



SKO Stream Sense Code document

VERSION 2.9 (February 1st, 2017)



FOR FURTHER INFORMATION, PLEASE CONTACT:

Berry Kuiper, Technical Consultant

comScore, Inc.

bkuiper@comscore.com

Table of contents

1.	Introduction.....	3
2.	Mandatory variables and values	5
3.	Summary	15
4.	Optional variables and values	17
5.	StreamSense implementation	19
	Appendix 1 – Channel codes	20
	Appendix 2 – Stream types	21
	Appendix 3 – Stream Sense player Support.....	23
	Appendix 4 – Publishers codes.....	24
	Appendix 5 – SKO Genre classification	24
6.	Change History.....	27
7.	FAQs	29

1. Introduction

This document provides the technical guidelines to assure that streams on your site can be measured on behalf of the Stichting Kijk Onderzoek (SKO). We provide a short description of the content to be measured and how this measurement is to be set up.

SKO's ONLINE TV & VIDEO project sets great store by offering an independent view on developments and relations within the streaming TV-content market.

The goal of the project is to measure online TV- and video content viewing by all SKO participants, of both complete programs and video fragments. Previously unaired TV and video-content and the online previews of TV broadcaster also lie within the project's scope. The following types of streams have been defined:

1. Linear online streams of TV broadcasts
2. Live and online only
3. Streams of broadcasts that have already been aired on TV
4. Partial streams of a broadcast aired on TV
5. Program segments and/or extra material related to TV broadcasts or programs, only available online
6. Online Only content, not related to TV broadcasts or programs

At present, SKO reports daily on streams of previously aired programs (type 3 and 4) and live streams (type 1). The report includes stream starts on the day of the TV-broadcast and the following six days. These results match the current definition that SKO uses for reporting on time shifted viewing via the television set (KijkTotaal). All other stream results (previews of streams, streams of more than 7 days after original TV airing) are reported separately.

SKO reports on a daily basis on the number of stream starts per broadcast, the average play time and the average stream plays (average number of active streams at a random moment during the time that the program was active).

This measurement will help formulate an answer to the following questions:

1. How many times is a given stream of a given TV program viewed through the Internet?
2. What is the average viewing time?
3. Which streams are most often viewed in their entirety?
4. Which type of online stream is most popular?

For more information see also: <http://kijkonderzoek.nl/methodology>

This document describes the technical specifications to implement measurement codes. The contents of this document are aimed to provide documentation for web- and application builders or technical management within your organisation. **An additional summary of all codes per content type is available via SKO>**

What is going to be measured and used by SKO?

Every played clip/program will provide, as described in the previous part, 2 data streams.

The first data stream will measure the user behavior during the stream play. This is done automatically by the Stream Sense code. Examples of this data are total playing time, nr. of starts, user behavior (play, pause, stop etc.).

The second data stream will consist out of the variables set by you like **'program name'**, **'program identifier'**, **'cliplength'** and other variables described later on in this document. There are two types of variables (SKO-labels):

1) Mandatory variables and values.

In this chapter we will explain briefly every mandatory variable which is necessary within each StreamSense measurement. Some of these values can be re-used and some are unique per stream/episode/program.

We discuss the implementation by four types of content:

- 1) TV content,
- 2) Online content that is TV-related on a broadcast level,
- 3) Online content that is TV-related on a program/title level and
- 4) Online-only content.

2) Optional variables and values.

In this chapter we will explain briefly every optional variable which can be used within each StreamSense measurement. Some of these values can be re-used and some are unique per stream/episode/program.

2. Mandatory variables and values

2.1 TV AIRED CONTENT – BROADCAST RELATED

Content is related to a specific TV-broadcast, Content of a stream is **identical** to the contents of a TV broadcast that is/has or will be been aired. This stream is incorporated into SKO Stream data. See also appendix 2.

1. * **Broadcasting date** – Date of actual broadcasting aired program on TV. Use the ISO 8601 format: `yyyymmdd` examples:

Date	Expected value
21st of october 2014	20141021
3rd of november 2014	20141103

Be aware that the broadcasting day for SKO-TV reporting is from 0200 – 2559hrs, programs with an actual starting time between 0000 and 0200hrs must have the date of the previous day. Contact SKO when it is not possible to deliver these dates and times in the mandatory format.

2. * **Program name** – The program name is used to connect streams to the TV broadcast in the SKO data. e.g.

Program name	Expected value
The A-Team	the_a_team
NOS Journaal	nos_journaal
CSI: Miami	csi_miami
That's the question	thats_the_question

Note that only lowercase characters and underscores are allowed as values for program name

3. * **Channel** – Use the channelcode from appendix 1

4. * **Streamtype** –

The coding in the SKO Label 'stream type' (type of broadcast of content) determinates how the stream is incorporated to the SKO data. The SKO labels are filled in when the stream has a link to a TV program. Use stream type from appendix 2.

Code	Description
tv.ep	Program that has been broadcasted
tv.seg	Part of the program already broadcast
tv.cam	Live and concurrent with broadcast TV program

5. * **Program Identifier** (Prog ID) – The program identifier is a code which is unique per channel per day. This alphanumeric code is generated per broadcast per day by the broadcaster and is registered in

the files provided to the Nielsen Company. Because of the combination 'Prog ID', 'Channel', 'Program name', 'Broadcasting date' and 'Streamtype' all measurements from the internet can be related to the measurements from aired TV. The program identifier is used to connect streams to the TV broadcast in the SKO data.

