

S.two metadata

Collection, transmission and sharing.

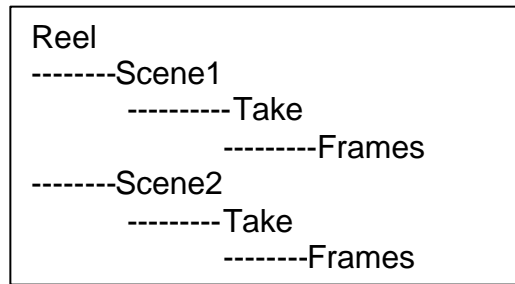
Having the advantage of a file system and using industry standard SMPTE DPX files allows S.two D.MAG system to offer a complete metadata gathering, storage and sharing capability. Metadata can be broken down into three parts in the D.MAG system, automatic data, user inputted data and file system data. Provision is made to be able to add support for any proposed metadata collection and file type. Interfaces for metadata include RS232 and 422 ports, Twin Gigabit Ethernet ports, Multiple GPI ports, Wireless network 802.11G, USB 2.0 ports and Firewire.

Automatic data gathering capabilities include support for industry standard metadata systems including SMPTE RP188 VANC data timecode which is parsed into the file header and used for timecode support, SMPTE 215A (proposed) which is captured as a real time extension to RP188. This is currently not parsed into the appropriate file header space but it is allowed for and fits within the DPX header spaces. The D.MAG system also supports UMID, unique media Identifier data, this can include GPS positioning data and alternative frame numbering solutions. Other automatic data is created as files are created, these include the header itself, the spaces for metadata, base data such as time of day, timecode and file name conventions including scene, take, camera and frame number. The D.MAG system has support for external LTC SMPTE 12M, RP188 VANC timecode, internally generated timecode, all with user bit support. The files can have multiple alternative timecode as well as frame numbers which themselves reflect a base 24 number so that timecode can be derived from the frame number in a computer application. Digital audio is also treated as a metadata file and carried with frame information. Eight channels of uncompressed AES/EBU 24 bit 96Khz audio are recorded.

User generated data can be created in the system using the DMAGREMOTE software, the user interface is either on a laptop computer or on a PDA. The D.MAG supports any OS attached via Ethernet connections or the PDA attached via Serial or USB connections. User input data includes complete details of the production including director, DP and operators names, non changing production information and user data fields. Each reel also has the ability to add additional data for A or B or visual effects units, the scene has data pertaining to the specific details of each scene including data such as location, frame rate and standards. Each take then has additional data fields. All data headings include space for user generated notes. All data attaches directly to the files or to the production. This data is stored in a separate dmaginfo.txt file. A simple text file that can be exported read and edited in a wide variety of programs. This metadata file lists all relevant data for the shoot, the production, the scene and take. An example of this file is below.

File system data uses both the automatically and user input data to make sure that each frame has a set of unique identifiers so that frames cannot be orphaned in an application. The frame name also includes a base set of identifiers so that from just a directory inquiry a frame should be able to be identified. The file system allows a

Directory structure – D.MAG



traditional folder/directory approach to recording data to help users catalog and find frames of interest. A D.MAG reel has the structure of a master directory, with sub directories, Scenes and Takes beneath that. In each take directory are the frames as individual files uniquely named. This allows for reels to be mounted and directory inquiries made in an efficient manner. The dmaginfo file which resides at the reel level has full information for all details attaching to that reel and production so inquiries can be made of it for cataloging and search information. This file is easily parsed into a database application that accepts space delineated text files. A file name can be user called out, the default file name convention has been arrived at with several clients.

The file name is r001_s003_camA_t001_0005973.dpx. The r001 is the D,MAG reel, S003 is the scene number, camA allows the camera to be identified where multiple camera are shooting the same material with matching timecode and production information, t001 is the take name and the 7 digit frame number is based upon the timecode value.

Dmaginfo.txt

The following is a complete dmaginfo file imported into MS Word automatically. Not all user input data has been entered as this is discretionary for the user, many times you just want to start shooting without having to enter anything at all. In these cases the D.MAG system will fill in the base information where appropriate. The user can set much of the information including reel and scene names and numbers along with notes fields in take and scene.

The scene has the format information, the file below has both 1080 RGB at 23.98 and 25 Psf. The D.MAG system supports both YUV and RGB file types as well as dual and single link inputs allowing it to be used with any HD device as well as any digital cinema HD device. The D.MAG system also supports 2K data.

