



# Switch

The only tool professionals need to  
play, inspect and correct all their files

Ideal for visual file inspection, QC workflows,  
iTunes content delivery, and rewrapping of digital files

The Telestream Switch Product Guide is designed to provide an overview of the features and functions of this innovative software solution to assist in the review process. Please review this document along with the associated Telestream Switch and User Guide, which provides complete product details.

Telestream provides this guide for informational purposes only; it is not a product specification. The information in this document is subject to change at any time.

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## SWITCH OVERVIEW

Switch is the only tool professionals need to play, inspect, QC, and correct all their media. The media player supports high-quality playback of virtually any media file including MOV, MP4, MXF, GXF, MPEG Transport streams, HEVC files and even embedded captions and subtitles. The inspector shows all the media properties including metadata, encoding formats, bitrate, and aspect ratio, and more. You can make corrections such as trim, scale, crop, and add metadata, and export to a new file or to an asset-only iTunes store package.

### Play it

Trust Switch for frame-accurate, smooth playback of all your media files, including captions and subtitles. Includes SDI out for external preview.

### Check it

Inspect all the relevant information about video properties, audio properties, captions and subtitles. Includes loudness monitoring and Timeline feature with GOP structure information.

### Fix it

Use Switch to make corrections to media: trim, scale or crop; rearrange and re-label audio tracks and channels; add metadata; change format and codec and more.

### Deliver it

Use the iTunes export preset to easily create an asset-only iTunes store package, complete with content and XML file.

## Switch Player (Free)

Made for media professionals

Play and inspect all your media files in one application

- Multi-format playback support: includes MXF, IMF, GXF, MPEG-2 Program Streams and Transport Streams, MOV, MP4, and more
- Streamlined playback controls: JKL navigation, fast forward/rewind, slow motion, single-frame forward/back, as well as “Jump to” timecode, frame or time
- Deep inspection: Check audio channels, speaker labels, aspect ratio, clean aperture, bitrate, frame rate, metadata, encoding formats and more
- Sync check: load secondary audio or closed caption files to check sync

## Switch Plus (\$49)

Perfect for video editors and post-production professionals

Play, inspect, correct your media with ease

Includes all the features of Switch Player and adds:

- More playback support: HEVC, MPEG-2 (Windows), WMV, and AC3 audio
- Embedded caption playback: CEA-608 & CEA-708 captions, as well SCC, DVB, TTML (ITT and SMPTE-TT captions) and WebVTT, SRT and STL subtitle files
- Audio Meters: Display true-peaks and momentary loudness values
- File correction: Make corrections and export to MPEG-4, QuickTime MOV, MPEG-2 Program Streams and Transport Streams

- Rewrap of files: Switch Plus includes the ability to pass-through audio and video on export, or omit video to export audio only

### **Switch Pro (\$295)**

Designed for Broadcast and Media QC professionals  
Play, QC, correct and deliver your media in one application

Includes all the features of Switch Play and Switch Plus and adds:

- Native Avid support: Play back DNxHD and DNxHR files natively
- More high-resolution format support: Also adds playback support for JPEG2000 files
- Loudness monitoring: Extends the Audio Meters (included in Plus) to include a loudness panel with options to calculate gated (BS1770-3) or ungated (BS1770-2) loudness
- Timeline: Adds the ability to view the GOP structure of a video segment, highlighting the I, P, and B frames, as well as the data rate information associated with the video
- Advanced metadata display: including DPP metadata
- External preview to AJA devices: Supports HDMI/SDI hardware output via AJA devices to preview and quality check final files, and includes ability to view Vertical Ancillary (VANC) data on an external monitor
- iTunes package export: Preset creates an asset-only iTunes package file (a .itmsp file) which includes the media content, secondary subtitle or audio files, chapter information, and an XML file

## **INDUSTRY & BACKGROUND**

Telestream was started to solve the challenges that are associated with producing and distributing content in the modern age. Most of these challenges come as a result of innovation that has taken place in the video space over the past 30 years. In the past, broadcasters primarily used only three formats – NTSC, PAL and film. These formats spanned virtually the entire workflow from acquisition to post production to content delivery. As the industry has moved to digital and file-based workflows, the need to find ways of storing all this compressed data into files dramatically increased. As a result, the number of ways of multiplexing and containing that data has multiplied over time to the point where today, there are dozens of file formats in common use.

