

SFU 4th Year Film

The Post Production Process

A scrumptious blend of advice by Evan Warner to avoid the post production perils



Qualities

- **RESOLUTION:** Measured in Pixels. More the merrier. Pixel Aspect Ratio.
- **INTERLACING/PROGRESSIVE:** How the frame is captured.
- **DATA RATE:** Amount of information. More information is better but will result in bigger files and more difficulty storing. Can cause video to skip.
- **FRAME-RATE:** FPS, can give the video look (60i) or Cinema look (24p). Also used to create true slow motion effect (60p+)
- **COLOR SPACE:** Ratio of Color Information kept. Important for color correction of keying. Bigger is better. 4:2:2 > 4:2:0
- **ARCHIVE:** Without film or tape original how will you store and backup your files?
- **COMPRESSION:** Intra-frame (Spatial) or Interframe (Temporal). Quality concerns, errors, how to edit them.



4 K (Red Camera/35mm DI)



Film
(ProRes 422)

Video
(DVCPro HD)

Both Scaled to Roughly 400%

The Choices

Video Format Options

Video Codecs

- **DV** (DVX100B, GL2, XLI s ect...) (Mini DV TAPE)
- **HDV** (Sony ZIU, Canon XLHI ect..) (Mini DV TAPE)
- **DVCPPro HD** (HVX 200, HDX900) (P2)
- **XDCAM EX** (Sony EX1, EX3) (SxS and SD Card)
- **DSLRs (H.264)** (Canon 5D Mark II, 7D) (Compact Flash Cards)
- **Redcode** (Red One, Scarlet, Epic) (Compact Flash, SD, Red Raid)



DV & DVCam

CAMERAS: Panasonic DVX 100B,
Canon XLI/XL2, GL2, Sony PD150/170 ect...

720x480 (SD)

24p capable on certain cameras

Cheap Tape

Intra-Frame compression (Easy to work with)

4:1:1 color sampling (Color Correction/Key Difficult)

Lowest SD Quality

Cheap Rental or Buy

Easy Archive



HDV

CAMERAS: Sony ZIU, Canon XL HI/GI/AI/HV20

720p, 1080i60 (1080P on newest cameras)

24p capable on newer cameras

Cheap Tape

Interframe Compression (Difficult to work with, prone to drop-outs)

4:2:0 (Color Correction/Key Difficult)

Lowest HD Quality

Cheap Rental or Buy

Easy Archive



XDCam EX CAMERAS: Sony EX1

720p, 1080i60, 1080p (Full Frame 1080p)

24p capable (Up to 60p in 720p)

SxS Solid State Memory: Expensive (\$500-\$1000) but can also use SD cards**

Interframe Compression (Difficult to work with)

4:2:0 (Color Correction/Key moderate**)

35 mb/s Good Quality

Moderate price rental

Backup system necessary



DVCPPro HD CAMERAS: Panasonic HVX200, HPX170, HDX900, Varicam

720p, 1080i60 (Pseudo 1080p, extreme PAR)

24p capable (Up to 60p in 720p)

P2 Solid State Memory: Expensive (\$500-\$1000 for 16GB/16min)

Intraframe Compression (Easy to work with)

4:2:2 (Color Correction/Key good!)

100mb/s Great Quality

Medium Priced Rental

Backup system necessary



DSLRs CAMERAS: Canon 5D Mark II, 7D

720p, 1080p
24 fps capable (currently only 7D)
SD Cards: Inexpensive
Interframe Compression: Transcode Required
4:2:0 (Color Correction/Key bad, similar to HDV)
48 mb/s Decent Quality & 35mm DOF
Backup system necessary
Cheap to Rent/Buy
Need rig to handhold, hard to pull focus



