

# Using Nielsen Watermarking with Vantage

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This App Note  
applies to  
Vantage versions  
6.3 and later

Overview .....	2
Software Requirements .....	2
Licensing.....	2
Using Nielsen Watermarking in Vantage.....	3
Flip Encoder Configuration .....	4
Adding the Nielsen Watermarking Filter .....	4
General group .....	5
Channel Settings Group .....	6
Content Type group.....	6
Program Content (D4) .....	7
Commercial Content (SpoTTrac).....	8
IPTV VOD Encoder configuration .....	10
Adding the Nielsen Watermarking Filter .....	10
Workflow Type group.....	10
Program Content (D4) .....	7
Commercial Content (SpoTTrac).....	8
RTVOD .....	13
Channel Settings .....	14
Multiscreen Encoder configuration .....	14
Adding the Nielsen ID3 Filter .....	14
Example #1 - Program Content - C3/C7 RTVOD .....	15
IPTV VOD C3/C7 with RTVOD workflow .....	16
Pipeline Capture Setup .....	16
Vantage Workflow.....	16
Example #2 - Program Content - D4 VOD.....	17
Example #3 - Commercial Ad Content (SpoTTrac).....	18
Example #4 - Convert Watermarks into ID3 Metadata for HLS ..	19
Copyright and Trademark Notice .....	20

# Overview

Television viewing has come a long way since measurement of audiences began. Today, the ability to watch shows at anytime, anywhere, and on a multitude of devices magnifies the importance of understanding your audience. Telestream Vantage integration with Nielsen technology provides all the tools you'll need to measure your audience and monetize your content.

In the media and entertainment world, for both traditional and new media, content producers and distributors spend valuable time and resources developing content and planning media strategies. The constant question has always been whether you are reaching the right audiences, on the right devices, at the right time. Nielsen audience measurement solutions provide a comprehensive picture of the times, places, and methods media consumers are using to connect with content and advertising.

Telestream's Vantage Media Processing Platform with the integrated Nielsen® technology provides the on-ramp that helps you gather the data required to understand how valued content is viewed.

## Software Requirements

You will need the following software for Vantage with integrated Nielsen functionality:

- Vantage Transcode, Vantage Transcode Pro, Transcode IPTV VOD or Transcode Multiscreen
- Vantage version 6.3
- Windows Server 2008 R2 or Windows Server 2012 R2
- Vantage license that includes a Nielsen Watermarking option(s) key (see Licensing below)

Optional software:

- For IPTV workflows: Transcode IPTV VOD – IPTV 6.3.13 or later
- For HLS Multiscreen workflows: Transcode Multiscreen – IPTV 6.3.13 or later

## Licensing

The Nielsen watermarking option for Vantage is enabled using the Vantage Nielsen Watermarking option product key. This license enables Nielsen Watermarking. To enable camera ingest for multiple Transcode nodes, one Camera Ingest option must be purchased for each node.

# Using Nielsen Watermarking in Vantage

A watermark is a sequence of bits that the Nielsen Watermark software inserts periodically into an audio stream, also referred to as an audio code. The components of the watermark (SID, TIC, and watermarking level) uniquely identify the portion of audio from which the watermark is extracted and the distribution source to which the audio content can be credited.



The Nielsen Watermarking Filter is available within the audio configuration when using the Flip (General Purpose) encoder, IPTV VOD encoder, and the Multiscreen encoder.

You can add the Nielsen Watermarking Filter to the audio setup as follows:

1. Open the Audio Filter selection (Flip: drop down or IPTV/Multiscreen: check box).
2. Select the Nielsen Watermarking Filter.
3. Open the Nielsen Watermarking configuration panel from the Audio setup.
4. Enter parameters, depending on the type of watermarking desired.

The configuration UI and respective parameters vary depending on the encoder and the type of watermarking to be performed.

Specific metadata parameters used to populate associated metadata files can also be added. Metadata can come from accompanying XML or text files where it can then be associated with Vantage variables, or you can enter metadata directly into a workflow.