6. * **Start time** (planned) – The actual time of the broadcast in the TV guide. Use the SKO format: 0200 - 2600

i.e.:

Start time	Expected value
00 hrs 15 minutes	2415
20 hrs 29 minutes	2029

Contact SKO when it is not possible to deliver the time in the mandatory format.

7. **Playlist Name** – can be filled at will, when not available the page name of the page where the player is located will be used automatically. e.g.:

Playlist name	Expected value
Journal 20:00	journal_2000
GTST aflevering 4576	gtst_aflevering_4576

8. **CLIPLENGTH** – This variable contains the exact clip duration in seconds of the offered unique clip. Per unique clip only 1 unique cliplength is required, the label used for this is **sko_cl** and the values must be in seconds (excluding ads).

i.e.:

Program XYZ, episode 11 is broadcasted on 1-1-2014 at 20:33 hrs, channel is Nederland1 and cliplength is 34:01.

The above mentioned episode is offered online as a full episode with the duration of 33 minutes and 22 seconds.

If this episode is also offered in parts, this content should be defined as segments. Segments are differentiated from full episodes by the value in label **sko_ty**, where **tv.ep** is used for full episodes and **tv.seg** must be used for segments. In the example below program XYZ is also offered in 2 segments for this specific episode. Clip 1: 3:44 and Segment 2: 2:11 of the full episode, we expect the following values for the SKO label cliplength:

Full Episode	Expected value
sko_cl	2002

Clip 1	Expected value
sko_cl	224

Clip 2	Expected value
sko_cl	131

2.2 TV-RELATED CONTENT– BROADCAST RELATED

Online content is related to a specific TV-broadcast, but has not been/will not be aired. This is the case of a stream that is part of a specific TV broadcast, but is not identical/ has not identical format as aired on TV. This stream is incorporated into SKO Stream data.

Streams should be related to a specific broadcast of a program (specific date and time of the episode). This may be the case on short clips with specific information about broadcast later on the evening (*Expeditie Robinson*) or content related to an specific episode (*Boer Kees leest de heel brief voor*). Very often it is not possible to relate the online content to an specific broadcast. This is the case when the content does not match chronologically the singular broadcast. Extra online-only material is often issued online before or after a (series of) broadcasts of a program is aired (e.g. auditions and backstage video's of *The Voice of Holland*, online spin off's after programs like *Goede Tijden Slechte tijden- Wiets Schoolopdracht* or *Expeditie Robinson*). The content may be generically related to the program (*Boer zoekt vrouw recepten*), In this case the implementation of codes and values for program-related content should be used (see 2.3).

1. * **Broadcasting date** – Date of actual broadcasting aired program on TV. Use the ISO 8601 format: `yyyymmdd` examples:

Date	Expected value
21st of october 2014	20141021
3rd of november 2014	20141103

Be aware that the broadcasting day for SKO-TV reporting is from 0200 – 2559hrs, programs with an actual starting time between 0000 and 0200hrs must have the date of the previous day. Contact SKO when it is not possible to deliver these dates and times in the mandatory format.

2. * **Program name** – The program name is used to connect streams to the TV broadcast in the SKO data. e.g.

Program name	Expected value
The A-Team	the_a_team
NOS Journaal	nos_journaal
CSI: Miami	csi_miami
That's the question	thats_the_question

Note that only lowercase characters and underscores are allowed as values for program name

3. * **Channel** – Use the channelcode from appendix 1

4. * **Streamtype** –

The coding in the SKO Label 'stream type' (type of broadcast of content) determinates how the stream is incorporated to the SKO data. The SKO labels are filled in when the stream has a link to a TV program. Use stream type from appendix 2.1.

Code	Description
tc.ep.uit	Episode exclusively online content of a TV concept, specifically linked to a tv-broadcast
tc.seg.uit	Segment. Exclusively online content of a TV concept, specifically linked to a tv-broadcast
tc.cam.uit	Live and exclusively online part of a TV broadcast. Live camera feed of TV broadcasts, not aired.

5. * **Program Identifier** (Prog ID) – The program identifier is a code which is unique per channel per day. This alphanumeric code is generated per broadcast per day by the broadcaster and is registered in the files provided to the Nielsen Company. Because of the combination 'Prog ID', 'Channel', 'Program name', 'Broadcasting date' and 'Streamtype' all measurements from the internet can be related to the measurements from aired TV. The program identifier is used to connect streams to the TV broadcast in the SKO data..

6. * **Start time** (planned) – The actual time of the broadcast in the TV guide. Use the SKO format: 0200 - 2600

i.e.:

Start time	Expected value
00 hrs 15 minutes	2415
20 hrs 29 minutes	2029

Contact SKO when it is not possible to deliver the time in the mandatory format.

7. * **Playlist Name** – can be filled at will, when not available the page name of the page where the player is located will be used automatically. e.g.:

Playlist name	Expected value
Journal 20:00	journal_2000
GTST aflevering 4576	gtst_aflevering_4576

Note that only lowercase characters and underscores are allowed as values for program name

8. **CLIPLENGTH** – This variable contains the exact clip duration in seconds of the offered unique clip. Per unique clip only 1 unique cliplength is required, the label used for this is **sko_cl** and the values must be in seconds (excluding ads).

i.e.:

Program XYZ, episode 11 is broadcasted on 1-1-2014 at 20:33 hrs, channel is Nederland1. Online only content related to this broadcast is offered online in the form of clips of different length. In the example below program XYZ is also offered in 2 clips with content to be related of the specific broadcast. Clip 1: 3:44 and Clip 2: 2:11 of the full episode, we expect the following values for the SKO labels:

Clip 1	Expected value
sko_cl	224

Clip 2	Expected value
sko_cl	131

For linear streaming, (sko_ty=tc.cam.uit) a value of "84600" is expected for clip length. This is the maximum value in seconds for a live streaming on a day (24 h).

