



DeepSight Toolkit Universal CMS Integration

v6.8.0

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Introduction

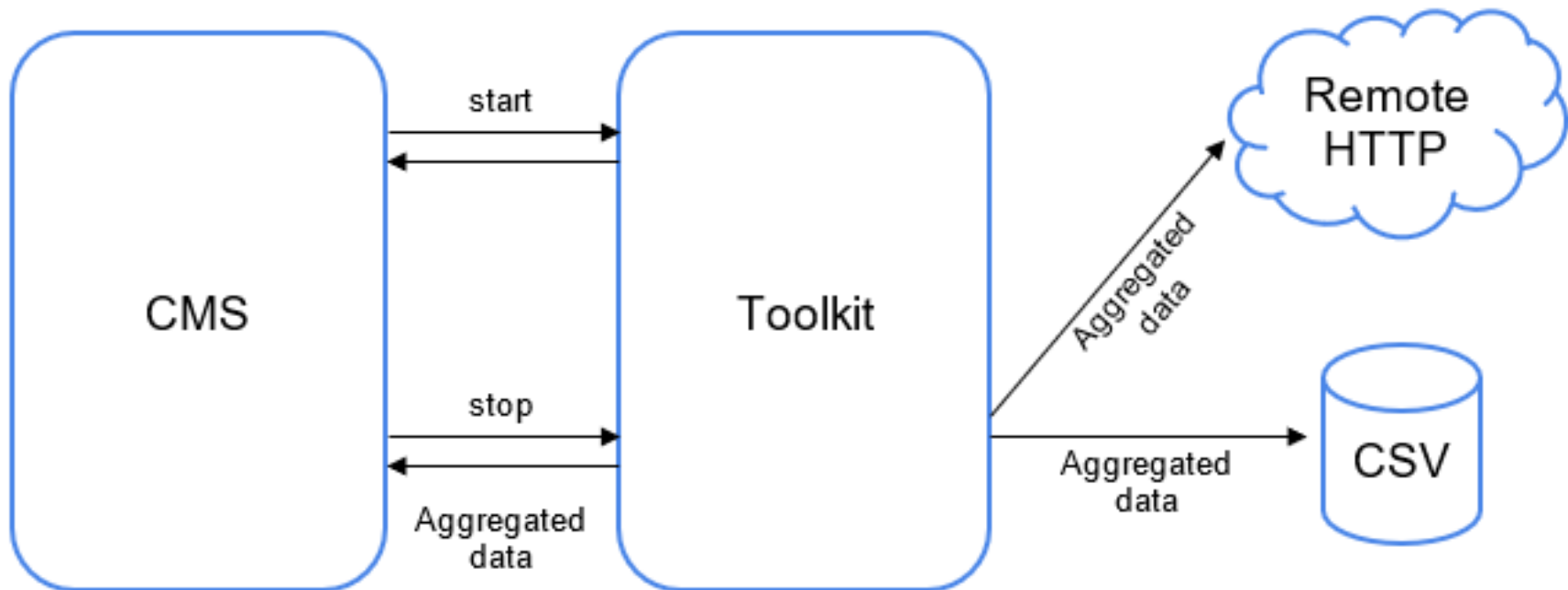
The universal CMS integration feature is designed to enable any content management system to request and receive audience data from the Toolkit via HTTP signals. This way, content performance can be measured and statistics can be consolidated into a report to evaluate the effectiveness of each advertisement.

To achieve this, the Toolkit needs to receive a signal from a CMS whenever a piece of content starts playing and when it stops playing (the start/stop signals need to be in the format specified by Sightcorp). Between these two time intervals the Toolkit will aggregate all the datapoints generated by DeepSight and generate statistics relative to the displayed content.

These statistics can then be either returned to the CMS system, sent to a remote location, or stored in a file.

