

## **Digital Rapids Stream, StreamPro, StreamEnterprise version 1.5**

Stream, StreamPro, and StreamEnterprise software packages version 1.5 are the new standard release software. Version 1.4 has been moved to the legacy support stream, which means that any known issues with 1.4 were fixed in 1.5 and 1.4 will no longer be updated.

### **Highlights of changes from version 1.4 to 1.5**

- New MPEG-2 streaming option will allow live, low latency (typically less than 1 second) streaming of MPEG-2 over UDP on IP
- New Sorenson ACE option will allow high performance MPEG-4, Flash, and QuickTime encoding
- Gamma correction will now allow the user to target video specifically for playback on television (default) or PC monitors.
- Many improvements to MPEG encoding allow much more compatibility with non-PC based MPEG playback (set top boxes, various software players, etc).
- Many software optimizations allow the system to be more efficient, more flexible and able to generate higher quality audio and video
  - Digital Rapids video scaling (SSE-2 based) outperforms Microsoft and Real scaling with quality that rivals or exceeds Photoshop
  - Audio software sample rate converter gives more flexibility when encoding and transcoding between various audio formats
  - The video data going to the preview display is now independent of the video data going to the encoding stream. This decoupling means that you will no longer drop frames on slow machines due to a low performance display device.
- Deck control has been greatly improved to allow more flexibility and accuracy.
- Support for input and output of sequential image files
- VBI support now allows capture of closed caption lines and repositioning the output anywhere in the encoded video stream (available for DRC 1000 hardware and higher)
- Embedded timecode in Windows Media 9 and MPEG-2 with multiple timecode options.
- Improved system tags now allow a more flexible and powerful publishing system
- WDM driver support allows other applications that support WDM to capture directly from the hardware. (Accordant, Windows Media Encoder, Real Producer etc)
- New high level API will allow users to take control of the Stream application from high level languages such as those used in websites.

## **1.4 to 1.5 New Feature List (grouped by feature type)**

### Misc

- Optional remote control software (Java app) for Stream systems is available.
- In the Colorado and Idaho test applications, the default report filename now includes the hardware ID of the card being tested.
- VBI support which allows capture of closed caption lines and repositioning the output anywhere in the encoded video stream (available for DRC 1000 hardware and above)
- Version 1.5.12 (and higher) of the DRC-500 driver will work with boards that have the original video decoder chip and the newer version of the video decoder chip.
- New graphics in “Help > About” box.

### Profile Creation

- Main menu’s Create > Profile menu has been rearranged to group together Windows Media types and Real Media types.
- On the Input tab in the Input Type drop down box, “Digital Files” has been renamed “DPS Files”.
- Can change the name of a profile when editing it (using Adjust Profile Settings)

### MPEG Encoding

- Added support for an integrated, officially supported, MPEG2 over UDP streaming option (Note: MPEG2 over UDP is a chargeable upgrade for Stream 1.5.)
- MainConcept MPEG: Added PCR (Program Clock Reference) PID used to make MPEG transport streams (found on MPEG Profile page, click PIDs button).
- MainConcept MPEG: Added audio sample rate converter. This enables audio sample rate conversion during transcoding, etc.
- MainConcept MPEG: Fixed GUI to allow up to 50Mbps for 4:2:2 profile Main level.
- MainConcept MPEG: Add Picture Display Extension accessible via a button on the MPEG Profile window. This function allows you to display just a portion of the picture or to offset the picture on certain playback devices.
- MainConcept MPEG: Allow negative value for picture display extension, which permits you to move the picture off-screen on certain playback devices.
- MainConcept MPEG: Added “custom timecode” option to the MPEG Profile window’s Timecode window which allows you to set a starting timecode.
- Can create an elementary MPEG2 transport stream (for use only with VLC)

### Encoders (other than MPEG)

- Added support for Real Helix 10. Generally you will need to transcode to this codec (rather than encoding to Helix 10 in real time).
- Added support for Sorenson ACE option: encoding of MPEG4, Flash, QuickTime, MP3 (Note: Sorenson ACE is a chargeable upgrade for Stream 1.5.)
- DPS encoder: added RGB conversion to uncompressed format.
- DPS encoder: Implemented uncompressed encoding (YUV only).
- DPS encoder: Added NTSC 486 lines. (now compatible with Velocity)
- Sequential image file encoder (ISQ encoder): Now supports 18 different image file formats (input and output)
- Added WM9 “Constant output frame rate” option
- Added QuickTime timecode support

### Audio Support

- Added Wave file output encoder which includes an audio sample rate converter. This enables audio sample rate conversion when transcoding, etc.
- Image Sequence encoder: Added audio support.
- DirectShow Media Files (in Input): Allow separate video file and audio file inputs.
- Added wav out encoder.

