



## V2.4 Release Notes

January 19, 2010

This Release Notes document describes the key product features, enhancements, bug fixes and known issues for hardware and software systems utilizing Pipeline, Pipeline Quad and Pipeline HD Dual hardware, and Pipeline for Mac OS X and Pipeline Control for Windows software. This release consists of **Pipeline for Mac OS X** software v2.4, **Pipeline Control for Windows** software v2.4, **Pipeline HD Dual** firmware and **Pipeline SC/Quad** firmware. Included in this document are installation and update instructions; system requirements; and, technical support contacts.

### Key features/improvements/fixes:

- **Pipeline Control for Windows** application – v2.4.0
  - **New** - Adds new Print To Tape play out of HD & SD content
    - Supports Insert/Assemble edit and manual crash play out to tape
  - **New** – Adds GVG4 EDL Import from Final Cut Pro, Avid and other systems
  - **Improved** – Creates QuickTime Closed Caption track
  - **Improved** – Document locking feature allowing Pipeline configuration setting to be protected from unauthorized or unintentional changes
- **Pipeline for Mac OS X** application – v2.4.0
  - **New** - Adds new Print To Tape play out functionality
    - Supports Insert/Assemble edit and manual crash play out to tape
  - **New** – Adds GVG4 EDL Import from Final Cut Pro, Avid and other systems
  - **New** – Adds Time Code break triggered capture mode for automatically capturing segments off of tapes with non-contiguous time code
  - **Improved** – Pipeline Final Cut Export Plug-in now supports assemble edit and crash play out
  - **Improved** – Improved disk write performance to NAS and SAN systems
  - **Improved** – Adds ability to manually add Pipeline devices via IP address allowing for communication across subnets
  - **Improved** – Creates QuickTime Closed Caption track
- **Pipeline HD Dual** Main firmware – v2.4
  - **New** – Now supports frame accurate HD and SD play out
  - **New** – Embeds VANC data in Apple Pro Res 422 video essence
- **Pipeline SC/Quad** Main firmware – v2.2
  - **Improved** – Supports frame accurate SD play out

### Pipeline release consists of:

- **Pipeline Control for Windows** installer – v2.4.0.56331
- **Pipeline for Mac OS X** installer – v2.4.0.48
- **Pipeline HD Dual** Main firmware – v2.4.56756
- **Pipeline SC/Quad** Main firmware – v2.2.53225

## Known Issues:

### General

- **Pipeline HD Dual** systems do not currently support
  - Confidence monitoring mode
- Some host system motherboard's built-in network adapters do not perform adequately to support HD and multiple stream SD workflows
  - Disabling the NIC's Network Firewall protocol and QOS Protocol eliminates this issue.
- To prevent inadvertent Pipeline communication interruptions, set *Screen Saver* to "Never"

### Pipeline Control for Windows (v2.4.0.56331)

- Requires Pipeline device firmware rev 2.2 or later
- Playout supported for QuickTime files only
- Currently does not support playout of:
  - Pro Res and DNxHD at 1440x1080 resolutions
  - Any file with 23.98p frame rate
  - DVCPProHD 1080p files
- Choose use the XCDAM MXF container when capturing clips for use with Avid edit solutions
- 'Review' label parameter is not properly passed to FlipFactory
- When moving QuickTime files across the Pipeline Print To Tape UI a hang of up to 1 minute can occur
- When using FlipFactory Publish with FlipFactory v7.0 the FlipFactory server instance may not display in the pick list; in this case enter the FlipFactory IP Address directly as **<FlipFactory IP Address:9000>**
- Disk Buffering is required when writing to NAS, Shared Storage or network shared volumes
- Using >50% of a network device's bandwidth can cause capture failures
  - No more than two HD captures per GigE network device
- QuickTime's "DirectDraw acceleration" advanced video preference needs to be enabled
- Windows XP Pro 64-bit and Vista Ultimate 64-bit operating systems require 64-bit version of Bonjour for Windows
  - [http://download.info.apple.com/Mac\\_OS\\_X/061-5788.20081215.5t9Uk/Bonjour64Setup.exe](http://download.info.apple.com/Mac_OS_X/061-5788.20081215.5t9Uk/Bonjour64Setup.exe)
- Support for Avid DNxHD requires Avid LE codec installation. Download codec from:
  - <http://www.telestream.net/application-content/pipeline/avid-codec>
- Previewing Video during capture can consume excess CPU cycles that can cause frame loss or capture failures. It is recommended that in most situations Preview Video be turned off during capture.