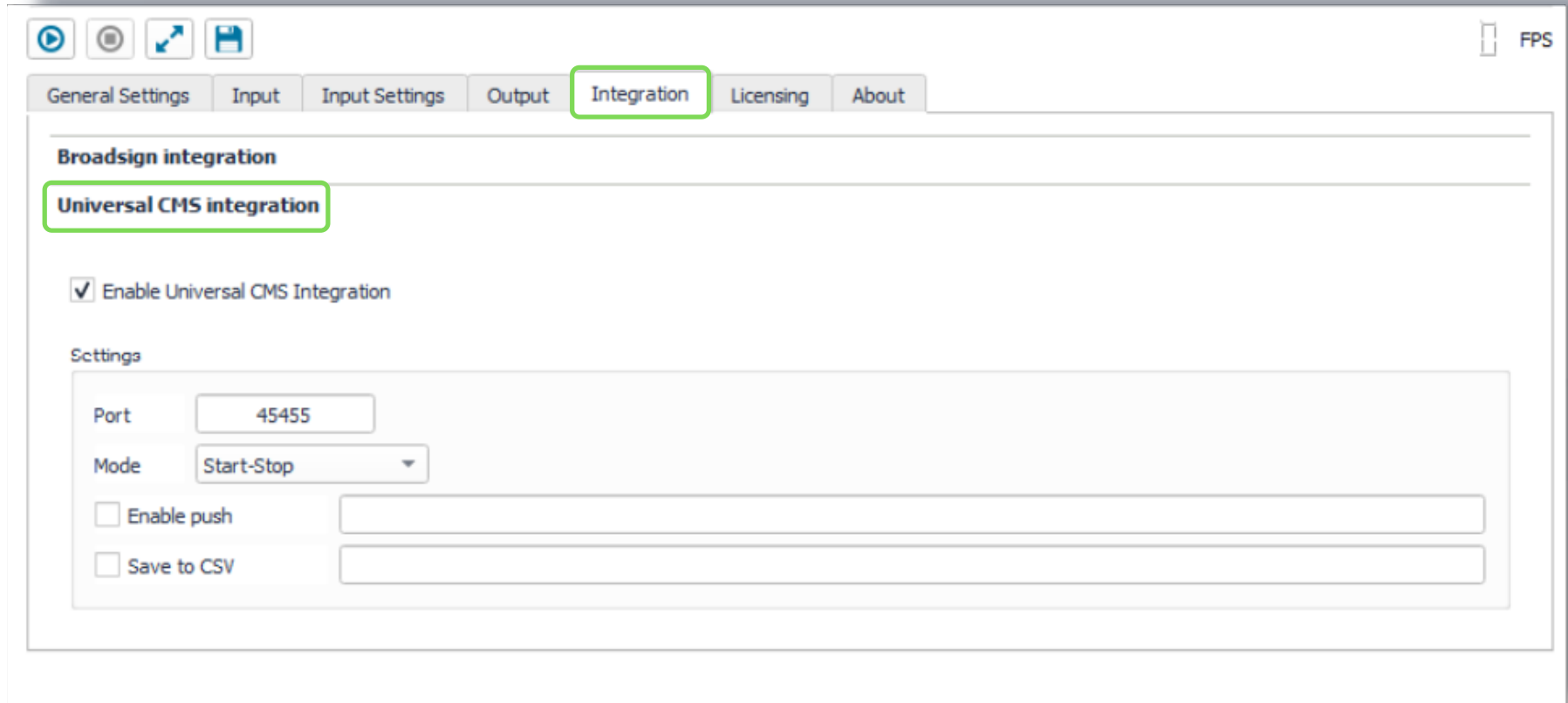
Overview

In order to receive CMS 'signals' the Toolkit exposes an HTTP interface, listening on a specified port. Upon receipt of a start signal the Toolkit will start aggregating DeepSight audience data. Upon receipt of a stop signal the ongoing aggregation will end and the audience data generated will be sent to an output endpoint. The endpoint can be a remote HTTP location or a local CSV file. The same output can also be sent back to the CMS at the stop signal.



Interface

The 'Universal CMS integration' controls are available in the Integrations tab of the Toolkit's interface.

The screenshot shows the Toolkit's interface with the 'Integration' tab selected. The 'Universal CMS integration' section is highlighted with a green box. Below it, the 'Enable Universal CMS Integration' checkbox is checked. The 'Settings' section contains a 'Port' field set to '45455', a 'Mode' dropdown set to 'Start-Stop', and two unchecked checkboxes: 'Enable push' and 'Save to CSV', each followed by an empty text input field. The top of the interface includes a toolbar with icons for play, stop, refresh, and save, and a tab bar with 'General Settings', 'Input', 'Input Settings', 'Output', 'Integration', 'Licensing', and 'About'. The 'Integration' tab is highlighted with a green box. The top right corner shows a window icon and the text 'FPS'.