#### Video Preview

- The video data going to the preview display is now independent of the video data going to the encoding stream. This decoupling means that you will no longer drop frames on slow machines due to a low performance display device.
- Preview now shows scaled video during encoding when appropriate (instead of always showing what is coming out of the hardware)
- Preview window zoom in/out feature has been added

#### Video Processing: Software Scaling, Cropping, Black Border, Gamma

- Added new optimized video scaling. Digital Rapids video scaling (RGB24 SSE-2 based) outperforms Microsoft and Real scaling with quality that rivals or exceeds Photoshop. Allows scaling of non-32 bit sources such as YUV and RGB.
- Implemented black border for live input which allows forced letter/pillar box.
- Negative cropping for file source (allows you to add black borders when using digital file as a source; Black Border button is only available for Live Source)
- Software cropping (available when you are using different crops for different output profiles or a digital file as a source rather than a live source)
- Gamma correction added to allow more specific targeting of encoding video. It is now possible to optimize video for either PC or Television playback

#### System Tags

- Added new system tags for input and output filenames for dir, file, and ext.
- System tags that use a number have been changed to a zero based system (instead of 1 based)

#### Timecode

- New timecode tracking mode (reading timecode off the tape) during deck control ends on out point (not duration). This provides support for tapes with broken timecode.
- Added time of day timecode and auto increment timecode for DRC-1000 boards and up.
- Added timecode logger for creating a record of broken timecode

#### Installer

- Installer now works on Windows Server 2003 and Windows 2000.
- Installer now only requires DirectX 8.1 to be installed (which is included in Windows XP). Note: DirectX 9 is provided on the Digital Rapids CD.

## **Feature and Bug Fixes History**

### **Stream 1.5.33 to 1.5.34**

- For DRC-1X00 and DRC-2X00 boards (Colorado boards): Fixed SDI audio drop-out problems and SDI video timing problems with new firmware (.drf) file.
- QuickTime codec profile window: Fixed a problem where the Hint settings were not retrieved from the window.
- MPEG codec profile (MainConcept): New muxer for fixing the split file problem when the number of files created was greater than 999.
- Fixed MPEG2 Broadcast multicast problem (when using Digital Rapids MPEG2 broadcast, not when using VLC MPEG2 broadcast).

### **Stream 1.5.32 to 1.5.33**

- Fixed Sorenson ACE maximum resolution problem (no longer restricts the output to 4:3). You can now transcode to full sized video (720x480 or 720x540).
- Fixed intermittent embedded SDI audio capture drop-out problem. (firmware update)
- Added setting for deck control to disable automatically aborting capture when dropped frames are detected. To set this, double click on the DeckControlDroppedFrame.reg file (included in the Stream1.5.33.zip file). For reference, the registry setting is: HKEY\_CURRENT\_USER\Software\DRC\DeckControl\EnableDroppedFrameError. Set the EnableDroppedFrameError DWORD to 0 to disable the check. (Set the DWORD to 1 to enable the check.)
- Windows Media lipsync issue: Added registry setting to disable "lock to system clock". Normally locking to the system clock will be enabled so that during long WM9 encodes (48 hours or more) the system clock and DRC clock on the Stream board are forced back into sync to prevent the stream from failing. However, on some computer systems locking to the system clock may cause lipsync problems in under 10 minutes. In that case the "lock to system clock" can be disabled by double clicking on the WindowsMediaTBC.reg file (included in the Stream1.5.33.zip file). For reference, the registry setting is: HKEY\_CURRENT\_USER\Software\DRC\WindowsMedia\EnableTBC. Set the EnableTBC DWORD to 0 to disable the "lock to system clock". (Set the DWORD to 1 to enable the lock to system clock.)