Telestream’s business is centered on trying to help companies effectively create, store and distribute all of these combinations of formats. Telestream allows media and entertainment companies to focus on what they do, rather than all the incompatibility challenges that come with formats and containers needed to move media from acquisition to ultimate viewership.

## **SWITCH POSITIONING**

In the digital media space, as the number of resolutions, compression algorithms, and formats has increased, so has the need for tools to be able to open, play, inspect and correct the growing number of media files available. Media professionals today resort to using a collection of tools including players, inspectors, analyzers, and converters, to do their jobs.

Switch brings all those tools together into a single, easy-to-use, software application, saving time and ensuring more accuracy in media inspection.

Switch is perfect for the following workflows:

Workflow	Details	Product version
Visual file inspection	See everything about a media file, including video essence, file information, video and audio properties, audio information and more.	Switch Player
Media file verification for larger workflows	<p>Open any file, verify captions, check sync, verify video properties, check audio levels with the audio meters, and make corrections to individual files if needed.</p> <p>Switch is the perfect companion tool for Telestream Vantage and Episode users.</p>	Switch Plus
Single file transcoding	Open and inspect any file format. Make changes and export to H.264, MPEG-2 Video, MP4, and MPEG-2 Program Streams and Transport Streams.	Switch Plus
Media Quality Control	With features such as the professional Audio Meters with loudness monitoring, external preview out to AJA video hardware products, GOP structure display, and support for playback of captions, Switch Pro provides an <b>affordable software solution for professional media Quality Control.</b>	Switch Pro
Package delivery (to iTunes)	The iTunes export preset in Switch Pro dramatically streamlines the process of creating an asset-only iTunes store package. For anybody producing content for distribution to the iTunes store – <b>Switch Pro will save them time, and automate what's currently a manual process.</b>	Switch Pro

## KEY BENEFITS

- Everything you need in one tool: One tool that lets users play, inspect and correct media in a wide variety of formats, including professional formats such as MXF and DNxHD.
- Affordable Quality Control: High quality frame-by-frame playback, with embedded captions and subtitles, loudness monitoring, GOP structure display and external preview to AJA devices, enable precision quality inspection and AV sync.
- Streamlined creation of iTunes store packages: Export preset creates an asset-only package (.itmsp) complete with main media file, any secondary subtitle files or secondary audio files, chapter information, and an XML file, ready for distribution to iTunes

## FEATURES

### Plays virtually everything

Switch supports high-quality playback for virtually all professional formats including MXF, IMF, GXF, MPEG-2 Program Streams and Transport Streams and also formats like MOV and MP4. Switch can also play HEVC and 4K files, DNxHD and JPEG2000. The player includes standard navigation controls including JKL, fast forward, rewind, slow motion as well as 'jump to'. There is also single-frame forward and back for all file types - even transport streams.

Users can also play back and add secondary audio tracks, and when a video has multiple audio tracks, it's possible to solo or mute them in Switch's professional Audio Meters.

For professional QC workflows, users can preview their files by outputting to AJA video hardware products to a broadcast monitor or device of their choice, and display VANC data on external monitors.

Switch also has extensive support for playing and inspecting captions and subtitles. Formats include 608/708 embedded captions as well as support for SCC, DVB, TTML (iTT and SMPTE TT captions), and WebVTT, SRT, and STL subtitle files. Switch is the only software player with full support for CEA-708 caption decoding including advanced 708-only features like Unicode character support.

### Deep media inspection

To have a single tool that can both play content and display all the information about that content is much more accurate than using several different tools to do the same thing. With Switch, we've paid close attention to giving users enough information, without too much information. The inspector is deep enough to be meaningful, without giving users so much information that it becomes cumbersome.

