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Command	Parameter 1	Parameter 2	Parameter 3	Response Format	Response Kind
I	None	None	None	No Direct Response	Not Applicable

Slow

Use the **s1ow** command to playback in slow motion (half speed) in either the forward or reverse directions. This may cause video frames and related metadata to be sent to the web application.

Command	Parameter 1	Parameter 2	Parameter 3	Response Format	Response Kind
slow	forward	None	None	No Direct Response	Not Applicable
	backward	None	None	No Direct Response	Not Applicable

Step

Use the **step** command to display the previous or next frame and then pause on that frame. This may cause a video frame and related metadata to be sent to the web application.

Command	Parameter 1	Parameter 2	Parameter 3	Response Format	Response Kind
step	forward	None	None	No Direct Response	Not Applicable
	backward	None	None	No Direct Response	Not Applicable

Skip

Use the **skip** command to jump forward or backward by 1 or 10 seconds. This may cause a video frame and related metadata to be sent to the web application.

Command	Parameter 1	Parameter 2	Parameter 3	Response Format	Response Kind
skip	forward	<1 or 10>	None	No Direct Response	Not Applicable
	backward	<1 or 10>	None	No Direct Response	Not Applicable

Next

Use the **next** command to jump to the start of the next chapter or flag. This may cause a video frame and related metadata to be sent to the web application.

Command	Parameter 1	Parameter 2	Parameter 3	Response Format	Response Kind
next	chapter	None	None	No Direct Response	Not Applicable
	flag	None	None	No Direct Response	Not Applicable

Previous

Use the **previous** command to jump to the start of the previous chapter or flag. This may cause a video frame and related metadata to be sent to the web application.

Command	Parameter 1	Parameter 2	Parameter 3	Response Format	Response Kind
previous	chapter	None	None	No Direct Response	Not Applicable
	flag	None	None	No Direct Response	Not Applicable

Loop

Use the **loop** command to enable or disable looping. When looping is enabled, once the playhead reaches the end of the video, it will jump back to the beginning and continue playing. Use the **loop trim** command to enable or disable looping of just the trimmed segment of the movie.

Command	Parameter 1	Parameter 2	Parameter 3	Response Format	Response Kind
loop	on	None	None	No Direct Response	Not Applicable
	off	None	None	No Direct Response	Not Applicable
	trim	on		No Direct Response	Not Applicable
	trim	off		No Direct Response	Not Applicable

Jump

Use the **jump** command to jump the playhead to another point in the video. This may cause video frames and related metadata to be sent to the web application.

Command	Parameter 1	Parameter 2	Parameter 3	Response Format	Response Kind
jump	to frame	<Frame Index>	None	No Direct Response	Not Applicable
	to time	<Time in Seconds>	None	No Direct Response	Not Applicable
	to timecode	<Timecode Source>	<Timecode>	No Direct Response	Not Applicable

When jumping to a frame, the frame index is zero-based.

When jumping to a time, supply a time in fractional seconds, such as "98.23".

When jumping to a timecode, supply a [timecode source four-character code](#) and a timecode that is in the same format (scale, duration, modulus, and drop-frame) as that source's timecode on the first frame. Discontiguous timecode is not supported. You can not jump to a timecode in audio-only files. Files may have multiple timecodes for any given frame. Therefore, you must supply a timecode source four-character code so that Switch know which one to use. If you omit it, the command will fail.

Closed Captions & Subtitles

Captions

Use the `captions` command to determine which type of captions are currently selected, if any, or to select a different type of captions to be burned into the video image. You can also turn captions off so that none are burned into the video image. This may cause video frames and related metadata to be sent to the web application.

Command	Parameter 1	Parameter 2	Parameter 3	Response Format	Response Kind
captions	cea-608	cc	<1-4>	No Direct Response	Not Applicable
	cea-708	service	<1-6>	No Direct Response	Not Applicable
	teletext	page	<101-999>	No Direct Response	Not Applicable
	settings	None	None	JSON	captions settings
	off	None	None	No Direct Response	Not Applicable

`captions settings`

Sample JSON Response

```
{
  "channel": 2,
  "enabled": true,
  "captions settings",
  "CEA-708"
  "kind":
  "type":
}
```

Video Images

Image

Use the **image** command to request a JPEG encoded video image at a specific index, time, or timecode.

