



Pipeline

Capture and Playout Web API

Pipeline for Windows v2.6.4 or later

User's Guide

Pipeline Web API

Record and Playout

Record commands

Record commands apply to ***Pipeline Control for Windows v2.6.4 or later***.

The Pipeline web service API enables the ability to remotely start and stop captures through the Pipeline Trigger document engine. The Pipeline *Trigger Document* type will allow recording to be controlled manually through the user interface or through simple HTTP web service commands described below.

Each Pipeline *Trigger Document* publishes a web service that allows media clips to be recorded using a simple HTTP based command set.

- A clip can be scheduled for recording up to 6 hours before the start time.
- If a start time is not specified the clip begins recording immediately.
- If an end time is not specified the clip will record for the maximum duration of 9 hours.
- A clip will remain in the active list up to 4 hours after recording has ended.

NOTE: See the Pipeline User Guide for specific details on enabling the Pipeline Trigger web services.

When a Pipeline *Trigger Document* is placed into an active state the web service will begin listening for requests on the selected port. The user will be warned if the port is in use by another Pipeline *Trigger Document* or by some other service on the host computer.

A web service command is invoked using an HTTP GET request in the following form:

`http://host:port/record/command[?parameter=value[¶meter=value]]`

NOTE: This guide assumes that the programming environment being used by the developer includes a library that abstracts the process of command submission and responses through the HTTP protocol.

If your environment does not include a library to perform this abstraction then you will have to directly format your commands to adhere to the HTTP protocol.

See http://en.wikipedia.org/wiki/Hypertext_Transfer_Protocol for details on the HTTP protocol.

Where 'host' is the DNS name or IP address of the Pipeline host computer that the Pipeline Control software is running on, 'port' is the user assigned TCP/IP port for the active Pipeline document and 'command' identify a specific web service command. If the command requires additional arguments they are supplied as name/value pairs in the query portion of the request.

host	The DNS name or IP address of the computer running the Pipeline software, for example "localhost" or 192.168.1.2.
port	The TCP/IP port number assigned to the web service. The port number is user selectable and displayed in the Web Service configuration area of the document.
command	The web service command to execute.
parameter	A named parameter defined by the web service command.
value	The parameter value.

The web service response consists of the normal HTTP status line (for example '200 OK' or '404 Not found'), HTTP headers and an XML body. The following common data elements are returned as part of the web service response of Pipeline Control for Mac and Windows (additional elements may be present):

Common Response Elements

XMLRevision: 2	The XML response revision.
EngineTime* : 12:34:56:00	The current Pipeline time code. This was formally 'Time' in previous web services responses.
UUID: {5b1eb65c-3018-a4cf-8134-6e1c16b378a7}	The unique identifier assigned to a clip.
Start: 01:23:45;00	The anticipated starting time code of a clip.
End: 02:23:50;00	The anticipated ending time code of a clip.
MarkIn: 01:23:45;00	The actual starting time code of a clip (returned from STATUS and STOP command).
MarkOut: 02:23:50;00	The actual ending time code of a clip (returned from STATUS and STOP command).
Name: Clip.mov	The name of the clip to be recorded.
Path: /Users/Shared/Clip.mov	The fully qualified path to the file containing a recorded clip.
State: Waiting, Opened, Closed, Cancelled, Failed	The state of the recorded clip. Opened – Currently Capturing Waiting – Connected and waiting for jobs to be queued or to start jobs in the queue Closed – Capture is complete Cancelled – The job was cancelled before capture Failed – The job failed during capture

Additional Response Elements

VideoFormat	The codec currently active
HorizontalResolution	The clip's horizontal resolution

VerticalResolution	The clip's vertical resolution
FrameRate	The clip's frame rate
Channels	The number of audio channels in the clip
AudioFormat	The audio format
EngineState	The state of the Pipeline Engine
EngineOperation	The operational state of the Pipeline system
ExcludingFrames	Report if frames captured into TIFO are marked IN (<i>ExcludingFrames = False</i>) or OUT (<i>ExcludingFrames = True</i>)

***EngineTime** was formally 'Time' in previous web services responses. Change your source code to reflect this change.

Commands

Help

Displays a help web page describing the operation and features of the Pipeline Control web service.