Switch displays all the relevant information about a media file. Video track display includes codec, bitrate, frame size, frame rate, interlacing format as well as aspect ratio and aperture information. The audio track inspector displays audio tracks and channels, speaker labels, and encoding format information. Users can inspect audio levels, and can check loudness levels in the audio meters panel.

The Timeline feature in Switch Pro displays the GOP structure of a video segment, highlighting the I, P, and B frames, which is very helpful for checking overall quality of videos. As part of this feature, users can also see the data rate information associated with a video.

Also, important for UK broadcasters, Switch Pro can be used to visually QC DPP files and was among the first to achieve DPP/AMWA certification as part of the [DPP](#) (Digital Production Partnership)'s Compliance Program.

### Correction and edit

By switching to edit mode users can modify settings and export a new file. Switch allows users to specify a new file format; a new video or audio codec; trim, scale or crop the video; add metadata, and much more.

Export support includes MPEG4, MOV, and MPEG-2 Transport and Program Streams with Apple ProRes and H.264

In the audio tab users can split or join different audio tracks, assign them to different channels or speaker assignments, then change their format and sample rate. These controls make it easy to mix a file with eight channels of audio down to stereo without ever leaving Switch.

### **Distribution**

Switch also enables packaging and distribution of content to media platforms, such as iTunes. In export mode, users can choose the iTunes export preset to create packages ready for distribution to the iTunes store. This creates an asset-only iTunes package file (an .itmsp file) which includes the media content, secondary subtitle or audio files, chapter information, and an XML file.

### **Trusted Telestream technology**

Switch is built on the same technologies Telestream developed for its professional transcoding tools, which power the digital media ecosystems of 95% of top US broadcasters, 80% of Fortune 100 companies in the US, thousands of media professionals, and literally millions of consumers.

As a commercial software developer we value our relationships with companies like Apple, Microsoft, Avid, Dolby and others; and recognize the value of Intellectual Property (IP) rights. We make sure we are using implementations of IPs that are certified by those companies. Additionally, Telestream has had the benefit of over 15 years of developing a wide breadth of media-centric applications – so we know what a framework needs to do to build a player, a transcoder, an editing system, and analysis tools. Our framework reflects that breadth of application usage – which makes Switch a very powerful and versatile tool, backed by all of Telestream’s knowledge and expertise, and implemented using the most up-to-date, authorized technologies.

## NEW IN SWITCH 2.0

### Timeline (Pro)

Adds the ability to view the GOP structure of a video segment, highlighting the I, P, and B frames, which is very helpful for checking overall quality of videos. As part of this feature, users can also see the data rate information associated with the video.

### Caption Display to External Monitor (VANC out) (Pro)

Switch 2.0, adds the ability to view Vertical Ancillary (VANC) data on an external monitor, allowing broadcasters to preview captions on multiple monitors.

### Jump To any point in your video (Play, Plus, Pro)

Jump to a specific timecode, frame or time in your video. This is especially helpful when QC-ing long videos, enabling quick access to point in the video.

### Improved playback performance: Better indexing for MXF (Plus, Pro)

Improved indexing for MXF files speeds lets users access their files quicker and speeds up QC time.

### Support for WMV files (Plus, Pro)

Switch Plus and Pro now enable decoding of WMV files.

## TECH SPECS

### System Requirements

Windows Minimum System Requirements:

- Operating Systems
  - Windows 7 64-bit SP1
  - Windows 8
  - Windows 8.1
  - Windows 10
- CPU
  - 2.4 Ghz Core 2 Duo or faster. Any Core i3, i5, or i7
- RAM
  - 4 GB or more
- Graphics
  - Any graphics adapter that supports Direct3D feature level 10.1 or better
  - 256 MB or more
- Display
  - 1280 x 768 or larger
  - 50 Hz or faster

