURE Ipv4** to **MANUALLY**.

10. Enter a new IP Address under **IPv4 ADDRESS**.

It should be within the IP range set on FS-CF Pro and on other Wi-Fi devices connected to the ad-hoc network.

Do Not Set the IP to the same IP as the FS-CF Pro or any of the other devices.

11. Set **SUBNET MASK** to the same value that is set on FS-CF Pro.

12. Set **ROUTER** to the IP Address of FS-CF Pro.

13. Press **OK**.

14. Press **APPLY**.

15. Open Safari on the Mac.

16. Enter the FS-CF Pro's **IP ADDR** into the browser's IP address bar and enter.

The FS-CF Pro **Templates** web page opens, see **FS-CF Pro Metadata Functions** on page 59.

Setting Up a PC (XP)
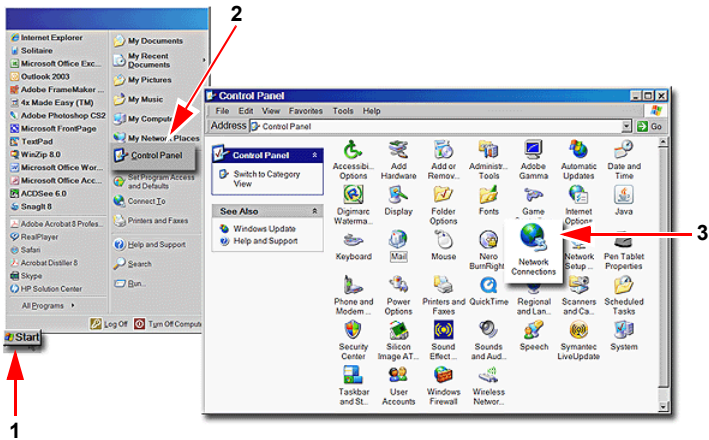
Because the operating system's user interface (GUI) can be customized and there are multiple versions of Windows XP in the workplace, the following instructions are only a guide. Individual computers may have GUIs different from the one shown here. The procedure remains the same.

1. Open the PC's Control Panel by clicking on the **Start** icon on the Windows Task Bar.

   The Start Menu appears.

2. Locate the **Control Panel** button and click on it.

   The Control Panel window open.

3. Click on **Network Connections**.

The Network Connections window opens.
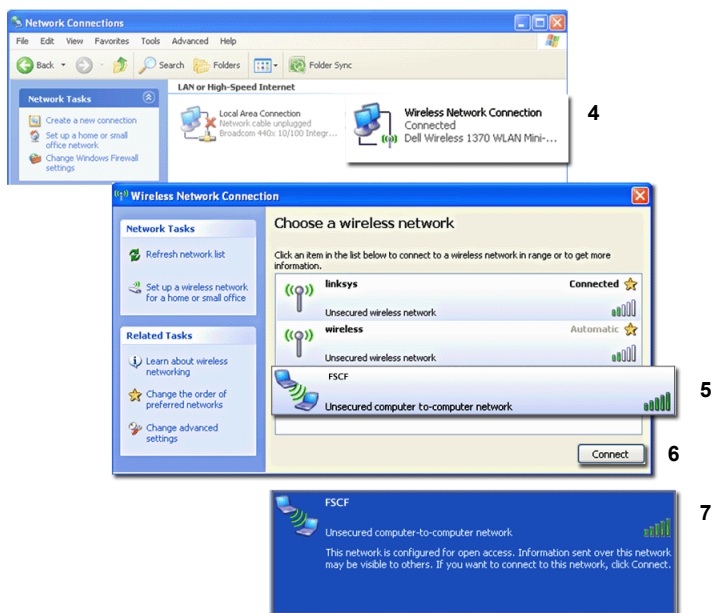
4. Click on **Wireless Network Connections**.

   The Wireless Network Connection window opens.

5. Click on **FSCF**.

6. Click the **Connect** button.

   This connects the computer to the FS-CF Pro. When the connection is made, the signal strength bars in the FS-CF Pro listing go green and a message appears.

7. Click on the **FSCF** again, to reselect.

Two messages appear in sequence.

Wireless Network Connection

⚠ You are connecting to the unsecured network "FSCF-test". Information sent over this network is not encrypted and might be visible to other people.

[Connect Anyway]   [Cancel]

Wireless Network Connection

❌ The selected network 'FSCF-test' is a computer-to-computer network. Your wireless connection is currently configured to not connect to computer-to-computer networks. To allow your wireless connection to connect to computer-to-computer networks, follow these steps:

1. Click OK to dismiss this dialog, and then click 'Change the order of preferred networks'.
2. On the wireless connection properties that appear, click the Advanced button.
3. On the Advanced option page, change which networks your wireless connection can connect to.
4. Click Close on the Advanced dialog and OK on the wireless connection properties to apply this change.

[OK]

8. Click **Connect Anyway** and then **OK**.

   This completes the wireless connection.

9. Go to **Completing Network Setup** on page 190.

Completing Network Setup

The following steps are required to complete the set up.

Return to the Wireless Network Connection window.
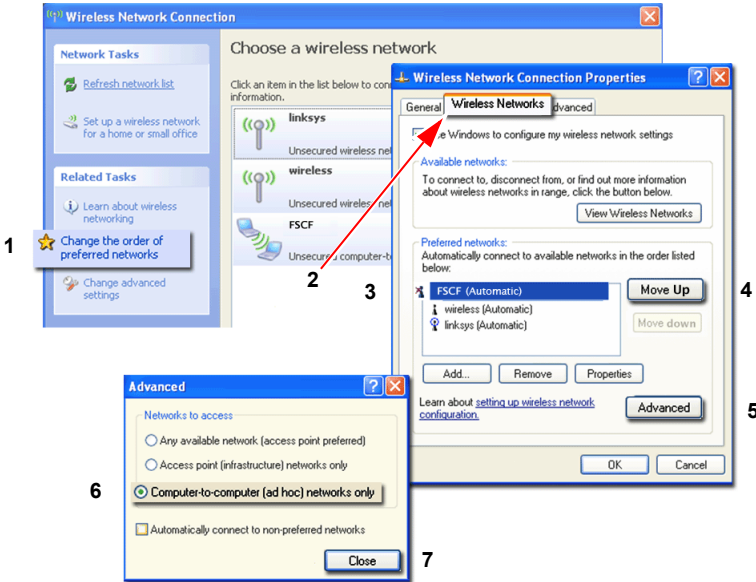
1. Click on **change the order of the preferred networks** in the Related Task column to the left.
   A new window opens.
2. Click on the **Wireless Network** tab.
3. Under Preferred Networks, click on the **FSCF**.
4. Click on the **Move Up** button to move the FS-CF Pro to the top of the network list.
5. Click on **Advanced** to go into the next connection window.
6. Select **Computer to Computer (adhoc) network only**.
7. Click **Close**.

 This initiates the wireless connection between the computer and the FS-CF Pro. Connection status messages appear in the FS-CF Pro listing: **Acquiring network address** and **Connected**.

