Product – ADC v11 and v12

Topic: Miranda Imagestore 2 + Intuition

A still store and animation player with a 9-layer keyer, AB mixer, and optional DVE, audio clip player, video clip player, automated CG and EAS inserter.

Release Date: 9-December-2014

Revision History

Revision	Protocol	Date	Author	Company	Description
1.5		6/21/12			DS v12.19: Added note on ImageStore, ImageStore750, and ImageStore Intuition: The maximum negative value for the 'Back-time value in frames' parameter is -70.
1.4		5/19/12			Added note regarding ADC v12.18 change to Title field for Secondary sDat events with Direct commands.
1.3		4/29/11	Product Marketing		Added new information for Key/Fill enhancement (ER-14356)
1.2	Miranda-Oxtel Series Automation	12/24/10	Product Marketing		Added Animation Control instructions (ER-19041). Applied new screen captures. Updated Description section and added Driver Limitations section.
1	Miranda-Oxtel Series Automation	3/10/2006	TNguyenphuc		Stillstore driver with 9 channels

Versions Used

	Imagestore v.2, 2U	Imagestore v.3	Imagestore HDTV	Imagestore v.2	+Intuition
Firmware	2.16	3.16	1.05	2.09	2.21

	Imagestore v.2, 2U	Imagestore v.3	Imagestore HDTV	Imagestore v.2	+Intuition
Operator Manual	Miranda Imagestore User Manual	Miranda Imagestore User Manual	Miranda Imagestore HDTV User Manual	Miranda Imagestore, User Manual	
Protocol:	v01035-03 May-2003	v01035-03 May-2003	v01035-03 May-2003	Protocol version 2.3	

Description

This driver in ADC100 was written for the Miranda Imagestore device connected the Intuition. Intuition device in this setting is for Imagestore to gain more channels (up to 9 channels) but is not known to this driver. The driver just needs to communicate with Imagestore box with layer (or channel) ID greater than one the Imagestore would know and forward the command to Intuition box. Support for a standalone Intuition driver and additional keyer layers was introduced with Device Server version 11.0.1. When the Intuition driver is used with Presmaster MCS, you will need to use Device Server v11.0.1 or higher to make use of the additional Intuition keyer layers. A Storage Check feature has also been added to the Intuition driver (ER-14293) and was released with Device Server v11.57. Device Server v11.58.14 introduced an updated method for controlling Key/Fill pairs upon the Imagestore.

The Imagestore could be used with a separate downstream keyer by selecting one of the key signals for the preview output port and using the program output signal for the fill. The protocol that supports this Imagestore driver (Miranda Intuition Imagestore or IS2) is Miranda Oxtel Series Automation Protocol, version 01035-08 issued on March 2005. This means the Miranda Intuition ImageStore driver is capable of controlling the following models/configurations:

- Standard Imagestore device without Intuition
- Imagestore II without Intuition
- Imagestore with Intuition

Driver Limitations

- ADC is unable to control the PresMaster MCS through any of its ImageStore drivers (including the Intuition)
- Control of the Easy Sound option for the Intuition (ER-19040) has not been implemented but will be targeted the first half of 2011.
- The Intuition's preview layer cannot perform image transitions and the program layer cannot perform image loads, saves, or grabs
- Intuition driver does not support the optional EasyPlay features
- Intuition driver does not support the BugBurner logo inserter

Additional Info about the Imagestore Device

The Imagestore comes in both SD and HD versions. The SD models include the Imagestore 2, 2U and 3. The Imagestore 3 includes an integrated MPEG video clip player. There is only one HD model, the Imagestore HDTV.

All models include two hardware-based keyers with internal still and animation storage and external fill/key inputs for the keyers. The SD models have a single fill/key input pair that can be assigned to either keyer; the HD model can be optionally equipped with separate fill/key input pairs for each keyer. Up to two program inputs are available (background/A and B), and there is also an optional internal A/B mixer. All inputs are digital. The HD model has active loop outputs on all inputs.

All units have program and preview outputs which by default produce digital outputs, but an internal circuit board may be changed on the SD models to provide analog preview output. Since the device has two keyer layers but only one program output, the two keyers must be used on the same program layer.

