



## iStream Studio API

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# Table of Contents

1	Introduction .....	2
1.1	Command syntax.....	2
1.2	Command response .....	3
1.3	Command reference .....	4
1.3.1	Set/Get Metadata .....	8
1.3.2	Set/Get configurable item.....	9

## 1 Introduction

The iStream Studio application can be controlled remotely via an API as described in this document.

The API uses JSON to exchange data and commands with the application. Choosing JSON means that the application can even be controlled from a web application (eg using javascript on a phone).

The application has a webserver built in. To be able to control the application from a remote device, requires the remote device to be in the same network as the application. Or the application needs to be publicly addressable.

By default the application will listen to http requests coming over port 80 TCP. This does require the firewall of the application PC to be open for this traffic.

A separate application is installed with the application to configure the firewall to use port 80 TCP being used by the application (see Enable Remote Control in your start menu).

Getting and Setting information or controlling the application requires credentials. By default, the application uses the username 'istream' and a password both set in the Settings pane of the application.

### 1.1 Command syntax

The application receives remote control commands sent as HTTP requests. Simple commands can use a query string (<http://applicationIpAddress?action=xxx> etc) while complex operations require JSON formatted strings in the POST data to be passed to the application.

If both query string and POST data are used, the query string parameters will override the POST data.

When query string parameters are used the following format should be used:

```
<application_address>[?action=sendcommand | getmetadata | getconfiguration | getvisualelement  
&actiondetail=<action_detail>][&sessionid=<session_id>][&username=<user_name>&password=<password>]
```

So Action can be either of the following:

- Sendcommand
- Getmetadata
- Getconfiguration
- Getvisualelement
- Info

Some commands require an actiondetail which is one of the commands below.

Authentication can be provided in the query string or used in the HTTP headers when using basic authentication.

Example:

```
http://applicationIpAddress?action=sendcommand&actiondetail=startrecording  
http://applicationIpAddress?action=getmetadata&actiondetail=title
```

When JSON is used the syntax is as follows:

## JSON Syntax

```
{
  "action": "sendcommand | getmetadata | setmetadata | getconfiguration | selectsection | setconfiguration | getvisualelement",
  "actionDetail": "<action_detail>[,
  "userName": "<user_name>",
  "password": "<password>"][,
  "metadata": [{"key": "<attribute_name>", "value": "<value>"}, ...n]][,
  "configurations": [{"key": "<configuration_name>", "value": "<value>"}, ...n]]
}
```

Example:

```
{
  "action": "sendcommand",
  "actionDetail": " StartRecording "
}
```

## 1.2 Command response

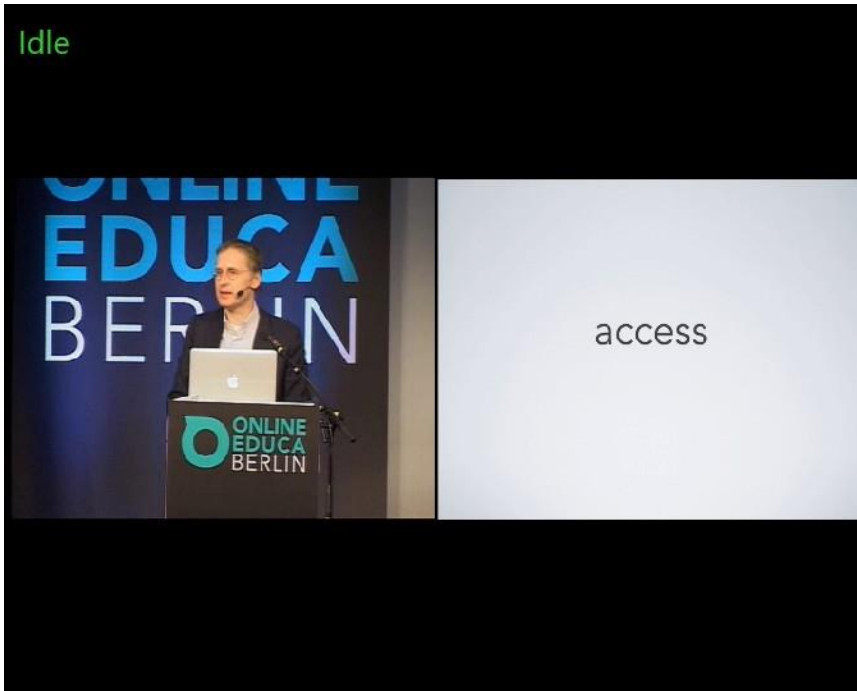
Any command sent to the application will be responded to with a JSON string. This may also include error information when the command is invalid.

```
{
  "action": "<sent_action>",
  "actionDetail": "<sent_action_detail >[,
  "userName": "<user_name>",
  "password": "<password>"][,
  "metadata": [{"key": "<attribute_name>", "value": "<value>"}, ...n]][,
  "configurations": [{"key": "<configuration_name>", "value": "<value>"}, ...n]][,
  "errorMessage": "<error_message>"]
}
```

The command *GetVisualElement* is an exception to that rule since it will respond with binary data in JPEG format.