Wireless Network Status
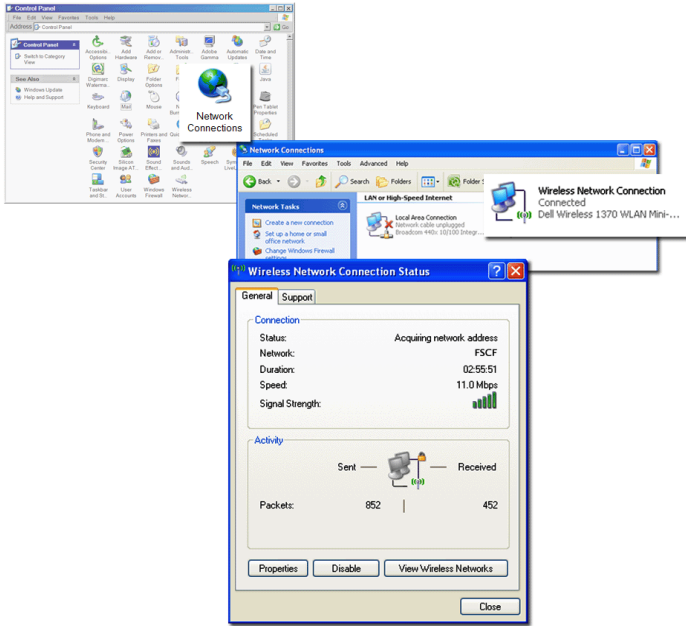
To access the current network status -- connection, network name, duration, speed, signal strength:

1. Go to the Control Panel and click on the **Network Connections** icon.

   The Network Connections window appears.

2. Click on the wireless network that the FS-CF Pro belongs to.

   The Wireless Network Connection Status window appears.

Mounting FS-CF Series to Windows or MAC

There are two methods for transferring video from the FS-CF Series to a computer: transfer the CF card to a card reader or mount the FS-CF Series to a computer.

Mounting the FS-CF Series to a computer is the same for Windows or MAC operating systems.

Begin by connecting the FS-CF Series to the computer, using the USB 2.0 A to A cable provided with the unit.

Select HDD MODE

On the FS-CF Series, **OPERATION** > **MODE** and Select **HDD**.

This step is required before mounting the FS-CF Series to a computer. Refer to the section, **MODE** on page 108.

The **HDD BYPASS** menu appears.
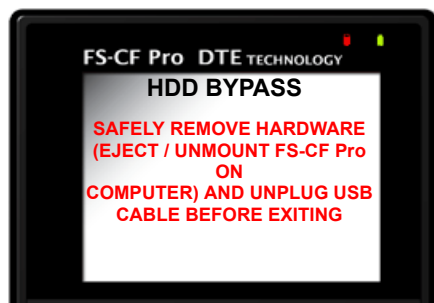
It is now possible to mount the FS-CF Series drive onto the operating system.

Mounting and Dismounting the FS-CF Series

How this is done depends on the operating system: MAC or Windows.

Windows
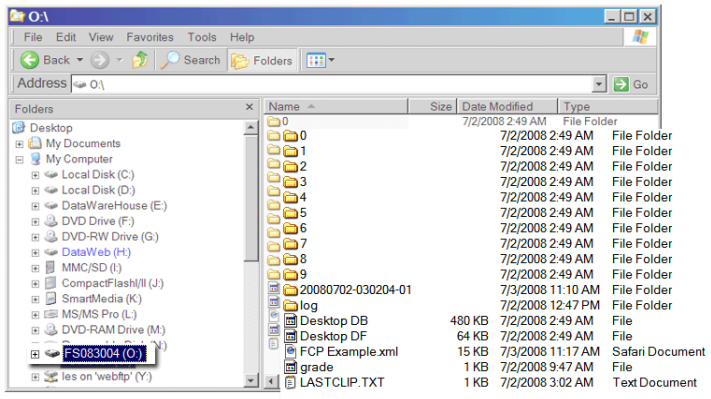
1. Open the Windows file system via MyComputer, Windows Explorer, or a similar Windows application.
2. Locate the FS-CF Series drive and open it.

    Often, it appears as a standard disk drive and may be labeled E:, F:, G:, and so on.

    The root folder has 11 folders and several files.
3. Open the folder with the most recent date code.
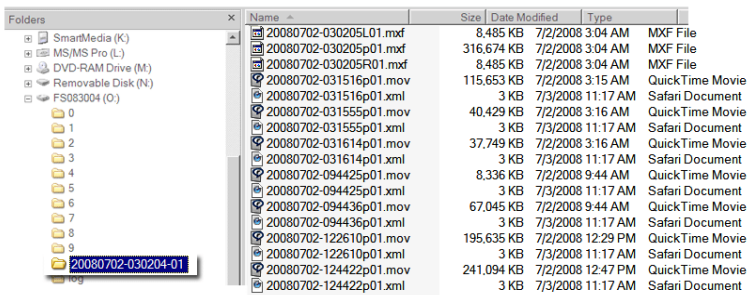
This folder may contain several different files: video and xml, see **Video File Types and Name Formats** on page 205.

Close FS-CF Series Directory and Dismount From Windows

1. Close the file system browser, i.e. Windows Explorer.
2. Press the F4/EXIT key to dismount the FS-CF Series from the system.

    The **HDD** display closes and the FS-CF Series returns to its previous display.

ⓘ Note

Dismount Does Not Need Windows Intervention

Once mounted to a Windows computer, many USB devices must be dismounted using the Safely Remove Hardware function.
The FS-CF Series does not require that step. It safely dismounts itself from the computer file system.

MAC

1. Start the Mac computer and connect the FS-CF Series's **COMPUTER I/O** port to the computer using a standard USB 2.0 type A to A cable.

    When mounted, the FS-CF Series appears on the computer's desktop as a FAT32 volume with a PC label, as shown below:

2. Locate the FS-CF Series on the desktop and open it up.

3. Open the folder with the most recent date code (for example, 20050127-110345-01). It should look similar to the following:

---
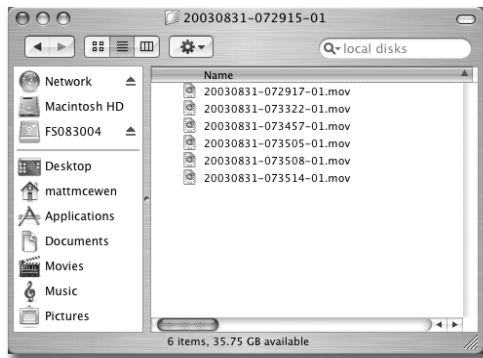
i Note

Organizing Structured Files

If clips have been assigned to a Reel folder: perform an **Organize REEL** before connecting the unit to a computer, see **ORGANIZE REEL** on page 164.

Close FS-CF Series Directory and Dismount From MAC

Dismount FS-CF Series Before Powering Off

It is important to dismount the FS-CF Series from the Mac system BEFORE powering down the FS-CF Series.

To dismount the FS-CF Series from a Mac:

1. Select the FS-CF Series on the computer's desktop. It is marked with a PC symbol.
2. Drag the drive into the trash or use the eject button. This dismounts the drive.
3. It is now safe to remove the FS-CF Series.