The Still Store driver has been implemented as a two-headed device with each head corresponding to 1 keyer layer. Normal Primary or Secondary A/V events may be played through the Imagestore. For compatibility with the previously released “Mirandakyr” driver Secondary Data events also may be used to control keyer operations.

The SD models have two modes: “**Cascade**”, and “**Swap-preview**”. In cascade mode the two keyers operate in series, permitting two images to be keyed at the same time. The midground keyer is addressed as layer 0, while the foreground keyer is 1. In Swap-preview mode layer 0 is the preview layer and layer 1 is for program output. A separate image may be loaded into the preview layer and then swapped to the program layer. The preview layer cannot perform image transitions and the program layer cannot perform image loads, saves, or grabs. As the Swap-Preview mode only allows one keyer to be on air at a time while the Cascade mode allows both keyers on air simultaneously the **Cascade mode is preferred under automation**.

Although the Imagestore does not have key and fill outputs, the preview output port may be set to display one of several signals. These include the key and fill signals for each of the two-keyer layers. Thus the Imagestore could be used with a separate downstream keyer by selecting one of the key signals for the preview output port and using the program output signal for the fill.

Several related Miranda devices conform to the same protocol. The other device is the EasyKey mixer keyer. This driver should be able to control either of those devices as well. This driver does not support the optional EasyPlay features. This driver does not support the BugBurner logo inserter. Another driver (see the BugBurner.doc) is available to do that.

Imagestore Set Up

A couple of options must be set from the front panel of the Imagestore for the device to work correctly with the Still Store driver. Follow the sequence of operations below to set it up correctly.

- These settings are made from the system menu, to get to this menu select the “set up” menu from the front panel and press ENTER (the bottom key on the panel).
- Select “system” from the menu that appears next, the Imagestore will prompt you with a “system change {NO} {YES}” display, select YES to continue.
- First set the device for Cascade mode. Select the “swap-PVW / cascade” item, choose the cascade option and press ENTER.

The Imagestore device must be set up for RS422 control. Select the serial protocol menu item, then choose RS422 and press ENTER. Set the baud rate to 19,200. The protocol should be set to “strict” and not “relaxed” on the SD models, on the HD model set the protocol to “automation”.

- IMAGESTORE INTUITION COMMUNICATION SETUP: On the Imagestore front panel, under System-> Setup-> Serial Comms Setup-> RS232 Protocol, make sure it is set to "Intuition" .....

On the Intuition front panel, under setup, for serial communications for RS232, make sure it is set to 19.2k.

Cable Requirements

The cable between the ADC server and the Imagestore must conform to the following specification:

ADC Device Server	Imagestore 2,2u,3	Imagestore HDTV
RX- (2)	1	2
TX+ (3)	3	3
GND (4)	5	4
RX+ (7)	2	7
TX- (8)	4	8

Connect one end of the cable to the ADC Device Server. The other end of the cable is connected to the DB9 port located on the rear of the Imagestore marked RS422. The SD models have only a single RS422 port, the HD model has two RS422 ports and either can be set up for automation control.

Communications Parameters

The communications parameters for the Imagestore cannot be changed. They are preset in the ADC device server. The settings below are provided for your information.