CMS Signals

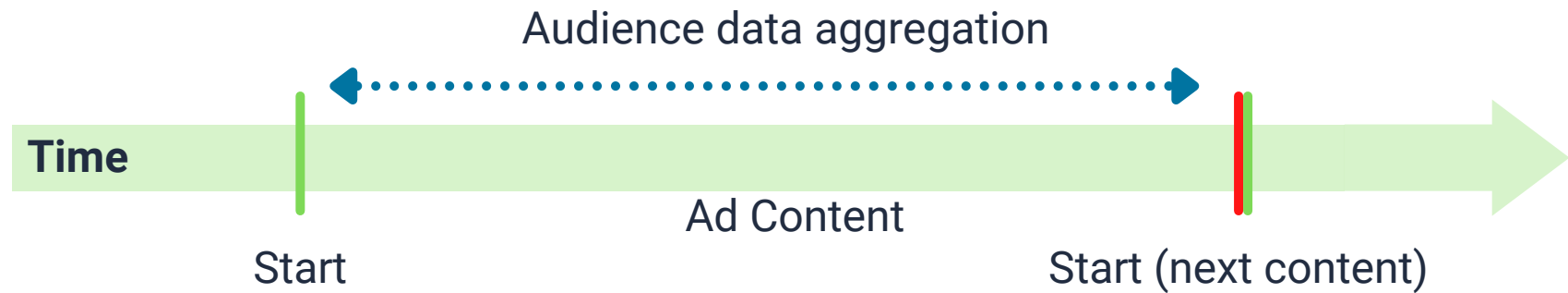
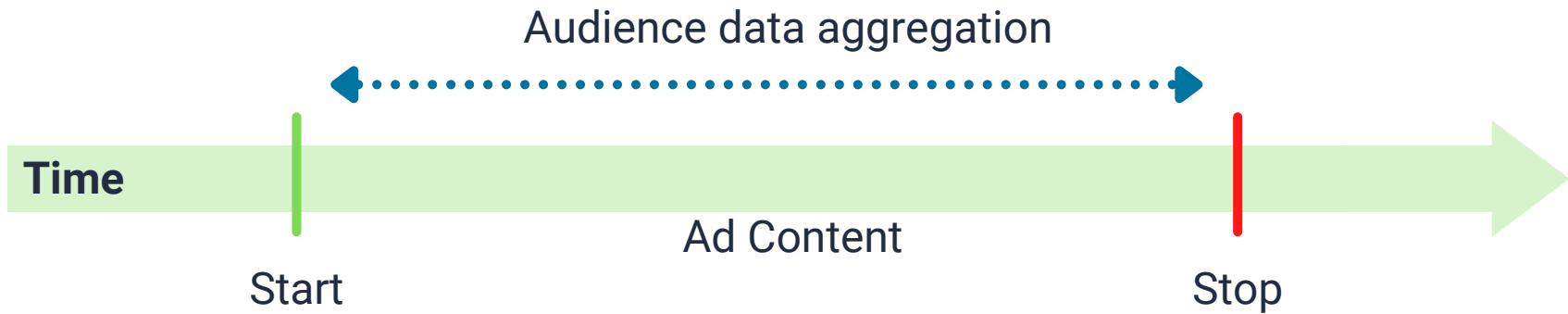
In order to generate PoP aggregation data, the Toolkit needs to know when content starts playing and when it stops. Therefore the Toolkit needs to receive a start and a stop signal from the CMS. If the player is not able to send a stop signal, the aggregation period can be derived from the start signal of the following content piece.

Therefore we can identify 2 modes of defining a duration:

- start-stop
- start-start

The mode in which the Toolkit will operate can be selected in the interface. This means that the Toolkit will accept messages only for one mode at a time (start-stop or start-start).

CMS Content Duration Modes



HTTP request messages

All HTTP requests to the Toolkit's CMS integration interface should be POST requests containing JSON content:

- All HTTP requests must include a "display_id" JSON field.
- All HTTP requests except for the stop and abort signals must include a "content_id" JSON field.
- All HTTP requests except for the stop and abort signals must include a "campaign_id" JSON field.
- All HTTP requests except for the stop and abort signals must include a "content_name" JSON field.
- All HTTP requests except for the stop and abort signals may include a "metadata" JSON field.
- The start-duration signal must include a "duration" JSON field whose value is an integer expressing the number of milliseconds the content will be displayed.

In the following section we will take a look at the available endpoints, request messages and responses that the Toolkit can send.