Note

Eject Shortcut for Two-button Mouse

If the Macintosh is equipped with a two-button mouse, the following keyboard shortcut is available:

- Right click the FS-CF Series icon on the desk top.
- Select the **Eject** function from the pop-up menu.

iPod Touch and the FS-CF Pro

The FS-CF Pro's internal web server, database, and wireless connectivity provide the ability to use the iPod Touch, or other PDA, to log video clip metadata while recording in the field. During the recording, the clip metadata is stored in the FS-CF Pro database. Later the clip and its metadata are downloaded to a NLE for editing.

A summary of the steps for logging metadata are:

1. Connect to the wireless network on which the FS-CF Pro is operating.
2. Use the iPod browser to access the FS-CF Pro web page and database.
3. Select the metadata template to use.
4. Place the FS-CF Pro in Record mode and begin recording.
5. Set metadata values for clip.

> **iNote**
>
> **PDAs Can Not Access the Metadata Admin Template Page**
> Because of their limited functionality, PDA type devices can not access the Metadata Admin Template or Settings pages.
> Creating templates must be done with a computer.
> For more information see **Creating A Template** on page 82.

Connect Using Wireless

First it is necessary to connect to the FS-CF Pro using wireless networking, see **FS-CF Pro to a Managed Wireless Network** on page 177 or **FS-CF Pro Peer-to-Peer Networking (Wi-Fi)** on page 178.

Logging Metadata
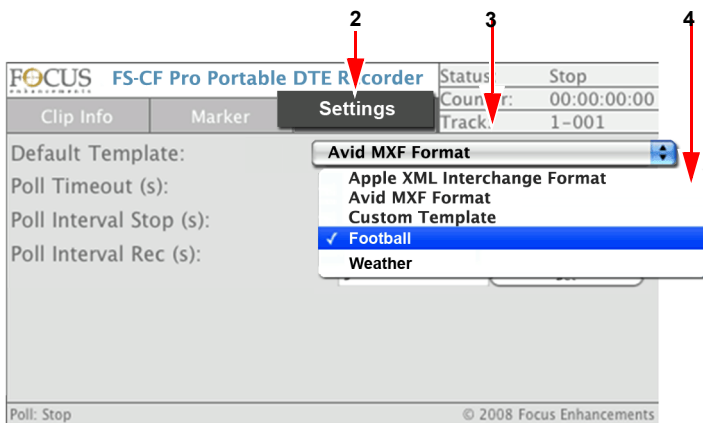
Content-based Metadata

1. Access the FS-CF Pro using the iPod browser.

The FS-CF Pro **Entry** page appears.

2. Click on **Settings**

A new page appears. The name of the currently active template is displayed on the Default Template button.

3. Select a metadata template to use.

If the default template is okay, go to Step 5.

If another template is needed, click on the **Default Template** button.

A dropdown menu appears with a list of available templates.

4. Pick the template and click on **Done**.

The name appears on the Default Template button. This template and its predefined metadata values are applied to all recordings until another template is selected.

5. Verify that:

- FS-CF Pro is set to the appropriate DTE format for the selected **DV** or **HDV** format.
- **AUTO ORG** is enabled -- look in the **SETUP** menu.

6. Put the FS-CF Pro into **Record** mode and start recording.

   The Settings page on the iPod now shows:

   • FS-CF Pro Status is recording,

   • Current Timecode,

   • The number of the track being recorded,

7. Click on **Clip Info**.

   The iPod displays the Clip info page with the template's metadata fields and/or their buttons. If Friendly Names were assigned earlier, they appear.

   This page is for logging clip-based, Timecode dependent metadata.

8. Enter the metadata:

   • For open data fields, click on the field: depending on the data type, the iPod keyboard or number pad appears.

   • For metadata buttons, click on the button to display a dropdown menu with its predefined values. Pick the appropriate value.

9. Click **Done**. (Not shown in illustration.)

   The data is fixed in the field and it is now possible to go on to other metadata fields.

10. Repeat Steps 7, 8, and 9 until all metadata is specified.

11. Click one of the **Update** buttons.

    The metadata is associated with the clip and immediately uploaded and saved in the FS-CF Pro database. This metadata applies to the entire clip.

Once logged, stop the recording.

It is also possible to log clip-based metadata to a clip after the recording is complete, **STOP** mode, but before recording the next clip.

It is also possible to log metadata when in **Playback** mode.

Timecode-based Metadata (In and Out Markers)

If while recording a clip an event occurs that the editor needs to be aware of, for example a player is injured during a play, it is possible to insert Markers to locate that portion of the clip.
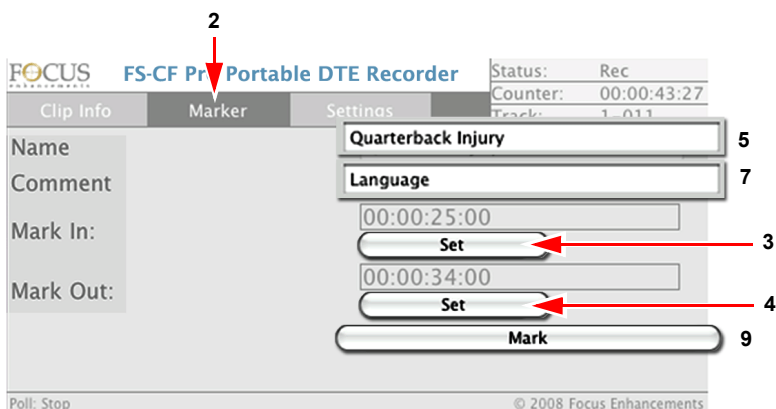
To mark timecode specific values, it is important that a metadata field is **TC DEPEND** enabled. This is done while the template is being created.

When timecode **In** and **Out** markers are set during the recording is at the discretion of the videographer and the events being recorded.

1. Start recording.
2. Click on **Marker**.

   The Marker page appears.
3. Click the **Mark In: Set** button.

   This sets a **In** marker at that point in the timecode of the recording.

4. Click the **Mark Out: Set** button.

    This sets a **Out** marker at that point in the timecode of the recording.

5. Name the marker.

    Click on the **Name** field.

    The iPod keypad appears.

    Key in a descriptive name to identify the video segment: for example *injury*.

6. Click **Done**. (Not shown in illustration.)

    The data is fixed in the field and it is now possible to go on to other metadata fields.

7. Add a comment.

    Click on the **Comment** field.

    The iPod keypad reappears.

    Key in a descriptive word or phrase to assist the editor in post production, for example *langauge*, that indicates the injured player used words not acceptable for broadcast.

8. Click **Done**. (Not shown in illustration.)

    The data is fixed in the field and it is now possible to go on to other metadata fields.