- Baud Rate: 19,200
- Data Bits: 8
- Parity: none
- Stop Bits: 1

Device Server Set-Up

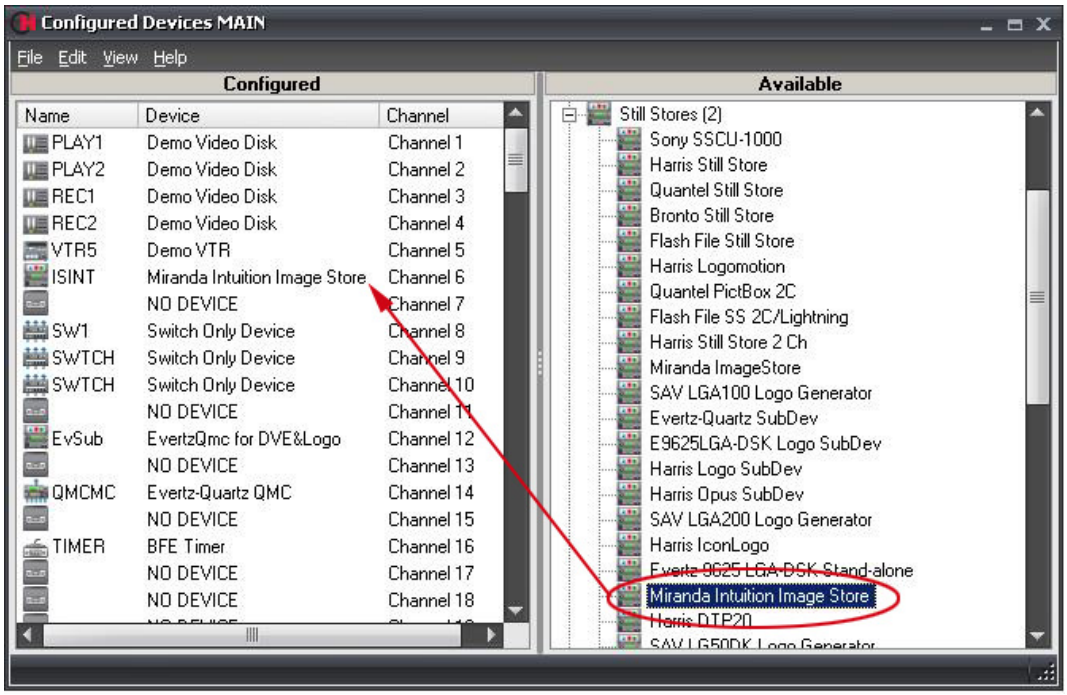
IMPORTANT Configuration Note: When you have finished making changes on a configuration screen, press Apply and all changes made upon the current configuration window will be applied to the driver. Press OK, and any configuration changes made upon the various tabs will be applied, however, the configuration window will close. Press Cancel and none of the configuration changes will be applied to the driver and the configuration window will close.

Device Driver Configuration (Still Store)

To configure the Still Store driver for Imagestore on the ADC Device Server, follow the procedure below:

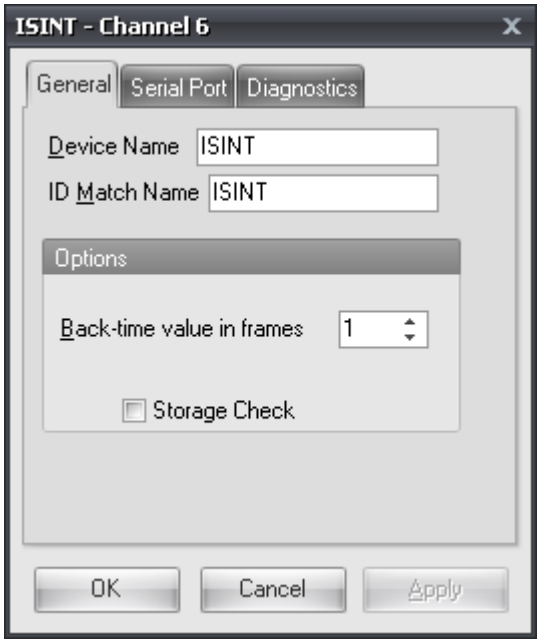
1. From the Configuration utility, right-click on your Device Server icon and select the Configured Devices item to display the “Configured Devices” window.

2. From the list in the right hand pane select “MIRANDA INTUITION IMAGE STORE” from the “Still Stores” category. Use the mouse pointer to drag this item over the top of one of the icons in the right hand pane that has the caption “NO DEVICE,” as shown below.



3. Select the ISINT icon you just created and press the right mouse button to bring up a menu. Select “Properties” from this menu (or double-click on the icon instead).

4. Select the “General” tab.



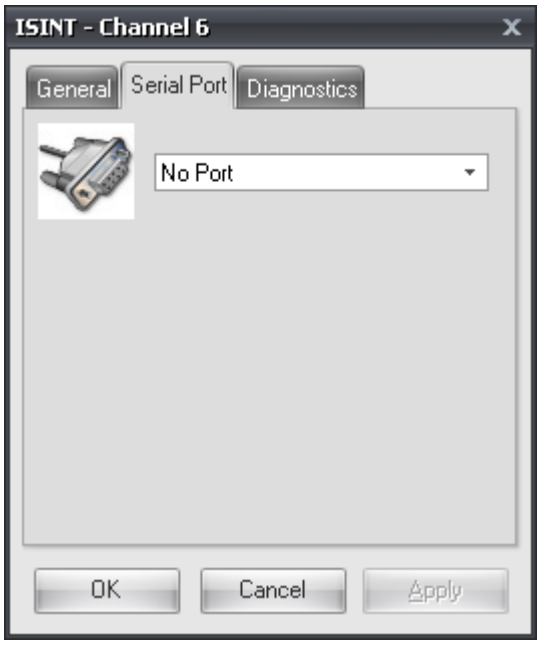
Configure the following parameters as required:

- Enter the name for the device in the **Device name** box. The “Device Name” will appear in the Device Status and configuration window on the client applications. The default name may be used but it is recommended to use unique names for easy device identification.
- Enter the **ID Match Name** for this device. This string is placed in the ID field of events that will be played by this device.
- The “**Backtime value in frames**” setting determines when the play command is sent to the Intuition. It is intended to compensate for the delay between the time the play command is sent from the Device Server and the time that the Intuition executes the command. The default value for this parameter is 1 frame. The maximum value is 300. It will generally not be necessary to modify this setting for controlling the Intuition but this setting may vary for some users.
  ImageStore, ImageStore750, and ImageStore Intuition Note*: In ADC Device Server v12.19 and higher the maximum negative value for the ‘Back-time value in frames’ parameter is -70*.
- The **Storage Check** setting, when enabled, this will allow Device Server to check on the availability of an ID prior to registering it within the ADC Transmission List.

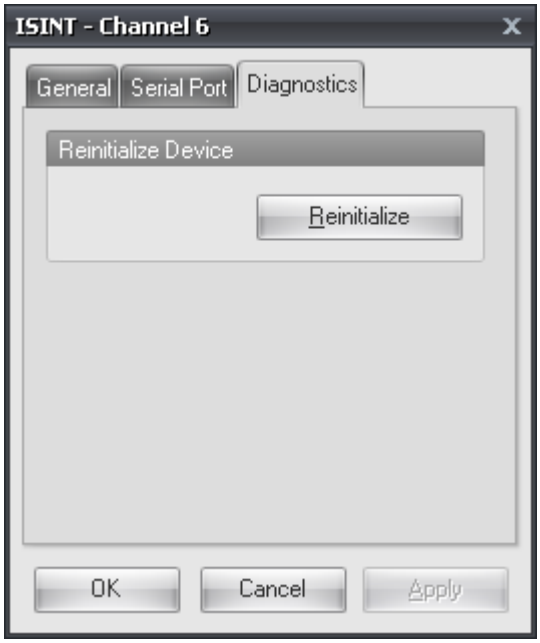
5. Select the “Serial Port” tab to configure the physical serial port number.

   Choose “Serial Port” in drop-down list. This port selected is physical port upon the Device Server which the Intuition is connected to.

   When viewing the serial port cards on the back of the ADC Device Server, the upper left serial port is Port 1. The port numbers increase as you count down the ADC serial board. The top serial port of the next serial card will be the following port number.



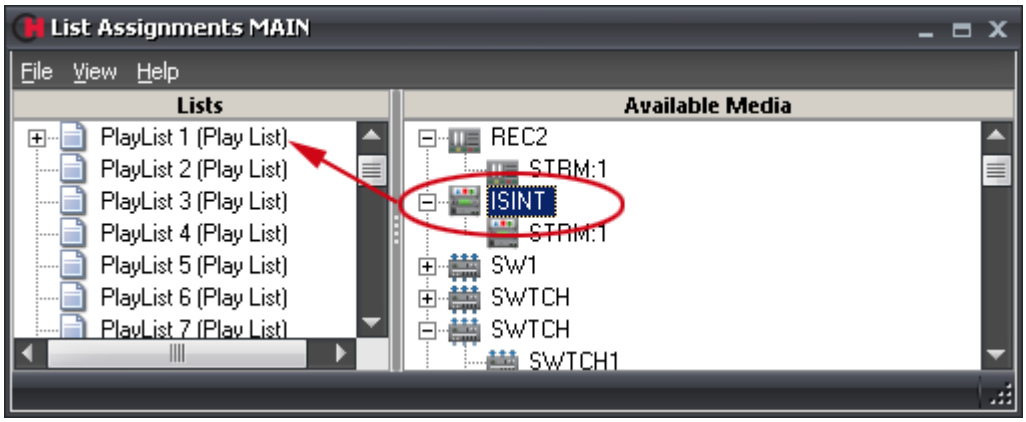
6. The Diagnostics tab contains a Reinitialize button, which will clean the buffers in the driver and reset the connection to the Imagestore. This should only be used for troubleshooting purposes.