Endpoints:

/cms_integration/start-stop/start

/cms_integration/start-stop/stop

/cms_integration/start-start

/cms_integration/abort

Request message examples (curl / HTTP):

start-stop start

curl

```
curl -d '{"content_id":"Ad_01", "display_id":"Display_01", "content_name":"Ad name 01",  
"campaign_id":"Campaign_01", "metadata":"extra info"}' -H "Content-Type: application/json" -X  
POST http://localhost:6000/cms_integration/start-stop/start
```

start-stop start

HTTP

POST /cms_integration/start-stop/start HTTP/1.1

Host: localhost:6000

User-Agent: curl/7.58.0

Accept: */*

Content-Type: application/json

Content-Length: 68

```
{"content_id":"Ad_01",      "display_id":"Display_01",      "content_name":"Ad      name      01",  
"campaign_id":"Campaign_01", "metadata":"extra info"}
```

start-stop stop

curl

```
curl -d '{"display_id":"Display_01"}' -H "Content-Type: application/json" -X POST  
http://localhost:6000/cms_integration/start-stop/stop
```

start-stop stop

HTTP

POST /cms_integration/start-stop/stop HTTP/1.1

Host: localhost:6000

User-Agent: curl/7.58.0

Accept: */*

Content-Type: application/json

Content-Length: 14

{"display_ID":"Display_01"}

start-start

curl

```
curl -d '{"content_id":"Ad_02", "display_id":"Display_01", "content_name":"Ad name 02",  
"campaign_id":"Campaign_01", "metadata":"next content"}' -X POST  
http://localhost:6000/cms_integration/start-start
```

start-start

HTTP

```
POST /cms_integration/start-start HTTP/1.1  
Host: localhost:6000  
User-Agent: curl/7.58.0  
Accept: */*  
Content-Length: 70  
Content-Type: application/x-www-form-urlencoded
```

```
{"content_id":"Ad_02", "display_id":"Display_01", "content_name":"Ad name 02",  
"campaign_id":"Campaign_01", "metadata":"next content"}
```

abort

curl

```
curl -d '{"display_id":"Display_01"}' -X POST http://localhost:6000/cms_integration/abort
```

abort

HTTP

POST /cms_integration/abort HTTP/1.1

Host: localhost:6000

User-Agent: curl/7.58.0

Accept: */*

Content-Length: 70

Content-Type: application/x-www-form-urlencoded

```
{"display_id":"Display_01"}
```

HTTP status responses

HTTP response body is in JSON format. JSON response objects always contain a status and a description field. The status is a positive integer uniquely identifying the status of the transaction; 0 means the request was properly handled, anything other than 0 means there was something wrong and the request was not processed. The description field is a string indicating the reason for failure.

Example response

```
{"status": 0, "description":""}
```

```
{"status": 1, "description":"error in request format: field display_id is missing"}
```

```
{"status": 2, "description":"DeepSight Toolkit is not running"}
```

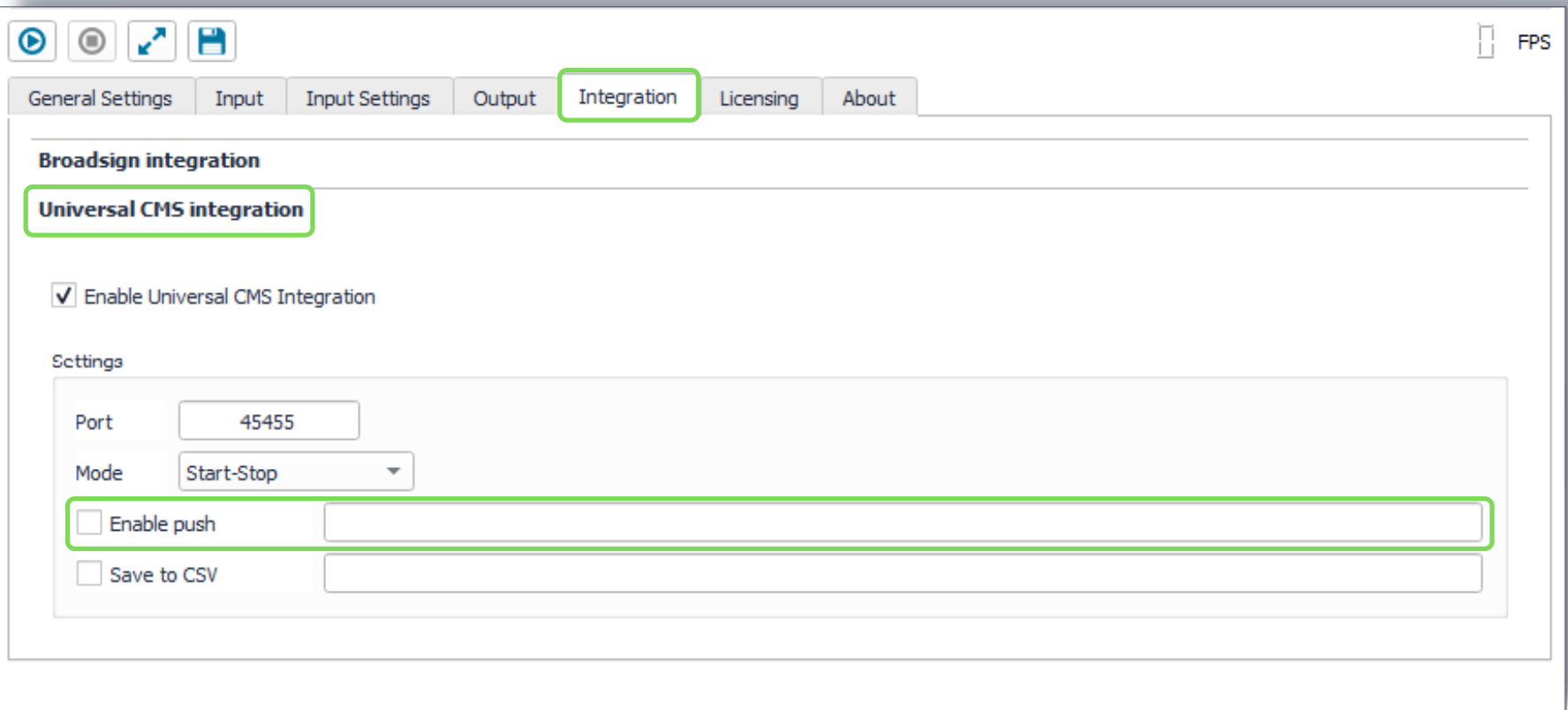
...