Command	Parameter 1	Parameter 2	Parameter 3	Response Format	Response Kind
image	at index	<Frame Index>	None	JSON	image
	at time	<Time in Seconds>	None	JSON	image
	at timecode	<Timecode Source>	<Timecode>	JSON	image

The frame index is zero-based.

When using a time, supply one in fractional seconds, such as "98.23".

When using a timecode, supply a [timecode source four-character code](#) and a timecode that is in the same format (scale, duration, modulus, and drop-frame) as that source's timecode on the first frame. Discontiguous timecode is not supported. You can not jump to a timecode in audio-only files. Files may have multiple timecodes for any given frame. Therefore, you must supply a timecode source four-character code so that Switch know which one to use. If you omit it, the command will fail.

The JPEG image is compressed with maximum quality, and then base-64 encoded.

image at index 4.	Sample JSON Response
	<pre>{ "height": 480.0, "image": "/9j/4AAQSkZJRgABAQAASAB.....AQEBAQEBAQEBAQEBAQ", "width": 640.0, "kind": "image", "index": 4, "timecode": "00:00:00;04", "time": 1.33 }</pre>

Editing

Video

Use the **video** command to edit the video or revert those changes. This may cause video frames and related metadata to be sent to the web application.

Command	Parameter 1	Parameter 2	Parameter 3	Parameter 4	Parameter 5	Response Format	Response Kind
video	crop	<Left>	<Right>	<Top>	<Bottom>	No Direct Response	Not Applicable
	size	<Width>	x	<Height>	None	No Direct Response	Not Applicable
	revert	None	None	None	None	No Direct Response	Not Applicable

Currently, the only edit supported is resizing and/or cropping.

The **size** and **crop** commands correspond to the resize and crop options in the video tab of the Switch inspector. The order the settings appear in the inspector is the order in which they are applied in the video processing pipeline (crop, resize, clean aperture, aspect ratio).

When resizing or cropping is done, a new binary video message will be sent to the web application, even while paused.

Gutters

Use the **gutters** command to hide or show the area of pixels that have been removed by crop and/or clean aperture. This only affects the display within the Switch app. The video sent to client apps will not be affected by this.

Command	Parameter 1	Parameter 2	Parameter 3	Response Format	Response Kind
gutters	on	None	None	No Direct Response	Not Applicable
	off	None	None	No Direct Response	Not Applicable

Turning the gutters on will show the area of pixels that have been removed by crop and/or clean aperture. They will be covered by a semi-transparent white overlay to make them distinct from the pixels that will be kept. Turning the gutters off hides these pixels and the Switch player window will only contain the pixels that will be visible in exports.

Secondary Files

Add

Use the **add** command to add audio, subtitles, or flags from secondary files. This may cause video frames and related metadata to be sent to the web application.

Command	Parameter 1	Parameter 2	Parameter 3	Response Format	Response Kind
add	audio	<File Path>	None	No Direct Response	Not Applicable
	subtitles	<File Path>	None	No Direct Response	Not Applicable
	flags	<File Path>	None	No Direct Response	Not Applicable

The file path must be an absolute path, not a relative path. It must be in the appropriate format for the current platform (Mac or Windows). On Windows, it must be a UNC path. The path must point to a file that exists and is complete.

Remove

Use the **remove** command to remove secondary audio, secondary subtitles, or flags. This may cause video frames and related metadata to be sent to the web application.

Command	Parameter 1	Parameter 2	Parameter 3	Response Format	Response Kind
remove	audio	<File Path>	None	No Direct Response	Not Applicable
	subtitles	<File Path>	None	No Direct Response	Not Applicable
	all flags	None	None	No Direct Response	Not Applicable

The file path must be an absolute path, not a relative path. It must be in the appropriate format for the current platform (Mac or Windows). On Windows, it must be a UNC path. The path must point to a file that was previously loaded.

