Lightspeed Live Capture
Version 3.2
Web API Reference

Vantage 8.0 Update Pack 2
Live Capture ComponentPac 8.0.1

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Overview

The Lightspeed Live Capture (and optionally, Sources) web APIs enable you to monitor and control your Lightspeed Live Capture system within a broader, web services-based system or your own custom application.

You can also create a web services-based program to control capture beyond the functionality or capability of Telestream's general-purpose Lightspeed Live Capture web application, to meet your organization's specific requirements.

- Lightspeed Live Capture Web API
- Lightspeed Live Sources Web API
- Ports for API Utilization
- Operation & Response Formats

Note: This reference assumes that the programming environment being used by the developer includes a library that abstracts the process of operation submission and responses through the HTTP protocol.
If your environment does not include a library to perform this abstraction, you will have to directly format your operations to adhere to the HTTP protocol.
See *Hypertext Transfer Protocol* for details.

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Lightspeed Live Capture Web API

Lightspeed Live Capture enables recording of live streaming media in Vantage, using a Lightspeed Live Capture workflow which is controlled manually via the Lightspeed Live Capture web application or using the *Capture Operations* in the Live Capture web API, described in this reference. The Capture web API is implemented in the Lightspeed Live Capture web service.
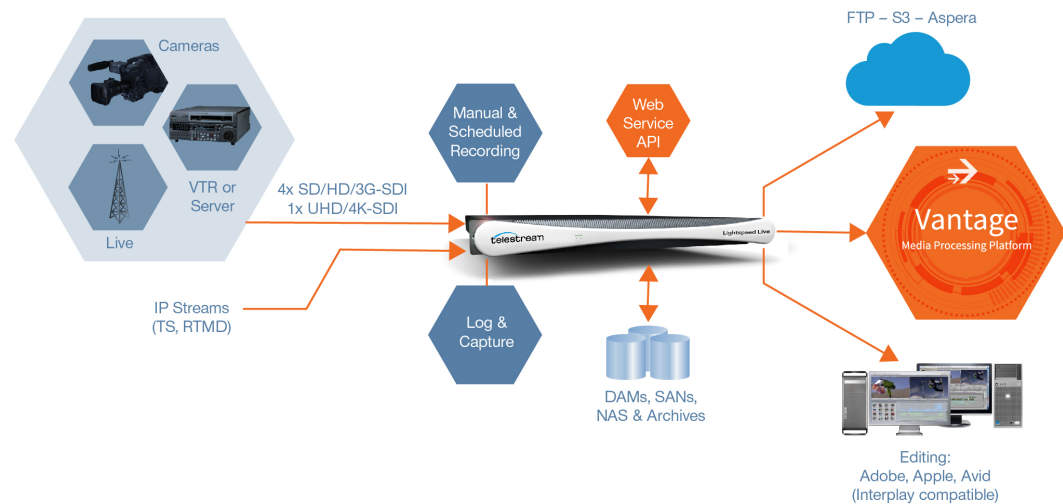
Lightspeed Live Capture workflows can be configured to publish a web service that enables media clips to be recorded using this web services operation set.

In order to respond to Capture API operations, the Capture action in the workflow must be configured with a Web Service trigger (see the Lightspeed Live Capture User Guide), and the specified port (default: 17000) must be utilized as the target port in each operation. When the workflow is activated in Lightspeed Live Capture, the web service listens for requests on the specified port. (The user will be warned if the port is in use by another Capture workflow or other service on the host computer.)

Your client program can control any Live input source on the Lightspeed server by communicating with the target Capture workflow—which in turn is configured for a specific input and web service port. Your application may be designed to target a specific input source by communicating on a specific port (thus, a specific workflow and SDI/IP input) on the domain or it may be more broadly-designed (using the Live APIs in conjunction with the Vantage SDK) to obtain a list of currently-running workflows, and present those to the user for selection dynamically.

Note: Depending on the requirements of your Capture application, you may also integrate the Vantage SDK in your Capture program along with the Lightspeed Live Capture web service. Integrating the Vantage SDK enables you to programmatically control the target workflow as well as the capture operation; starting and stopping the workflow, testing its status, querying job results, and submitting jobs, for example.

Lightspeed Live Sources Web API

The Lightspeed Live Sources Web API supports the insertion of SCTE-35 and ID3 tags. Use of the Sources API to insert tags can be performed during Capture or Stream sessions. The Sources API is implemented in the Vantage Source service.

The Live Source API is implemented over HTTP as a REST interface. The response (if any) is returned in JSON format.

The Lightspeed Sources web API is described in *Source Operations*.

Ports for API Utilization

These ports are used to access the Capture and Sources services on Lightspeed Live servers:

- *Port 17000*
  - Default port for accessing the Capture service on the target Lightspeed Live server via the Capture API. Multiple, user-specified ports permitted. For details, see the Live Capture User Guide's Web Service Trigger topic and, in Live Capture, the Capture action inspector's help page.
- *Port 15000*
  - Default port for accessing the Lightspeed Live server via the Sources API. This port can only be changed when the Live Stream web app is installed.
  - Default port for accessing the Sources API help system.

Operation & Response Formats

The Lightspeed Live APIs are a RESTful implementation. Most Lightspeed Live web service operations are invoked using an HTTP GET request in the following form:

```
http://<host>:<port>/<API Category>/<operation>
[?<parameter>=<value>[&<parameter>=<value>]]
```

Operations that alter operational data are POST operations; such as *Start*, for example.

Lightspeed Live responds to operations with an HTTP status line (for example: *200 OK* or *404 Not Found*), HTTP headers, and XML-formatted responses in the body. Responses vary, based on the operation and parameters.

Topics

- Operation Keyword Terms
- Use of GUIDs/UUIDs in Capture Operations
- Use of Timecodes in Operations
- Response Formats
- Reserved Characters in Value Strings

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Operation Keyword Terms

Keyword terms in each operation are shown in this reference surrounded by less than and greater than symbols (<>); they are placeholders in the operation's description, to be replaced by values you specify.

Note: Operation names are not case-sensitive. For example, you can specify *.../Record/Get-Statistics* or *.../record/get-statistics* to execute the *get-statistics* operation.

When an operation has required and/or optional parameters, they are displayed as name/value pairs in the query portion (?) of the request. Additional parameters are separated by an ampersand (&). Parameters in brackets ([]) are optional:

```
http://<host>:<port>/record/start
[?<parameter>=<value>[&<parameter>=<value>]]
```

Here are the keyword terms you'll encounter:

Term	Description
host	The Windows domain name or the IP address of the Lightspeed Live server you are targeting.
	For example: *localhost* | `LightspeedServer` | `192.168.1.23`.
port	The TCP port number assigned to the web service.
	When using the Live Capture API, the port number identifies the Live Capture workflow whose jobs you are controlling—thus, when you have multiple workflows, each workflow supporting a given Lightspeed Live Capture server should be configured with a different port to identify it and tie it to the source, supporting concurrent execution. The port (default: 17000) is displayed and configured in the Capture action inspector of the target workflow. (See the Lightspeed Live Guide or man page for the Capture action in your Live Capture workflow.)
parameter	The identity of the value provided, defined by the web service operation. Parameters are listed and described in the associated table in each operation.
value	The value for the associated parameter.

Use of GUIDs/UUIDs in Capture Operations

A GUID (Globally Unique IDentifier)—referred to as UUID in Capture operations—is used in most operations to target or identify a specific instance of a component. For example, a stream or program. The important property of a GUID is that each value is globally unique, enabling you to identify a specific target using the GUID. The value is generated by an algorithm, developed by Microsoft, which assures this uniqueness.

A GUID is a 16-byte binary data type that can be logically grouped into the following subgroups: 4byte-2byte-2byte-2byte-6byte.

The standard textual representation is {12345678-1234-1234-1234-1234567890AB}.

For example, `ad1c45b7-67fb-419d-8c5b-8ba474bd6dfd`.

Note: If the GUID you supply in an operation is not properly formed, the operation fails to execute and returns an HTML XML advising of the Request Error.

When you are operating on a specific clip, the GUID is first obtained when you begin capturing the clip, via the Start operation. In the response, the GUID is returned in the UUID element.

Use the clip's GUID when you use Modify, MarkIn/MarkOut, EditIn/EditOut, Stop, and Status operations to identify the target clip.

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Use of Timecodes in Operations

Timecodes are used as parameters and are also returned as part of responses.

Timecodes can be specified in either drop frame (for example: 01:00:10;00) or non-drop frame format (for example: 01:00:10:00). The recorded file's timecode format always matches the input source's timecode regardless of the type of timecode notation used within a Web API command. Timecode notation types are treated identically and have no effect on the output file's timecode.

The timecode source is determined by the configuration of the source input. The timecode may be Source, Computer Clock, Free Run, Analog LTC, or RS422, as defined in the Vantage Domain Console's Capture Inventory Capture Source settings.

Response Formats

Response formats vary by API and by operation.