Eg: ``

Will show a status information from the application as a JPEG image.



NOTE: Only **GET** requests are supported at this time.

### 1.3 Command reference

In the tables below all commands, sub commands and functions will be explained.

Action	Action Detail	application tab	Purpose
SendCommand  (These are buttons in the interface that can be pressed)	startpause ( <i>decrepated</i> )	Main	Press the Start button. Pressing it again will Pause the recording.
	stop	Main	Press the Stop button, Recording will be stopped.
	startrecording		Start a recording
	stoprecording		Stop the current recording session
	startlive		Start live broadcasting. Can be independent of recording.
	stoplive		Stop live broadcasting. Can be independent of recording.

startrecordinglive		Start recording AND live broadcasting
stoprecordinglive		Stop recording AND live broadcasting.
pauserecording		Pause a recording (recording and live will continue but paused parts will be removed before publishing).
resumerecording		Resume a paused recording session.
startstopplaylist		A toggle to start/stop a playlist (when available)
connecttocamera	Camera Control	Connect the current selected camera
camerazoomin	Camera Control	PTZ control zoom in
camerazoomout	Camera Control	PTZ control zoom out
cameramoveleftup	Camera Control	PTZ control Left Up
cameramoveup	Camera Control	PTZ control Up
cameramoverightup	Camera Control	PTZ control Right Up
cameramoveleft	Camera Control	PTZ control Left
cameramovehome	Camera Control	PTZ control Home
cameramoveright	Camera Control	PTZ control Right
cameramoveleftdown	Camera Control	PTZ control Left Down
cameramovedown	Camera Control	PTZ control Down
cameramoverightdown	Camera Control	PTZ control Right Down
camerareset	Camera Control	PTZ control Reset
camearon	Camera Control	PTZ control Camera On
cameraoff	Camera Control	PTZ control Camera Off

	camerapreset1 or setcamerapreset1	Camera Control	PTZ control Set preset 1
	camerapreset2 or setcamerapreset2	Camera Control	PTZ control Set preset 2
	camerapreset3 or setcamerapreset3	Camera Control	PTZ control Set preset 3
	camerapreset4 or setcamerapreset4	Camera Control	PTZ control Set preset 4
	camerapreset5 or setcamerapreset5	Camera Control	PTZ control Set preset 5
	camerapreset6 or setcamerapreset6	Camera Control	PTZ control Set preset 6
	gocamerapreset1	Camera Control	PTZ control goto camera preset 1
	gocamerapreset2	Camera Control	PTZ control goto camera preset 2
	gocamerapreset3	Camera Control	PTZ control goto camera preset 3
	gocamerapreset4	Camera Control	PTZ control goto camera preset 4
	gocamerapreset5	Camera Control	PTZ control goto camera preset 5
	gocamerapreset6	Camera Control	PTZ control goto camera preset 6
	Cameratrackon	Camera Control	Turn iSmart tracking on
	cameratrackoff	Camera Control	Turn iSmart tracking off
GetVisualElement	status		Return jpeg with status info
	video		Return jpeg if the video screenshot
	slide		Return jpeg if the slide screenshot
	preview		Return jpeg if the combined output (eg camera and slide)
	previewxx		Same as preview but in custom resolution. Xx is a number and represents the width of the returned jpg. So preview640 will return a jpeg width width 640 pixels. (height will be dependend on the aspectratio)
	audio		Return a jpeg of a audio level as a VU meter. Values will be in DB (decibel).