Data Visualization

Push mechanism

The combined PoP and audience data can be visualized in multiple ways using different business intelligence platforms. If you want to **push the data** into your existing dashboard you can check the '*Enable push*' option which allows you to send the combined DeepSight Toolkit and CMS PoP data to an endpoint of your choice (e.g. Cloud based dashboard).



The screenshot displays the 'Integration' tab of the DeepSight Toolkit settings. The 'Broadsign integration' section is active, and the 'Universal CMS integration' sub-tab is selected. The 'Enable Universal CMS Integration' checkbox is checked. Under the 'Settings' section, the 'Port' is set to 45455 and the 'Mode' is set to 'Start-Stop'. The 'Enable push' checkbox is unchecked, and the 'Save to CSV' checkbox is also unchecked. The 'Enable push' checkbox and its corresponding text input field are highlighted with a green border.

General Settings Input Input Settings Output **Integration** Licensing About

Broadsign integration

Universal CMS integration

☒ Enable Universal CMS Integration

Settings

Port 45455

Mode Start-Stop

☐ Enable push

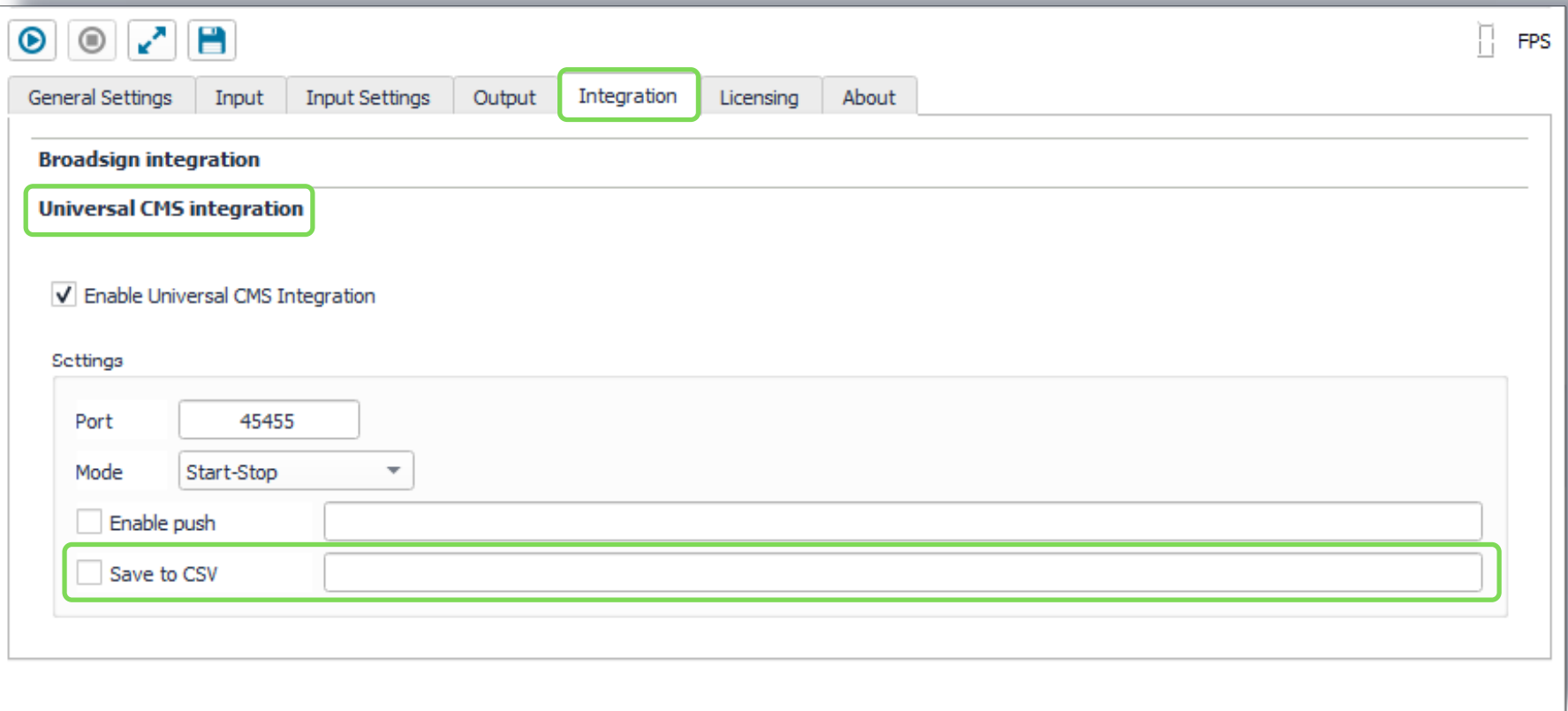
☐ Save to CSV

PoP push JSON format example:

```
{
  "submission_time":"2021-09-03 09:13:19+02:00",
  "source":"UCMS_DDS",
  "duration":8840,
  "impressions":3,
  "ots":3,
  "viewers":2,
  "average_attention_time":426.5,
  "total_attention_time":853.0,
  "average_detection_time":2217.0,
  "total_detection_time":6651.0,
  "average_dwell_time":2142.0,
  "total_dwell_time":6426.0,
  "female_count":1,
  "male_count":2,
  "unknown_count":0,
  "average_age":29,
  "campaign_id":443663021,
  "display_id":402075783,
  "content_id":407199819,
  "content_name":"Ad_1",
  "metadata":"",