Capture Operation Response Formats

When you execute a Capture operation, the Capture service executes the operation and returns an XML response. For example:

```xml
<Response>
  <UUID>27638f24-2bb1-4ce6-8816-5a05a5e05897</UUID>
  <PercentCompleted>0</PercentCompleted>
  <Progress>0</Progress>
  <ActionDuration>3239.9733066</ActionDuration>
  <FPS>29.97002997003</FPS>
  <Start>11:05:06;09@29.97</Start>
  <End></End>
  <MarkIn>11:05:06;09@29.97</MarkIn>
  <MarkOut>11:59:06;09@29.97</MarkOut>
  <Excluding>False</Excluding>
  <Name>SDI-2 - Web UI_LSL-PM - SDI Input 2.8</Name>
  <MasterMobid>060a2b340101010101010f0013-000000-56967d89-b107-
0919-060e-2b347f7f2a80</MasterMobid>
  <SourceMobid>060a2b340101010101010f0013-000000-56967d89-b108-
0919-060e-2b347f7f2a80</SourceMobid>
  <HorizontalResolution>1920</HorizontalResolution>
  <VerticalResolution>1080</VerticalResolution>
  <FrameRate>29.97002997003</FrameRate>
  <Channels>16</Channels>
  <State>Opened</State>
  <Access-Control-Allow-Origin>*</Access-Control-Allow-Origin>
  <EngineState>Running</EngineState>
  <EngineTime>11:02:38;01</EngineTime>
  <XMLRevision>2</XMLRevision>
</Response>
```

Source Operation Response Formats

When you execute a Source operation, the web service returns an application/JSON response. For example:

```json
[
  {
  "Description":null,
  "Identifier":"89d2be4b-be21-4838-a551-522cce299fbe",
  "Name":"LL-PM-1"
  },
  {
  "Description":null,
  "Identifier":"4bd2be89-2c24-3947-a432-484bca2387fba",
  "Name":"LL-PM-1"
  },
  {
  "Description":null,
  "Identifier":"43b2ff5b-ac29-48573-c443-567cad734efa",
  "Name":"LL-PM-1"
  }
]
```

Reserved Characters in Value Strings

This list of reserved characters can cause a variety of problems in parameters—you should not use them in parameter values:

```
"  <  >  #  %  {  }  |  \  ^  ~  [  ]  `  ;  /  ?  :  @  =  &  +
```

During processing, certain characters are omitted; others truncate the remainder of the string or are changed to a space character. In some circumstances, this error is displayed: "Request Error - The server encountered an error processing the request. See server logs for more details."

Capture Operations

You use the Lightspeed Live Capture web service operations to control Capture recordings. All Capture operations are GET operations; *Start* may also be submitted as a POST, when supplying runtime variables to a Capture job.

Each operation in the API is presented with a brief description, including the format of the operation, and all required and optional parameters in a table. Finally, a typical *Response* is presented using an example.

Most operations return a *Response* XML. *Get-Statistics* returns a *Statistics* XML, *Message* returns a *string*, and *Variables* returns a *Customization*, which lists Variable Conditions supported by a Capture workflow.

Note: In order to respond to Capture API operations, the Capture action in the capture workflow must be configured with a Web Service trigger, with a unique, user-specified port (default: 17000; min/max 1024-65536). The port must be specified as the target port for the workflow in each operation you execute. Finally, the workflow must be activated in Vantage and it must remain activated to process jobs underway and jobs awaiting execution in the clip list. You can optionally enable manual control (via the Web application) and you can also enable logging.

- Response Elements
- Get-Statistics
- Start
- Modify
- MarkOut | MarkIn
- EditOut | EditIn
- Message
- Stop
- Status
- Variables

Response Elements

For operations that return a *Response* XML, certain elements are returned in every successful *Response*. Other elements are returned only for specific operations.

- *Standard Response Elements*
- *Optional Response Elements*

Standard Response Elements

Response Element	Description
Access-Control-Allow-Origin	For use only by Telestream.
EngineState	Keyword; the current state of the Capture service. It always reports *Running*.
EngineTime	Timecode; the current Lightspeed Live Capture server clock time. For example: `12:34:56:00`. **Note:** *EngineTime* is only returned when at least one job is in the clip list; either queued or running.
UUID	The GUID of the clip being operated on. For example: `5b1eb65c-3018-a4cf-8134-6e1c16b378a7`.
XMLRevision	Integer; the *Response* XML revision number. For example: `2`.

Optional Response Elements

These elements are returned in a successful *Response*, based on the operation and the parameters utilized. Some elements are always updated in the initial *Response*. Others are updated only in the *Response* to subsequent *Status* operations.

Response Element	Description
ActionDuration	Real; the estimated duration of the Capture action, in seconds. Returned by Start | Stop | Modify | Status operations when a GUID is specified.
Channels	Integer; the number of audio channels in the target clip.
End	Timecode; end or anticipated end of the target clip, represented in timecode format: HH:MM:SS:FF.
Error	String; reports a detailed error during a Failed state (the *EngineState* element has the keyword Failed). For example: "Writer stalled. This is often caused by the writer not being able to keep up with the reader due to I/O limitations."
Excluding	Boolean; reports *True* if frames are being excluded via the use of MarkOut|MarkIn or EditIn|EditOut operations. Mark operations can only be used on TIFO files. *Excluding* is *False* upon starting an initial capturing and after an In operation. *Excluding* is *True* after an Out operation.
FPS	Real; the frame rate in FPS of the target clip.
FrameRate	Real; the time scale, divided by the duration of the target clip.
HorizontalResolution | VerticalResolution	Integer; the clip's horizontal and vertical frame resolution, in pixels.
Identifier	GUID; the Vantage Capture workflow's job identifier for the target clip; used in *Status*, *Start*, and *Stop* operations. Can be used in Vantage SDK queries to obtain additional status and information about the workflow associated with the clip being captured.
MarkIn | MarkOut	Timecode; timecode of beginning (inclusive) or ending (exclusive) frame of a segment of the target clip.
MasterMobid	String; the Avid Master MOB ID generated by the Capture Action when Generate Variables > Avid Master MOB ID is enabled.
SourceMobid	String; the Avid Source MOB ID generated by the Capture Action when Generate Variables > Avid Source MOB ID is enabled.
Name	String; the Primary Output file name of the clip being recorded by the workflow, including the suffix. For example: `<Name>Capture_File_Loop.tifo</Name>`

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Response Element	Description
Path	String; fully-qualified path to the Primary Output file being recorded, including the file name and suffix. For example: `<ath>d:\vantage\33eb6118-cafa-48da-81ca-140947462341\Capture_File_Loop.m3u8</Path>`
PercentCompleted	Not implemented.
Progress	Real; elapsed time (in seconds) of the capture job. Returned by Start | Stop | Modify | Status operations when UUID specified.
SecondaryName	String; the Secondary Output file name of the clip being recorded by the workflow, including the suffix. For example: `<SecondaryName>Capture_File_Loop.m3u8</SecondaryName>`
SecondaryPath	String; fully-qualified path to the Secondary Output file being recorded, including the file name and suffix. For example: `<SecondaryPath>d:\vantage\33eb6118-cafa-48da-81ca-140947462341\Capture_File_Loop.m3u8</SecondaryPath>`
Start	Timecode; starting timecode of the target clip.
State	Keyword; the state of the job for the specified clip: *Closed*—when GUID supplied, recording of the clip is complete or the job was stopped. *Failed*—when GUID supplied, the capture job failed. The *Error* element contains a descriptive string describing the cause of the *Failed* state. *Opened*—when GUID supplied, the clip is present in the clip list. It may be queued waiting for the specified start time or it may be actively recording. *Waiting*—when no GUID supplied, the clip list is empty and the Capture workflow is waiting for jobs to submit. When monitoring a clip in the *Opened* state, you can test the *Progress* element returned from a Status (with UUID) operation to determine if it is waiting to start or is currently capturing. If State = Opened and Progress > 0, then the clip is capturing. To determine the job's progress, calculate the percent using this formula: (Progress / ActionDuration) X 100. The *PercentCompleted* element should not be used.
TransmitError	String; messages or errors returned from the Capture process.
UUID	GUID; unique identifier of clip being operated upon.

Get-Statistics

The *Get-Statistics* operation returns a *Statistics* XML response for the target (by host and port number) Lightspeed Live server, with source and deck information. This operation has no parameters.

Get-Statistics has the following format:

```
http://<host>:<port>/record/get-statistics
```

Statistics Return Elements

The following elements may be returned.

* Deck-Mode, Deck-State, Deck-Status are returned only when a VTR is detected on the input channel associated with the job being captured.

Response Element	Description
Affinity	Integer: 1 | 2, indicates which CPU is bound for use by channels using the current SDI input. 1 = CPU0; 2 = CPU1.
Audio-Channels	Integer; the number of channels in the target clip.
Bit-Depth	Integer; bit depth of the target clip.
Captions	Keyword: No | Yes; indicates the presence of captions in the clip.
CPU-Usage	String; the current load on CPU0 and CPU1, expressed as two percentages. For example: 20%/ 15%.
Deck-Mode*	Keyword; reports the VTR's Remote state: *Remote* | *Local*.
Deck-State*	Keyword; reports the VTR's Transport state: *Stopped* | *Playing*.
Deck-Status*	Reports DATA-0 through DATA-A STATUS DATA bytes returned by a STATUS SENSE RS-422 serial protocol command. Data bytes 0 - A (2 nibbles = one byte): 00 11 22 33 44 55 66 77 88 99 AA [checksum]. Example: 00 20 00 00 00 00 00 00 00 80 3A 74
Frame-Rate	Real; the frame rate in FPS of the target clip.
Firmware-Version	String; version of the firmware installed on the target Live Stream server.
G-Level	Keyword: A | B, indicates 3G-SDI Level A or Level B
Loss-Of-Signal	Boolean: True | False. Returns True if the source is in a LOS state; returns False otherwise.
Memory	Integer; the total memory in the server, in MB.