9. Click the **Mark** button to store the marker in the FS-CF Pro database.

Controlling Multiple FS-CF Pros At Once
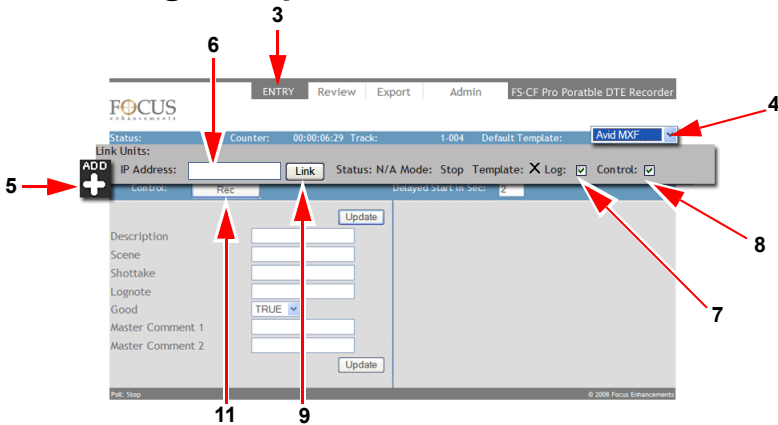
The FS-CF Pro provides the ability to simultaneously control the **Record** and **Stop** functions of multiple FS-CF Pros located on the same network.

Begin by linking the host FS-CF Pro to the client units:

1. Begin by mounting at least two FS-CF Pro units on a network.
2. Select one of the FS-CF Pros to be the host.
3. Log on to the host and go to its **Entry** page.
4. Select the metadata template to use from the **Default Template** dropdown list.
5. Click the **ADD** button.

   The **Link Units** workspace expands to show the link parameters for the first client FS-CF Pro.

   Notice that the **Template** option is permanently check-marked. Any time the host FS-CF Pro links to another unit, it transfers the currently selected template to the client, regardless if the other link options are selected or not.

   For information about **Template** and **Log** functions, see **Logging Metadata into Multiple FS-CF Pros** on page 77.
6. Enter the **IP address** for the client FS-CF Pro.
7. Check-mark **Log** if the host unit is to log metadata on the client unit. Then any metadata entered on the host appears on the client too.
8. Check-mark **Control**.

The host unit can control the **Record** and **Pause** operations on the client unit.

9. Click **Link** to connect to the client unit.

    The Status and Mode messages change indicating that the connection is made.

10. Repeat steps 5 through 9 for each client unit.

    The linked FS-CF Pros are now ready.

    Enter metadata as described in the FS-CF Pro User Guide.

11. Click on the **Record** button on the **Entry** page to start recording on multiple units.

Synchronizing Clocks on Multiple FS-CF Pros

It is possible to synchronize multiple FS-CF Pros' system clocks by running **SET DATE AND TIME USING NTP** on each unit within a few minutes of each other. Then all of the FS-CF Pros will have similar timecode stamps.

This feature is useful when using a host FS-CF Pro to control client FS-CF Pros during a recording session, see **Controlling Multiple FS-CF Pros At Once** on page 200.

Before synchronizing, verify that all the FS-CF Pro units have the same setting for:

> **TIME ZONE** on page 124,
> **NTP SOURCE** on page 125,
> **DST ADJUST** on page 126,

Once calibrated, the FS-CF Pros stay synchronized through power cycling, although, over a period of days their timecode stamps will slowly drift apart.

To determine that the clocks are synchronized, go to the FS-CF Pros' **SETUP** menu:

- Observe the blinking light on the FS-CF Pro's **Select** button. All of the FS-CF Pros' **Select** buttons blink in unison.

- Compare the times in the **TIME** row. They will be the same.

Greater Accuracy

For greater accuracy and a longer synchronization period, run **UTILITY** > **CALIBRATE CLOCK** simultaneously on all FS-CF Pros in the set.

This takes about 10 hours to complete and the FS-CF Pros are not available for use until calibration completes.

Calibration Schedule

New units should be calibrated as required to maintain synchronization within a set of FS-CF Pros. However, after about a year, calibration should not be necessary more than once a year.

Video File Types and Name Formats

DV File Types	Name Format	Extension
RAW DV	YYYYMMDD-HHMMSS	.DV
AVI Type2 or 24p AVI Type2	YYYMMDDHHMMSSb01	.AVI
Canopus AVI	YYYMMDD-HHMMSSb01	.AVI
Matrox AVI	YYYMMDD-HHMMSSm01 This file has a separate .wav audio file per track.	.AVI
QuickTime	YYYYMMDD-HHMMSSp01 YYYYMMDD-HHMMSSX01	.MOV
MXF	YYYYMMDD-HHMMSSL01 YYYYMMDD-HHMMSSp01 YYYYMMDD-HHMMSSR01	.MXF

HDV File Types	Name Format	Extension
M2T	YYYYMMDD-HHMMSSX01	.M2T
MXF	YYYYMMDD-HHMMSSL01 YYYYMMDD-HHMMSSp01 YYYYMMDD-HHMMSSR01	.MXF
QuickTime	YYYYMMDD-HHMMSSp01 YYYYMMDD-HHMMSSX01	.MOV

M2T or QUICKTIME (MOV) filename format: YYYYMMDD-HHMMSS**X**01.m2t or .mov where the **X** is a letter indicating the resolution of the captured video file. The table on page 204 lists the letters and associated resolutions. Not all HDV camcorders support these resolutions.

FS-CF Series Video Formats and Resolutions

X	Resolution	X	Resolution
d	720p, 23.976 fps *	D	1080i, 23.976 fps *
b	720p, 24 fps *	B	1080i, 24 fps *
c	720p, 25 fps	C	1080i, 25 fps *
a	720p, 29.97 fps *	A	1080i, 29.97 fps *
e	720p, 30 fps	E	1080i, 30 fps *
f	720p, 50 fps *	F	1080i, 50 fps
g	720p, 59.94 fps *	G	1080i, 59.94 fps *
h	720p, 60 fps *	H	1080i, 60 fps
y	576p, 50 fps *		
z	480p, 60 fps *		

* **The 576p and 480p resolutions are DV formats not supported in the HDV QUICKTIME format. The unit must be set to DV MODE to record 480/60p or 576/50p resolution formats.**

ⓘNote

Supported HDV
All HDV formats are supported in the M2T format.
QUICKTIME HDV mode only supports 1080i50/60/24F/25F/30F and 720p25/30.
MXF HDV mode only supports 1080i50/60 and 720p30.

ORGANIZE REELS

After assigning clips to a specific **REEL FOLDER**, the **ORGANIZE REELS** function must be run before mounting the FS-CF to a computer. After running **ORGANIZE REELS**, the clips will be moved to the assigned **REEL FOLDER**.

ⓘNote

FS-CF Pro Video Clips in Reel Folder
FS-CF Pro permits the storing of video clips in either the standard file folder or a REEL (folder).

FS-CF Series Accessories

Check Focus Enhancements web site, **http://www.focusinfo.com** for information about FS-CF Pro accessories.

Non-Linear Editors (NLEs)

This section is for the FS-CF Pro. It provides information specific to FS-CF Pro supported non-linear editors. Also check the Focus Enhancements web site, www.focusinfo.com for the latest updates.

In this section:

FS-CF Pro DTE Workflow

Traditional File-Based Workflow

Traditional video workflow is based on the film industry. Video like film is considered as an actual strip of film or tape that is identified by a code number. Records of the content of the video are physically logged and maintained separately from the tape.

A significant part of the workflow involves the physical handling, processing, logging, and storing of individual items.