2.3 TV-RELATED CONTENT – PROGRAM RELATED

Online only content related to a TV-title, but not to a specific TV -broadcast. Includes content which is exclusively online, is a part of a TC concept/ program aired on TV and **cannot be linked to a specific broadcast**. These streams will be link to the generic program title within the SKO Stream data.

1. * **ONLINE date** – Date of actual online release or publication of the clip Use the ISO 8601 format: `yyyymmdd` examples:

Date	Expected value
21st of october 2014	20141021
3rd of november 2014	20141103

Be aware that the date should follow the SKO-TV reporting format, where a day is scheduled from 0200 – 2559hrs, clips released between 0000 and 0200hrs must have the date of the previous day. Contact SKO when it is not possible to deliver these dates and times in the mandatory format.

2. * **Program name** – The name of the TV broadcast. See also 2.3.2. This title may not be broadcast-specific,

Program name	Expected value
The Voice of Holland live	the_voice_of_holland
Voice of Holland the blind auditions	the_voice_of_holland

Note that only lowercase characters and underscores are allowed as values for program name

3.* **Channel** – Use the channelcode from appendix 1

A clip can relate to program aired at one or several tv channels for a publisher or channel group. If a program title aired at more than one channel within the group, the label should contain the channel code with the lowest number.

In the example below a clip is released “Hoe werken the voorrondes”. This may be linkt to the program The Voice of Holland, which has been aired at RTL4 and RTL8.

Channel where the title has been aired	Channel code	Expected value
RTL4	61	61
RTL8	368	61

4. * **Streamtype** –

The coding in the SKO Label ‘stream type’ (type of broadcast of content) determinates how the stream is incorporated to the SKO data. The SKO labels are filled in when the stream has a link to a TV program. Use stream type from appendix 2.1.

Code	Description
tc.ep.prog	Program that has been broadcasted
tc.seg.prog	Segment. Exclusively online content of a TV concept /program that has been broadcasted
tc.cam.prog	Live and exclusively online part of a TV program. Live camera feed linked to a TV concept/program, not aired.

5. * **Program Identifier** (Prog ID) – The program identifier is a code which is unique per channel per day. This alphanumeric code is generated per broadcast per day by the broadcaster and is registered in the files provided to the Nielsen Company. Because of the combination ‘Prog ID’, ‘Channel’, ‘Program name’, ‘Broadcasting date’ and ‘Streamtype’ all measurements from the internet can be related to the measurements from aired TV. The program identifier is used to connect streams to the TV broadcast in the SKO data..For content to be linked to a programme, the field PROG ID should contain one of the PROG ID codes of a broadcast of the same program title. This could be the code of the last known broadcast day of a ID for a broadcast of a period before .

6. * **Start time** (planned) – This filed is not applicable to the program related content. Should be filled in with the dummy text-value “null”
i.e.:

Start time	Expected value
00 hrs 15 minutes	null (text value)
20 hrs 29 minutes	null(text value)

Contact SKO when it is not possible to deliver the time in the mandatory format.

7. **Playlist Name** – can be filled at will, when not available the page name of the page where the player is located will be used automatically. e.g.:

Playlist name	Expected value
Journal 20:00	journal_2000
GTST aflevering 4576	gtst_aflevering_4576

Note that only lowercase characters and underscores are allowed as values for program name

8. **CLIPLENGTH** – This variable contains the exact clip duration in seconds of the offered unique clip. Per unique clip only 1 unique cliplength is required, the label used for this is **sko_cl** and the values must be in seconds (excluding ads).

i.e.:

Program XYZ, episode 11 is broadcasted on Nederland1. Online only content related to this program is offered online in the form of clips of different length. In the example below program XYZ is also offered in 2 clips with content to be related of the specific broadcast. Clip 1: 3:44 and Clip 2: 2:11 of the full episode, we expect the following values for the SKO labels:

Clip 1	Expected value
sko_cl	224

Clip 2	Expected value
sko_cl	131

For linear streaming, (sko_ty=tc.cam.prog) a value of "84600" is expected for clip length. This is the maximum value in seconds for a live streaming on a day (24 h).

2.4 WEB-ONLY CONTENT

Online only content **not related** to TV program or broadcast. These streams will not be linked to a broadcast or generic program title within the SKO Stream data.

1. * **ONLINE date** – Date of actual online release of the clip Use the ISO 8601 format: yyyyymmdd examples:

Date	Expected value
21st of october 2014	20141021
3rd of november 2014	20141103

Be aware that the date should follow the SKO-TV reporting format, where a day is scheduled from 0200 – 2559hrs, clips released between 0000 and 0200hrs must have the date of the previous day. Contact SKO when it is not possible to deliver these dates and times in the mandatory format.