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Response Element	Description
Process	Integer; the Program Identifier (PID) of the LiveSource process assigned to the workflow/channel. (Also displayed in the LiveSource.exe row of the Task Manager Details table in the Web application.)
Resolution	String; the frame size and type of the source. For example: *1920x1080i*. This information is also displayed in the Web application's Preview panel and in the Vantage Management Console's Capture Inventory panel Preview dialog for a given SDI input.
Restrict-Input	Keywords: warn | true | false: warn—returned if Restrict Input with Warn only is enabled and a mismatch is detected. true—returned if Restrict Input is enabled, Warn only is not enabled and a mismatch is detected. false—returned if Restrict Input is not enabled.
SDI	Integer; the video port currently being streamed.
Time-Code	Timecode; the current timecode of the video on the SDI port.
Video-Format-Changed	True/False, indicates if the video format present on the input has changed since the channel was activated.

Example

Here is an example of a *Get-Statistics* operation:

```
http://LS-SVR:17001/record/get-statistics
```

Typical Response

Issuing a *Get-Statistics* operation returned the following *Statistics* XML, detecting a VTR:

```
<Statistics>
  <Firmware-Version>2016/12/30</Firmware-Version>
  <CPU-Usage>0</CPU-Usage>
  <Memory>7933</Memory>
  <Process>8404</Process>
  <SDI>4</SDI>
  <Resolution>1920x1080i</Resolution>
  <Frame-Rate>29.97</Frame-Rate>
  <Bit-Depth>10-Bit</Bit-Depth>
  <Audio>16</Audio>
  <Captions>No</Captions>
  <Time-Code>01:01:01;10</Time-Code>
  <Deck-Status>0020000000000000000ba74</Deck-Status>
  <Deck-State>Stopped</Deck-State>
  <Deck-Mode>Remote</Deck-Mode>
</Statistics>
```

Typical Loss of Signal Response

Issuing a *Get-Statistics* operation returned the following *Statistics* XML:

```xml
<Statistics>
  <Firmware-Version>2019/10/15</Firmware-Version>
  <CPU0_x002F_CPU1> 1%/ 0%</CPU0_x002F_CPU1>
  <Loss-Of-Signal>False</Loss-Of-Signal>
  <Video-Format-Changed>False</Video-Format-Changed>
  <Memory>7933</Memory>
  <Process>8404</Process>
  <SDI>4</SDI>
  <Resolution>1920x1080i</Resolution>
  <Frame-Rate>29.97</Frame-Rate>
  <Bit-Depth>10-Bit</Bit-Depth>
  <Audio>16</Audio>
  <Captions>No</Captions>
  <Time-Code>10:05:32;24</Time-Code>
  <Affinity>1</Affinity>
</Statistics>
```

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Start

The *Start* operation may be executed as a GET or a POST operation, both of which initiates the recording of a new clip by submitting a Capture job from the target workflow. A POST operation should be used when you need to supply runtime variables to a Capture job; only use a GET operation when you aren't submitting variables.

Note: If you are submitting runtime variables to the job, you should execute *Start* as a POST instead. (See *Start POST—Supplying Runtime Variable Values* for a description of submitting the variables.)

The *Start* operation initiates a job from the Capture workflow identified by the port number that the Capture action's Web service trigger is configured to monitor. No GUID is provided.

You can start capturing the video immediately or you can specify a future *start* time. You can also explicitly name the file and specify an alternate file storage path, and control how video recording is handled when discontinuous timecodes are detected.

If an *end* time or *duration* is not specified, the clip records for up to 9 hours unless stopped or disk space is exhausted. For best results, specify an *end* time or *duration*, and design your application to actively monitor and control the recording time.

Note: Specifying a *start* timecode that is 60 seconds or less earlier than the current time results in a capture job starting immediately. For example, if the current timecode is 02:30:00;20 and a *start* timecode of 02:29:30;00 is specified, the job starts capturing immediately.
Conversely, specifying a *start* timecode greater than 60 seconds prior to the current time causes the capture job to be queued, to start capturing in 24 hours. For example, if the current timecode is 02:30:00;20 and the *start* timecode is 02:29:00;00, the job is queued and capturing will begin at 02:29:00;00 tomorrow, nearly 24 hours later.

The job ID GUID (in the *Identifier* element) is always returned with an all-zero GUID, indicating that Vantage has not yet updated its database—it may take several seconds (typically up to ten) to update it; obtain the job ID GUID using *Status*.

Note: Up to 16 jobs per Capture workflow can be queued in a clip list for processing. Jobs are automatically removed from the clip list when complete or stopped. If you submit more than the maximum number of jobs permitted, an error is generated.
You can use the *Status* operation to obtain a clip list for the target workflow, so that you can determine the number of clips currently queued for processing.

Start POST—Supplying Runtime Variable Values

To use a Start POST operation and supply runtime variables, use the *Variables* operation to discover all variables that are associated with the workflow.

Then, submit the *Start* command as a POST, providing a Customization XML which contains your variables, enclosed in the body of the request message.

The POST Body should be submitted withe a Content-Type = text/plain, with the following Body Form:

```
<Customization xmlns:soa="urn:telestream.net:soa:core"
xmlns="urn:telestream.net:soa:live">
  <soa:Condition identifier="Variable GUID" name="Variable Name"
  type="string"><soa:Value> Variable Runtime Value</soa:Value></
  soa:Condition>
…
  <soa:Condition identifier="Variable GUID" name="Variable Name"
  type="int32"><soa:Value> Variable Runtime Value</soa:Value></
  soa:Condition>
…
  <soa:Condition identifier="Variable GUID" name="Variable Name"
  type="boolean"><soa:Value>Variable Runtime Value</soa:Value></
  soa:Condition>
</Customization>
```

Example Customization Variable XML

```
<Customization xmlns:soa="urn:telestream.net:soa:core"
xmlns="urn:telestream.net:soa:live">
  <soa:Condition identifier="221e9868-84ca-459a-ac1d-270fd3ee8a38"
name="FilenameToken" type="string"><soa:Value>This is where the
Name Token Goes</soa:Value></soa:Condition>
  <soa:Condition identifier="d678dcb9-6e44-4142-ad0c-62048d93980c"
name="Video Quality - ProRes" type="string"><soa:Value>422 LT</
soa:Value></soa:Condition>
  <soa:Condition identifier="8ccedf06-580e-4629-85cd-8bd78315eaeb"
name="Web Service option - Create Metadata Log"
type="boolean"><soa:Value>False</soa:Value></soa:Condition>
</Customization>
```

Note: The *soa:Condition* element's *type* attribute value (for example, `"string"`) must be in lower case or the operation will fail.

These are the elements and attributes you must supply:

- *soa:Condition* element:
  - *identifier* attribute— the target variable GUID (replacing the string <Variable GUID>), in double quotes.
  - *name* attribute— the name of the target variable (replacing the string <Variable Name>), in double quotes.
  - *type* attribute— the type of the target variable (replacing the string <Variable Type>), in double quotes. For example, string, integer, or boolean.
- *soa:Value* element value—the value you want to assign the variable (replacing the string <Variable Runtime Value>). It should *not* be in quotes. The *soa:Value* element value should be updated to contain the new runtime value for each job you submit (capture you start).

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Start Formats

This operation has the following formats:

```
http://<host>:<port>/record/start
```

OR

```
http://<host>:<port>/record/start
[?<parameter>=<value>[&<parameter>=<value>]]
```

Parameters

The *ActionDuration* element in the *Response* is always updated immediately when a *Start* operation is executed. Other elements are also updated when specific optional parameters are utilized. Their values can be obtained using a *Status* operation.

Parameter	Description
duration (optional)	Timecode; specifies the duration of the clip based on the number of frames captured. Default: 9 hours.
	For example: `duration=00:30:00:00`.
	When used in conjunction with *end*, the *end* timecode overrides *duration* when the specified timecode (or one later in time) is detected.
	If no *duration* or *end* is specified, the clip is recorded for 9 hours, the capture job is stopped, or disk space is exhausted.
	When *duration* is specified, the *ActionDuration* and *MarkIn* elements are updated immediately in the *Response*. The session continues until the number of frames in the file is functionally equivalent to the *duration* parameter. This allows for timecode jumps that occur during recording.
	Error: Returns an "Unable to start recording..." *Error* if timecode contains invalid timecode characters.
end (optional)	Timecode; specifies the clip's *exclusive* ending timecode.
	For example: `end=01:42:35:00`.
	The *end* timecode represents the timecode of the frame after the last frame of video.
	Recording stops when the specified timecode (or one later in time) is detected. If no *duration* or *end* is specified, the clip records for 9 hours, the capture job is stopped, or disk space is exhausted.
	When *end* is specified, the *ActionDuration* and *End* elements are updated immediately in the *Response* to *Start*. *MarkIn* and *MarkOut* are updated in the first valid *Status Response*.
	Error: Returns an "Unable to start recording..." *Error* if timecode contains invalid timecode characters.