Even with the introduction of digital media, much of the old workflow remains. Video clips, though digital and now easily duplicated, are still often identified by a code number that identifies the video file, much like a strip of film.

FS-CF Pro and Content-Based Workflow

The FS-CF Pro combines Direct To Edit (DTE) technology and integrated metadata logging to create content-based workflow that is significantly more efficient than the file-based method. The FS-CF Pro provides the ability to record video content and related metadata that can then be downloaded, ready to edit, into an NLE, such as the Final Cut Pro or the Avid Media Composer.

Content-based workflow involves:

- **Defining Project**

  Using storyboards, scripts, director's shot list, and other means, the video team visualizes how the final project will look and the individual tasks needed to create the video content. This information is the basis for the fields in the metadata template.

- **Creating Metadata Template**

  Taking the information generated during project definition, the editor creates xml metadata templates that reflect the project's content structure. These templates are created using a computer networked to the FS-CF Pro. The FS-CF Pro has a web server that provides a web interface for creating and managing templates. The templates are stored in the FS-CF Pro's database, see **Creating A Template** on page 82.

To assist the template author, the FS-CF Pro provides NLE sample templates for Avid Media Composer, Apple XML Interchange Format (AXIF) and Custom metadata fields that can be adapted to a specific project's requirements. AXIF is metatdat feilds are familiar to Apple Final Cut Pro Users as most are the same values that are used in the Log and Capture window within Final Cut Pro. There are a few extra fields.

The similarity of FS-CF and AXIF metadata fields is shown in the illustration below.

Apple XML Interchange Format Fields

Final Cut Pro Log and Capture
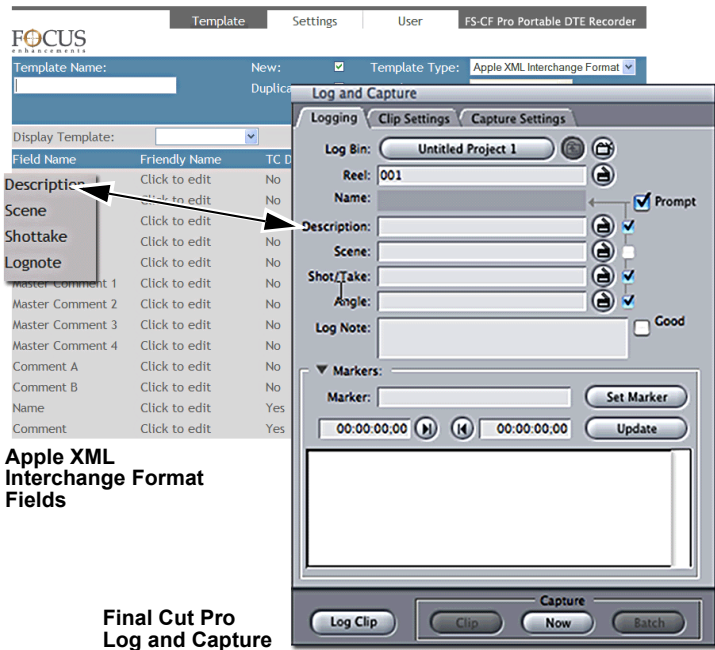
The template creator can use all available fields, however it is possible to select specific metadata fields to enable and disable. This simplifies data entry by eliminating distracting unused fields, ,see **Creating A Template** on page 82.

For example, here is a possible template for shooting a
football game:

Field Name	Friendly Name	Predefined Value
Master Comment 1	Play	offense defense special teams
Master Comment 2	Result	complete incomplete fumble interception

Once created, a template can be saved, reused, and shared
with other FS-CF Pros.

• **Creating Content**

This involves two parallel steps.

Recording Video

Event is recorded in a DTE format as a series of video clips.

Logging Metadata

Using a PDA, such as an iTouch, the videographer or editor
connects to the FS-CF Pro via a wireless peer-to-peer
network and accesses the Metadata templates through the
FS-CF Pro web server, see **Connect Using Wireless** on page
197.

Logging consists of selecting the appropriate template for
the clip, entering information into the metadata fields, and
saving it in the FS-CF Pro database, see **Logging Metadata**
on page 198.

• **Downloading Content Into Final Cut Pro**

The video clip and its associated metadata are downloaded
directly into Final Cut where it is immediately ready to edit,
see **Importing Video Clip and Metadata** on page 217.

• **Continuing with Post Production Tasks**

Once in Final Cut, the video and its metadata are available for
post production.

Avid Media Composer

Logging Avid Metadata During Recording
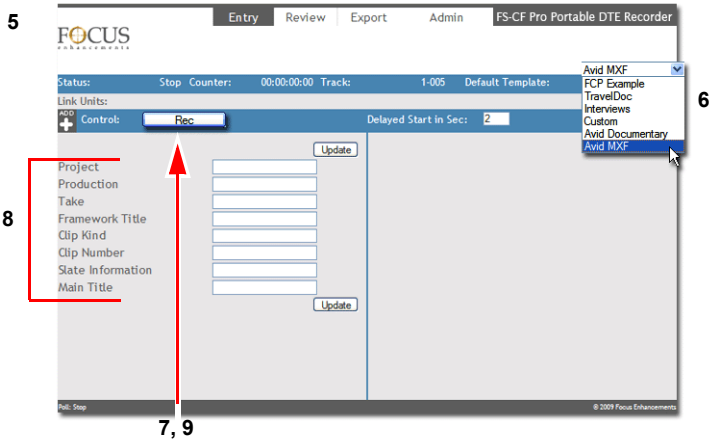
To log Avid metadata during a recording:

1. Open the FS-CF Pro's web server using the standard connection method.

2. Navigate to the **Admin** > **Template** page.

3. Select **Avid MXF** Format from the **Template Type** menu.

    A set of Avid MXF metadata values appears.

    Currently, only the first three values (**Project**, **Production**, and **Take (number only)**) can be viewed in the Avid bin. However, all fields are populated in the Avid MXF file.

4. Setup the metadata using the standard procedure described in the FS-CF Pro user guide.

5. Navigate to the **Entry** page.

6. Select the Avid template from the **Default Template** menu.

7. Begin recording by pressing the Record button on the **Entry** page.

    The **Record** button switches to the **Stop** button.

8. Log metadata, using the standard procedure, see **Entering Metadata** on page 75.

9. Click on the **Stop** button to cease recording.

10. Once recording is done, navigate to the **Utilities** menu.

11. Select **ORGANIZE MXF**.

This is necessary to create the Avid MXF directory structure and then insert the metadata into the Avid MXF file.

ℹ️ **Note**

Disable AUTO ORG Before Recording MXF

After recording MXF clips, run ORGANIZE MXF before mounting the FS-CF Pro to computer.