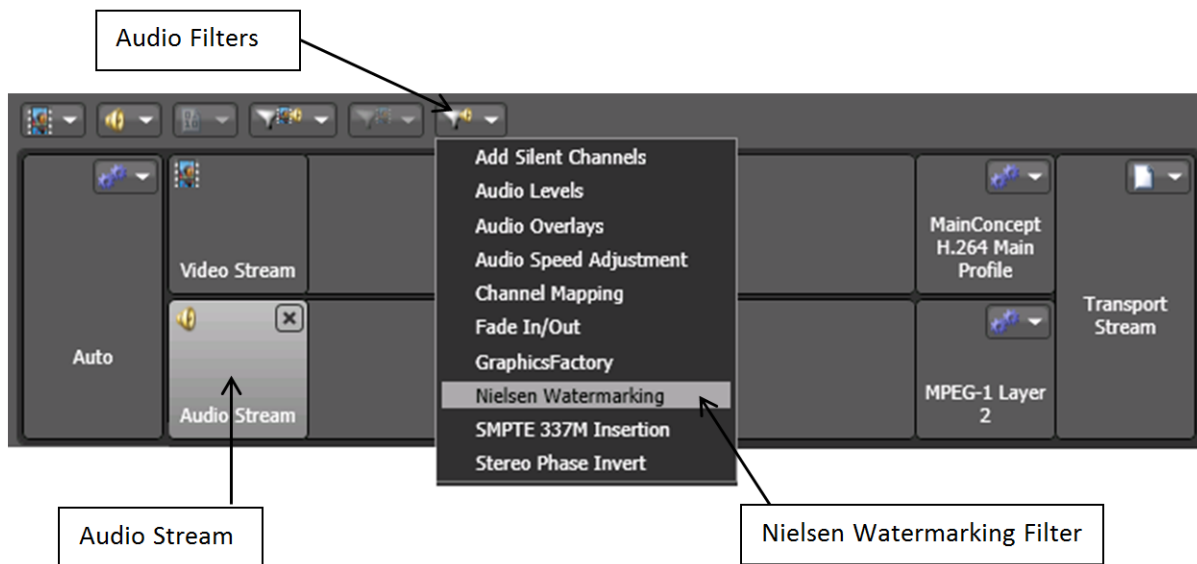
**Note:** Any configuration parameter that displays a Browse button can be supplied a value using a Vantage variable that has been assigned the value in an upstream action.

# Flip Encoder Configuration

If your workflow uses the Flip Encoder (General Purpose), you can set the Nielsen Watermarking configuration parameters as described here.

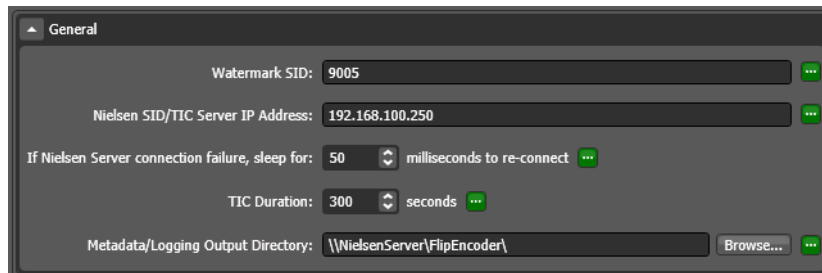
## Adding the Nielsen Watermarking Filter

1. To add the Nielsen Watermarking Filter, select the Audio Stream; the Audio Filter drop down menu will become active.
2. Open the Audio Filter drop down menu and select Nielsen Watermarking.
3. From within the Audio Stream presentation, select the Nielsen Watermarking controls to display the configuration groups (General, Channel Settings and Content Type) and associated configuration settings.
4. Enter all parameter settings as they apply to your desired workflow.



## General group

The General group contains the following configuration parameters.



**Watermark SID.** Nielsen assigns one or more SIDs (Source Identification) to each content provider or distribution source. The SID uniquely identifies the distribution source and is included as a component of each watermark.