Parameter	Description
folderPath (optional)	String; specifies the path to a folder where the clip file should be written. The path must end with a \.
	If a folder path is not specified, the clip is recorded in the storage folder associated with the respective workflow. If a new folder is added to an existing path, the folder will be created. If the folder could not be created an error will be reported.
	The Capture action must have the *Create output file(s) at job start* option enabled.
	For example: `folderPath=[Drive letter]:\[folder path]\ or \\[Share server]\[Share]\[Folder Path]\`
name (optional)	String; specifies a name for the clip. If a clip name is not specified, then a random name is generated.
	Note: For this name to be utilized, you must configure the Capture action to include the Base Name token in the Primary or Secondary Output's file name creation pattern in the Filename Pattern Editor (see the Capture Primary and Secondary Output Panels topic in the Lightspeed Live Guide for more detail). The appropriate file extension is automatically added to the file name. If a file exists, the web service will append an incremental integer to the file name.
	The Capture action must have the *Create output file(s) at job start* option enabled.
	For example: `name=LiveInOakland_Cam7_16062016_1342_PQ_234`.
	Error: Returns an error if the name contains *Reserved Characters in Value Strings*.
discontinuity (optional)	Keyword (Abort | Ignore); specifies how to control recording when timecode discontinuities are observed in the video stream. When set to *Ignore*, any timecode discontinuity is ignored and recording continues. When set to *Abort*, the recording stops and the job is terminated when a timecode discontinuity is detected.
rs422delay (optional)	Integer; specifies the number of frames delay when capturing from a VTR deck, adjusting the RS-422 time code by the specified number of frames. Negative numbers indicate early frames (an advance); positive numbers indicate latent frames (a true delay). Default 0; minimum -3 frames; maximum +3 frames).
	For example: `rs422delay=-1`.
	RS-422 time code delay is used to compensate for VTR decks requiring frame timing adjustments. Frames can appear early or late, depending on the type and/or age of the deck used. This adjustment compensates for decks that are not 100% frame-accurate (or for systems with routing latency to the associated timecode). Most decks do not require an offset adjustment. If you have a deck that requires an adjustment, use a trial-and-error process to determine the correct offset.
	Note: The Capture action must have *Create output file(s) at job start* enabled.
	Error: Returns an error if *rs422delay* is not an integer or contains values out of range.

Parameter	Description
start (optional)	Timecode; specifies the clip's *inclusive* starting timecode.
	For example: `start=01:12:35:00`.
	The *start* time represents the at which to record the first frame. If a *start* time is not specified, the clip begins recording immediately.
	When a *start* parameter is supplied, the *ActionDuration* and *Start* elements are updated in the *Start Response*. The *MarkIn* element is updated in the first valid *Status Response*.
	Error: Returns an "Unable to start recording..." *Error* if timecode contains invalid timecode characters.

Using Time-based Response Elements

These timecode-based *Response* elements are updated based on the parameters specified in the *Start* operation. Elements that are not updated (populated or changed value) on the initial *Response* are noted.

Start (without any parameters)
- *ActionDuration*

Start (start)
- *ActionDuration*
- *Start*

Start (duration)
- *ActionDuration*
- *MarkIn*—on the first valid Status operation

Start (start, duration)
- *ActionDuration*
- *Start*
- *End*
- *MarkIn*—on the first valid Status operation

Example—Immediate Start, No Duration

In this example, recording starts immediately and runs until it is stopped, 9 hours has elapsed or disk space is exhausted:

```
http://LS-SVR:17001/record/start
```

Typical Response

In this response, the clip GUID is in the *UUID* element. You can use this for *Status* or other operations on the clip. The *State* element indicates *Opened*, meaning that recording is ready to start or has started. Note that the *Identifier* is an all-zero GUID, indicating that Vantage has not yet updated its database with the job GUID—it may take several seconds (typically up to ten) to obtain the job GUID, using *Status*. The *ActionDuration* is 32,400 seconds—9 hours—and typically is updated in the *Start* operation's *Response*.

```
<Response>
  <UUID>d35d4e41-1c87-478d-9c9e-edb64d3adf6e</UUID>
  <PercentCompleted>0</PercentCompleted>
  <Progress>0</Progress>
  <ActionDuration>32400</ActionDuration>
  <FPS>29.97002997003</FPS>
  <Start></Start>
  <End></End>
  <MarkIn></MarkIn>
  <MarkOut></MarkOut>
  <Excluding>False</Excluding>
  <Name>capture_default_undefined_TeamBUndefined.mxf</Name>
  <Path>\\LS-SVR\Live\31a5a309-3fde-43be-8855-
a1a39e63ccb1\capture_default_undefined_TeamBUndefined.mxf</Path>
  <MasterMobid>060a2b34010101010101010f0013-000000-56967d89-b107-
0919-060e-2b347f7f2a80</MasterMobid>
  <SourceMobid>060a2b34010101010101010f0013-000000-56967d89-b108-
0919-060e-2b347f7f2a80</SourceMobid>
<HorizontalResolution>1920</HorizontalResolution>
  <VerticalResolution>1080</VerticalResolution>
  <FrameRate>29.97002997003</FrameRate>
  <Channels>16</Channels>
  <Identifier>00000000-0000-0000-0000-000000000000</Identifier>
  <State>Opened</State>
  <Access-Control-Allow-Origin>*</Access-Control-Allow-Origin>
  <EngineState>Running</EngineState>
  <EngineTime>12:52:28;13</EngineTime>
  <XMLRevision>2</XMLRevision>
</Response>
```

GET Example—Start with Time and Duration

In this example, recording starts later today at 2PM (14:00), and runs for 10 seconds:

```
http://LS-SVR:17001/record/start?
start=14:00:00:00&duration=00:00:10:00
```

POST Example—Start with Time and Duration

In this POST example with variables in the body (set as text/plain), recording starts later today at 2PM (14:00), and runs for 10 seconds:

```
http://LS-SVR:17001/record start?
start=14:00:00:00&duration=00:00:10:00
```

Body:

```
POST /record/start?start=14:00:00:00&amp; duration=00:00:18:20
HTTP/1.1
Host: ll-pm:17000
cache-control: no-cache
<Customization xmlns:soa="urn:telestream.net:soa:core"
xmlns="urn:telestream.net:soa:live">
  <soa:Condition identifier="221e9868-84ca-459a-ac1d-270fd3ee8a38"
name="FilenameToken" type="string"><soa:Value>This is where the
Name Token Goes</soa:Value></soa:Condition>
  <soa:Condition identifier="d678dcb9-6e44-4142-ad0c-62048d93980c"
name="Video Quality - ProRes" type="string"><soa:Value>422 LT</
soa:Value></soa:Condition>
  <soa:Condition identifier="8ccedf06-580e-4629-85cd-8bd78315eaeb"
name="Web Service option - Create Metadata Log"
type="boolean"><soa:Value>False</soa:Value></soa:Condition>
</Customization>
```

Typical Response

In this *Response*, note that the recording lasts for 10.01 seconds:

```
<Response>
  <UUID>7db7c9bc-e2b9-4ec2-93e2-dfe89b876045</UUID>
  <PercentCompleted>0</PercentCompleted>
  <Progress>0</Progress>
  <ActionDuration>10.01</ActionDuration>
  <FPS>29.97002997003</FPS>
  <Start>14:00:00;00@29.97</Start>
  <End>14:00:10;00@29.97</End>
  <MarkIn/>
  <MarkOut/>
  <Name>capture_default_undefined_TeamBUndefined.mxf</Name>
  <Path>\\LS-SVR\Live\3c003eda-8222-476d-aafc-51770a1dd791/
capture_default_undefined_TeamBUndefined.mxf</Path>
  <MasterMobid>060a2b340101010101010f0013-000000-56967d89-b107-
0919-060e-2b347f7f2a80</MasterMobid>
  <SourceMobid>060a2b340101010101010f0013-000000-56967d89-b108-
0919-060e-2b347f7f2a80</SourceMobid>
  <HorizontalResolution>1920</HorizontalResolution>
  <VerticalResolution>1080</VerticalResolution>
  <FrameRate>29.97002997003</FrameRate>
  <Channels>16</Channels>
  <Identifier>00000000-0000-0000-0000-000000000000</Identifier>
  <State>Opened</State>
  <Access-Control-Allow-Origin>*</Access-Control-Allow-Origin>
  <EngineState>Running</EngineState>
  <EngineTime>13:26:04;20</EngineTime>
  <XMLRevision>2</XMLRevision>
</Response>
```

Modify

The *Modify* operation is used to modify the start time and/or duration of a specific clip, specified by its GUID or all clips in the clip list, when no GUID is provided. The clip may be in any state. The *start* parameter is always required. If a clip has already started recording, it does not affect the job.