  "aggregated_data":[
    {
      "id":23,
      "timestamp":"2021-09-03 09:13:15+02:00",
      "age":30,
      "gender":"f",
      "impressions":1,
      "views":1,
      "attention_sessions":5,
      "average_attention_time":0.084,
      "attention_time":0.422,
      "dwell_sessions":2,
      "average_dwell_time":1.143,
      "dwell_time":2.286,
      "total_detection_time":2.448,
      "smile_viewing":12,
      "smile_maximum":12,
      "face_mask":0
    },
    ...
  ]
}
```

CSV output

All generated data can also be saved locally as a **CSV**. This can be imported into your business intelligence platform or simply stored as a backup on the local machine that is running the Toolkit together with your Player of choice:



The screenshot shows the 'Integration' tab of the Sightcorp Toolkit settings. The 'Universal CMS integration' section is highlighted with a green box. It contains a checked checkbox for 'Enable Universal CMS Integration'. Below this, a 'Settings' section is visible, containing a 'Port' field set to '45455', a 'Mode' dropdown set to 'Start-Stop', and two unchecked checkboxes: 'Enable push' and 'Save to CSV'. The 'Save to CSV' checkbox and its associated text field are highlighted with a green box.

General Settings Input Input Settings Output **Integration** Licensing About

Broadsign integration

Universal CMS integration

☒ Enable Universal CMS Integration

Settings

Port 45455

Mode Start-Stop

☐ Enable push

☐ Save to CSV

The following types of CSV output are available:

- Aggregated audience per content - one row of data per person detected;
- Aggregated total audience per content - one row of data per content displayed;

Aggregated audience per content

Each row contains one person aggregated during the play time (one row per person).