### **Stream 1.5.26 to 1.5.31**

- Real Helix 10: Fixed problem with setting the Helix noise reduction filter (setting was not saved).
- Real 8: Added more info in the Digital Rapids error message when there is an asynchronous error.
- QuickTime encoder: The tape name from the Deck capture log is stored in the QuickTime metadata.
- Windows Media 9 encoder: Added audio stream to the Stream Statistics tab.
- Windows Media 9 encoder: Fixed problem so that 2-pass encoding now works again when using Deck Control to capture clips.
- Sorenson ACE support updated (2004\_09\_15 SDK) (Note: ACE is an optional chargeable upgrade.)
- Sorenson ACE: Added audio sample rate converter.
- Sorenson ACE Known Limitation: Maximum resolution is 640x480 (NTSC) or 720x540 (PAL). This is fixed in build 1.5.33.
- MainConcept MPEG: Fixed a crash when doing elementary video stream when using a single CPU machine.
- MainConcept MPEG: Fixed video elementary stream is not a true elementary stream. Note: To create an MPEG codec profile that will make an elementary stream you must click the Advanced Settings button, choose the Multiplexer Settings tab, and in the Multiplexing type drop-down box choose None.
- MainConcept MPEG: Updated the MainConcept SDK. Note that for transport stream you will no longer see MUX type TS. Instead use DVB (or one of the other multiplexer types for Transport Stream: DVB, ATSC (US broadcast), MicroMV, DVHS and HDV).
- Deck Control: When Timecode mode is set to "Tracking – Duration" or "Tracking – Outpoint", the Deck state (e.g., playing, rewinding, etc.) is updated during the input vertical interrupt (takes about 12ms).
- Deck Control: Added detection for dropped frames during capture. When a dropped frame is detected the deck capture is aborted.
- When the input is Live Source and Start is clicked, the codec profiles are now checked for 2-pass encoding. If 2-pass codecs are found an error message is displayed.

- Colorado source: The drop frame counter found in the status bar at the bottom of the Stream interface does not get cleared after encoding is finished.
- Fixed a rare crash that occurred during startup of monitoring/encoding (both Colorado and Idaho).
- Fixed a problem in recent builds where DV video input stopped working.

#### **Stream 1.5.24 and 1.5.25**

- Bug: Sorenson ACE encoder: Put all ACE dlls in subfolder to prevent conflicts with other codecs.
- Bug: Deck capture: Increased tolerance of cue command to within 10 frames.
- Bug: DPS encoder: unbuffered I/O is used when writing video data.
- Bug: MainConcept: 040217 SDK is now used in Stream 1.5. This version will provide lower overhead during encoding of MPEG1 and MPEG2.
- Bug: Occasional crash when exiting the Stream software has been fixed.

#### **Stream 1.5.19 to 1.5.23**

- Feature: Added support for Real Helix10. Generally you will be able to make a 320x240 in real time, but will need to transcode to this codec for a full sized 720x480 or 720x576 size frame.
- Feature: Deck capture: Added deck timecode logging which allows Deck Control to create a timecode log which records any instances of broken timecode. There are 2 new timecode modes for use with broken timecode logging, found on the Input tab: Tracking – Duration (captures based on the inpoint timecode and a set duration) and Tracking – Out Point (captures based on the in point timecode and an out point timecode, monitors tape timecode continuously). On the Deck Control window you may use the menu to select Options > Timecode Logging. This will allow you to specify a logging file which will record any instances of broken timecode.
- Feature: QuickTime encoder: added timecode support (can preserve timecode and/or display timecode during encoding)
- Bug: QuickTime encoder: Time scale of encoded file more closely approximates the input frame rate for non-integer frame rates (e.g., 29.97 fps for NTSC, etc). Required by Final Cut Pro.
- Bug: MainConcept encoder: Implemented a new algorithm which will avoid unnecessary dropped frames and duplicated frames when encoding/transcoding from a source file with imprecise timecode (e.g., transcoding from an NTSC QuickTime source to an MPEG output).
- Bug: Windows Media encoder: Now syncs to reference clock. Fixes a bug where long encodes (approximately 2 days or more, depending on the system) would gradually drift out of sync, eventually causing the stream to fail.
- Bug: While using Concurrent Mode for encoding, if the main app exits suddenly, the encoder processes started by the concurrent mode will be exited correctly.
- Bug: The default metadata of the Real codecs (Real8, Helix9, Helix10) will now be saved properly.