An Example of a Dmaginfo file

[PRODUCTION:0]

ProdName=none
ProdDate=3/29/2004
ProdDirector=none
ProdDp=none
ProdOperator=none
ProdUser1=User1:none
ProdUser2=User2:none
ProdUser3=User3:none
ProdUser4=User4:none

[REEL:1]

ReelNumber=1
ReelDate=3/29/2004
ReelDirector=none
ReelDP=none
ReelAssistant=none
ReelOperator=none
ReelUser1=User1:none
ReelUser2=User2:none
ReelUser3=User3:none
ReelUser4=User4:none
ReelLastScene=8
ReelFileSystem=LINUX_XFS
ReelFileFormat=DPX

[SCENE:1]

SceneNumber=scene-1
SceneDate=3/29/2004
SceneTimecodeStart=00:02:03:22
SceneLocation=none
SceneUnit=none
SceneAudioChannels=none
SceneAudioType=Not Specified
SceneVideoFormat=1080psf_2500
SceneVideoSampleRate=RGB
SceneVideoBits=10
SceneVideoFrameBuffer=RGB
SceneTimecodeFormat=LTC_NDF
SceneTimecodeSource=INTERNAL
SceneTimecodeMode=RECORD_RUN
SceneTimecodeSync=SET_START
SceneFieldFrameFlag=Not Specified
SceneCameraType=VIPER
SceneCameraNumber=A
SceneNumberOfTakes=6
SceneLastTake=6
SceneNotes="None"

[TAKE:1]

TakeNumber=1
TakeNotes="None"
TakeTimecodeStart=00:00:00:01
TakeTimecodeEnd=00:00:15:24
TakeUserBits=00:00:00:00
TakeAltTimecodeEnd=00:00:00:00
TakeUMID=0
TakeCircle=0

Dmagremote data entry screens



The 'Production Info' dialog box contains the following fields:

Production Name	none
Production Date	1/24/2004 Cal
Director	none
DP	none
Operator	none
User1	none
User2	none
User3	none
User4	none

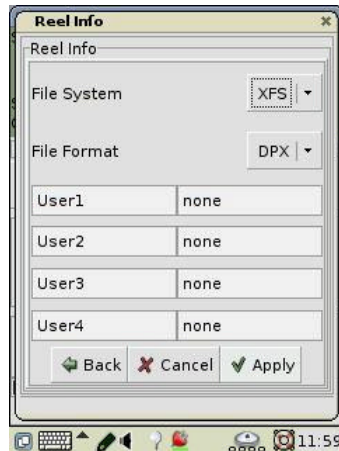
Buttons: Cancel, OK



The 'Reel Info' dialog box contains the following fields:

Reel Number	1
Date	1/24/2004 Cal
Director	none
DP	none
Assistant	none
Operator	none

Buttons: Cancel, Next

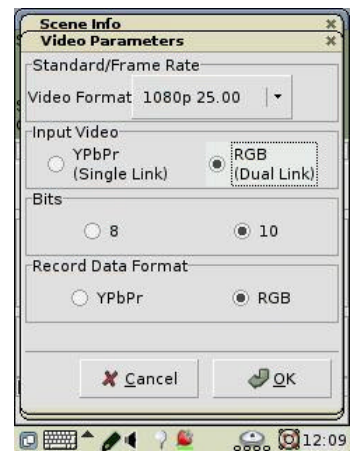


The 'Reel Info' dialog box contains the following fields:

File System	XFS
File Format	DPX
User1	none
User2	none
User3	none
User4	none

Buttons: Back, Cancel, Apply

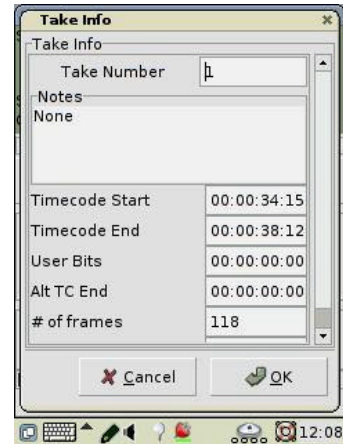
TakeNumberOfFrames=399
 [/TAKE]
 [TAKE:2]
 TakeNumber=2
 TakeNotes="None"
 TakeTimecodeStart=00:00:16:00
 TakeTimecodeEnd=00:00:30:15
 TakeUserBits=00:00:00:00
 TakeAltTimecodeEnd=00:00:00:00
 TakeUMID=0
 TakeCircle=0
 TakeNumberOfFrames=366
 [/TAKE]
 [TAKE:3]
 TakeNumber=3
 TakeNotes="None"
 TakeTimecodeStart=00:00:30:16
 TakeTimecodeEnd=00:00:56:24
 TakeUserBits=00:00:00:00
 TakeAltTimecodeEnd=00:00:00:00
 TakeUMID=0
 TakeCircle=0
 TakeNumberOfFrames=659
 [/TAKE]
 [TAKE:4]
 TakeNumber=4
 TakeNotes="None"
 TakeTimecodeStart=00:00:57:00
 TakeTimecodeEnd=00:01:19:15
 TakeUserBits=00:00:00:00
 TakeAltTimecodeEnd=00:00:00:00
 TakeUMID=0
 TakeCircle=0
 TakeNumberOfFrames=566
 [/TAKE]
 [TAKE:5]
 TakeNumber=5
 TakeNotes="None"
 TakeTimecodeStart=00:01:19:16
 TakeTimecodeEnd=00:01:35:23
 TakeUserBits=00:00:00:00
 TakeAltTimecodeEnd=00:00:00:00
 TakeUMID=0
 TakeCircle=0
 TakeNumberOfFrames=408
 [/TAKE]
 [TAKE:6]
 TakeNumber=6
 TakeNotes="None"
 TakeTimecodeStart=00:01:35:24
 TakeTimecodeEnd=00:02:03:22
 TakeUserBits=00:00:00:00
 TakeAltTimecodeEnd=00:00:00:00
 TakeUMID=0
 TakeCircle=0
 TakeNumberOfFrames=699



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[/TAKE]
[/SCENE]
[SCENE:2]
  SceneNumber=scene-2
  SceneDate=3/29/2004
  SceneTimecodeStart=00:04:24:04
  SceneLocation=none
  SceneUnit=none
  SceneAudioChannels=none
  SceneAudioType=Not Specified
  SceneVideoFormat=1080psf_2398
  SceneVideoSampleRate=RGB
  SceneVideoBits=10
  SceneVideoFrameBuffer=RGB
  SceneTimecodeFormat=LTC_NDF
  SceneTimecodeSource=INTERNAL
  SceneTimecodeMode=RECORD_RUN
  SceneTimecodeSync=SET_START
  SceneFieldFrameFlag=Not Specified
  SceneCameraType=VIPER
  SceneCameraNumber=A
  SceneNumberOfTakes=5
  SceneLastTake=6
  SceneNotes="None"
[/TAKE:1]
  TakeNumber=1
  TakeNotes="None"
  TakeTimecodeStart=00:02:03:23
  TakeTimecodeEnd=00:02:57:15
  TakeUserBits=00:00:00:00
  TakeAltTimecodeEnd=00:00:00:00
  TakeUMID=0
  TakeCircle=0
  TakeNumberOfFrames=1289
[/TAKE]
[TAKE:2]
  TakeNumber=2
  TakeNotes="None"
  TakeTimecodeStart=00:02:57:16
  TakeTimecodeEnd=00:03:07:16
  TakeUserBits=00:00:00:00
  TakeAltTimecodeEnd=00:00:00:00
  TakeUMID=0
  TakeCircle=0
  TakeNumberOfFrames=241
[/TAKE]
[TAKE:3]
  TakeNumber=3
  TakeNotes="None"
  TakeTimecodeStart=00:03:07:17
  TakeTimecodeEnd=00:03:44:14
  TakeUserBits=00:00:00:00
  TakeAltTimecodeEnd=00:00:00:00
  TakeUMID=0
  TakeCircle=0
  TakeNumberOfFrames=886

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[/TAKE]
[TAKE:4]
TakeNumber=4
TakeNotes="None"
TakeTimecodeStart=00:03:44:15
TakeTimecodeEnd=00:03:58:22
TakeUserBits=00:00:00:00
TakeAltTimecodeEnd=00:00:00:00
TakeUMID=0
TakeCircle=0
TakeNumberOfFrames=344
[/TAKE]
[TAKE:6]
TakeNumber=6
TakeNotes="None"
TakeTimecodeStart=00:03:58:23
TakeTimecodeEnd=00:04:24:04
TakeUserBits=00:00:00:00
TakeAltTimecodeEnd=00:00:00:00
TakeUMID=0
TakeCircle=0
TakeNumberOfFrames=606
[/TAKE]
[/SCENE]
[/REEL]
[/PRODUCTION]