RedCode CAMERAS: RedOne, Scarlet, Epic

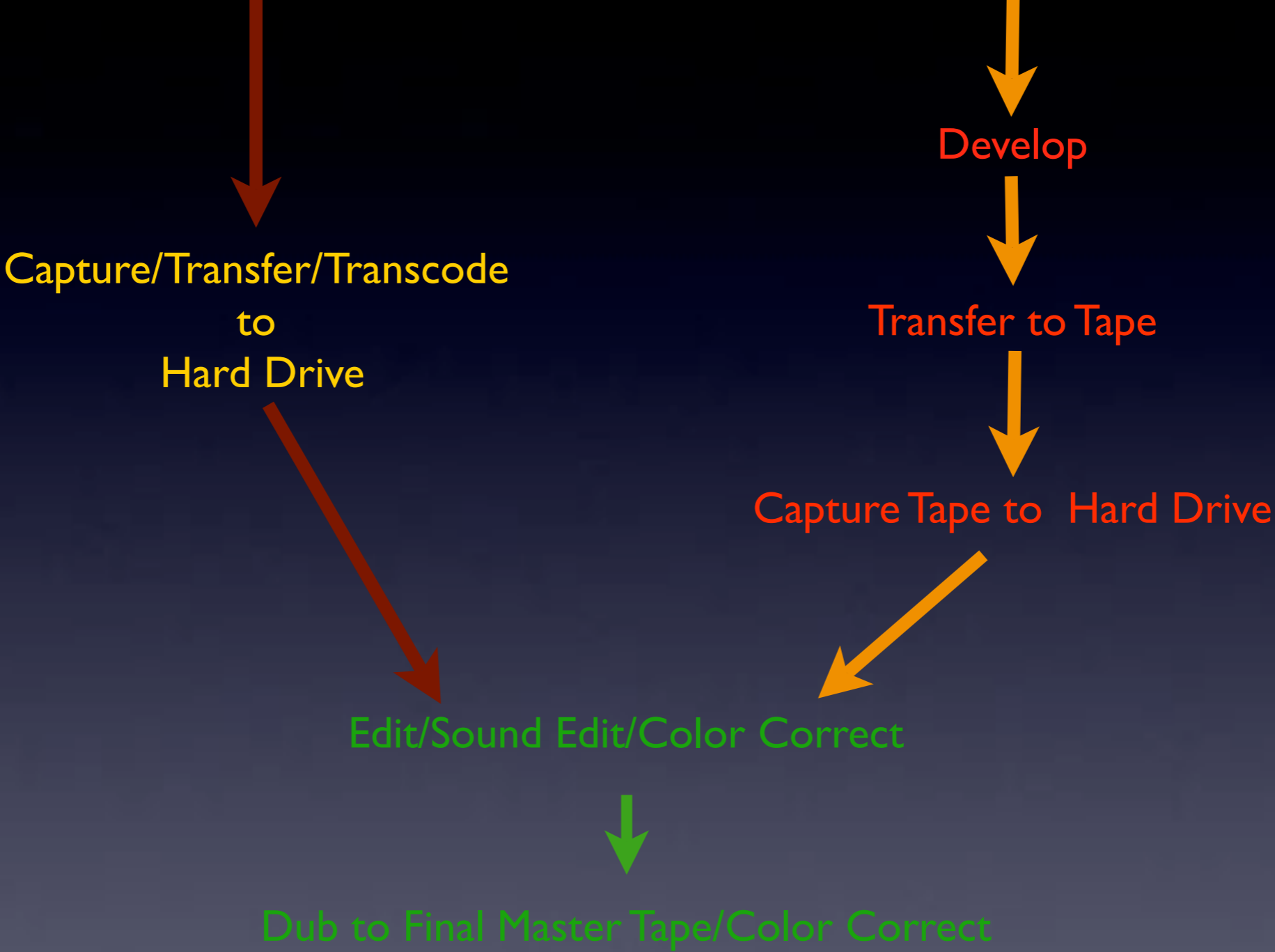
All resolutions up to 4k
24 fps capable (120 fps in 2k mode)
CF cards, Red Raid, Red Ram (all expensive)
35 MB/s (10x the rate of HDV, excellent quality 35mm DOF)
4:2:2 , RAW (Color Correction/Key Great)
Interframe Compression: Post very complex
Backup system necessary
Expensive to rent



Video Conclusion

Format	Pro	Con
DV	<ul style="list-style-type: none"> • Good for Docs • Cheap • Lots of takes 	<ul style="list-style-type: none"> • Lowest Quality (Especially on big screen) • Hard to Color Correct/Key
HDV	<ul style="list-style-type: none"> • Good for Docs + Narrative • Cheapest HD (Pseudo) • Lots of Takes 	<ul style="list-style-type: none"> • Transcode Recommended • Hard to Color Correct/Key
XDCam EX	<ul style="list-style-type: none"> • Good for Narrative Cinema • Full HD Resolution • Reasonable Cost 	<ul style="list-style-type: none"> • Transcode Recommended • Backup system is complex • Medium Color Correction
DVCPRO HD	<ul style="list-style-type: none"> • Good for Narrative Cinema • Great Color Correction • Easy to work with 	<ul style="list-style-type: none"> • Pseudo HD • P2 cards don't hold much • Backup system crucial
DSLRs	<ul style="list-style-type: none"> • Great for time-lapse video • Great cinema DOF • Cheapest full HD 	<ul style="list-style-type: none"> • Bad Color Correction/Key • Transcode Recommended • Cameras are hard to hand hold • Backup system crucial
Redcode	<ul style="list-style-type: none"> • Good for Narrative Cinema • Unrivalled quality / DOF 	<ul style="list-style-type: none"> • Transcode Recommended • Post is very complicated • Backup system crucial • Expensive