This request has the following format:

<http://address:port/> or <http://address:port/Help>

Start

Starts recording a new clip. The following parameters are supported:

This request has the following format:

<http://address:port/record/start>

Optional parameters

[http://host:port/command\[?parameter=value\[¶meter=value\]\]](http://host:port/command[?parameter=value[¶meter=value]])

Example:

<http://10.5.2.1:8080/record/start?duration=00:00:10:00>

start=01:12:35:00	<p>Specifies the 'inclusive' starting time code for the clip. The START time code represents the time code of the first frame of video.</p> <p>If a start time is not specified the clip will begin recording immediately.</p> <p>Responds with an error if the time code contains invalid characters.</p>
duration=00:30:00:00	<p>Specifies the duration of the clip based on the number of frames captured. If duration is used the capture session will continue until the file contains a number of frames that add up to the specific duration parameter. This allows for time code jumps that occur during capture. If duration is used in conjunction with an 'end' time code the end timecode will override duration when the specified timecode (or one later in time) is detected. If a duration or end timecode is not specified the clip will record for a maximum of 9 hours. See 'end' parameter description below for end/duration interaction.</p> <p>Responds with an error if the time code contains invalid characters.</p>
end=01:42:35:00	<p>Specifies the 'exclusive' end time code for the clip. The END time code represents the time code of the frame after the last frame of video.</p> <p>Capture will stop when the specified time code (or one later in time) is detected. If an end time is not specified (or implied by the duration parameter) the clip will record for a maximum of 9 hours. See 'duration' parameter description above for end/duration interaction.</p> <p>Responds with an error if the time code contains invalid characters.</p>
Tape=Tape Name	<p>Specifies a name for the Tape Name or Reel. The Tape Name/Reel will be embedded directly into QuickTime files and Avid MXF OPAAtom files.</p> <p>Responds with an error if the name contains invalid characters</p>
name=myclip	<p>Specifies a name for the clip. If a clip name is not specified a random name is generated. In order for this name to be passed to the Pipeline Control application you must include an EXTERNAL name token within the application's Name field (see Pipeline Control for Windows User Guide for more detail). The appropriate file extension is automatically added to the file name. If a file exists the web service will overwrite the existing file.</p> <p>Responds with an error if the name contains invalid characters</p>

folderPath=/Users/Shared	<p>Specifies the path to a folder where the clip should be recorded. If a folder path is not specified the clip will be recorded in the storage folder associated with the Trigger document.</p> <p>For Windows Pipeline Control: If a folder is added to a fully qualified root and it does not exist an attempt to create a new folder will be done. If the folder could not be created an error will be reported.</p> <p>For Mac Pipeline Control: If a folder is added to a fully qualified root and it does not exist an error will be reported.</p> <p>Responds with an error if the folder contains invalid characters or does not exist.</p>
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Modify

The Modify command can be used to modify the start time code and duration of a scheduled event contained in the clip list.

NOTE: Clips must be in the Waiting state. Using the Modify command on clips that are in the Capture state will cause the capture to immediately **stop**.

To modify clips in the Capture state use a STOP command with an END parameter.

This request has the following format:

[http://address:port/record/modify?start=\[value\]&duration=\[value\]&uuid=\[value\]](http://address:port/record/modify?start=[value]&duration=[value]&uuid=[value])

Example:

<http://10.5.2.1:8080/record/modify?UUID=a4024e5b-8eaf-4c6e-b1ca-c833e3e63553&start=01:01:30:00&duration=01:00:00:00>

Required Parameters:

uuid={5b1e...78a7}	<p>The unique identifier of the clip you wish to modify.</p> <p>Responds with '404 Not Found' if the specified clip is not in the active list.</p>
start=01:12:35:00	<p>Specifies the new 'inclusive' start time code for the clip. The START time code represents the time code of the first frame to be captured.</p> <p>Responds with an error if the time code contains invalid characters.</p>
duration=01:12:35:00	<p>Specifies the new duration of the clip.</p>

	Responds with an error if the time code contains invalid characters.
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MarkIN

NOTE: Supported when capturing TIFO only with Pipeline Control for Windows v2.6.1 or later; ignored otherwise; decode support requires Vantage Transcoder 2012.1 or later)

Marks all TIFO frames after this point with an IN metadata tag. The TIFO decoder included in Vantage Transcoder 2012.1 build or later will decode frames marked as IN and pass them to the downstream processes for video filtering and compression.