This operation has the following formats:

```
http://<host>:<port>/record/modify?start=<TimeCode>
```

OR

```
http://<host>:<port>/record/modify?
uuid=<GUID>[&start=<TimeCode>[&duration=<TimeCode>]]
```

Note: If you only have one clip in the clip list (or you want to modify all clips in the clip list), you can issue a *Modify* without a UUID. It returns a *Response* with only the standard elements.

Parameters

Parameter	Description
uuid (optional)	GUID; the unique identifier of the target clip. When not supplied, all clips in the list are updated. For example: `uuid=21EC2020-3AEA-4069-A2DD-08002B30309D` **Error**: Returns *404 Not Found* if the specified clip is not in the clip list.
start (required)	Timecode; specifies the clip's new i*nclusive* starting timecode—the *start* timecode of the first frame to be recorded—when executed before the scheduled *start* timecode. If recording is underway, you can specify any value—it does not affect the job, but it does update the *Start* element. For example: `start=01:12:35:00`. When a start timecode is specified, the *ActionDuration* and *Start* elements are updated in the *Response*. **Error**: Returns an "Unable to start recording..." *Error* if timecode contains invalid timecode characters.
duration (optional)	Timecode; specifies the new duration of the clip. For example: `duration=01:12:35:00`. When a a duration timecode is specified, the *ActionDuration*, *Start*, *MarkIn*, and *MarkOut* elements are updated in the *Response*. **Error**: Returns an "Unable to start recording..." *Error* if timecode contains invalid timecode characters.

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Errors

If you don't supply a *start* parameter, this error is returned:

```
<Response>
    <Error>Unable to modify recording. Start time code must be
     specified</Error>
    <Access-Control-Allow-Origin>*</Access-Control-Allow-Origin>
</Response>
```

Example

In this example, a new clip is created, to start at 18:00:00:00 for a duration of 10 minutes. Before 18:00 (recording has not started yet), the start time is modified to start at 18:30:00:00.

Here are the operations executed in this example:

Starting the Clip: `http://LS-SVR:17001/record/start? start=14:00:00:00&duration=00:10:00:00.`

Modifying the Clip Start Time: `http://LS-SVR:17001/record/modify? uuid=cd76fe46-700f-47b1-b483-7eaa1ed32241&start=11:30:00:00.`

Typical Response

Issuing the example *Modify* operation with a UUID and new start timecode results in the following *Response*:

```
<Response>
  <UUID>cd76fe46-700f-47b1-b483-7eaa1ed32241</UUID>
  <PercentCompleted>0</PercentCompleted>
  <Progress>0</Progress>
  <ActionDuration>10.01</ActionDuration>
  <FPS>29.97002997003</FPS>
  <Start>14:30:00;00@29.97</Start>
  <End>14:30:10;00@29.97</End>
  <MarkIn>14:00:00;00@29.97</MarkIn>
  <MarkOut>14:30:10;00@29.97</MarkOut>
  <Excluding>False</Excluding>
  <Name>capture_default_undefined_TeamBUndefined.mxf</Name>
  <Path>\\LS-SVR\Live\6220fd60-05c2-4b47-b481-f7a628708567/
capture_default_undefined_TeamBUndefined.mxf</Path>
  <HorizontalResolution>1920</HorizontalResolution>
  <VerticalResolution>1080</VerticalResolution>
  <FrameRate>29.97002997003</FrameRate>
  <Channels>16</Channels>
  <Identifier>8ee1376a-e1c0-490b-bea8-6ee42ee68fb2</Identifier>
  <State>Opened</State>
  <Access-Control-Allow-Origin>*</Access-Control-Allow-Origin>
  <EngineState>Running</EngineState>
  <EngineTime>15:25:07;27</EngineTime>
  <XMLRevision>2</XMLRevision>
</Response>
```

MarkOut | MarkIn

MarkOut and MarkIn operations enable you to mark a specific segment of all clips in a clip list or a specific clip specified by its GUID, for deletion during workflow processing.

Note: Mark In and Mark Out operations are only valid for TIFO format encoding. Using MarkOut/MarkIn with formats other than TIFO may have unintended consequences. Processing TIFO frames marked as OUT requires Vantage Transcoder 2012.1 or later in your Vantage domain. Alternatively, to temporarily halt streaming media to the Capture workflow, use *EditOut | EditIn*.
Using MarkOut and MarkIn operations with Long GOP codecs such as XDCAM can cause unexpected results. For best results with Live Edit use I-Frame codecs such as (X)AVC, DNxHD or ProRes.

All frames after a *MarkOut* is executed are marked with an OUT tag. The TIFO decoder ignores frames marked as OUT and prevents them from being passed to the transcoder. If a filler file is specified in the workflow, markout frames are replaced by frames in the same ordinal position in the filler file until the *MarkIn* operation is received.

All frames are marked as IN after a *MarkIn* has been executed.

You can use the *Status* command to determine the current state of these operations. The Excluding element in the Response has two values:

- Excluding = *False* means frames are not being affected by a Mark/Edit command.
- Excluding = True means frames are being affected by a Mark/Edit command.

These operations have the following formats:

```
http://<host>:<port>/record/<markout | markin>?
[timecode=<TimeCode>]
```

OR

```
http://<host>:<port>/record/<markout | markin>?
[uuid=<GUID>[&timecode=<TimeCode>]]
```

On success, these operations return a *Response* element. If the UUI is not in the clip list, returns an error: "*The server encountered an error processing the request. See server logs for more details.*"

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Parameters

Parameter	Description
uuid (optional)	GUID; the unique identifier of the clip on which to set the MarkOut/In point. When not supplied, all clips in the list are updated.
	For example: `uuid=21EC2020-3AEA-4069-A2DD-08002B30309D`
	Returns *404 Not Found* if the specified clip is not in the clip list.
timecode (optional)	Timecode; specifies the timecode in the future for a MarkOut/In point in the clip. For example: `timecode=01:12:35:00`.
	If a timecode is not specified, then the MarkOut/In point starts or stops immediately. MarkOut timecode is INCLUSIVE; the frame is marked OUT. MarkIn timecode is EXCLUSIVE; the frame is marked IN.
	Error: Returns an "*Unable to start recording...*" error if timecode contains invalid timecode characters.

MarkOut Example

In this example, a clip recording was started. Next, a MarkOut was executed, and finally, a MarkIn was executed:

Starting the Clip: `http://LS-SVR:17001/record/start`

Marking Out the Clip: `http://LS-SVR:17001/record/markout?uuid=d769249e-8bd8-4579-91b6-beb58f19d859`

Marking In the Clip: `http://LS-SVR:17001/record/markin?uuid=d769249e-8bd8-4579-91b6-beb58f19d859`

Typical MarkOut Response

Issuing the *MarkOut* operation returned this *Response*:

```
<Response>
  <UUID>d769249e-8bd8-4579-91b6-beb58f19d859</UUID>
  <State>Opened</State>
  <Access-Control-Allow-Origin>*</Access-Control-Allow-Origin>
  <EngineState>Running</EngineState>
  <EngineTime>15:35:02;20</EngineTime>
  <XMLRevision>2</XMLRevision>
</Response>
```

Typical MarkIn Response

Issuing the *MarkIn* operation returned this *Response*:

```
<Response>
  <UUID>d769249e-8bd8-4579-91b6-beb58f19d859</UUID>
  <State>Opened</State>
  <Access-Control-Allow-Origin>*</Access-Control-Allow-Origin>
  <EngineState>Running</EngineState>
  <EngineTime>15:36:05;04</EngineTime>
```

```
    <XMLRevision>2</XMLRevision>
</Response>
```

EditOut | EditIn

The EditOut and EditIn operations temporarily halt streaming to the Capture workflow, to prevent recording a segment between the EditOut and the EditIn of all clips in the clip list or a specific clip, specified by its GUID, where recording of the streamed clip resumes.

Note: As an alternative, when capturing TIFO format, you can use *MarkOut | MarkIn* operations and perform the cuts directly in the workflow.
Using EditOut and EditIn operations with Long GOP codecs such as XDCAM can cause unexpected results. For best results with Live Edit use I-Frame codecs such as (X)AVC, DNxHD or ProRes.

EditOut/EditIn functionality differs, based on whether a Lightspeed Live Capture workflow's Filler feature has been enabled in the Capture action, and a file specified. This feature is identical to using the Out and In buttons in the Capture Portal with a manually-triggered capture.

If Filler is *not checked* in the Capture action, issuing an EditOut operation prevents source frames from being added to the file; issuing an EditIn operation returns to adding source frames to be written to the file.

If Filler *is checked* in the Capture action, issuing an *EditOut* enable frames from the Filler file to be written to the file. Issuing an *EditIn* returns to adding source frames to be written to the file. If the filler is longer than the edit out period, it will loop.

Note: See the Lightspeed Live Guide for details on enabling and using Filler.

You can use the *Status* command to determine the current state of these operations. The Excluding element in the Response has two values:

- Excluding = *False* means frames are not being affected by a Mark/Edit command.
- Excluding = True means frames are being affected by a Mark/Edit command.

These operations have the following format:

```
http://<host>:<port>/record/<editin | editout>
[?timecode=<TimeCode>]
```

OR

```
http://<host>:<port>/record/<editin | editout>?
[uuid=<GUID>&timecode=<TimeCode>]
```

On success, these operations return a *Response* element.