Film Transfer Options



Film Transfer Options

- DVCAM
- DigiBeta
- HDCam
- HDCam SR



- ProRes 422
- Uncompressed

MiniDV & DVCam

- Standard Definition **Lowest** Quality
- Intraframe Compression (Easy to work with)
- 4:1:1 (Color Correction/Key Bad)
- Can transfer to computer at home
- Small File Size
- Cost: **Low**



DigiBeta

- Standard Definition **Medium** Quality
- Intraframe Compression (Easy to work with)
- 4:2:2 (Color Correction/Key Great!)
- Cost: **Medium**



HDCam

1080p (PAR) **Good** Quality
Intraframe Compression (Easy to work with)
3:1:1 (Color Correction/Key Good)
Cost: **High**



HDCam SR

Full 1080p **Best** Quality
Intraframe Compression (Easy to work with)
4:2:2 (Color Correction/Key great)
Cost: **Highest** (transfer is same as HDCam, tapes are more expensive)



ProRes 422

Full HD Great Quality
Intraframe Compression (Easy to work with)
4:2:2 (Color Correction/Key Good)
Large File Size
Transfer To Drive Cost: **Medium**


Uncompressed HD

Full HD Best Quality
No Compression
4:2:2 or 4:4:4 (Color Correction/Key amazing)
Massive File Size
Need fast Computer + RAID
Transfer To Drive Cost: **High**

Film Transfer Conclusion

Format	Pro	Con
DV	<ul style="list-style-type: none"> • SD, easy to work with. • Good for offline edit 	<ul style="list-style-type: none"> • Lowest quality • Why degrade great film image?
Digiibeta	<ul style="list-style-type: none"> • Best for SD • Great Color Correct 	<ul style="list-style-type: none"> • Still not HD • Why degrade great film image?
HDCam / SR	<ul style="list-style-type: none"> • HD Resolution • Great for Color Correct 	<ul style="list-style-type: none"> • More expensive tapes + transfer
ProRes 422	<ul style="list-style-type: none"> • HD Resolution • Great for Color Correct • Meant for Editing (Realtime) 	<ul style="list-style-type: none"> • Final Cut Pro Only • Backup strategy necessary
Uncompressed	<ul style="list-style-type: none"> • Best Image possible • Best Color Correct 	<ul style="list-style-type: none"> • Huge file sizes • Need fast computer + RAID to playback • Backup strategy necessary

ProRes Workflow

- Shoot Film
 - Develop negative in Vancouver
 - Buy HDCam/HDCam SR Tape, Firewire 800 Hard Drive
 - Bring all to Technicolor in Vancouver
 - Sit in for 1 light/flat xfer .
 - Get Back, HDCam/SR Tape (Backup) + Prores files on HDD.
 - Edit ProRes in Final Cut Pro directly
 - Do Color Correct/Animation/Titles yourself or professionally*
 - Output DVCam/Quicktime for Sound Mix
 - Add mixed sound into Final Cut Pro
 - Go to post house (Finalé) for final Dub to HDCam + Optional Dolby E
 - Screen + Send to festivals
 - Encode Directly for Web, DVD, Blu Ray
- 

Prores Budget

Budget includes pickups but not deals on film or HDD ect...

Post Production Costs For ProRes 422 Film Workflow @ Technicolor in Vancouver					
Facility	Item	Notes	Qty	Price	Total
Kodak	7219 Film		8	\$133.00	\$1,064.00
Technicolor	Develop	No PST	3200	\$0.14	\$435.20
Technicolor	Telecine	2:1 Ratio	3	\$450	\$1350
Technicolor	Drive xfer	1:1 Ratio	1	\$350	\$350
Tape House	HDCam Tape	No PST	2 tapes	\$60.00	\$120.00
NCIX	Firewire 800 Drive	+ case	1 HDD	\$200.00	\$200.00
Sharpe Sound	Sound Mix	No PST 2.5h from SFU free	1.5 hours	\$200.00	\$300
Fianle Editworks	HDCAM Uprez	No PST	2 dubs	\$200	\$400
				Sub Total:	\$4219
				Tax + Extra	\$500
				Total	\$4719

The Good , the Bad and the Ugly...

VIDEO

- Can be sharper
- Cheaper Tape (but need to rent camera)
- Backup system crucial if using P2 or SxS
- Video Look
- Much less dynamic range
- Limited Colors
- Tendency to overshoot or plan poorly
- Immediate results with monitor and laptop
- Good monitor is a MUST
- MUST have good understanding of format (24p, 24pN, 720p24/60 ect...)
- Limited to camera features (often fixed lens, over cranking, ND, Grads...)