2. * **Program name** – The program name is used

Program name	Expected value
Gooische frieten	gooische_frieten
Doutzen Kroes in nieuwe rivella reclame	doutzen_kroes_in_nieuwe_rivella-reclame

Note that only lowercase characters and underscores are allowed as values for program name

3. * **Channel** – Use the channel group or publisher. The code for publishers are available in appendix 4.

Published in	Publisher name	Expected value (publisher code)
RTLXL	RTL.XL	2000
RTL8	RTL	2000
NU.nl	SANOMA	8000

4. * **Streamtype** –

The coding in the SKO Label 'stream type' (type of broadcast of content) determines how the stream is incorporated to the SKO data. The SKO labels are filled in when the stream has a link to a TV program. Use stream type from appendix 2.1.

Code	Description
tc.ep.web	Episode, exclusively online, not related to a TV concept/program
tc.seg.web	Segment, exclusively online, not related to a TV concept/program
tc.cam.web	Exclusively online, live camera feed not related to a TV concept/program

5. * **Program Identifier** (Prog ID) – The program identifier is a code which is unique per web only content that it is released. It should be a unique alpha numeric code with the following specs which only consists out of lowercase characters and underscores. For web only content this character has a maximum of 60 characters.

6. * **Start time** (planned) – This field is not applicable to the program related content. Should be filled in with the dummy text-value “null”

i.e.:

Start time	Expected value
00 hrs 15 minutes	null (text value)
20 hrs 29 minutes	null (text value)

Contact SKO when it is not possible to deliver the time in the mandatory format.

7. **Playlist Name** – can be filled at will, when not available the page name of the page where the player is located will be used automatically. e.g.:

Playlist name	Expected value
Gooische frieten	gooische_frieten
Doutzen Kroes in nieuwe rivella reclame	doutzen_kroes_in_nieuwe_rivella-reclame

Note that only lowercase characters and underscores are allowed as values for program name

8. **CLIPLENGTH** – This variable contains the exact clip duration in seconds of the offered unique clip. Per unique clip only 1 unique cliplength is required, the label used for this is **sko_cl** and the values must be in seconds (excluding ads).

i.e.:

For a Clip with duration 1: 3:44 we expect the following values for the SKO labels:

Clip 1	Expected value
sko_cl	224

For web only linear streaming, (sko_ty=tc.cam.web) a value of "84600" is expected for clip length. This is the maximum value in seconds for a live streaming on a day (24 h).

9. GENRE — classification of the program in one SKO codes (see appendix 5). Codes should be given on the lowest level available. A new version of the SKO classification will be provided soon, including amendments to include other OTV genres, such as User Generated and Reviews.

Program	Genre	sko_gen
Gooische frieten	Soap	21110
Doutzen Kroes in nieuwe rivella reclame	Review	*

SKO Genre classification extract (see appendix 5 for the full list):

20000 FICTION

21000 DUTCH FICTION

21100 DUTCH SERIES

21110 Dutch series: soap

* to be provided soon

3. Summary

The complete list of SKO specific labels for Stream Sense:

TV AIRED BROADCAST

Custom label	Function
sko_dt	Broadcasting date on TV
sko_pr	Program name (only lowercase characters and underscores are allowed)
sko_stid	Channel codes (channel of broadcast)
sko_ty	Content type (tv.ep, tc.seg, tv.cam)
sko_prid	Unique progID of specific episode
sko_t	Start time of broadcast on TV (in SKO format: 0200 -2600)
sko_cl	Cliplength (in seconds) of internet content (excluding ads)

TV RELATED BROADCAST

Custom label	Function
sko_dt	Broadcasting date on TV
sko_pr	Program name (only lowercase characters and underscores are allowed)
sko_stid	Channel codes (channel of broadcast)
sko_ty	Content type (tc.ep.uit, tc.seg.uit, tc.cam.uit)
sko_prid	Unique progID of specific episode
sko_t	Start time of broadcast on TV (in SKO format: 0200 -2600)
sko_cl	Cliplength (in seconds) of internet content (excluding ads)

TV RELATED PROGRAM TITLE

Custom label	Function
sko_dt	Date release online
sko_pr	Program name (only lowercase characters and underscores are allowed)
sko_stid	Channel codes (channel of program, lower in channel group)
sko_ty	Content type (tc.ep.prog, tc.seg.prog, tc.cam.prog)
sko_prid	Unique progID of specific episode of one of the broadcast of this program
sko_t	null (text value)
sko_cl	Cliplength (in seconds) of internet content(excluding ads)

WEB ONLY

Custom label	Function
sko_dt	Date release online
sko_pr	Program name (only lowercase characters and underscores are allowed)
sko_stid	PUBLISHER CODE
sko_ty	Content type (tc.ep.web, tc.seg.web, tc.cam.web)
sko_prid	Unique progID of specific clip
sko_t	null (text value)
sko_cl	Cliplength (in seconds) of internet content(excluding ads)
sko_gen	Genre, SKO code at the lowest level available

An overview per stream type:

Linear, camera feed

Code	Related to	
tv.cam	TV broadcast	TV broadcast, identical content
tc.cam.uit	TV broadcast	Online only
tc.cam.prog	TV program title	Online only
tc.cam.web	Non related to TV	Online only

Preview, Online time shifted viewing or on demand

Code	Related to	
tv.ep	TV broadcast	TV broadcast, identical content
tv.seg	TV broadcast	TV broadcast, identical content
tc.ep.uit.	TV broadcast	Online only
tc.seg.uit	TV broadcast	Online only
tc.ep.prog	TV program title	Online only
tc.seg.prog	TV program title	Online only
tc. ep. web.	Non related to TV	Online only
tc.seg.web	Non related to TV	Online only



Attention:

- The labels and values for 'program identifier', 'broadcasting date', 'streamtype', 'channel', 'program name', 'start time' and 'cliplength' are mandatory to relate the internet content to the TV broadcast and to online only content as described in 2.1 and 2.2. Keep in mind that if in any case one of these values is not available it is possible that your streams are rejected in the SKO-Reports.
- We are working with SKO's OTV technical committee to update the codes for online only content. At the moment the specs of the labels program name and genre are still under discussion.