Parameters

Operation	Description
uuid (optional)	GUID; the unique identifier of the clip on which to set the EditOut|EditIn point. When not supplied, all clips in the list are updated. For example: `uuid=21EC2020-3AEA-4069-A2DD-08002B30309D` Returns *404 Not Found* if the specified clip is not in the clip list.
timecode (optional)	Timecode; specifies the timecode for an EditOut|EditIn point in the clip. If a timecode is not specified, the EditOut|EditIn operations are issued immediately. For example: `timecode=01:12:35:00`. EditOut timecode is *inclusive*; the frame will be edited out. EditIn timecode is *exclusive*; the frame will be edited in. **Error**: Returns an "Unable to start recording..." *Error* if timecode contains invalid timecode characters.

Example

In this example, a new clip was started. Next, an EditOut was executed, and finally, an EditIn was executed:

Starting the Clip: `http://LS-SVR:17001/record/start`

Editing Out the Clip: `http://LS-SVR:17001/record/EditOut?uuid=ee74da56-6e01-4e2f-b1c3-ed3449878934`

Editing In the Clip: `http://LS-SVR:17001/record/editin?uuid=ee74da56-6e01-4e2f-b1c3-ed3449878934`

Whether you supply a timecode or not, the *Response* is essentially the same.

Typical EditOut Response

Issuing this *EditOut* operation returned this *Response*:

```
<Response>
  <UUID>ee74da56-6e01-4e2f-b1c3-ed3449878934</UUID>
  <State>Opened</State>
  <Access-Control-Allow-Origin>*</Access-Control-Allow-Origin>
  <EngineState>Running</EngineState>
  <EngineTime>15:45:23;09</EngineTime>
  <XMLRevision>2</XMLRevision>
</Response>
```

Typical EditIn Response

Issuing this *EditIn* operation returned this *Response*:

```
<Response>
  <UUID>ee74da56-6e01-4e2f-b1c3-ed3449878934</UUID>
  <State>Opened</State>
```

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```
      <Access-Control-Allow-Origin>*</Access-Control-Allow-Origin>
      <EngineState>Running</EngineState>
      <EngineTime>15:47:04;15</EngineTime>
      <XMLRevision>2</XMLRevision>
   </Response>
```

Message

The *Message* operation enables an application to control a VTR by sending Sony VTR operations to the connected VTR from the Lightspeed Live server via RS-422 and retrieving the *Response*.

Note: The Sony 9-pin operations are specified in the Sony Video Cassette Recorder/ Player Protocol of Remote (9-pin) Connector, 2nd Edition.

The SDI Source Input associated with the Capture workflow receiving this operation must be connected to a VTR device via EIA RS-422A.

You can not use this operation unless the target workflow is in an active state with a Monitor Status of VTR connected. (View the Monitor Status tab in Workflow Designer).

This operation has the following format:

```
http://<host>:<port>/record/Message?request=<Sony Operation>
```

Parameters

Parameter	Description
request (required)	String, reserved numeric strings identified by Sony for 9-pin device operations.
	For example: `request=2000`
	Typical Sony operations (supported by most VTRs) include:
	• Stop = 2000
	• Play = 2001
	• Fast Forward = 2010
	• Rewind = 2020
	• Cue with DATA (Go To) = 2431[TC DATA]
	- TC = 09:59:59:00; TC DATA = 00595909
	Reference your VTR guide for supported operations.

Example

In this example, the *LS_Live* server is contacted on port 17001, issuing a Sony VTR Stop operation:

```
http://LS-SVR:17001/record/Message?request=2000
```

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Typical Response

The XML responses from *Message* operations do not follow the pattern of the other responses. Instead, they are specified by a Microsoft schema. *Message* operations return a *string* element, whose data value is a string. The last two characters are a checksum. The remaining string is the return value.

Issuing this *Message* operation with a 2001 request (Play):

```
http://LS-SVR:17001/record/message?request=2001
```

returned the following XML:

```
<string xmlns="http://schemas.microsoft.com/2003/10/
Serialization/">100111</string>
```

The response string 1001 (dropping the last 2 numbers—the checksum) = ACK.

In this example, the *Message* operation is issued for a Status Sense:

```
http://LS-SVR:17001/record/message?request=612002
```

The response is:

```
<string xmlns="http://schemas.microsoft.com/2003/10/
Serialization/">7220000193</string>
```

This response string (7220000193) is de-constructed as:

7220 (7X20) = Status Data returning 2 data bytes (Data No. 0 through Data No. 1)

Data No. 0 = 20 = 00100000 (Bit 5 = 1 which means Tape or Cassette IN; more properly NOT OUT)

Data No. 1 = 01 = 00000001 (Bit 0 =1 which indicates a status of PLAY).

Stop

Stops a queued or in-progress job and removes the specified clip from the clip list or—when no GUID is provided—stops and removes all clips from the clip list.

This operation has the following format:

```
http://<host>:<port>/record/stop
```

OR

```
http://<host>:<port>/record/stop?uuid=<GUID>[&end=<TimeCode>]
```

The Response that is returned contains one *UUID* element with the GUID for each clip that was stopped.

Parameters

Parameter	Description
uuid (required)	GUID; the unique identifier of the clip to stop. For example: `uuid=21EC2020-3AEA-4069-A2DD-08002B30309D` **Error**: Returns *404 Not Found* if the clip is not in the clip list.
end (optional)	Timecode; specifies the clip's *exclusive* new end timecode. For example: `end=01:42:35:00`. The end timecode represents the timecode of the frame after the last frame of video. If an end time is not specified the clip stops recording immediately. This parameter has no affect if the duration parameter was used within the job's start operation. **Error**: Returns *400 Bad Request* if the end time results in a clip with a duration longer than initially specified. **Note:** You can only change the end timecode on files recorded without an initial duration or when recording QuickTime Closed or MXF OP1a Closed container formats.

Example

```
http://LS-SVR:17001/record/stop?
uuid=d35d4e41-1c87-478d-9c9e-edb64d3adf6e
```

Typical Response

Issuing this *Stop* operation on the same clip started in the example in the *Start* operation returned the following *Response*:

```
<<Response>
  <UUID>d35d4e41-1c87-478d-9c9e-edb64d3adf6e</UUID>
  <PercentCompleted>0</PercentCompleted>
  <Progress>383.783395833333</Progress>
  <ActionDuration>32400</ActionDuration>
  <FPS>29.97002997003</FPS>
  <Start/>
  <End/>
  <MarkIn>12:52:28;13@29.97</MarkIn>
  <MarkOut/>
  <Excluding>False</Excluding>
  <Name>capture_default_undefined_TeamBUndefined.mxf</Name>
  <Path>\\LS-SVR\Live\31a5a309-3fde-43be-8855-a1a39e63ccb1/
capture_default_undefined_TeamBUndefined.mxf</Path>
  <HorizontalResolution>1920</HorizontalResolution>
  <VerticalResolution>1080</VerticalResolution>
  <FrameRate>29.97002997003</FrameRate>
  <Channels>16</Channels>
  <Identifier>f66d4a1d-0c30-4829-90c3-bed03454b3f3</Identifier>
  <State>Opened</State>
  <Access-Control-Allow-Origin>*</Access-Control-Allow-Origin>
  <EngineState>Running</EngineState>
  <EngineTime>12:58:52;19</EngineTime>
  <XMLRevision>2</XMLRevision>
</Response>
```

Status

The *Status* operation supplies status information for a clip when the clip's GUID is supplied. When you don't specify a GUID, the Status operation returns the clip list (the list of clips currently in the capture queue).

You can obtain the clip GUID from its *Start* operation or from a separate Status operation that returns the clip list.

You must use the *Status* operation to obtain the job ID GUID in the *Identifier* element, which identifies the Vantage capture job. The *Start* operation does not return the job ID GUID in its Response. After starting a clip capture, you may have to wait to issue the *Status* operation or a few seconds (or poll repeatedly and test) for the status to be fully-updated and available. For example, the Job ID (the value in the *Identifier* element) is returned as zeros until the process is fully updated.

This operation has the following formats:

```
http://<host>:<port>/record/status
```

OR

```
http://<host>:<port>/record/status?uuid=<GUID>
```

Parameters

Parameter	Description
uuid (optional)	GUID; the unique identifier of the clip to obtain status information from.
	For example: `uuid=21EC2020-3AEA-4069-A2DD-08002B30309D`
	When this operation is issued with a GUID, the *Response* provides status details for the associated clip.
	Error: Returns *404 Not Found* if the clip is not in the clip list.

Example

```
http://LS-SVR:17001/record/status?
uuid=d35d4e41-1c87-478d-9c9e-edb64d3adf6e
```

In this example, the uuid is the clip GUID associated with the job created in the example provided in the *Start* operation topic.

Typical Response

Issuing this *Status* operation returned the following *Response*.

Note: You may have to wait (or poll) for several seconds (typically up to ten) to obtain a valid job ID GUID in the *Identifier* element.

The GUID in the *Identifier* element is the job ID GUID of the job created by issuing the *Start* command. The *Progress* value of 173 is the totaled elapsed recording time (in seconds) so far.