Supported Timecode Sources

Files may have multiple timecodes for any given frame. Below is a list of the timecode sources supported by Switch. The corresponding four-character codes (a.k.a. Four CC's) can be used to specify the timecode source to use when asking Switch to jump to a timecode, such as via the [timecodesource](#) parameter when launching Switch via command line or hyperlink. Four-character codes are case sensitive.

Timecode Source	Four Character Code
Made by Switch (<i>Always Available</i>)	swch
TIFO Atom	tfoa
TIFO Timecode	tfot
QuickTime MOV Timecode Track	movt
DV/DVCPRO LTC Timecode	dift
SMPTE ST377 MXF Timecode Track	mxft
SMPTE ST377 MXF Material Package Timecode	mxfm
SMPTE ST377 MXF Source Package Timecode	mxff
SMPTE ST377 MXF System Item Timecode	mxfs
SMPTE ST360 GXF Striped Timecode	gxst
SMPTE ST360 GXF Track Timecode	gxtt
LXF Timecode	lxft
SEI Picture Timing	pic
SEI AVCHD Metadata	MDPM
AVC-Intra SEI Message Type-1	avc1

SMPTE ST328 Elementary Stream Editing Information	esi
---	-----

Timecode Source	Four Character Code
Vertical Blanking Interval	vbi
MPEG-2 GOP Timecode	gopt

Troubleshooting

Mac

1. Make sure there is only one copy of Switch on the client computer. If there are multiple copies, you will not be able to predict which one the operating system opens when the user clicks on a `switch://` link.

Windows

1. If you are having trouble getting the path correct, make sure you are using a UNC path. You can [use drive letters in a UNC path](#) if you are logged in as an administrator and have the [Microsoft Loopback Adaptor](#) installed. Here is an example: `\\localhost\c$\Users\switchqa\Desktop\Tokyo_ID0009.mxf`
2. Do not use the Microsoft Edge browser. It does not work. Use a [supported browser](#) instead.

Debug Logging

While developing and debugging your web applications, you may find it useful to enable debug logging in Switch. This causes more information to be printed to the console, including errors, warnings, and other information detailing what the application is doing. The SwitchEngine will log each message it receives and each JSON message it sends. It will not log the binary messages it sends, due to their size and frequency.

Enabling on Mac

1. Quit Switch if it is running.
2. Launch the Terminal application.
3. Enter the following command to enable debug logging: `defaults write net.telestream.switch LogLevel -int 5`
4. Launch the Console application.
5. Launch Switch and watch the new information appear in the Console.

Enabling on Windows

1. Quit Switch if it is running.
2. Open your preferences file in a text editor. It can be found at: `C:\Users\
$username\AppData\Roaming\Telestream\Switch\net.telestream.switch.xml`
3. Change the `LogLevel1` value to 5. Close and save.
4. Run Dbgview.exe. You can download from here: <http://technet.microsoft.com/en-us/s.../bb896647.aspx>.
5. Run Switch and view the output in Debugview.

Log Levels

There are various levels of logging, with zero causing debug logging to be suppressed, and each higher level causing more information to be displayed. Here's a breakdown of each level:

Level	Description
0	Logging disabled. (This is the default.)
1	Only errors are logged.
2	Errors and warnings are logged.
3	Errors, warnings, and additional info are logged.
4	Errors, warnings, additional info, and verbose info are logged.
5	Errors, warnings, additional info, verbose info, and debugging info are logged.

Increasing the debug logging can degrade performance.

To disable debug logging, use the same steps as above, but set the `LogLevel1` to 0.

Sample Debug Logging Output

```
2017-11-30 10:45:49.715983-0800 Switch[80507:8157350] Engine: Received
WebSocketServer Message: captions settings 2017-11-30 10:45:49.716315-0800
Switch[80507:8147526] Engine: Sending JSON: {
  "channel": 2,
  "enabled": true,      "kind":
"captions settings",  "type":
"CEA-708"
}
```

Sample Code

You can download a minimal web application (HTML & JavaScript) on request from Telestream.