4. Optional variables and values

Distribution point is an optional SKO label to be included for all four types of content as described in the section above. If possible, we recommend to make them available as an SKO-label. This label refer to the site, app or platform dimension, it may not be confused with the label of Publisher or Channel (station code or channel group).

1. **DISTRIBUTION POINT** – This variable contains the name of the publisher of last point (website or app) where the content has been played. This value is required per unique clip, distribution form. The label used for this is **sko_pub** is numerical (max. 5 characters). Each publisher has a rage of codes .
i.e. The program Goede tijden slechte tijden is aired on RTL 4 and published online on the site of RTL 4, RTL XL, the RTL XL app and the shared platform NL Ziet (catch up, fragments). Online only content, related to the program is also published on RTL XL site.

Program titel	Type of content	Distribution point	sko_pub*
Goede tijden slechte tijden	tv.ep	RTL.nl	20000
Goede tijden slechte tijden	tv.seg	RTL.nl	20000
Goede tijden slechte tijden	tv.ep	RTLXL.nl	20001
Goede tijden slechte tijden	tv.seg	RTLXL.nl	20001
Goede tijden slechte tijden	tv.ep	RTL XL APP	21000
Goede tijden slechte tijden	tv.seg	RTL XL APP	21000
Goede tijden slechte tijden	tv.ep	NLZiet.nl	22000
Goede tijden slechte tijden	tv.seg	NL Ziet. APP	22001
Goede tijden slechte tijden	tc.prog	RTLXL.nl	20001

Publisher names	Distribution point code range (from – to)
NPO	10000 - 19999
RTL	20000 - 29999
SBS	30000 - 39999
DISCOVERY	40000 - 49999
VIMM/BEVIACOM	50000 - 59999
FOX	60000 - 69999
DISNEY	70000 - 79999
SANOMA	80000 - 89999
TMG	90000 - 99999

Using the ID for advertisers (IDFA or comparable ID's on Android) is one of the options for the identification of Media Panelists in the SKO OTV census data from the mobile app players of publishers participating in SKO VIM. It requires present and future implementation of streaming APIs to allow for using the IDFA in Apple iOS environments and the ADID, Google Ad ID, Device ID or a variant thereof in the case of Android environments. These device-specific identifier are provided by the operating systems in mobile devices.

2. **Advertising Identifier** – This variable contains a hashed and truncated value of IDFA, ADID, Google Ad Id Device ID when the content is played on app players. This value is required per unique clip, for mobile. The label used for this is **sko_idfa** is alphanumerical and should be passed on as plain-text (max. 16 characters).

In order to hash and truncate the identifier, the following algorithm should be used

```
String DEVICE_ID = ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789
//This is an example of identifier. This applies to any Identifier that can be read
through the API of the measurement libraries.
MD5(DEVICE_ID) = 8d93ad635e2c8c822d796bd8726eef6b
id = MD5(DEVICE_ID).substring(0,16) = 8d93ad635e2c8c82
```

5. StreamSense implementation

comScore's Stream Sense™ module collects information about user behaviour during playback of the stream that the user is watching. It collects the critical data about video stream usage including click behaviour during the video stream. The streaming module draws its data from the player, allowing for a seamless integration with the SKO reports. All participating broadcasters must implement Stream Sense™ in their players. Stream Sense™ can be implemented in all common players like Windows Media Player, RealPlayer, Flash players, Silverlight and every other player.

Tracking is done by implementing one of comScore's Streaming APIs, the measurements are done browser/client side. Users won't have to install any plugins or use special players. comScore supports every player on the market.

When implementing the Streaming API's please note that you always have to specify a correct playername and version in the API. When this is not done correctly the player measurements will not be included in the SKO OTV data. Please contact your comScore consultant for more information and/or help.

The field lengths requirements for the player name and player version labels is reported are listed below,

A list of some supported common players by Stream Sense™ can be found in Appendix 3.

You can contact comScore directly for the distribution of the Streaming APIs and manuals which are needed to implement Stream Sense™.