Assign “ISINT” Device to an ADC List

To assign the Imagestore Still Store driver to a list, do the following:

1. From the Configuration utility, right-click on your Device Server and select List Configurations to display the List Assignments window.
2. Locate the Imagestore Still Store driver in the Available Devices column. Left-click and drag it to the desired Transmission List in the Lists column. Release the mouse when the pointer is over the Icon for the list.



Imagestore AUTOMATION

Either primary or secondary events may be played on the Imagestore. When using primary events, you must configure the AUDIO/VIDEO parameters for the heads as with other devices. If the output of the Imagestore is not being used as a primary video feed but as possibly a key, then both a secondary key event and secondary Audio/Video event are required.

For the Imagestore to play a list event the ID field of the event must match the device name for the ImageStore (the default device name is ISINT). For Primary, Secondary A/V, and Backtimed A/V events the Title field of the event will contain either the file number (still) to be loaded from the Imagestore, or it may contain the word LIVE (in capital letters) to play the image present on the key and fill inputs. File numbers begin at 0. Files are named Vnnn.OXT (for stills) or Vnnn.OXA (animations) in the Miranda media software, however the files are referred to by just their number nnn in ADC; the leading V and file extension are omitted in the playlist.

If the same file exists on an Imagestore in both OXT and OXA formats the OXA file will play out. The maximum file number depends on the Imagestore option purchased, the standard Imagestore accommodates 40 stills. The SD Imagestores can be expanded to up to 4000 images and the HD units to 1000 images. The driver does not verify that a given file number actually exists in the device, if a file number is not available when it is needed by the list, the list will generate an error and the event will be marked as missed. Alphanumeric filenames are also supported using the LOADI command below.

When using A/V events to recall Logo files, each of the nine heads for the ImageStore device correspond to one of the keyer layers; head 1 is the midground layer and heads 2 through 9 are the foreground layers.

An event will designate a layer or head for the devices to play with format as follows:

<command ID>:<layer ID> [space<page ID>].

For example: LOAD:4 123 (meaning load the page ID 123 to channel 2 of Intuition box) or

CUP:6 (meaning cut up whatever loaded from channel 4 of Intuition)

A command is sent to load the desired still, or switch to the live signal when the event is cued. This occurs when an event comes into the look ahead count and a head is free to play the event. When the event actually plays the keyer for that layer is turned on, when it finishes playing the keyer is turned off. The still will remain loaded on the keyer layer until another event is cued on the corresponding head, or a secondary data event loads another still.

Secondary Data Events may also be used to control the Logo file recall functionality. This is described below.

Squeezy 2D DVE Automation with Secondary A/V Events

Several Secondary A/V events have been defined to combine frequently used DVE commands into a single event.

- **SQM:X:Y:[Z]**

  Use this DVE event while the Imagestore is configured in Cascade Mode only. This will be used when the currently on-air background video is squeezed to reveal the Midground (0) logo buffer. Parameter X is the pre-defined squeeze move that is used at the beginning of the event, and parameter Y is used at the end of the event. If parameter Z is provided, the associated logo number is loaded onto layer 0 so that the logo will be revealed when the squeeze is played. If there is no Z provided, the Live input is loaded to layer 0.

- **SQF:X:Y:[Z]**

  Use this DVE event while the Imagestore is configured in Cascade Mode only. This will be used when the currently on-air background video is squeezed to reveal the Foreground (1) logo buffer. Parameter X is the pre-defined squeeze move that is used at the beginning of the event, and parameter Y is used at the end of the event. If parameter Z is provided, the associated logo number is loaded onto layer 1 so that the logo will be

revealed when the squeeze is played. If there is no Z provided, the Live input is loaded to layer 1.

- **SQB:X:Y**
  Both Swap-Preview and Cascade Modes. This will be used when the On-Air Background (A) Input is squeezed back to reveal the other not on-air (B) Input.