Mac Minimum System Requirements

- Operating Systems
  - OS X 10.10 and higher
- CPU
  - All Macs that support 10.10 and higher
  - 2.4 Ghz Core 2 Duo or faster. Any Core i3, i5, or i7
- RAM
  - 4 GB or more
- Display
  - 1280 x 768 or larger
  - 50 Hz or faster

## PLAYER FORMAT SUPPORT

### Containers:

- AAC
- AC3<sup>1</sup>
- AIFF
- ASF<sup>1</sup>
- AVC (AVC Elementary Stream)
- AVI (OpenDML)
- DV
- GXF
- HEVC<sup>2,3</sup> (HEVC Elementary Stream)
- IMF<sup>4</sup>
- LXF
- M1V (MPEG-1 Video Elementary Stream)
- M2V (MPEG-2 Video Elementary Stream)
- MOV
- MP3 (MPEG Layer 1, 2, 3 Audio Elementary Stream)
- MP4 (ISO Base Media Format)
- MPG (MPEG-1 System Stream)
- MPS (MPEG-2 Program Stream)
- MTS (MPEG-2 Transport Stream)
- MXF (AS-11<sup>5</sup> with UK DPP metadata)
- MXF (OP-1a; AS-02, AS-03<sup>5</sup>, AS-11<sup>5</sup>)
- MXF (OP-1a Proxy)
- MXF (OP-1b)
- MXF (OP-Atom)
- SCC<sup>6</sup>
- WAV

### Video Codecs (decode only):

- Apple QuickTime Animation RLE<sup>7</sup>
- Apple ProRes
- DNxHD<sup>4</sup>
- DNxHR<sup>4</sup>

- DV 25
- DVCPro 25
- DVCPro 50
- DVCPro 100
- DVCPro HD
- H.263
- H.264
- H.265<sup>1</sup>
- JPEG
- JPEG2000<sup>4</sup>
- MPEG-1
- MPEG-2<sup>2</sup>
- MPEG-4
- Uncompressed YUV
- WMV<sup>1</sup>

### Audio Codecs (decode only):

- AAC
- AC3<sup>1</sup>
- G.711 aLaw
- G.711 uLaw
- G.726
- Microsoft ADPCM
- MPEG Audio Layer 1, 2, 3
- PCM
- WMA<sup>1</sup>

### Captions:

- Extraction and playback: CEA-608, CEA-708
- DVB files
- SCC<sup>6</sup> files
- SRT files
- STL files
- TTML/iTT/SMPTE-TT files
- WebVTT (HTML5) files

## ENCODE FORMAT SUPPORT<sup>8</sup>

Containers:	Video Codecs:	Audio Codecs:
<ul style="list-style-type: none"><li>• MOV</li><li>• MPEG-2 TS/PS</li><li>• MPEG-4</li></ul>	<ul style="list-style-type: none"><li>• Apple ProRes<sup>9</sup></li><li>• MPEG-2 Video</li><li>• x264</li></ul>	<ul style="list-style-type: none"><li>• AAC</li><li>• MPEG Layer 2</li><li>• PCM</li></ul>

<sup>1</sup> Not supported in Switch Player.

<sup>2</sup> Not supported in Switch Player for Windows.

<sup>3</sup> HEVC support of 8-bit 4:2:0 profiles in Elementary Streams, MPEG-2 Transport Stream or MP4 files.

<sup>4</sup> Not supported in Switch Player and Switch Plus.

<sup>5</sup> Advanced inspection of application-specific metadata included in Switch Pro.

<sup>6</sup> Currently supports export of .scc files as part of an iTunes asset-only package.

<sup>7</sup> Currently supports 24-bit and 32-bit only.

<sup>8</sup> Switch 1.6 export is available for Plus and Pro.

<sup>9</sup> ProRes export on Windows is ProRes HQ 4:2:2 for iTunes only.

## iTUNES PACKAGE EXPORT

Creates an asset-only iTunes package file (an itmsp file) which includes media content, secondary subtitle (.ITT or .scc files) or audio files, chapter information and an XML file.