#### **Stream 1.5.18**

- Bug: Updated registration form.
- Bug: Sorenson ACE: Fixed problem with bringing up codec settings dialog.
- Bug: Helix 10: Fixed problem with 2-pass encoding.
- Bug: Fixed noise problem with some DRC-500s.
- Bug: Fixed WDM audio capture crash under Windows 2000 for DRC-1000 and up models.

#### **Stream 1.5.17**

- Feature: In the Colorado and Idaho test applications, the default report filename now includes the hardware ID of the card being tested.
- Feature: Main menu's Create > Profile menu has been rearranged to group together Windows Media types and Real Media types.
- Feature: On the Input tab in the Input Type drop down box, "Digital Files" has been renamed "DPS Files".
- Feature: DPS encoder: added RGB conversion to uncompressed format.

- Bug: Real 8: Fixed problem with encoding audio.
- Bug: Direct Show Media File Input: Fixed problem with ON2 codec so it no longer returns a negative height.
- Bug: Direct Show Media File Input: Fixed problem with codec not returning the frame rate.

Bug: MainConcept MPEG: Fixed problem with 50Mbps CBR encoding.  
Bug: MainConcept MPEG: Fixed problem with bitrate range returning a negative value.  
Bug: System Tag: Fixed problem with MSXML not able to read <?xml version=> tag.  
Bug: DRC-500: Fixed a rare lockup on driver shutdown  
Bug: DRC-500: Fixed incorrect fields problem when capturing interlaced video

### **Stream 1.5.16**

Feature: Added support for Sorenson ACE option: encoding of MPEG4, Flash, QuickTime, MP3  
Feature: Added support for an integrated, officially supported, MPEG-2 over UDP streaming option

### **Stream 1.5.15**

Bug: Fixed bug in CPU usage reporting on non-English operating systems  
Bug: Fixed DLL registration issue (wouldn't install signal processing)  
Bug: Fixed memory leak when starting and stopping streaming

### **Stream 1.5.14, 13**

Feature: Gamma correction added to allow more specific targeting of encoding video. It is now possible to optimize video for either PC or Television playback

Bug: MainConcept MPEG: Fixed NTSC drop frame problem when using live input.  
Bug: MainConcept MPEG: Fixed problem with the "split file options" (found in MPEG Profile > Advanced Settings > Multiplexer Settings Tab).

### **Stream 1.5.12**

Feature: MainConcept MPEG: Added PCR (Program Clock Reference) PID used to make MPEG transport streams (found on MPEG Profile page, click PIDs button).  
Feature: MainConcept MPEG: Added audio sample rate converter. This enables audio sample rate conversion during transcoding, etc.  
Feature: Added Wave file output encoder which includes an audio sample rate converter. This enables audio sample rate conversion when transcoding, etc.  
Feature: The video data going to the preview display is now independent of the video data going to the encoding stream. This decoupling means that you will no longer drop frames on slow machines due to a low performance display device.  
Feature: This version of the DRC-500 driver will work with boards that have the original video decoder chip and the newer version of the video decoder chip.  
  
Bug: Fixed memory leak when reading/writing xml files.  
Bug: DirectShow File Source: fixed problem with the app crashing at the end of the encode.  
Bug: Fixed DRC-500 driver startup problem after powerdown.  
Bug: Fixed DRC-500 WaitTopOfField API which in turn allows deck control to be more precise

### **Stream 1.5.11**

Feature: DirectShow Media Files (in Input): Allow separate video file and audio file inputs.  
Feature: Deck control: New timecode tracking mode ends on out point (not duration). This also provides support for broken timecode handling.  
Feature: MainConcept MPEG: Fixed GUI to allow up to 50Mbps for 4:2:2 profile Main level.  
Feature: Optional remote control software (Java app) for Stream systems now available  
Feature: Image Sequence encoder: Added audio support.