CSV file name syntax : pop_audience_<location_label>_<date %Y-%M-%D>.csv

CSV Columns:

display_id, content_id, content_name, campaign_id, time_start, duration, metadata, person_id, timestamp, age, gender, impressions, views, attention_sessions, average_attention_time, attention_time, dwell_sessions, average_dwell_time, dwell_time, total_detection_time, smile_viewing, smile_maximum, face_mask

Aggregated audience per content CSV output example:

AutoSave

pop_audience_cms_integration_test_2021-08-25.csv

Search

Stefan Gogalniceanu

FileHomeInsertPage LayoutFormulasDataReviewViewAdd-insHelpTeam

CutCopyFormat Painter

Clipboard

Calibri11

B

I

U

Font

Alignment

General

\$

%

Number

Conditional Formatting

Format as Table

Normal

Bad

Good

Neutral

Calculation

Check Cell

Explanatory...

Input

Styles

Insert

Delete

Format

Cells

Σ AutoSum

Fill

Purple

Clear

Editing

Sort & Filter

Find & Select

Analysis

Analyze Data

Comments

A1

content_id

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
1	content_id	display_id	campaign_id	content_name	metadata	person_id	timestamp	age	gender	impressions	views	attention_sessions	average_attention	attention_time	dwel_sessions	average_dwel	dwel_time	total_detection_time	smile_vie	smile_ma	face_mask	
2	0	Windows_T	0	FemaleYoungA	FemaleYoung/	1	2021-08-25	20	f	1	1	1	5.996	5.996	1	5.996	5.996	5.996	2	2	0	
3	0	Windows_T	0	FemaleYoungA	FemaleYoung/	1	2021-08-25	20	f	1	1	1	10.151	10.151	1	10.151	10.151	10.151	2	2	0	
4	0	Windows_T	0	FemaleYoungA	FemaleYoung/	1	2021-08-25	20	f	1	1	1	9.973	9.973	1	9.973	9.973	9.973	3	3	0	
5	0	Windows_T	0	FemaleYoungA	FemaleYoung/	1	2021-08-25	20	f	1	1	1	9.944	9.944	1	9.944	9.944	9.944	3	3	0	
6	0	Windows_T	0	FemaleYoungA	FemaleYoung/	1	2021-08-25	20	f	1	1	1	5.961	5.961	1	5.961	5.961	5.961	3	3	0	
7	0	Windows_T	0	FemaleYoungA	FemaleYoung/	2	2021-08-25	17	m	1	1	1	3.783	3.783	1	3.783	3.783	3.783	100	100	0	
8	0	Windows_T	0	FemaleYoungA	FemaleYoung/	2	2021-08-25	17	m	1	1	1	10.074	10.074	1	10.074	10.074	10.074	100	100	0	
9	0	Windows_T	0	MaleYoung	MaleYoung	2	2021-08-25	17	m	1	1	1	5.09	5.09	1	5.09	5.09	5.09	100	100	0	
10	0	Windows_T	0	MaleYoung	MaleYoung	2	2021-08-25	18	m	1	1	1	5.147	5.147	1	5.147	5.147	5.147	100	100	0	
11	0	Windows_T	0	MaleYoungAdu	MaleYoungAdi	2	2021-08-25	18	m	1	1	1	5.044	5.044	1	5.044	5.044	5.044	100	100	0	
12	0	Windows_T	0	MaleYoungAdu	MaleYoungAdi	2	2021-08-25	18	m	1	1	1	1.563	1.563	1	1.563	1.563	1.563	100	100	0	
13	0	Windows_T	0	MaleYoungAdu	MaleYoungAdi	3	2021-08-25	20	f	1	1	1	3.226	3.226	1	3.226	3.226	3.226	2	2	0	
14	0	Windows_T	0	MaleYoungAdu	MaleYoungAdi	3	2021-08-25	20	f	1	1	1	5.389	5.389	1	5.389	5.389	5.389	2	2	0	
15	0	Windows_T	0	FemaleYoungA	FemaleYoung/	3	2021-08-25	20	f	1	1	1	9.65	9.65	1	9.65	9.65	9.65	2	2	0	
16	0	Windows_T	0	FemaleYoungA	FemaleYoung/	3	2021-08-25	20	f	1	1	1	10.004	10.004	1	10.004	10.004	10.004	3	3	0	
17	0	Windows_T	0	FemaleYoungA	FemaleYoung/	3	2021-08-25	20	f	1	1	1	10.159	10.159	1	10.159	10.159	10.159	3	3	0	
18	0	Windows_T	0	FemaleYoungA	FemaleYoung/	4	2021-08-25	17	m	1	1	1	6.383	6.383	1	6.383	6.383	6.383	100	100	0	
19	0	Windows_T	0	FemaleYoungA	FemaleYoung/	3	2021-08-25	20	f	1	1	1	3.529	3.529	1	3.529	3.529	3.529	3	3	0	
20	0	Windows_T	0	MaleYoung	MaleYoung	4	2021-08-25	17	m	1	1	1	5.103	5.103	1	5.103	5.103	5.103	100	100	0	
21	0	Windows_T	0	MaleYoung	MaleYoung	4	2021-08-25	17	m	1	1	1	5.087	5.087	1	5.087	5.087	5.087	100	100	0	



Aggregated TOTAL audience per content

Each row contains the summary audience for the content played (one row per content play).