Secondary Data Commands

Secondary data events may be used to send commands for a particular layer directly to the Imagestore. If a start time is not given for a Secondary data event the command is sent to the Imagestore when the associated primary event plays. If a start time is specified the time is used as an offset from the start time of the primary event. For secondary data events, head 1 is the midground layer and head 2 is the foreground layer i.e. independent of primary or secondary A/V events. They may be sent while other events are playing.

These events may contain pre defined commands that are translated and sent to the device, or literal strings that are sent directly to the device.

Device Server version changes

- Device Server 11.57 introduced support for Restart Animation, Start Animation, and Stop Animation commands. This enhancement also applies to playing internal Audio Files.
- Device Server v12.18 introduced the following change to the format of Title field for Secondary sDat events with Direct commands. Now the format of the Title field is: *CMD: <Any Oxtel Commands>* The drivers will not check if the correct Oxtel command is sent; any text after CMD: is sent to device. Now it is duty of the customers to check the commands according to Oxtel Protocol.

For new secondary data events

To support the new commands with the IS-750 driver, four new types of the Secondary Data Events were added to the ImageStore 750's list of supported commands.

The "Title" field within the ADC Transmission List for the new sDAT commands should be:

1) Start Animation:
   PlayAnimation:<Layer>
2) Stop Animation Complete cycle, then stop
   StopAnimation:<Layer>
3) Stop Animation Immediate stop
   StopAnimNow:<Layer>
4) Restart Animation
   RestartAnim:<Layer>

Where: <Layer> - Integer in the Range [0..3]

Playlist Example using the new sDAT Animation control

33	14:55:20:16	LIST 1 A	CUED		A	A	1	DK TEST	00:00:59.28
34	00:00:00:00	IS750		sDAT	PT	IS750		LOADI:3 Pizza	00:00:00.00
35	00:00:10:00	IS750		sDAT	PT	IS750		PlayAnimation:3	00:00:00.00
36	00:00:30:00	IS750		sDAT	PT	IS750		StopAnimation:3	00:00:00.00
37	00:00:40:00	IS750		sDAT	PT	IS750		RestartAnim:3	00:00:00.00
38	00:00:50:00	IS750		sDAT	PT	IS750		StopAnimNow:3	00:00:00.00

Pre-defined Commands

All of the pre-defined commands can be sent to either of the two-keyer layers independently. The keyer layer is selected by adding a colon (:) to the end of the command followed by a '0' or a'1'. Layer 0 is the midground layer and layer 1 is the foreground layer. If a layer isn't specified it defaults to layer 1.

Not all commands are valid for both levels, and the valid commands change according to the Imagestore's mode.

Reference Note: Consult the Imagestore User's manual for more information.

- **CTB** : Cut layer to black
- **CFB** : Cut layer from black
- **CUP**: Cut keyer up
- **CDN** : Cut keyer down
- **FFB** : Fade layer from black
- **FTB** : Fade layer to black
- **FUP** : Fade keyer up
- **FDN** : Fade keyer down
- **GRAB** ; "Grabs" a frame from the key and fill input signals.
- **KLR** : Set key linear
- **KFL** : Set key full
- **KNL** : Set key normal
- **KIV** : Set key invert
- **LOAD** : Load a file number on the specified layer. The file number to load follows this command. E.g. "LOAD:0 7" loads file number 7 on the midground layer.
- **LOADI** : Load a file name on the specified layer. The file name to load follows this command. E.g. "LOADI:0 bug" loads file with name "bug" on the midground layer.
- **LIVE** : Load a live key. I.e. use the signals present on the key and fill inputs for the key on the specified layer.
- **LIVE: New Enhancement to DS v11**.58.14

  ER-14356 allows both the Imagestore and Imagestore750 drivers to support the additional selection of Fill/Key pairings. A new format is used within the Title Field of the Secondary Data Event; however, the previous format is also supported.

  Suggested use of the old format for Title Field:

  LIVE:<Layer>.

  Where:

  - <Layer> can be in range 0 thru 1 for Imagestore Driver
  - <Layer> can be in range in range 0 thru 3 for Imagestore 750 Driver

  Suggested use of the new format for Title Field:

  LIVE:<Layer> <Key/Fill Pair Number>.

- Key/Fill Pair number range is 1 thru 3

  Note*: *Miranda Device in use must support 3 Fill/Key inputs.

  Old "Title" field format can be used, if Key/Fill Pair Number = 1.