```xml
<Response>
  <UUID>d35d4e41-1c87-478d-9c9e-edb64d3adf6e</UUID>
  <PercentCompleted>0</PercentCompleted>
  <Progress>173.773604166667</Progress>
  <ActionDuration>32400</ActionDuration>
  <FPS>29.97002997003</FPS>
  <Start/>
  <End/>
  <MarkIn>12:52:28;13@29.97</MarkIn>
  <MarkOut/>
  <Excluding>False</Excluding>
  <Name>capture_default_undefined_TeamBUndefined.mxf</Name>
  <Path>\\LS-SVR\Live\31a5a309-3fde-43be-8855-a1a39e63ccb1/
capture_default_undefined_TeamBUndefined.mxf</Path>
  <HorizontalResolution>1920</HorizontalResolution>
  <VerticalResolution>1080</VerticalResolution>
  <FrameRate>29.97002997003</FrameRate>
  <Channels>16</Channels>
  <Identifier>f66d4a1d-0c30-4829-90c3-bed03454b3f3</Identifier>
  <State>Opened</State>
  <Access-Control-Allow-Origin>*</Access-Control-Allow-Origin>
  <EngineState>Running</EngineState>
  <EngineTime>12:55:22;20</EngineTime>
  <XMLRevision>2</XMLRevision>
</Response>
```

Variables

The purpose of the *Variables* operation is to obtain the variables defined in the Capture action of the target workflow, so that you can start a job using the *Start* POST operation and supply the required run-time variable values.

The *Variables* operation returns the variables as a Customization XML describing the variables in the Capture action of the target workflow. The XML contains the variables and current values in the */Customization/Conditions/a:Condition/* elements.

Note: If a variable was added to the Capture action, it uses namespace b:, not a:.

This operation has the following format:

```
http://<host>:<port>/record/variables
```

Example

Here is an example of a *Variables* operation:

```
http://LS-SVR:17001/record/variables
```

Typical Response

Issuing this *Variables* operation on the target workflow illustrated in the *Start* example returned the following *Response*, where *Condition* elements defined each variable and its attributes:

- TeamA
- TeamB

```xml
<Customization xmlns="http://schemas.datacontract.org/2004/07/
Telestream.Soa.Facility.Live.Vocabulary" xmlns:i="http://
www.w3.org/2001/XMLSchema-instance">
<xmlns xmlns="http://schemas.datacontract.org/2004/07/
Telestream.Soa.Vocabulary" xmlns:a="http://
schemas.datacontract.org/2004/07/System.Xml.Serialization"
i:nil="true"/>
<Identifier xmlns="http://Telestream.Vantage.Sdk/2010/
07">42c887d0-a06c-4e66-96d7-82cf75ba37b7</Identifier>
<Categories xmlns="http://Telestream.Vantage.Sdk/2010/07"
xmlns:a="http://schemas.datacontract.org/2004/07/
Telestream.Soa.Vocabulary"/>
<Components xmlns="http://Telestream.Vantage.Sdk/2010/07"/>
<CustomEditorType xmlns="http://Telestream.Vantage.Sdk/2010/07"
i:nil="true"/>
<Description xmlns="http://Telestream.Vantage.Sdk/2010/07"
i:nil="true"/>
<Name xmlns="http://Telestream.Vantage.Sdk/2010/07" i:nil="true"/>
<ParameterSelections xmlns="http://Telestream.Vantage.Sdk/2010/07"
xmlns:a="http://schemas.datacontract.org/2004/07/
Telestream.Soa.Vocabulary"/>
```

```
<ParameterSetCollections xmlns="http://Telestream.Vantage.Sdk/
2010/07" xmlns:a="http://schemas.datacontract.org/2004/07/
Telestream.Soa.Vocabulary"/>
<Parameters xmlns="http://Telestream.Vantage.Sdk/2010/07"/>
<Summary xmlns="http://Telestream.Vantage.Sdk/2010/07"
i:nil="true"/>
<Conditions xmlns:a="http://Telestream.Vantage.Sdk/2010/07">
<a:Condition>
<xmlns xmlns="http://schemas.datacontract.org/2004/07/
Telestream.Soa.Vocabulary" xmlns:b="http://
schemas.datacontract.org/2004/07/System.Xml.Serialization"
i:nil="true"/>
<a:Identifier>d27afbf9-8ed3-45fb-9ae5-0992a1757d7f</a:Identifier>
<a:Categories xmlns:b="http://schemas.datacontract.org/2004/07/
Telestream.Soa.Vocabulary"/>
<a:Components/>
<a:CustomEditorType i:nil="true"/>
<a:Description/>
<a:Name>TeamB</a:Name>
<a:ParameterSelections xmlns:b="http://schemas.datacontract.org/
2004/07/Telestream.Soa.Vocabulary"/>
<a:ParameterSetCollections xmlns:b="http://
schemas.datacontract.org/2004/07/Telestream.Soa.Vocabulary"/>
<a:Parameters/>
<a:Summary i:nil="true"/>
<a:Instance>106c7a70-42b0-4ae4-9d7d-7bf54e9d6a78</a:Instance>
<a:ConditionValue>
<a:ComplexValue i:nil="true"/>
<a:Text xmlns:b="http://schemas.microsoft.com/2003/10/
Serialization/Arrays" i:nil="true"/>
<a:Default>
<a:ComplexValue i:nil="true"/>
<a:Text xmlns:b="http://schemas.microsoft.com/2003/10/
Serialization/Arrays">
<b:string>TeamBUndefined</b:string>
</a:Text>
</a:Default>
</a:ConditionValue>
<a:TypeCode>String</a:TypeCode>
</a:Condition>
<a:Condition>
<xmlns xmlns="http://schemas.datacontract.org/2004/07/
Telestream.Soa.Vocabulary" xmlns:b="http://
schemas.datacontract.org/2004/07/System.Xml.Serialization"
i:nil="true"/>
<a:Identifier>d2907504-ee16-4af2-bfcd-eb18e0bde7b0</a:Identifier>
<a:Categories xmlns:b="http://schemas.datacontract.org/2004/07/
Telestream.Soa.Vocabulary"/>
<a:Components/>
<a:CustomEditorType i:nil="true"/>
<a:Description/>
<a:Name>TeamA</a:Name>
<a:ParameterSelections xmlns:b="http://schemas.datacontract.org/
2004/07/Telestream.Soa.Vocabulary"/>
<a:ParameterSetCollections xmlns:b="http://
schemas.datacontract.org/2004/07/Telestream.Soa.Vocabulary"/>
<a:Parameters/>
```

```xml
<a:Summary i:nil="true"/>
<a:Instance>6ad3eec9-28cd-499c-8927-0710f1b5622a</a:Instance>
<a:ConditionValue>
<a:ComplexValue i:nil="true"/>
<a:Text xmlns:b="http://schemas.microsoft.com/2003/10/
Serialization/Arrays" i:nil="true"/>
<a:Default>
<a:ComplexValue i:nil="true"/>
<a:Text xmlns:b="http://schemas.microsoft.com/2003/10/
Serialization/Arrays">
<b:string>default_undefined</b:string>
</a:Text>
</a:Default>
</a:ConditionValue>
<a:TypeCode>String</a:TypeCode>
</a:Condition>
</Conditions>
<Labels xmlns:a="http://Telestream.Vantage.Sdk/2010/07"/>
</Customization>
```
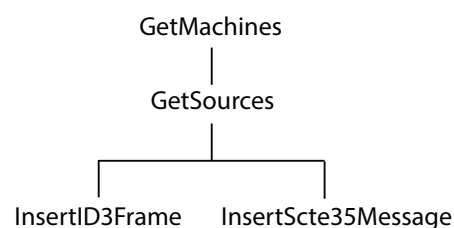
Source Operations

You can use the Lightspeed Source web service operations in a program to identify Live servers by GUID, obtain a list of sources to operate on, and insert various SCTE-35 triggers and ID3 frame tags into a source. Source operations can be used in both Capture and Stream programs.

- GetMachines
- GetSources
- GetSourceTimecode
- InsertID3Frame
- InsertScte35Message

Note: All Source operations at located at the root level: `http://<host>:<port>/`. Sources operations do not require authentication. The default port to accessing the Source API operations is 15000.

Live Source Component Hierarchy

When operating on sources, you must first obtain a list of machines and then identify the machine you want to access by GUID: Machine > Source. Next, obtain a list of Sources and then identify the source you want to access by GUID.

```
              GetMachines
                   |
              GetSources
                   |
         ┌─────────┴─────────┐
   InsertID3Frame      InsertScte35Message
```

Note: To display help for Source operations, enter `http://<host>:<port>/help`.

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GetMachines

The purpose of this GET operation is to identify the Live server (or in the case of a group, all of the Live servers in the group) by GUID.

This operation is a prerequisite for other operations which require a machine GUID.

To execute this operation, use the Windows domain name or the IP address of the Live server or any Live server in the group.

GetMachines has the following format:

```
http://<host>:<port>/GetMachines
```

Operation Sequence

No other operations are required before you can execute this operation.

Results

Upon success, *GetMachines* returns an array, with a record of the Live server (or, in the case of a group, each Live server) GUID and Name.

Example

```
http://10.9.9.9:15000/GetMachines
```

Typical Response

In this response, three server records are listed. You can extract each machine's GUID from the Identifier and use it to connect, and monitor or control its resources. Of course, in a standalone system, only one record is returned.