### Pipeline Control for Mac OS X application (v2.4.0.48)

- Requires Pipeline device firmware rev 2.2 or later
- Playout supported for QuickTime files only
- Currently does not support playout of:
  - Pro Res 422 and DNxHD at 1440x1080
  - Any file with 23.98 frame rate
  - DVCPProHD 1080p files
- Play out of 720p material with 16 channels of audio will require disk access speeds exceeding the normal recommendations.
- File name with spaces are not allowed when using the Avid AAF+MXF container
- When ingesting MXF OP1a Pipeline clips into Avid use the XCDAM MXF container
- When using FlipFactory Publish with FlipFactory v7.0 the FlipFactory server instance may not display in the pick list; in this case enter the FlipFactory IP Address directly as **<FlipFactory IP Address:9000>**
- Disk Buffering is required when writing to NAS, Shared Storage or network shared volumes
- Using >50% of a network device's bandwidth can cause capture failures
  - No more than two HD captures per GigE network device
- Support for Avid DNxHD requires Avid LE codec installation. Download codec from:

- <http://www.telestream.net/application-content/pipeline/avid-codec/>
- Previewing Video during capture can consume excess CPU cycles that can cause frame loss or capture failures. It is recommended that in most situations Preview Video be turned off during capture.

#### **Pipeline plug-in log/capture tool for Mac OS X (v2.4.0.48)**

- Intel Core Duo or greater is required
- Does not support editable open QuickTime files

#### **Pipeline HD Dual firmware (v2.4)**

- HD to SD down conversions are not production quality
- Time code burn in is not available when using HD codecs
- Codecs NOT supported in this release
  - Uncompressed SD 10 bit
  - DVCPro 50

#### **Pipeline SC/Quad SD firmware (v2.2)**

- Codecs NOT supported in this release
  - DVCPro 50

#### **FlipFactory direct support**

- For Pipeline/FlipFactory workflows use Pipeline Control with FlipFactory publish
  - FlipFactory Pipeline Control applet does not support **Pipeline HD Dual**
  - No direct **Pipeline HD Dual** stream source support
  - No **Pipeline HD Dual** EDL monitor support

## **Installation and Update instructions**

**Note:** Pipeline v2.1 or later software requires that your Pipeline device's firmware be upgraded to v2.2 or later. See instructions below.

#### **Pipeline Control for Windows software:**

- Run **Pipeline Installer MSI** and follow the on screen instructions
  - The installer will check for .NET Framework and Avid LE Codecs
    - These are required to be installed prior to Pipeline Control
- To run the Pipeline Control application select **Pipeline Control** from the **Start->Programs->Telestream**

#### **Pipeline for OS X software:**

- Run **Pipeline Control.pkg** and follow the on screen instructions
  - The installer will place the **Pipeline Control** application into the user's application folder and install the **Pipeline plug-in for Final Cut Pro** log and capture tool
- To run the Pipeline Control application select **Pipeline Control** from the applications folder
- The **Pipeline plug-in for Final Cut Pro** can be opened directly from Final Cut Pro or Episode v5.0 or later



#### **Pipeline firmware update:**

Follow the installation instructions contained in the **Pipeline User Guide** located on the Pipeline support web site at: <http://www.telestream.net/telestream-support/pipeline/support.htm>