Bug: Image Sequence encoder: Fixed problem in Concurrent mode  
Bug: Deck control: Fixed problem with 2-pass encoding from Deck input.  
Bug: Fixed problem with 2-pass encoding from digital files.  
Bug: Fixed problem with unable to stop in the transcode pass when using Batch Mode.

**Stream 1.5.10**

Feature: Added time of day timecode and auto increment timecode for DRC-1000 boards and up.

Feature: Added new system tags for input and output filenames for dir, file, and ext.

Feature: DPS encoder: Implemented uncompressed encoding (YUV only).

Feature: DPS encoder: Added NTSC 486 lines. (now compatible with Velocity)

Feature: New graphics in "Help > About" box.

Feature: Added wav out encoder.

Feature: Implemented black border for live input which allows forced letter/pillar box.

Feature: Implemented VBI support which allows capture of closed caption lines and repositioning the output anywhere in the encoded video stream (available for DRC 1000 hardware and above)

Feature: Negative cropping for file source (allows you to add black borders when using digital file as a source; Black Border button is only available for Live Source)

Feature: Added new optimized video scaling. Digital Rapids video scaling (RGB24 SSE-2 based) outperforms Microsoft and Real scaling with quality that rivals or exceeds Photoshop. Allows scaling of non-32 bit sources such as YUV and RGB.

Feature: MainConcept MPEG: Add Picture Display Extension accessible via a button on the MPEG Profile window. This function allows you to display just a portion of the picture or to offset the picture on certain playback devices.

Feature: MainConcept MPEG: Allow negative value for picture display extension, which permits you to move the picture off-screen on certain playback devices.

Bug: Helix: Fixed problem with saving broadcast settings.

Bug: Fixed calculation of duration when using drop-frame timecode

Bug: MainConcept MPEG: Fixed custom data block size for elementary stream (prevented MPEG elementary stream encoding)

Bug: Fixed problem with switching the input source while monitoring

**Stream 1.5.9 and 1.5.8**

Feature: Installer was changed such that it only requires DirectX 8.1 to be installed (which is included in Windows XP). Note: DirectX 9 is provided on the Digital Rapids CD.

Feature: Implemented timecode tracking during deck control (reading timecode off the tape); needed to work with tapes with broken timecode.

Feature: MainConcept MPEG: Added "custom timecode" option to the MPEG Profile window's Timecode window which allows you to set a starting timecode.

Bug: Added a more detailed error message to encoders when an invalid archive name is specified.

Bug: QuickTime: Always pad video stream to match audio stream duration.

**Stream 1.5.7**

Bug: Fixed problem with DirectShow encoder.

**Stream 1.5.6**

Feature: Sequential image file encoder (ISQ encoder): Now supports 18 different image file formats (input and output)

Bug: Fixed problem with encoding when different audio inputs were assigned to different output profiles

Bug: Installer fix for Mac: Stream Remote installer for Mac now correctly sets the minimum required Java VM (Virtual Machine). Minimum requirement is version 1.4. Mac OS X.3 includes VM 1.4.

Earlier versions of Mac OS X will need an update from Apple.

Note: Stream Remote installer for Windows includes Java VM 1.4.

**Stream 1.5.5**

Feature: Installer now works on Windows Server 2003 and Windows 2000.

Feature: Preview now shows scaled video during encoding when appropriate (instead of always showing what is coming out of the hardware)

Feature: Digital Rapids software scaling during encoding/transcoding (live source) (Note: also implemented for digital source in build 1.5.10)

Feature: Software cropping (available when you are using different crops for different output profiles or a digital file as a source rather than a live source)

Feature: Can create an elementary MPEG2 transport stream (for use only with VLC)

Feature: System tags that use a number have been changed to a zero based system (instead of 1 based)

Feature: Added WM9 "Constant output frame rate" option

Feature: Preview window zoom in/out

Feature: Can change the name of a profile when editing it (using Adjust Profile Settings)

**Stream 1.5.1 to Stream 1.5.4**  
(limited internal alpha releases)