	audioxx		Same as above but in custom resolution. Xx is a number and represents the width of the returned jpg. So audio40 will return a jpeg width width 40 pixels.
GetMetadata	a metadata attribute		Return specific metadata eg Title. If none is specified, all are returned.
Info	status		Return status info in text: <ul style="list-style-type: none"> <li>• Recording</li> <li>• Recording &amp; Live</li> <li>• Live</li> <li>• Recording (Paused)</li> <li>• Recording &amp; Live (Paused)</li> <li>• Idle</li> </ul>
	leftaudiopeak		Median value of the last 10 second measurements of left audio level with capture interval value of 1 second
	leftaudiopeakindcibles		As above but in DB
	rightaudiopeak		Median value of the last 10 second measurements of left audio level with capture interval value of 1 second
	rightaudiopeakindcibles		As above but in DB
	leftaudiopeaks		last 6 Leftaudiopeak values (see above) of left audio channel
	leftaudiopeaksindcibles		As above but in DB
	rightaudiopeaks		last 6 Rightaudiopeak values (see above) of left audio channel
	rightaudiopeaksindcibles		As above but in DB
	timeelapsed		Elapsed time of current recording in the format of hh:mm:ss (ex: 01:30:50).
	timeleft		The remaining time of recording (ex: 00:30:05) or N/A if duration is not specified.
	stopsat		Time when recording will stop (ex: 09:30:00) or N/A if duration is not specified



	storageinfo		List of non-removable drives with their available space and total size in the format of <drive>   <label>   <available>   <total> Example: C:\\SYSTEM   122520657920   212047060992  NOTE: Available and total are in bytes and if there are multiple drives it will be separated by semi colon (;).
	time		Current time of the machine where this application installed including timezone (ex: 2019-06-17T09:51:36 +7)
SetMetadata	A metadata attribute		Set a specific or multiple metadata attributes. eg Title.
GetConfiguration	A configuration name (see below)		Return the setting of a specific configuration item (name)
SetConfiguration	A configuration name (see below)		Set a specific configuration item (name).
Action	vmix		Tunnel vmix API commands e.g. ?action=vmix&user=istream&password=1234 &function=setmastervolume&value=0

### 1.3.1 Set/Get Metadata

Metadata attribute values can be set by using SetMetadata action with json string containing the metadata attributes.

For example this will set:

- title to "New title"
- description to "New description"
- recording type to "Dies Natalis"

```
{
  "action": "setmetadata",
  "metadata": [
    {"key": "Title", "value": "New title"},
    {"key": "Description", "value": "New description"},
    {"key": "RecordingTypes", "value": {"key": "Dies Natalis", "value": "Dies Natalis"}}
  ]
}
```

More complex attributes like permission and contributors consist of arrays of attributes and should be supplied as an array:

```
"metadata": [
  {"key": "permissions", "value":
```

```

    [
      {"key": "Authenticated Users", "value": "Authenticated Users"},
      {"key": "Anonymous Users", "value": "Anonymous Users"},
      {"key": "Administrators", "value": "Administrators"}
    ]
  },

```

Any visible (defined as visible in server metadata settings) metadata attributes in metadata rule can be set including Title, Description, Keyword, Learningdescription, Coverage, SubjectAreas, RecordingTypes, Contributors, and Permissions.

The metadata schema and in case of vocabularies the possible values, depend on the metadata schema defined on the server. Best way to find out what can be set and with which values is to check out return values when calling getMetadata, or check the metadata schema on the server.

A combined example:

```

{
  "schemaVersion": "3.0.0",
  "action": "setmetadata",
  "userName": "Presentations2Go",
  "password": "0000",
  "metadata": [
    {"key": "Title", "value": "New Title"},
    {"key": "Description", "value": "New Description"},
    {"key": "permissions", "value":
      [
        {"key": "Authenticated Users", "value": "Authenticated Users"},
        {"key": "Anonymous Users", "value": "Anonymous Users"},
        {"key": "Administrators", "value": " Administrators "}
      ]
    }
  ]
}

```

Currently it is not possible to retrieve the complete metadata schema and vocabularies from the application (as can be done using the server API). Future versions will make this possible though.

### 1.3.2 Set/Get configurable item

The actions SetConfiguration and GetConfiguration can be used to set a configurable item (like live broadcast and or duration) or retrieve the current setting of a configurable item.

For example this will set live broadcast to true and set duration to 60 minutes.

```

{
  "schemaVersion": "3.0.0",
  "action": "setconfiguration",
  "userName": "Presentations2Go",
  "password": "0000",
  "configurations": [
    {
      "key": "sessionduration",
      "value": 60
    }
  ],
}

```

```

    {
      "key": "live",
      "value": true
    }
  ]
}

```

Configuration name	Values	Function
live	true or false	Set the live checkbox. Live can only be set (or unset) before recording has started.
autopublish	true or false	Set the autopublish checkbox. Can be modified during recording
sessionduration	zero or any positive integer	Set the recording duration. 0 means infinite. Can be modified during recording
duration	Deprecated	Same as sessionduration but can not be set. Use session duration instead
startdelay	zero or any positive integer	Set the delay value before starting a recording (only for personal capture mode)