## Pipeline software application reference:

Pipeline Software Features	Pipeline Control (Windows)	Pipeline Control (Mac OS X)	Pipeline Log & Capture Plugin
Supports Pipeline HD Dual	✓	✓	✓
Supports Pipeline SC and Pipeline Quad	✓	✓	✓
24-hour recurring record	✓	✓	
24-hour recurring playout		✓	
Log & Capture with deck control	✓	✓	✓
Record & Automate	✓	✓	
Print-to-Tape – Insert Edit	✓	✓	✓
Print-to-Tape – Assemble Edit	✓	✓	✓
Print-to-Tape – Crash Playout	✓	✓	
Web Service API	✓	✓	
Open directly from Final Cut Pro			✓
Open directly from Episode Desktop			✓
Edit while capturing	✓	✓	
Transcode while capturing (FlipFactory Episode Engine)	✓	✓	
Import Pipeline G4G EDL files	✓	✓	✓
Import Export Final Cut Interchange files	✓	✓	✓
Create QuickTime Open files directly	✓	✓	
Create QuickTime Closed files directly	✓	✓	✓
Create TIFO files directly	✓	✓	
Create Avid AAF/MXF OPAtom files directly	✓	✓	
Create Generic MXF OP1a files with with DV DVCPro IMX video essence	✓	✓	

## Pipeline codec/wrapper reference:

	Wrappers				
	QuickTime	MXF OP1a	XDCAM MXF OP1a	Avid AAF+MXF OPAAtom	TIFO
<b>Codecs</b>					
DV25	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
DVCPRO25	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
DVCPRO HD	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
IMX	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ProRes 422	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DNxHD (VC-3)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Motion JPEG A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
MPEG-2 I-frame	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Pipeline play out support matrix:

	23.98fps	25fps	29.97fps	50fps	59.94fps
<b>Standard Definition</b>					
DV25, DVCPRO25, IMX, MPEG 2 I-Frame, ProRes 422 SQ/HQ**	—	Yes	Yes	—	—
<b>High Definition</b>					
DVCPROHD 720p	—	—	—	Yes	Yes
DVCPROHD 1080p	No	No	No	—	—
DVCPROHD 1080i	—	Yes	Yes	—	—
Apple ProRes 422 720p SQ/HQ (960)	—	—	—	No	No
Apple ProRes 422 720p SQ/HQ (1280)	—	—	—	Yes	Yes
Apple ProRes 422 1080p SQ/HQ (1440)	No	No	No	—	—
Apple ProRes 422 1080p SQ/HQ (1920)	No	Yes	Yes	—	—
Apple ProRes 422 1080i SQ/HQ (1440)	—	No	No	—	—
Apple ProRes 422 1080i SQ/HQ (1920)	—	Yes	Yes	—	—
DNxHD 720p	—	—	—	Yes	Yes
DNxHD 1080p	No	Yes	Yes	—	—
DNxHD 1080i (TR145 8-bit Thin Raster)	—	No	No	—	—
DNxHD 1080i (145 8-bit, 220 8-bit, 220 10-bit)	—	Yes	Yes	—	—

## General System Requirements (also see hardware configurations below)

- Intel Core 2 Duo, Intel Quad Core CPU or greater
- 2GB RAM
- GigE or faster Ethernet adapter
- Video card supporting Quartz Extreme and OpenGL accelerated surfaces (Mac OS X)

### System Software:

- Mac OS X Version 10.5 or later (Leopard) or 10.6.2 or later (Snow Leopard)
  - Tiger – Mac OS X 10.4 or earlier is **not** supported
  - Pipeline firmware v2.2 or later
  - QuickTime Version 7.5.5 or later
  - Final Cut Pro Version 5.0.1 or later is required when using Pipeline plug-in
- Windows XP Pro SP2 (or later), Windows Vista Ultimate or Windows 7
  - Pipeline firmware v2.2 or later
  - .NET Framework v3.5 SP1
  - QuickTime Version 7.5.5 or newer
  - Bonjour for Windows (when using Bonjour discovery mode)

### System requirements for Pipeline/FlipFactory

- FlipFactory v6.0 with Update Packs 1-5 or FlipFactory v6.1
  - Pipeline HD file support requires FlipFactory v6.1 with Update Pack 2 (or later) and Pipeline HD Update 6.1.53666 patch.
  - Concurrent Pipeline ingest streams may vary depending on CPU and disk speeds
  - Recommended server spec:
    - Dual 2.3Ghz (or higher) Intel Quad Core CPU
    - Dedicated RAID-0 media storage
    - 4GB RAM
- Bonjour for Windows (when using Bonjour discovery mode)