Provided Examples:

- Old Format: LIVE:2 = Use Layer 2 and Fill/Key pair with number 1 (used with IS-750 Device)

Or

- New format: LIVE:2 1 (one space between 2 & 1)

  LIVE:0 3 = Used when user want to use Fill/Key pair with a value more than 1. In this case, only the new format will work. In this example the Layer # is 0 and the Key/Fill pair # is 3

- **ULIVE** : Unload the live key. If an internal file was previously loaded on the given layer that file will be restored. The live key will also be "unloaded" if another internal file is loaded on the same layer.
- **SFK** : Set self key
- **SPK** : Set separate key
- **STR** : Set transition rates for a layer. This command takes two additional parameters. The first parameter contains two characters describing which fade rate type will be modified, the second parameter is a number between 1 and 99 giving the number of frames for the new fade rate. Parameters are separated by spaces. The fade rate types are:
  - **FK** : Change the keyer fade rate.
  - **FB** : Change the fade to black rate.
  - **SL** : Change the slide rate.

The two commands below don't actually cause a command to be sent to the Imagestore. Instead they change the transition type for primary and secondary A/V events.

- **SETCUT** Set the transition type to Cut (the default).
- **SETFADE** Set the transition type to Fade.

Examples

"FTB:0" : Fades keyer level 0 to black.

"CUP" or "CUP:1" : Cuts the key in for level 1.

"STR:0 FK 60" : Changes the key fade rate to 60 frames for layer 0.

"SETFADE:0" :Subsequent primary (or secondary A/V) events played on layer 0 (head 1) will fade on and off.

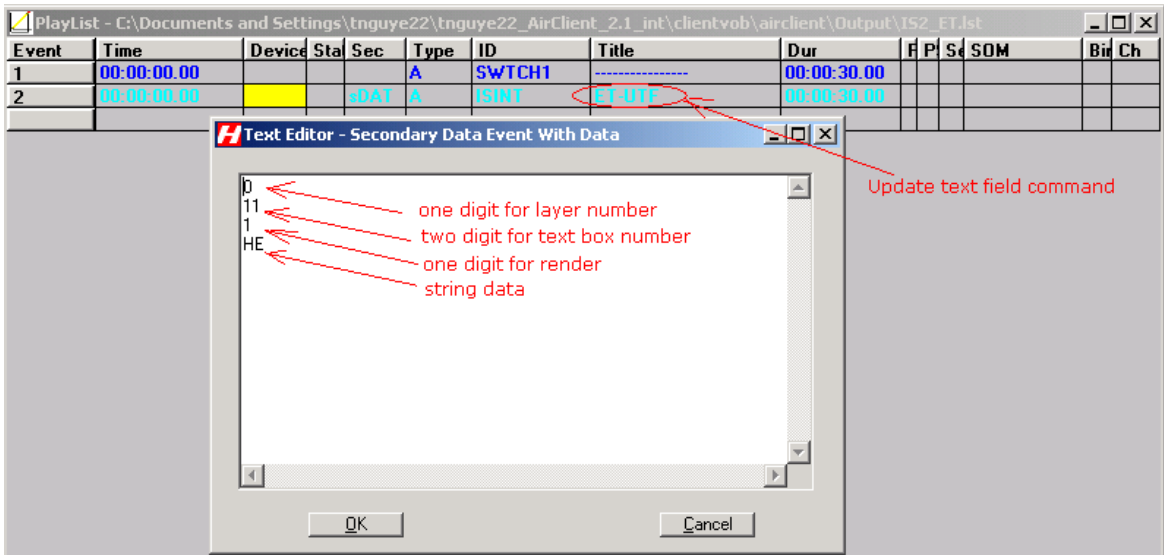
Squeezy 2D DVE and Easy-Text control with "Data Events with Data"

Commonly used DVE functionality is available in the form of Secondary A/V events (see the above description). In addition, the Imagestore driver supports all of the discreet digital video effects commands and easy text commands. These commands should be used as **SECONDARY DATA EVENTS WITH DATA** because the argument lengths are larger than the "Title" size. The name of the command is entered in the Title field, and the arguments in the External Data field

separated by [**Enter**]. The driver checks the format of the arguments, but does not check the values' range. Please see the Imagestore user manual for more details about argument formats.