CSV file name syntax : pop_total_audience_<camera_label>_<date %Y-%M-%D>.csv

CSV Columns:

display_id, content_id, content_name, campaign_id, time_start, duration, metadata, ots, impressions, viewers, total_detection_time, average_detection_time, total_attention_time, average_attention_time, total_dwell_time, average_dwell_time, female_count, male_count, unknown_count, average_age

Aggregated TOTAL audience per content CSV output example:

pop_total_audience_integration_2021-08-25.csv																			
time_start	duration	content_id	display_id	campaign_id	content_name	metadata	ots	impressions	viewers	avg_attention_time	total_attention_time	avg_dwell_time	total_dwell_time	avg_detection_time	total_detection_time	female_count	male_count	unknown_count	avg_age
2021-08-25 0	0	130189	Windows_1	130189	Product 1	Product 1	0	0	0	0	0	0	0	0	0	0	0	0	0
2021-08-25 0	6316	0	Windows_1	0	FemaleYoungAdu	FemaleYoung/	1	1	1	5996	5996	5996	5996	5996	5996	0	1	0	20
2021-08-25 0	790	130189	Windows_1	130189	Product 1	Product 1	0	0	0	0	0	0	0	0	0	0	0	0	0
2021-08-25 0	10329	0	Windows_1	0	FemaleYoungAdu	FemaleYoung/	1	1	1	10151	10151	10151	10151	10151	10151	0	1	0	20
2021-08-25 0	59	130189	Windows_1	130189	Product 1	Product 1	0	0	0	0	0	0	0	0	0	0	0	0	0
2021-08-25 0	10248	0	Windows_1	0	FemaleYoungAdu	FemaleYoung/	1	1	1	9973	9973	9973	9973	9973	9973	0	1	0	20
2021-08-25 0	48	130189	Windows_1	130189	Product 1	Product 1	0	0	0	0	0	0	0	0	0	0	0	0	0
2021-08-25 0	10222	0	Windows_1	0	FemaleYoungAdu	FemaleYoung/	1	1	1	9944	9944	9944	9944	9944	9944	0	1	0	20
2021-08-25 0	126	130189	Windows_1	130189	Product 1	Product 1	0	0	0	0	0	0	0	0	0	0	0	0	0
2021-08-25 0	10209	0	Windows_1	0	FemaleYoungAdu	FemaleYoung/	2	2	2	4872	9744	4872	9744	4872	9744	1	1	0	18.633333
2021-08-25 0	112	130189	Windows_1	130189	Product 1	Product 1	0	0	0	0	0	0	0	0	0	0	0	0	0
2021-08-25 0	10269	0	Windows_1	0	FemaleYoungAdu	FemaleYoung/	1	1	1	10074	10074	10074	10074	10074	10074	1	0	0	17
2021-08-25 0	63	130189	Windows_1	130189	Product 1	Product 1	0	0	0	0	0	0	0	0	0	0	0	0	0
2021-08-25 0	5302	0	Windows_1	0	MaleYoung	MaleYoung	1	1	1	5090	5090	5090	5090	5090	5090	1	0	0	17.272728
2021-08-25 0	42	130189	Windows_1	130189	Product 1	Product 1	0	0	0	0	0	0	0	0	0	0	0	0	0
2021-08-25 0	5267	0	Windows_1	0	MaleYoung	MaleYoung	1	1	1	5147	5147	5147	5147	5147	5147	1	0	0	18
2021-08-25 0	48	130189	Windows_1	130189	Product 1	Product 1	0	0	0	0	0	0	0	0	0	0	0	0	0
2021-08-25 0	5298	0	Windows_1	0	MaleYoungAdult	MaleYoungAdi	1	1	1	5044	5044	5044	5044	5044	5044	1	0	0	18
2021-08-25 0	79	130189	Windows_1	130189	Product 1	Product 1	0	0	0	0	0	0	0	0	0	0	0	0	0
2021-08-25 0	5250	0	Windows_1	0	MaleYoungAdult	MaleYoungAdi	2	2	2	2394.5	4789	2394.5	4789	2394.5	4789	1	1	0	19