This request has the following format:

<http://address:port/record/markin>

[http://address:port/record/markin\[?parameter=value\[¶meter=value\]\]](http://address:port/record/markin[?parameter=value[¶meter=value]])

Example:

<http://10.5.2.1:8080/record/markin?timecode=01:00:10:00>

The following optional parameters are supported:

uuid={5b1e...78a7}	The unique identifier of the clip on which to set the markin point. Responds with '404 Not Found' if the specified clip is not in the active list.
timecode=01:12:35:00	Specifies the time code in the future for a markin point in the clip. If a time code is not specified the clip will be given a markin point immediately. Responds with an error if the time code contains invalid characters.

MarkOUT

Note: Supported when capturing TIFO only with Pipeline Control for Windows v2.6.1 or later; ignored otherwise; decode support requires Vantage Transcoder 2012.1 or later)

Marks all TIFO frames after this point with an OUT metadata tag. The TIFO decoder included in Transcoder 2012.1 build or later will ignore frames marked as OUT and NOT pass them to the downstream processes. The resulting output files will not include these frames.

Note: The state of the TIFO frame can be displayed on Pipeline Control for Windows v2.6.4's Video Wall. See Pipeline Control for Windows v2.6.4 User Guide for details.

This request has the following format:

<http://address:port/record/markout>

[http://address:port/record/markout\[?parameter=value\[¶meter=value\]\]](http://address:port/record/markout[?parameter=value[¶meter=value]])

Example:

<http://10.5.2.1:8080/record/markout?timecode=01:00:10:00>

The following optional parameters are supported:

uuid={5b1e...78a7}	The unique identifier of the clip on which to set the markout point. Responds with '404 Not Found' if the specified clip is not in the active list.
timecode=01:12:35:00	Specifies the time code in the future for a markout point in the clip. If a timecode is not specified the clip will be given a markout point immediately. Responds with an error if the time code contains invalid characters.

Stop

Stops recording and/or removes a clip from the active list. The following parameters are supported:

This request has the following format:

<http://address:port/record/stop>

uuid={5b1e...78a7}	The unique identifier of the clip to stop. When this command is issued the response will contain all information for the associated clip. If a clip is not specified in the request the response contains the UUID of each clip in the active list. Responds with '404 Not Found' if the specified clip is not in the active list.
end=01:42:35:00	Specifies the 'exclusive' end time code for the clip. The END time code represents the time code of the frame after the last frame of video. Note: Only change the end time code on files captured without an initial

	<p>duration or when capturing QuickTime CLOSED or MXF OP1a CLOSED container formats.</p> <p>If an end time is not specified the clip will stop immediately. This parameter will have no affect if the duration parameter was used within the jobs START command.</p> <p>Responds with '400 Bad Request' if the specified end time results in a clip with a duration longer than initially specified.</p>
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Status

Requests status information for a clip. The following parameters are supported:

This request has the following format:

http://address:port/record/status

or

http://address:port/record/status?uuid=[UUID returned from Start or Status command]

uuid={5b1e...78a7}	<p>The unique identifier of the clip to get status info from. When this command is issued the response will contain all status info for the associated clip. If a clip is not specified ALL UUIDs are returned and the response will include general status information.</p> <p>Responds with '404 Not Found' if the specified clip is not in the active list.</p>
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Playout commands

Playout commands apply to ***Pipeline Control for Windows v2.6 or later***.

NOTE: See the Pipeline User Guide for specific details on enabling the Pipeline Controlled Playout web services.

The Pipeline web service API enables the ability to remotely play out files through the Pipeline Controlled Playout document engine. The Pipeline Controlled Playout document type will allow play out to be controlled manually through the user interface, via an external controller (RS422 or USB) or through simple HTTP web service commands described below.

Each instance of Pipeline Controlled Playout document publishes a web service that allows media clips to be played out using a simple HTTP based command set.