Importing Video and Metadata Into Avid
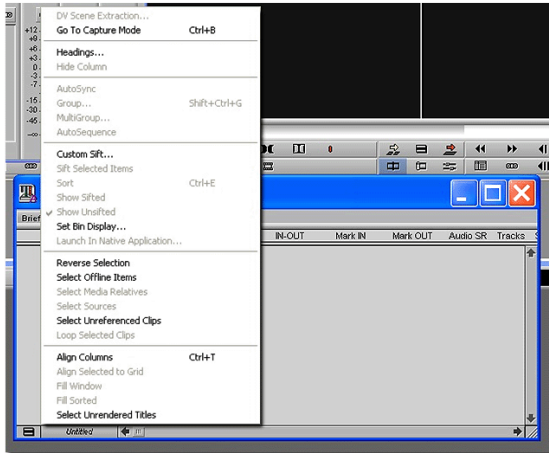
To import clips into Avid Media Composer, use the standard Media Tool import method.

1. Select the bin to receive the clips.

2. Left click the bin settings button in the lower left hand corner of the bin and select **Headings**.

3. From the Headings Menu, make sure that the columns **Project**, **Production**, and **Take** are selected.
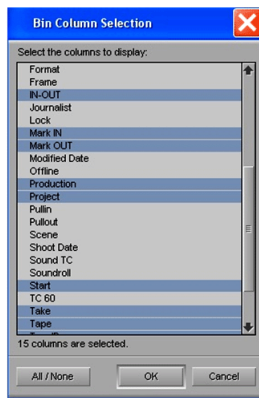
These columns appear in the Avid bin. Logged metadata for these fields appears for each clip in the Avid bin.

Final Cut Pro

Overview of XML

This section applies to Final Cut Pro 5.1 and later.

Using the FS-CF Pro Export function creates a pair of associated files: video clip and a metadata document file that is in Apple XML Interchange Format (AXIF). Final Cut Pro supports documents in AXIF and is able to open, view, parse and edit the FS-CF Pro metadata.

By importing video clips and their FS-CF Pro metadata xml files into Final Cut it is possible to improve post-production workflow.

- Production companies often use the metadata feature to track all film or video shots during production. Exporting this database information to interchange format documents permits the quick creation of video dailies from film, HD, or SD footage.
- An Editor may need to change all medium shots of a scene to close up's. Using metadata and xml, the post editor can quickly find and replace clips with other clips.

Importing Video Clip and Metadata

To begin,

1. Connect the FS-CF Pro to the Final Cut Pro computer using a USB 2.0 A-A cable,

2. Verify that the FS-CF Pro has **AUTO ORG** enabled,

3. Mount the FS-CF Pro as a drive on the MAC, see **Mounting FS-CF Series to Windows or MAC** on page 192.

    Another method is to transfer the CF card from the FS-CF to the editing station.

4. Locate the FS-CF Pro's drive and root directory.

    MAC - the FS-CF Pro drive appears on the desktop.

    Window - use the file browser to locate the FS-CF Pro drive.

5. Find the template xml file.
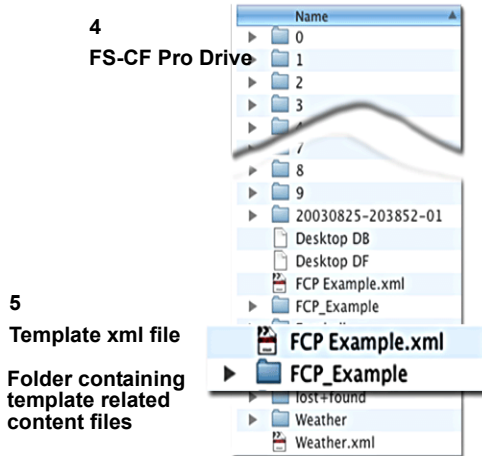
This file has the same name as the template used during recording. All the metadata logged when a clip was shot is inside the template .xml file. In addition, the template .xml file contains a link to the location of the video clip on the FS-CF Pro drive.

All clips recorded using the same template are located in the folder with that template's name.

6. Open Final Cut.

7
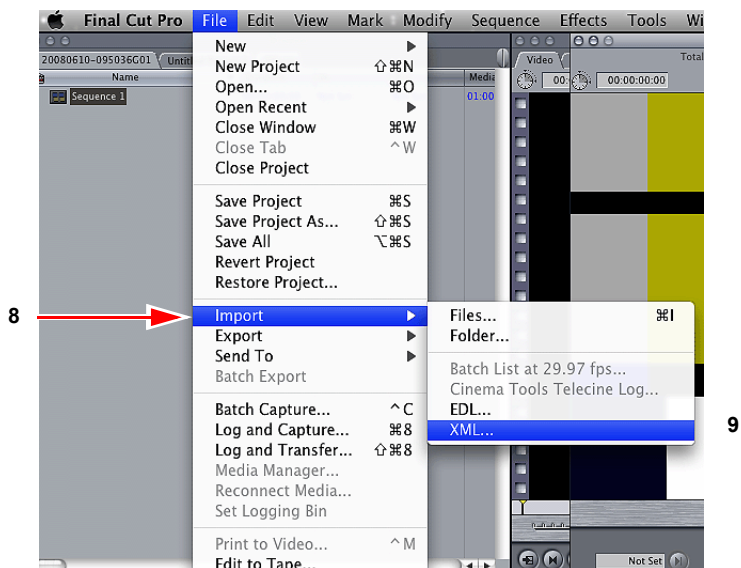
7. Click on the **File** option in the Menu Bar.

8. Highlight the **Import** option so that it's menu appears.

9. Select **XML**.
The **Choose a File** window appears.
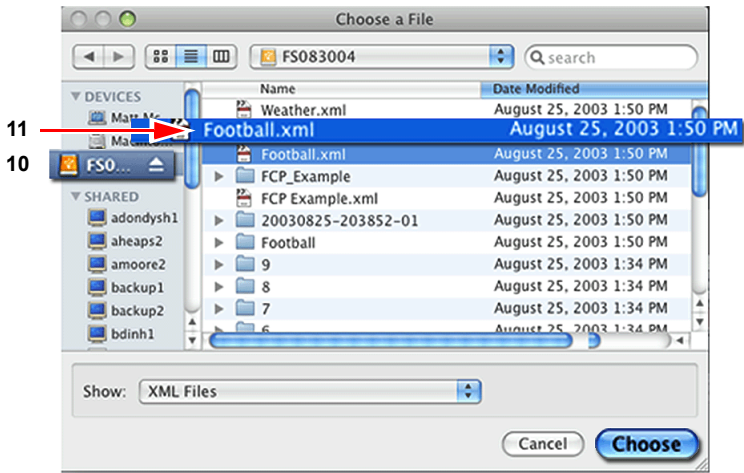
10. Select the FS-CF Pro drive in the Devices column.

A list of directories and files appears. Because Import > XML was picked earlier, the xml files are active but the video files are grayed out and inaccessible.

11. Select the template's **xml** file.

A xml icon appears with the name of the file and other data.

Under the icon is the **more info** link. Clicking on this link opens a window with information about data that was created using the FS-CF Pro metadata function.