Customlabels

__player	Player name	Alphanumeric (max.35 characters)
__version	Player version	Numeric (max. 10 characters)

Appendix 1 – Channel codes

List issued 03-03-2014

Use the 'code' in de Stream Sense™ measurement code that correspond to your channel. SKO Full audit channels are:

Code (sko_stid)	SKO code in Nielsen Broadcast data	Short name	Channel name
1	SKO001	NED1	NPO 1
2	SKO002	NED2	NPO 2
39	SKO039	MTV	MTV
47	SKO047	NED3	NPO 3
57	SKO057	RTL7	RTL 7
61	SKO061	RTL4	RTL 4
62	SKO062	RTL5	RTL 5
63	SKO063	SBS6	SBS6
65	SKO065	NICK	NICKELODEON
67	SKO067	DISC	DISCOVERY CHANNEL
148	SKO148	DISNXD	DISNEY XD
155	SKO155	COM	COMEDY CENTRAL
284	SKO284	NGC	NATIONAL GEOGRAPHIC CHANNEL
293	SKO293	NET5	NET 5
334	SKO334	VER	VERONICA
368	SKO368	RTL8	RTL 8
442	SKO442	CCF	COMEDY CENTRAL FAMILY
453	SKO453	FS1E	FOX SPORTS 1 EREDIVISIE
454	SKO454	FS3E	FOX SPORTS 3 EREDIVISIE
463	SKO463	RTL	RTL LOUNGE
464	SKO464	DCN	DISNEY
495	SKO495	TEEN	TEENNICK
501	SKO501	TLC	TLC
502	SKO502	RTC	RTL CRIME
508	SKO508	24KIT	24KITCHEN
535	SKO535	ID	ID
537	SKO537	FOX	FOX
538	SKO538	FS2	FOX SPORTS 2
552	SKO552	SBS9	SBS9
554	SKO554	RTLZ	RTL Z

Bron: SKO – Nielsen Broadcast Data

Channel codes of SKO non Full Audit channels are available at:

<https://kijkonderzoek.nl/zenders-in-de-ruwe-data>

Appendix 2 – Stream types

The coding in the SKO Label 'stream type' (type of broadcast of content) determines how the stream is incorporated to the SKO data. The SKO labels are filled in when the stream has a link to a TV program. Most frequent values of the label "sko_ty=" a:

Code	Description
tv.ep	Program that has been broadcasted
tv.cam	Live and concurrent with broadcast TV program
tv.seg	Part of the program already broadcast
tc.ep.uit	Episode exclusively online content of a TV concept, specifically linked to a tv-broadcast
tc.seg.uit	Segment. Exclusively online content of a TV concept, specifically linked to a tv-broadcast
tc.cam.uit	Live and exclusively online part of a TV broadcast. Live camera feed of TV broadcasts, not aired.
tc.ep.prog	Exclusively online episode of a TV concept /program that has been broadcasted
tc.seg.prog	Segment. Exclusively online content of a TV concept /program that has been broadcasted
tc.cam.prog	Live and exclusively online part of a TV broadcast. Live camera feed linked to a TV concept/program, not aired.
tc.ep.web	Episode, exclusively online, not related to a TV concept/program
tc.seg.web	Segment, exclusively online, not related to a TV concept/program
tc.cam.web	Exclusively online, live camera feed not related to a TV concept/program

The first part of the code shows whether the stream in question is a complete TV program or a segment related to a TV program: TV/TC

tv = content of a stream that is identical to the contents of a TV show that is/has been aired. This stream is incorporated into SKO Stream data.

tc = contents of a stream that is online only, content is not identical to a content that is aired on TC.

The second and third part of the of the codes contains identifiers:

Code	Omschrijving
Ep	an episode (broadcast)
Seg	a part (segment) of an episode
Cam	camera feed (i.e. a live/linear stream)
Uit	related to a to an specific tv broadcast
Prog	related to a tv program title or concept
Web	not related to tv broadcast, program or concept

Examples:

Code	Programma/Streams	Uitleg
tv.ep	Kassa	A regular Kassa broadcast aired on TV
tv.seg	Kassa Koelkast-test	A part of a TV-episode aired on TV
tv.cam	Tour de France Live	A lineair TV- broadcast live online
tc.ep.uit.	Boer kees leest hele brief voor Vervallen Documentaire	Episode exclusively online content of a TV concept, specifically linked to a tv-broadcast
tc.seg.uit	Expeditie Robinson, information on next broadcast	Segment. Exclusively online content of a TV concept, specifically linked to a tv-broadcast
tc.cam.uit	Webcam EK Voetbal NOS	Live and exclusively online part of a TV broadcast. Live camera feed of TV broadcasts, not aired.
tc.ep.prog	Extra auditie The Voice	Exclusively online episode of a TV concept /program that has been broadcasted
tc.seg.prog	Boer zoekt vrouw recepten	Segment. Exclusively online content of a TV concept /program that has been broadcasted
tc.cam.prog	Webcam Utopia	Live camera feed linked to a TV concept/program, not aired.
tc. ep. web.	Gooische frieten Video/politiek nu.nl Moltalk van Wie is de Mol	Episode, exclusively online, not related to a TV concept/program
tc.seg.web	Deel nieuws item nu.nl	Segment, exclusively online, not related to a TV concept/program
tc.cam.web	Hockey World League Live verslag nu.nl	Exclusively online, live camera feed, not related to a TV concept/program