FILM

- Great Color
- Great Dynamic Range
- Softer
- Film Look/ Credibility
- Film is expensive but free Camera
- Requires more planning (good and bad)
- When will you ever shoot film again? Experience?
- Always have neg, future-proof
- Great Lenses, filters ect..
- Must wait to review footage unless video-tap
- Can have scratches ect...



Fabulously Film

Cross Processed Reversal Film Look



Fabulously Film

Achieve Cinematic Depth of Field



Fabulously Film

Beautiful color even when ungraded



Fabulously Film

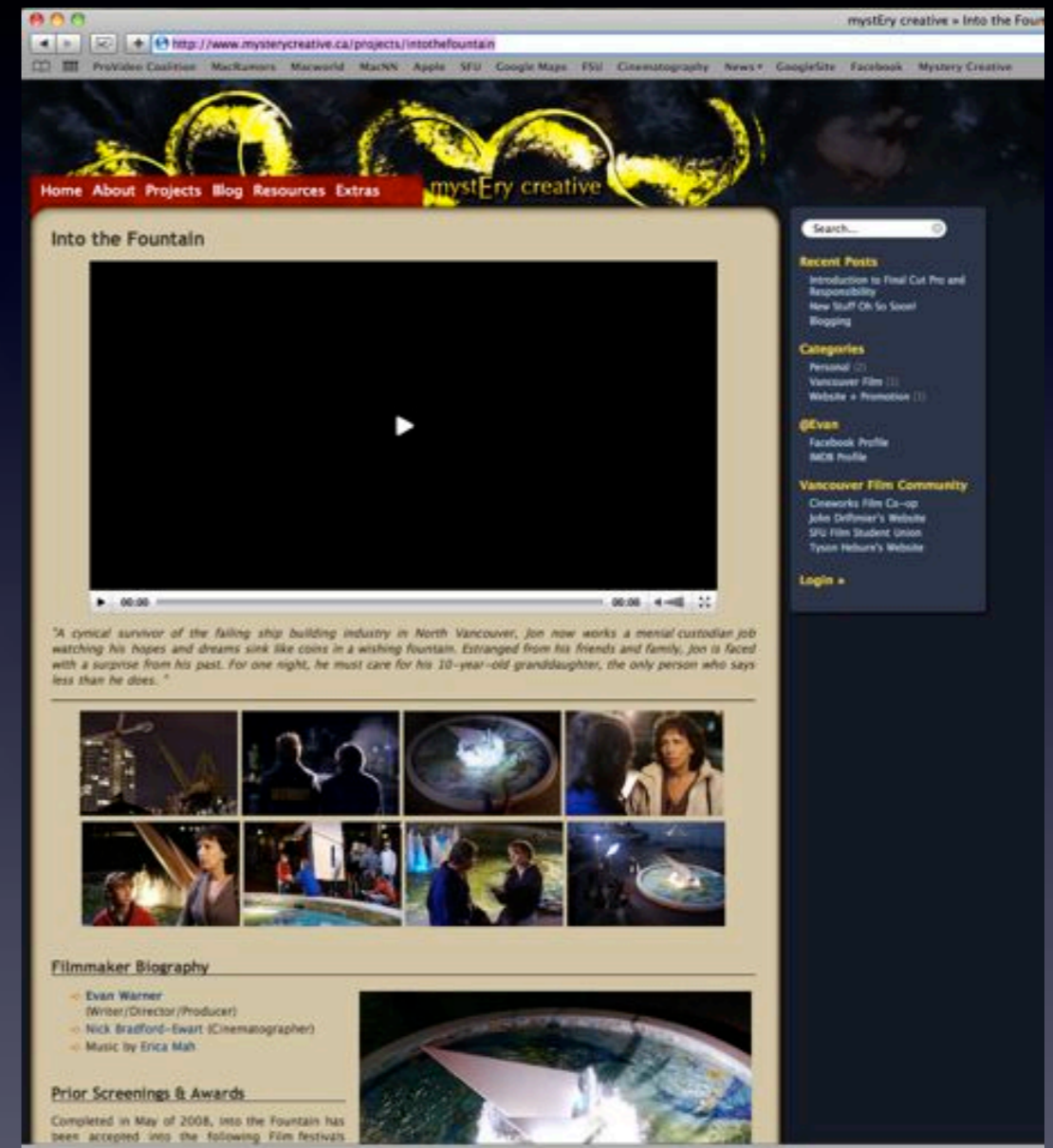
Capture low light with fast lenses (t1.3)



Simply Video

Flexibility of Video + Cost

This presentation is on my website!



www.MysteryCreative.ca/resources