When a Pipeline Controlled Playout document is placed into an active play out state the web service will begin listening for requests on the selected port. The user will be warned if the port is in use by another Pipeline Controlled Playout document or by some other service on the host computer.

A web service command is invoked using an HTTP GET request in the following form:

`http://host:port/playout/command[?parameter=value[¶meter=value]]`

NOTE: This guide assumes that the programming environment being used by the developer includes a library that abstracts the process of command submission and responses through the HTTP protocol.

If your environment does not include a library to perform this abstraction then you will have to directly format your commands to adhere to the HTTP protocol.

See http://en.wikipedia.org/wiki/Hypertext_Transfer_Protocol for details on the HTTP protocol.

Where 'host' is the DNS name or IP address of the Pipeline host computer that the Pipeline Control software is running on, 'port' is the user assigned TCP/IP port for the active Pipeline document and 'command' identify a specific web service command. If the command requires additional arguments they are supplied as name/value pairs in the query portion of the request.

host	The DNS name or IP address of the computer running the Pipeline software, for example "localhost" or 192.168.1.2.
port	The TCP/IP port number assigned to the web service. The port number is user selectable and displayed in the Web Service configuration area of the document.

command	The web service command to execute.
parameter	A named parameter defined by the web service command.
value	The parameter value.

The web service response consists of the normal HTTP status line (for example '200 OK' or '404 Not found'), HTTP headers and an XML body. The following common data elements are returned as part of the web service response of Pipeline Control (additional elements may be present):

Response Elements

Time: 12:34:56:00	The current Pipeline time code.
UUID: {5b1eb65c-3018-a4cf-8134-6e1c16b378a7}	The unique identifier assigned to a clip.
Start: 01:23:45:00	The starting time code of a clip.
End: 02:23:50:00	The ending time code of a clip.
Path: /Users/Shared/Clip.mov	The fully qualified path to the file to be played out .
State: Waiting, Opened	The state of the clip.

Commands

Help

Displays a help web page describing the operation and features of the Pipeline Control web service.

http://address:port/ or http://address:port/Help

Start

Start the play out of the currently selected clip at the current time code specified by a **Jump** command. If no time code was specified the clip starts play out from the first frame of the file. Optional parameters: none

http://address:port/payout/start

If **start** is issued without a specific UUID the currently active clip will be played out. Additional clips may be played out depending on the configuration of the document.

Jump

Jumps to the specified clip associated by a **UUID**. Optional parameters: **time**.

http://address:port/payout/jump?uuid=[UUID]&time=01:12:35:00

uuid={5b1e...78a7}	The unique identifier of the clip to jump to. A jump command must always contain a UUID parameter. Responds with '404 Not Found' if the specified clip is not in the active list.
time= 01:12:35:00	The frame in the clip to jump to. If a time is not specified, the start time of the clip is used. If the time provided is less than the clip's start, or greater than the clip's end, then the start or end is used.

Stop

Stops the current clip being played out.

Optional parameters: none

<http://address:port/payout/stop>

Status

Request status information. Returns general status or clip specific status.

Optional parameters: **uuid**

General Status - <http://address:port/payout/status>

Returns current Time and UUIDs for all clips loaded

Clip specific status - [http://address:port/payout/status?uuid=\[UUID\]](http://address:port/payout/status?uuid=[UUID])

Returns: Time, Start, End, Path, State status elements for selected clip.

Optional parameters

uuid={5b1e...78a7}	The unique identifier of the clip. If no UUID is included the Status command returns UUIDs for all available clips. Responds with '404 Not Found' if the specified clip is not in the active list.
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Rewind

Rewinds the currently playing clip at 2X the normal speed.

Optional parameters: none

<http://address:port/payout/rewind>

FastForward

Fast Forwards the currently playing clip at 2X the normal speed.

Optional parameters: none

<http://address:port/payout/fastforward>

Jog

Offsets the playing clip's position.

<http://address:port/payout/jog?offset=x>

offset=5	Specifies the number of frames to offset in the currently playing clip. Can be negative or positive.
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Shuttle

Shuttles playback either in forward or reverse.

http://address:port/playout/shuttle?speed=x

speed=2.5	Specifies the speed to shuttle playback. Can be a value between -3.0 and 3.0 inclusive.
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