Appendix 3 – Stream Sense player Support

Supported players	Version	(support)	Devices	Remarks
WMA	Windows Media Player 7+ plugin component (for Internet Explorer on Windows) Windows Media Player 6.4 OCX (for Internet Explorer on Windows) Windows Media Player 7+ Port25 plugin component (for Firefox on Windows)	Windows Media content played in a web	PC	For support in Firefox the Port25 plugin needs to be installed. Other plugins (e.g., Flip4Mac) are not supported.
Silverlight	MediaElement (ME) SmoothStreamingMediaElement (SSME) Silverlight Media Framework version 1 and 2 (SMF1, SMF2) Microsoft Media Platform: Player Framework (MMPF) which includes VAST/PAID	Silverlight 3, 4 and 5 (within web browsers as well as stand alone)	PC	
NetStream, FLVPlayback (Flash AS3)	NetStream, FLVPlayback and Sound	Flash, AIR and Flex	PC	
BrightCove (Flash AS3)	BrightCove Studio versions 3, 4 and 5.	BrightCove Flash player	PC	
JW-Player (Flash AS3)	4.3 and higher 4.x versions, 5.x + 6.x (no html5)	JW Player Flash player	PC	
Dailymotion	N/A	Dailymotion Flash player	PC	
Ooyala	N/A	Ooyala Flash player	PC	
FLOWplayer	3.x (3.2.27 was the current version at time of writing)	Flowplayer Flash player	PC	
HTML5 <video> tag	HTML5 <video> tag implementations as supported in web browsers at time of writing	Content played with the HTML5 <video> tag in a web browser	PC, Mobile	
MediaPlayer (Android)	Android 1.6 (API Level 4) and up	MediaPlayer	Mobile	
VideoView (Android)	Android 1.6 (API Level 4) and up	VideoView	Mobile	
MPMoviePlayer (iOS)	MPMoviePlayer Custom subclasses of MPMoviePlayer should be supported as long as the subclass does not change any of the MPMoviePlayer's functionality.	iOS 3 up to iOS 5.x (which is the current version at time of writing)	Mobile	

Appendix 4 – Publishers codes

Use the 'code' in de Stream Sense™ measurement code that correspond to the publishers.
The list will be updated soon.

Publisher names	Publisher codes
NPO	1000
RTL	2000
SBS	3000
DISCOVERY	4000
VIMM/BEVIACOM	5000
FOX	6000
DISNEY	7000
SANOMA	8000
TMG	9000

Appendix 5 – SKO Genre classification

https://kijkonderzoek.nl/images/Methodologische_documenten_ENGELS/2013/16_SKO_methods_SKO_Genre_classification_2011.pdf

10000	NON FICTION
11000	NEWS & CURRENT AFFAIRS
11100	NEWS
11200	CURRENT AFFAIRS
11300	WEATHERREPORT
16000	OTHER NON FICTION
	16010 General consumer information
	16020 Cars/motorcycles/moped/bicycles
	16030 Cooking/food/beverage
	16040 Health, /lifestyle, education and coaching
	16050 Travelling/holiday/tourism/daytrips
	16060 Home/living/interior/garden/do it yourself
	16070 (Popular) science & technology
	16080 Religion/proclamation & ideology/religion
	17000 Justice/law (enforcement) & order
	17010 Art
	17020 Nature & environment
	19000 Other Non fiction, miscellaneous

20000		FICTION
21000		DUTCH FICTION
21100		DUTCH SERIES
	21110	Dutch series: soap
	21121	Dutch series: (sit)comedy
	21122	Dutch series: drama
	21140	Dutch series: erotic
	21150	Dutch series: action /thriller
	21190	Dutch series: other
21200		NLD FILMS
	21221	Dutch films: comedy
	21222	Dutch films: drama
	21240	Dutch films: erotic
	21250	Dutch films: action /thriller
	21290	Dutch films: other
22000		FOREIGN FICTION
22100		FOREIGN SERIES
	22110	Foreign series: soap
	22121	Foreign series: (sit)comedy
	22122	Foreign series: drama
	22140	Foreign series: erotic
	22150	Foreign series: action /thriller
	22190	Foreign series: other
22200		FOREIGN FILMS
	22221	Foreign films: comedy
	22222	Foreign films: drama
	22240	Foreign films: erotic
	22250	Foreign films: action /thriller
	22290	Foreign films: other
30000		ENTERTAINMENT
31000		GAMES & QUIZZES
32000		CABARET & SATIRE
	32100	CABARET/VARIETY
	32200	SATIRIC PROGRAM
33000		TALENT SHOW & AUDITION PROGRAM
39000		OTHER ENTERTAINMENT
40000		SPORT
41000		SPORTSINFORMATION
	41100	CURRENT SPORTSINFORMATION
	41900	OTHER SPORTSINFORMATION
42000		SPORT REPORT
	42100	SOCCER REPORT
	42900	OTHER SPORT REPORT

50000		MUSIC AND DANCE
	54000	POP MUSIC & DANCE
	54100	POP MUSIC: VIDEOCLIPS
	54200	POP MUSIC: VIDEOCLIPS VERPAKT
	54300	POP MUSIC: LIVE REGISTRATION
	54400	POP MUSIC: PROGRAM
	54900	POP MUSIC: MISCELLANEOUS
	59000	OTHER MUSIC & DANCE
	59100	OTHER MUSIC: VIDEOCLIPS
	59300	OTHER MUSIC: LIVE REGISTRATION
	59400	OTHER MUSIC : PROGRAM
	59900	OTHER MUSIC: MISCELLANEOUS
60000		CHILDREN(0- 12 years)
	61000	CHILDREN: NON FICTIE
	62000	CHILDREN: MUZIEK
	63000	CHILDREN: AMUSEMENT
	64000	FICTION FOR CHILDREN
	64110	CHILDREN SERIES
		64110 Children series: Cartoon/animation/puppets
		64190 Children series: Other
	64200	CHILDREN FILMS
		64210 Children series: Cartoon/animation/puppets
		64290 Children series: Other
70000		RECLAME
	71000	COMMERCIALS
	72000	TELESHOPPING/ INFOMERCIAL
	73000	BILLBOARDING
80000		OVERIG
	81000	CONTINUITY
	82000	TEXT INFORMATION
	83000	RTV PROGRAM INFORMATION /PROMO
	88000	DISTURBANCE
	89000	OTHER/UNKNOWN