12. Click the **Choose** button.

The Import XML window appears.
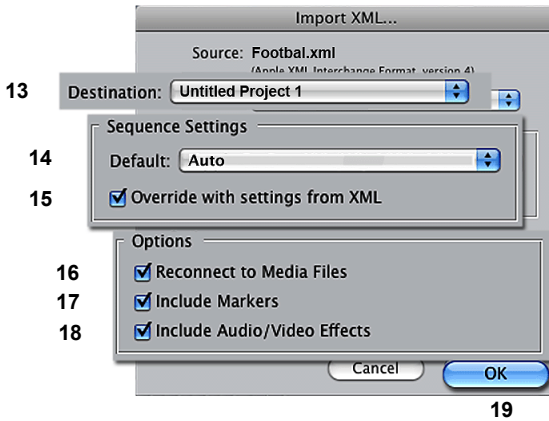
13. Use the Destination field to navigate to the project where the video clip is to be placed. Default is **Untitled Project**.

14. Select **Auto** from the Default dropdown menu.

    Auto enables Final Cut to automatically determine the format of the video clip, e.g. Apple ProRes 422 (HQ) 1920 x1080 50i 48kHx.

    Final Cut versions earlier than 5.1 require that the User manually select the correct entry.

15. Check mark the setting **Override with settings from XML**.

16. Check mark the option **Reconnect to Media Files**.

17. Check mark the option **Include Markers**.

18. Check mark the option **Include Audio/Visual Effects**.

19. Click **OK**.

    Final Cut imports all the clips that were shot using the specific template and places them in a folder in the browser window. One step places all the related video clips and their logged metadata in a folder.

Viewing a Clip

Column Headers
Metadata Field Names
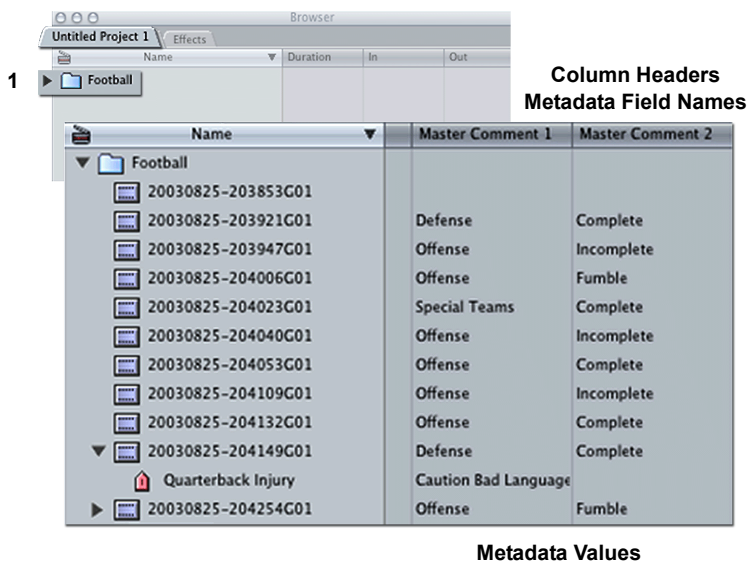
Metadata Values

1. To view all of the clips recorded using a specific template, open the folder with that template's name.

   A list of all the video clips associated with the template appears.

   To the right of the clip file names are columns with the metadata values attached to the file. The column headers are the **original** metadata field names: **Friendly Names** assigned in the template do not appear. Depending on the number of metadata fields used, it may be necessary to scroll through the list to findthe desired field.

   By selecting the field name at the top of the column, it is possible to sort all the clips by the values in that field.

2. To view the clip, drag it into the viewer window.

   The FS-CF Pro's capability of recording in native QuickTime HDV format using Direct To Edit® technology means that when the clip is dragged into the Final Cut Pro timeline, no rendering is required and the clip is ready to edit.

TC Dependent Metadata

Marker Name and Comment

IN and OUT Markers
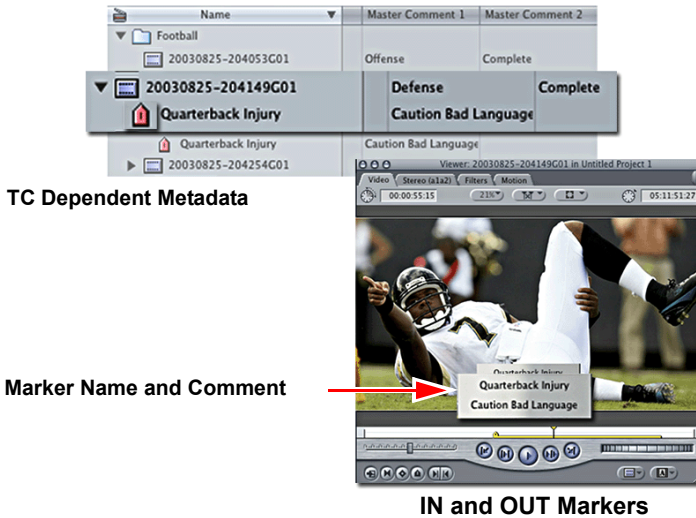
Any clips logged using timecode dependant (TC DEPEND) metadata have an arrow to the left of the clip in the browser window. Clicking on the arrow displays the marker that was set and the name, if it was entered.

If the entire clip is dragged into the viewer or timeline, the marker portion (with **IN** and **OUT** points) plays in the viewer. If the play marker is within the marker period, the marker name and comment appear superimposed over the video.

Technical Specifications

Specifications are subject to change.

Physical Description

- Dimensions: 2.75" x 5.50" x 1.25" (70mm x 140mm x 32mm).
- Weight: 12 oz. (0.34 kg) with battery.

User Interface

- Graphical display, 37mm x 49mm Active Display, color, backlit.
- 9 control buttons with conductive rubber keypad.
- Scroll Wheel I/F.
- Menu system integrated with control buttons to provide access to unit:
    Operation
    Setup
    Functions
    Utilities

Metadata

- Download from external device, Xml template of metadata tags.
- Add metadata tags to video file and link to:
    Timecode values in a recording,
    Individual clips,
    Entire recording session,
- Metadata compatible with popular NLE editor applications.

Compliance

- CE
- FCC Class B
- C-Tick
- RoHS

Connectors

Power - mini-jack

DC 11-18 V

Video IO - FireWire

1 x 6-pin
IEEE-1394a

Computer IO - USB 2.0
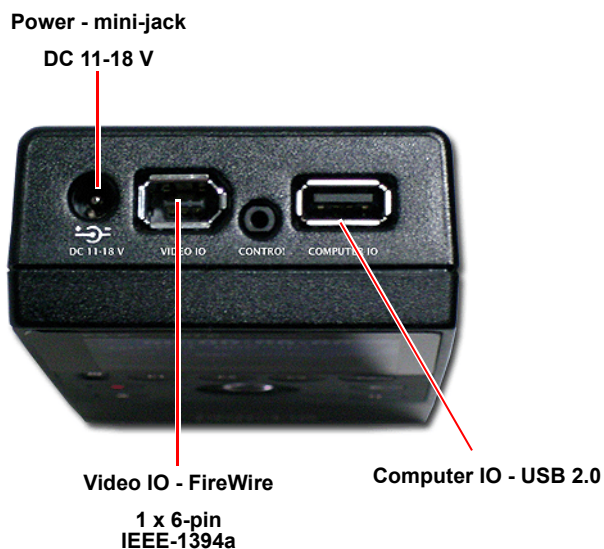
Inputs/Outputs

Video

- 1 x 6-pin FireWire, IEEE-1394a, connector with restraining latch.
- FS-CF Series can be powered via the FireWire connection when attached to a powered-on computer.