```
[
  {
    "Identifier":"89d2be4b-be21-4838-a551-522cce299fbe",
    "Name":"LL-PM-1",
    "Description":null,
    "Details":[]
  },
  {
    "Identifier":"4bd2be89-2c24-3947-a432-484bca2387fba",
    "Name":"LL-PM-2",
    "Description":null,
    "Details":[]
  },
  {
    "Identifier":"43b2ff5b-ac29-48573-c443-567cad734efa",
    "Name":"LL-PM-3",
    "Description":null,
    "Details":[]
  }
]
```

GetSources

The purpose of this GET operation is to identify all of the video sources that are available on the target Live server, and return them in a list for further use.

Note: Sources are defined for a specified hardware port on a specific server. Thus, the host that you specify must be the server where the Source was added.

GetSources has the following format:

```
http://<host>:<port>/GetSources?machine={MACHINE GUID}
```

Operation Sequence

Execute the following operation to obtain the required GUID for this operation:

GetMachines (machine GUID)

Required Parameter

Parameter	Description
machine	GUID; string that identifies a specific Live server.

Results

On success, *GetSources* returns a set of records; one for each source in the Live server.

Example

```
http://10.9.9.9:15000/GetSources?
machine=1129625b-0d7d-490a-aa3f-315214a0b6f2
```

Typical Response

In this response, all of the Sources that are operational on the target server are listed along with their Identifier and Name values, which you can use to query and use them.

```
[
  {
    "Identifier":"4ad20640-a5d8-45d1-a035-3a38227f21d5",
    "Name":"LL-PM - SDI Input 1 to Output 3",
    "Description":null,
    "Details":[]
  },
  {
    "Identifier":"f6b89737-5c4a-44b5-98df-c8b7b2ffc8a3",
    "Name":"LL-PM - SDI Input 2",
    "Description":null,
    "Details":[]
  },
]
```

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GetSourceTimecode

The purpose of this GET operation is to obtain the timecode of a source with timecode.

GetSourceTimecode has the following format:

```
http://<host>:<port>/GetSourceTimecode?sourceidentifier={SOURCE
GUID}
```

Operation Sequence

Execute the following operations to obtain the required machine GUID and source GUID for this operation:

GetMachines > (machine GUID)

GetSources > (source GUID)

Required Parameter

Parameter	Description
sourceidentifier	GUID; string that identifies a specific SDI source.

Results

On success, *GetSourceTimecode* returns the timecode for the specified source on the Live server.

Example

```
http://10.9.9.9:15000/GetSourceTimecode?
sourceidentifier=4ad20640-a5d8-45d1-a035-3a38227f21d5
```

Typical Response

In this response, the source timecode is returned for your use.

```
"00:46:36;07"
```

InsertID3Frame

This POST operation inserts an ID3 tag with a single PRIV frame and the specified type and value in the source at the specified timecode. If a time code is not specified, the tag is inserted immediately. Sources are defined for a specified hardware port on a specific server. Thus, the host that you specify must be the server where the Source was added.

InsertID3Frame has the following format:

```
http://<host>:<port>/InsertID3Frame?
source={SOURCE GUID}&type={FRAME TYPE}&timeCode={TIMECODE VALUE}

Body <MIME TYPE>: {type value}
```

Operation Sequence

Execute the following operation to obtain the required GUID for this operation:

GetMachines (machine GUID) > *GetSources* (Source GUID)

Parameters

Parameter	Description
source	GUID; string that identifies a specific source on the Live server. For example: `source=442082bf-bde8-44b5-9bce-832b6d0fd885`
type	String; the type of PRIV frame. For example: `type=com.cisco.streaming.SplicePoint.0`
timeCode (optional)	Timecode; time code value in the source at which to insert the tag. If a time code is not specified, the tag is inserted immediately. For example: `source=01:03:15:00@29.97`

Required Post Body

Type Value	String; appropriately-encoded string that is the value for the type key-pair value inserted into the video. This operation supports these MIME types: - text/plain (base 64-encoded binary data) - application/xml or text/xml (un-encoded XML) - application/octet-stream (raw binary data).

Results

Upon success, *InsertID3Frame* adds an ID3 tag with a PRIV frame of the specified type and value to the source at the indicated time frame (or immediately) and returns a record with the string "`Success`":

```
[
  {
  "Success"
  }
]
```

Example

```
http://10.9.9.9:15000/InsertID3Frame?
source=442082bf-bde8-44b5-9bce-832b6d0fd885&
type="com.cisco.streaming.SplicePoint.0"
```

Body (text/plain MIME type with base-64-encoded binary data)

PD94bWwgdmVyc2lvbj0iMS4wIiBlbmNvZGluZz0iVVRGLTgiPz4NCjxNYXJrZXI+DQ
o8TWFya2VySUQ+MHgxNWQxZTg8L01hcmtlcklEPg0KPFByZXJvbGxITlM+MDwvUHJl
cm9sbEhOUz4NCjxTcGxpY2U+DQo8RXZlbnRJRD4xNDI5OTkyPC9FdmVudElEPg0KPE
91dE9mTmV0d29yaz4wPC9PdXRPZk5ldHdvcms+DQo8UHJvZ3JhbVNwbGljZT4xPC9Q
cm9ncmFtU3BsaWNlPg0KPERlcmF0aW9uPjA8L0R1cmF0aW9uPg0KPFNwbGljZUltbW
VkaWF0ZT4wPC9TcGxpY2VJbW1lZGlhdGU+DQo8VGltZVNwZWNpZmllZD4xPC9UaW1l
U3BlY2lmaWVkPg0KPEF1dG9SZXR1cm4+MDwvQXV0b1JldHVybj4NCjwvU3BsaWNlPg
0KPFByb2dyYW0+DQo8UHJvZ3JhbUlEPjEyNDwvUHJvZ3JhbUlEPg0KPEF2YWlsTnVt
PjA8L0F2YWlsTnVtPg0KPEF2YWlsRXhwZWN0ZWQ+MDwvQXZhaWxFeHBlY3RlZD4NCj
wvUHJvZ3JhbT4NCjxUaW1lPg0KPFNwbGljZVRpbWVITlM+MTAxOTE4MjEzMDAwMDA8
L1NwbGljZVRpbWVITlM+DQo8U3BsaWNlRGF0ZVRpbWU+MjAxNy0xMC0yN1QwMDoxNz
oyM1o8L1NwbGljZURhdGVUaW1lPg0KPER1cmF0aW9uSE5TPjA8L0R1cmF0aW9uSE5T
Pg0KPC9UaW1lPg0KPC9NYXJrZXI+

InsertScte35Message

The purpose of this GET operation is to insert a SCTE-35 message in the source. If a time is not specified, the message will be inserted immediately.

Note: Sources are defined for a specified hardware port on a specific server. Thus, the host that you specify must be the server where the Source was added.

InsertScte35Message has the following format:

```
http://<host>:<port>/
InsertScte35Message?source={SOURCE}&scte35Message={SCTE35MESSAGE}&
time={TIME}&eventID={EVENTID}
```

Operation Sequence

Execute the following operation to obtain the required GUID for this operation:

GetMachines (machine GUID) > *GetSources* (Source GUID)

Parameters

Parameter	Description
source	GUID; string that identifies a specific source on the Live server. For example: `source=442082bf-bde8-44b5-9bce-832b6d0fd885`
scte35 Message	String; keyword that defines the SCTE-35 message. You can enter a string representing the SCTE segmentation type ID in plain text or as a string representation of the hex value. Capitalization is ignored, and with or without spaces. For example: "Program Start", "programstart", and "0x10" all refer to the same message; creating a SCTE trigger and setting its segmentation type ID to 0x10 (16 in base 10). For example: scte35Message=`"Program Start"` See the SCTE Commands table below.
timeCode (optional)	Timecode; time code value in the source at which to insert the SCTE-35 message. If a time code is not specified, the message is inserted immediately. For example: `timeCode=01:03:15:00@29.97`
eventID	Integer value; a 32-bit unsigned integer value which specifies the ID of the message.

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SCTE-35 Commands

Command	Hex Value	Text Value
Program Start	0x10	ProgramStart
Program End	0x11	ProgramEnd
National Break Start	0x30	ProviderAdStart
National Break End	0x31	ProviderAdEnd
Local Break Start	0x32	DistributorAdStart
Local Break End	0x33	DistributorAdEnd
Ad Break Start	0x34	AdBreakStart
Ad Break End	0x35	AdBreakEnd

Results

Upon success, *InsertScte35Message* adds the specified message and its type value in the body, to the source at the indicated time frame (or immediately) and returns a record with the string "Success":

```
[
   {
   "Success"
   }
]
```

Example

```
http://10.9.9.9:15000/InsertScte35Message?
source=442082bf-bde8-44b5-9bce-832b6d0fd885&
scte35Message="Program Start"&eventID=4967295
```