## DPP/AMWA CERTIFIED PLAYER

Switch Pro can visually QC DPP files on the desktop, playing back the files as well as displaying DPP AS-11 MXF metadata.

## FEATURE CHART

Switch media playback, inspection and conversion tool is available in two product configurations: Switch Player (free), Switch Plus (US\$49) and Switch Pro (US\$295). See the Feature Chart below for a comparison of features and more details at: [www.telestream.net/switch/compare.htm](http://www.telestream.net/switch/compare.htm)

	Switch Player	Switch Plus	Switch Pro
<b>Play it</b>			
Multiformat playback - formats include MOV, MP4, MXF, GXF, MPEG Program Streams & Transport Streams, and more	✓	✓	✓
Step, skip or jump forward/reverse, slow motion navigation including JKL navigation and “jump to”	✓	✓	✓
HEVC, AC3, WMV playback		✓	✓
CEA 608/708, SCC, DVB, TTML (iTT and SMPTE-TT), captions, and WebVTT, SRT, STL subtitle file playback		✓	✓
DNxHD, DNxHR, JPEG2000 playback			✓
External preview output via AJA video hardware products for preview and quality check (Kona 4, Kona 3G, T-Tap, Io 4K, IoXT) including VANC data display			✓
<b>Check it</b>			
File properties: size, type, duration, metadata	✓	✓	✓
Video properties: format, bit rate, subsampling, color space, Aspect Ratio, Clean Aperture, and more	✓	✓	✓
Audio properties: audio channels, speaker labels, format, sample rate	✓	✓	✓
Professional audio meters displaying true-peaks and momentary loudness values		✓	✓
Loudness monitoring panel displaying average momentary loudness, average short-term loudness, integrated loudness and loudness range			✓
Advanced inspection of application-specific metadata such as AS11 with UK DPP metadata, AS03, and others			✓
Timeline feature displaying video GOP structure and data rate information			✓
<b>Fix it</b>			
Pass through export	Limited to 30 seconds or 1/2 the file duration	✓	✓
Export		✓	✓
iTunes package preset including media content, secondary			✓

subtitle or audio files, chapter information and an XML file			
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## DOCUMENTATION & TUTORIALS

### Getting Started

- [Switch Installation Video](#)

### User Guides

[Switch User Guide](#)

### More videos

- [Play it](#)
- [Check it](#)
- [Switch it](#)

## GRAPHICS RESOURCE

To access Switch logo/s and product images:

1. Visit <http://www.telestream.net/company/press-kit/press-kit.htm>
2. Download desired graphic/s

## CONTACT INFORMATION

### Product Information

<http://www.telestream.net/switch/overview.htm>

### Contacts

#### MAIN/PRESS CONTACT

Lynn Elliott, Desktop Products Marketing

Phone: 530.470.2042 (California, USA)

Email: [lynne@telestream.net](mailto:lynne@telestream.net)

#### Reader Inquiries

Telestream Headquarters

Phone: 530.470.1300

Email: [info@telestream.net](mailto:info@telestream.net)

Web: [www.telestream.net](http://www.telestream.net)

## COMPANY OVERVIEW

Telestream® provides world-class live and on-demand digital video tools and workflow solutions that allow consumers and businesses to transform video on the desktop and across the enterprise. Many of the world's most demanding media and entertainment companies such as CBS, BBC, CNN, FOX, CBC, Comcast, Direct TV, Time Warner, MTV, Discovery, and Lifetime, as well as a growing number of users in a broad range of business environments, rely on Telestream products to streamline operations, reach broader audiences and generate more revenue from their media. These companies choose to work with Telestream as they know they will get a trusted and highly skilled technical partner.

Telestream products span the entire digital media lifecycle, including [video capture](#) and ingest; live and on-demand [encoding](#) and [transcoding](#); playout, delivery, and [live streaming](#); as well as management and automation of the entire [workflow](#). The company also partners closely with the industry's leading digital media companies across the entire digital media lifecycle, from consumer to enterprise. Telestream corporate headquarters are located in Nevada City, California.