## Network and Hard Disk Performance Requirements (per stream)

CODEC	Disk read/write (MB/s)	Network throughput (Mb/s)	Storage required with 8 channels of audio
<b>SD Codecs</b>			
Motion JPEG A	0.75	8	5GB/hr
DV/DVCPPro	4.4	35	15GB/hr
IMX30	5.3	43	16GB/hr
IMX40	7	56	20GB/hr
IMX50	8.3	67	25GB/hr
ProRes 422	7.3	58	21GB/hr
Uncompressed 8bit 422	22	175	80GB/hr
<b>HD Codecs (range based on codec and bit rate)</b>			
DVCPPro HD	16.5	135	73GB/hr
ProRes 422 HQ	10-36	62-240	50-100GB/hr
DNxHD	10-36	62-240	50-100GB/hr

## Recommended Hardware Systems\*

### Standard Definition\*\* (ingest only)

#### Single channel system

Intel Dual Core 2.0Ghz CPU, 2GB RAM, SATA 1.5GBs 7200 RPM media storage drive (separate from OS drive)

#### Two channel system

Intel Dual Core 2.0Ghz CPU, 2GB RAM, minimum 2 drive RAID-0 SATA 1.5GBs 7200 RPM media storage partition (separate from OS drive)

#### Four channel system

Intel Quad Core (4 cores) 2.33 GHz CPU, 4GB RAM, minimum 3 drive RAID-0 SATA 1.5GBs 7200 RPM media storage partition (separate from OS drive)

#### Eight channel system

Intel Dual Quad Core (8 cores) 2.33 GHz CPU, 6GB RAM, minimum 4 drive RAID-0 SATA 3GBs 7200 RPM media storage partition (separate from OS drive)

### High Definition\*\* – DVCPPro HD (ingest only)

#### Single channel system\*\*\*

Intel Dual Core 2.53Ghz CPU, 2GB RAM, minimum 2 drive RAID-0 SATA 7200 RPM media storage drive (separate from OS drive)

#### Two channel system\*\*\*

Intel Quad Core 2.8 GHz CPU, 6GB RAM, minimum 4 drive RAID-0 SATA 1.5GBs 7200 RPM media storage partition (separate from OS drive)

#### Three/Four channel system\*\*\*

Dual Intel Quad Core 2.8 GHz CPU, 6GB RAM, minimum 6 drive RAID-0 SATA 1.5GBs 7200 RPM media storage partition (separate from OS drive)

#### Five channel system\*\*\*

Dual Intel Quad Core (8 cores) 3.0 GHz CPU, 8GB RAM, minimum 8 drive RAID-0 SATA 1.5GBs 7200 RPM media storage partition (separate from OS drive)

### High Definition\*\* - DNxHD 220/Pro Res 422 HQ (ingest only)

#### Single channel system\*\*\*

Intel Dual Core 2.53Ghz CPU, 2GB RAM, minimum 4 drive RAID-0 SATA 7200 RPM media storage drive (separate from OS drive)

#### Two channel system\*\*\*

Dual Intel Quad Core (8 cores) 2.8 GHz CPU, 6GB RAM, minimum 6 drive RAID-0 SATA 1.5GBs 7200 RPM media storage partition (separate from OS drive)

#### Three channel system\*\*\*

Dual Intel Quad Core (8 cores) 3.0 GHz CPU, 8GB RAM, minimum 8 drive RAID-0 SATA 1.5GBs 7200 RPM media storage partition (separate from OS drive)

**\*All systems assume media storage local (internal or direct attached) to the host system with adequate storage to support 24 hours of content at the chosen format, and drive array is less than 80% full without serious fragmentation.**

**\*\*Edit while ingest and transcode while ingest workflows require increased disk I/O performance to support the additional read processes, and may require disk buffer cache drive system (see Pipeline User Guide disk buffering details).**

**\*\*\*Viewing HD preview stream(s) can consumes high levels of CPU which may cause dropped frames. It is recommended that preview be turned off during capture.**

**\*\*\*\* To insure quality of service when writing to a NAS, share storage location or network share your Pipeline system must support disk buffering and have it enabled.**

## Pipeline Support

For Pipeline technical support, visit the Pipeline support web site at <http://www.telestream.net/telestream-support/pipeline/support.htm>.