Command (Title Field)	**Description**	**Arguments (Data in Secondary Data Event with Data)**
DVE-SSP	SetSqueezePreset	Preset, Xpos, Ypos, Xsize, Ysize
DVE-SSC	SelectSqueezeConfiguration	ConfigurationMode
DVE-RSM	RunSqueezeMove	Preset, Fields
DVE-SMP	SelectMoveProfile	Profile; 0 = linear, 1 = smoothed
DVE-SPB	SelectPresetBorders	PresetNo, Left, Right, Top, BottomBorder
ET-UTF	UpdateTextField	Layer, BoxNo,flags,String
ET-CBSAP	ChangeBoxSizeAndPosition	Layer, BoxNo, X, Y, Width, Height
ET-RB	RenderBox	Layer, BoxNo
ET-CI	ChangeImage	Layer, BoxNo, "NewLogo.txt"
ET-STFAC	SetTextFontAndColour	Layer, BoxNo, Size, Col, FontFileName
ET-ST	SetTransparency	Layer, BoxNo, Transparecny
ET-STDS	SetTextDropShadow	Layer, BoxNo, Xoffset, Yoffset, Transparency, Color
ET-STT	SetTextTracking	Layer, BoxNo, Tracking
ET-STA	SetTextAlignment	Layer, BoxNo, HAlign, VAlign
ET-STW	SetTextWrapping	Layer, BoxNo, WrapMode
ET-STBC	SetTextBackgroundToClear	Layer, BoxNo
ET-STBM	SetTextBackgroundToMatte	Layer, BoxNo, Col, Trans, HBorder, VBorder
ET-STBTG	SetTextBackgroundToGradient	Layer, BoxNo, SourceCol, DestCol,BorderCol, Trans, BorderWidth, Direction, HBorder,VBorder
ET-STBO	SettingTemplateBackgroundOptions	Layer, Color, Transp, Mode, EdgeSize
ET-RS	RunStrap	Layer, Start
ET-SSS	SetStrapSpeed	Layer, Speed_PixelsLinesPerField
ET-TBU	TextBoxUpdate	Layer, Field, flags, filename_strlen,filename,text
ET-IU	ImageUpdate	Layer, Field, filename_strlen, filename, image

Example of secondary data with data for the update text field command:



Operation Notes

As mentioned above, the Imagestore driver is only intended for use in Cascade mode. If the Imagestore is set to Swap Preview mode when the driver is initialized this error will be logged: 'MEDIA DEVICE NOT PROPERLY INITIALIZED '. This does not prevent operation in Swap Preview mode. It is still possible to control the Imagestore in this mode using secondary data events.

The Imagestore responds to each command with an ACK (acknowledgment that it received the command). If the Imagestore does not ACK a command within five seconds or a NAK (negative acknowledgment) is received, the command is resent. If the Imagestore still doesn't respond correctly after two more failed attempts to communicate with the device, the device status will change to "NO DEV" and an error will be logged that communication was lost with the device. If this occurs, the interface software tries to communicate with the Imagestore every five seconds; when it gets a reply, the status returns to "UNTHREAD".

When the Imagestore receives a command it only verifies that the format of the command is correct and that the CRC is valid, it does not check the validity of a command before returning an ACK. Invalid commands or commands containing invalid file numbers will be ignored.

Test Procedures

1. Ensure that the serial RS-422 cable is attached to both the server and the ImageStore.
2. Load a list into the transmission window containing primary events with IDs matching the Name of the Imagestore, and with a valid file number in the Title field.
3. Make sure the Imagestore is properly set up from its control panel.
4. Run the play list.

Error Conditions and Recovery

If the Imagestore fails to communicate, go to the Device Server and go through the following sequence of menus.

1. Select the System Menu from the main menu bar.
2. Select the **Diagnostics** item from the System menu.
3. Select **Imagestore** and choose **Reinitialize**.

If this fails to solve the problem, check the cables. Verify that the cable conforms to the specification given earlier in this document and that all the signal lines are good.

Test the Imagestore operation manually through its control panel, check its configuration; or power it off, then wait twenty seconds and power back on.

If the Imagestore still fails to communicate you may have a problem with the device itself. If this is the first time you've attempted to use this device the device may have some internal jumpers set incorrectly for RS422 communications, or there may be an actual hardware error. Contact Miranda for assistance (514) 333-1772 in North America.

Internal Document

File