6. Change History

V1.9 --> v2.0:

- Changes in TC content:
 - tc.seg and tc.ep are removed (so no distinction between segments and programs)
 - tc.uit, tc.prog and tc.web are added as new values (new distinction between program,broadcast and non-aired related streams)
- Introduction of program related online only content (start time is dummy value, date is online publication date and ProgID is ID of one of the broadcasts)
- Introduction of tc.web (start time is a dummy value, date is online publication date and ProgID is unique per title)
- Added new values:
 - Publisher codes (list of codes will be provided soon by SKO)
 - Genres for tc.web streams (sko_gen)
- Added new chapter for optional variables:
 - Publication point (sko_pub)
- Several small changes in text and markup

V2.1:

- Sko_cl is length of content without ads
- Starting time is SKO format 0200 – 2600 instead of ISO format
- Dummy value start time for online only content changed to text value 'null'
- Additional maximum number characters to custom labels sko_ty and sko_prid
- Updated channel codes in appendix 1. Link to SKO channel codes for non-Full Audit channels
- Several small changes in text and markup
- Addition of glossary most used terminology

V2.2:

- Addition of examples on the assignation of sko_ty code for clips related to broadcasts and programs
- Introduction new level (.ep and .seg) in Online Only content types tc.cam, tc.uit, tc.prog and tc.web
- Change of publisher codes to 4 digit numbers
- Addition of mandatory player name and version in chapter 5
- Addition of a summary per type of content live/tsv
- Change in example table for optional label distribution point, label changed to lower cases
- Addition of distribution point to custom labels overview and specification to characters allowed (lower case)

V2.3:

- Several changes in text and markup” pg.3 numbers in bullet points start with 1 (not 0)
- Pg. 10, example of expected value changed to lowest channel code
- Pg, 13, the code in program identifier is changed to alpha numeric
- Summary on pg 15, label genre added

V2.4:

- Adjustments in codes optional label distribution point and examples provided
- Inclusion maximum field length for player name and version on pg.18
- Inclusion maximum field length for sko_gen on pg.27

V2.5:

- Inclusion optional label sko_idfa

V2.6:

- Inclusion rules for truncating/hashing optional label sko_idfa

V2.7:

- Correction of values in optional label sko_pub in table customlabels (FAQs pg. 29)

V2.8:

- Correction maximum field length for sko_prid for tc.web content

7. FAQs

Customlabels

In the table below you find the custom labels to be filled in.

Customlabel	Function	Values
sko_dt	Broadcast Date /Date release online	ISO formaat jjjmmdd
sko_pr	Program name	Alphanumeric and underscores (max. 100 characters)
sko_stid	Channel/ Publisher codes	Numeric (max. 4 characters) See appendix 1 and 4.
sko_ty	Content type	Alphanumeric (max. 10 characters) See appendix 2.
sko_prid	Unique program ID of (one of the) specific broadcasts of the programs or specific clip	Alphanumeric (max. 25 characters) For web only content (sko_ty = tc.cam.web, tc.ep.web, tc.seg.web) max. 60 characters
sko_t	Content type	SKO Formaat: hhmm (from 0200-2600)
sko_cl	Clipt length	Numeric (max. 5 characters). For online only linear streaming, (sko_ty= tc.cam.uit, tc.cam.prog, tc.cam.web) a value of "84600" is expected for clip length. This is the maximum value in seconds for a live streaming on a day (24 h).
sko_pub	Distribution point (optional)	Code (max. 5 characters, 1000-9999) OR empty (optional field). See appendix 4.
sko_gen	Genre	Code (max. 5 characters). See appendix 5.
sko_idfa	Advertising Id (optional, app players)	Hashed and truncated plain text, alphanumerical (max. 16 characters)

Characters allowed in the labels

Note that only lowercase characters and underscores are allowed as values for program name.

Supported and guaranteed	0123456789 Abcdefghijklmnopqrstuvwxyz (lower case) - . _
Not supported	& = < > (<> not even escaped with %3c and &3E)m space/tab
Not guaranteed	all other characters

The TV program starts between 00:00 and 02:00 hours.

SKO uses for tv reporting a day defined between 02:00 to 26:00 hours, so programs broadcasted after 00:00 hours are included in the daily broadcast schedule.

For the link between streams and tv- programs we need to code as follows: a program that starts at 23 Januari 2014 at 1:30 has as a broadcast date **22 January** and start time **2530**.

Default values when SKO labels are not applicable

When labels are not applicable, the field should be filled in with the dummy text-value "null"

Glossary of common used terms

Broadcast = linear TV broadcast identified by a broadcast date, start time, net duration (excluding commercial breaks), title (as harmonized Nielsen harmonized), channel and frequency (repeat code).

Example: The Voice of Holland the Battle, RTL4, 17-10-2014

Program (concept level) = a series of programs identified by a similar program title (Nielsen harmonization).

The Voice of Holland

Example: The Voice of Holland the Battle, 17-10-2014

Example: The Voice of Holland the Blind auditions, 19-12-2014

Example: The Voice of Holland LIVE, online only

Example: Voice Kids 21-02-2014