Audio

Embedded in the FireWire signal

- DV25

 Embedded 2-channel (16-bit, 48kHz),

 Embedded 4-channel (12-bit, 32kHz),

- HDV

 Embedded 2-channel MPEG 1, Layer 2,

Timecode

- Embedded in the DV/HDV stream.

Data I/Os

USB 2.0

- 1 x Asynchronous USB 2.0 port (Type A connector) w/ power out (500mA max).
- Can not accept power when connected to a computer.
- Connect 802.11b/g wireless LAN compatible devices.

Compact Flash (CF) Memory Card

Compact Flash (CF) Memory Card

- Support CF Type 1, UDMA 3 or better.
- Minimum card size: 16GB.

For the latest information about CF cards supported by the FS-CF Series visit Focus Enhancements' website, www.focusinfo.com.

Card Removed Without Using CF Utility

If the FS-CF Series is powered on and a CF card is removed without running the COMPACT FLASH utility the video clip(s) on the card may be damaged.

To correct this situation:

1. Power-down the FS-CF Series.
2. Insert the CF card.
3. Power up the FS-CF Series.
   This returns the unit to normal behavior.
4. Run REPAIR CLIP, see page 79, to fix each damaged clip.
5. Next time, run the COMPACT FLASH utility when removing the card.

CF Card Troubleshooting

Compact Flash utility runs and will not complete.

This can be caused when the FS-CF Series is powered on and:

1. The CF card is removed and re-inserted without running the Compact Flash utility.
2. Running the CF utility.

To correct:

1. Power-down the FS-CF Series.
2. Power-up the unit with or without the card inserted.
   Power cycling the FS-CF Series returns it to normal behavior.
3. Run **REPAIR CLIP** on page 162, to fix each damaged clip.
4. Run the **COMPACT FLASH** utility when removing the card.File Systems

DTE File Formats Supported

SD

DV25

- Frame Rates
    480i @ 30fps.
    480p @ 60fps.
    480p @ 24 and 30fps.
    576i/p @ 25fps.
    576i/p @ 50fps.
- DTE Formats
    RAW DV
    AVI 1
    AVI 2
    Canopus AVI
    Matrox AVI
    QuickTime
    MXF

HDV

- All HDV formats are supported in M2T.
    QuickTime HDV mode only supports 1080i50/60/24F/25F/30F and 720p25/30.
    MXF HDV mode only supports 1080i50/60 and 720p30.
- DTE Formats
    M2T - supports recordings larger than 2GB
    QuickTime - supports recordings larger than 2GB
    MXF - supports recordings larger than 2GB

Proxy Videos

- Frame Rates

    12fps 1080 hq

    20fps 1080 speed

- Codec: MPEG4

    Video bit rate: 320kb/s

    Audio bit rate: 64kb/s

    Frame rate: 12fps (50Hz) or 15fps (60Hz)

- Wrapper Table

Original File Format	Proxy File Format
AVI (DV all variants)	AVI (.avi)
MXF (DV/HDV) *	AVI (.avi)
M2T (HDV)	MP4
QuickTime DV/HDV **	QuickTime (.mov)
Raw DV (DV)	MP4

  * 720p30 and 1080i50/60 support only.

** 720p25/30 and 1080i50/60/24F/25F/30F support only.

Error Messages

The FS-CF Series will display error messages on its LCD display if certain conditions occur that can effect FS-CF Series operation. Below is a list of the error messages and the actions to take:

Error Message	Description	Action
LOW BATTERY!	Battery power is low.	Connect AC Power or replace the battery pack.
HIGH TEMPERATURE!	The unit is getting too hot for normal operation.	Check ambient air temperature. Is unit in direct sun light or near heat source?
NO SPACE LEFT!	The CF card is Full.	Replace card with another card or transfer files off of the card and format it before attempting to do more recording.
DISK ERROR XXX	Lost Disk Communication.	Contact Focus Enhancements Technical Support.
NO DISK DETECTED	Lost Disk Communication.	Contact Focus Enhancements Technical Support.
WRONG PRODUCT ID	Incorrect Software Loaded.	Download correct software and perform upgrade again.
FILE NOT FOUND	Wrong filename or missing file.	Check filename or that upgrade file exists.

Data CRC Errors

CRC (Cyclic Redundancy Check) errors indicate that either a file is corrupted (this might be a hardware error) or a file system is corrupted. CRC's are caused by any of the following:

- Computer hard drive
- Computer hard drive copying the files
- Computer port
- Computer file system corruption
- Cable (FireWire or USB)
- FS-CF Series CF memory card
- FS-CF Series port
- FS-CF Series file system corruption

Environment

- Operating Temperature: 0-40° C (32° -104°F)
- Storage Temperature: -20-60° C (-4° -140°F)
- Ambient Operating Humidity: Within 10% to 85% (relative humidity)
- Shock (Drop Test): Operating 50cm / Non-operating 100cm

Power

- Main unit:

    11 – 18V DC,

    Low power consumption. less than 3W during record,

- Removable and rechargeable Li-Ion battery pack:

    Capable of more than 3 hours of continuous record operation,

    Battery charger built into the unit,

- Supplied external AC adapter,

- Accept/receive power via FireWire port:

    Maximum 2.5W (500mA),

    Operation Only - Does Not Charge Battery,

- Power From External DC Battery Devices

    The ability to charge the FS-CF Series battery when operating using an external DC battery device is dependent on the load placed on the FS-CF Series.

    Consider the following when using external DC battery devices to power the FS-CF Series. The typical external DC video device is 12V or 14.4V.

    Power Consumption Tables

No Battery Installed - no charging current			
Volt- in	**No Dongle**	**With WIFI Dongle**	**Notes**
14.4 V	0.238A (3.42W)	0.328A (4.72W)	idle-LCD/Backlight at max
12.0V	0.285A (3.42W)	0.398A (4.77W)	idle-LCD/Backlight at max

Battery Installed - partially discharged, full charging current			
Volt- in	**No Dongle**	**With WIFI Dongle**	**Notes**
14.4 V	NA	0.608A (8.75W)	Record Mode-LCD/ Backlight at max
14.4 V	0.525A (7.6W)	0.575A (8.25W)	record for 1 hr. internal T=56 deg.C

Operation

When operating the FS-CF Series at 12V rather than 14.4V, the power consumed remains the same, but the current draw increases by a factor of 1.2 (14.4/12.0).

> ### ⓘNote
>
> **The WIFI dongle uses approximately 1.35W. This represents about 30% of the power budget when not charging the batteries.**
>
> **When charging the batteries, the FS-CF Series applies as much power as possible to the battery, up to a limit of about 1A charging current. However, the overall power system limits the total amount of current consumed to about 0.6 A maximum based on the 15V input adapter.**
>
> The result is that when a big load is added, such as a discharged battery and the dongle, the FS-CF Series automatically reduces the amount of the charging current so that the total current through the adapter never exceeds approximately 0.6 Amps.

Warranty

- FS-CF Series, one year, limited.

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FS-CF Series Portable DTE Recorder
MANL-1170-04