**Nielsen SID/TIC Server IP Address.** The IP address of the computer running the Nielsen licensing SID/TIC server system, which is required to run the Nielsen Watermarking. Nielsen must be contacted in order to obtain their licensing SID/TIC server system.

**If Nielsen Server connection failure, sleep for.** Retry delay value (in milliseconds) for the connection to the Nielsen SID/TIC server. If a connection attempt fails, Vantage waits the prescribed time until it attempts another connection. Upon failing a second time, the transcode action aborts.

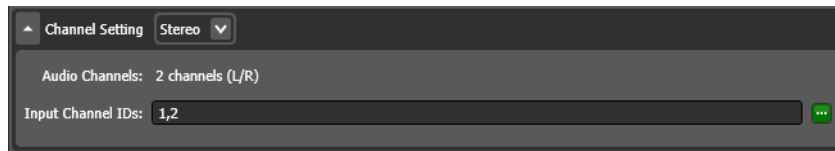
**TIC Duration.** Approximate duration (in seconds) of the source media file. The SID/TIC Server uses the duration to allocate the proper range of TICs. The duration can be extracted and assign to a variable by using an upstream Analysis action.

**Metadata/Logging Output Directory.** Fully-qualified directory (from the perspective of the Vantage domain server) where Vantage writes metadata, log, and signature output files containing information about the transcode and the watermarked content. Enter or browse to select the directory path—usually a share—which is required, if you have a distributed (multi-server) domain. Vantage must have write permission for this directory.

The resulting metadata files can be sent to Nielsen using the Nielsen secure delivery application.

## Channel Settings Group

The Channel Settings group contains the following configuration parameters.



**Channel Setting.** Select the type of audio you are watermarking.

- *Stereo:* Requires 2 channels—for example 1,2. If you are generating a signature file, channel 1 is used.
- *5.1 AC-3:* Requires either 5 or 6 channels. If you are generating a signature file, specify one channel number for LEFT (typically FRONT LEFT) and one for the CENTER channel. For example, 1,3, or 3,4. These two channels are mixed and used.
- *Quad Stereo:* Requires 8 channels. If you are generating a signature file, specify one channel number for LEFT (typically FRONT LEFT) and one for the CENTER channel. For example, 1,3, or 3,4. These two channels are mixed and used.
- *Other:* 1 to 8 channels required. The first channel in the list is used.

**Input Channel IDs.** Specify the channel number or numbers, separated by comma. Or, click the Variable Browse button and select a text variable assigned an appropriate text string value (for example: 1,2) by an upstream action.

## Content Type group

The General group contains the following configuration parameters.

*Select Commercial Content or Program Content (D4) types.* Two Content types are available. If you wish to apply commercial watermarking choose Commercial Content, if you are applying D4 watermarking to a Program choose Program Content.

## Program Content (D4)

**Process Type.** N2, NW or Both

- N2—Nielsen Audio Encoder System II (also known as NAES2), the second-generation method of inserting a SID (Nielsen source identifier) and time stamp into a TV signal.
- NW—Nielsen Watermarks, a newer method of audio encoding that places an audio watermark in a lower-frequency portion of the active program than does NAES II technology. Its lower-frequency position enables NW to be more robust and much less likely to be “compressed out” of the program audio by TV distribution.
- Both—Encodes both N2 and NW watermarks in the audio stream.

**DsrcId:** Distribution Source ID

**DsrcName:** Distribution Source Name

**AssetId:** The asset ID to be reported in the metadata file for the clip that is being encoded.

**AssetName:** The asset name to be reported in the metadata file for the clip that being encoded.

**EpisodeId:** The optional episode ID to be written to the feed-point metadata file.

**HDContent:** True or False; True if and only if content is high definition.

**ApplicationName:** Enter *Vantage*. This parameter will be written to the metadata file for the clip that is being encoded.

**ApplicationVersion:** Enter the Vantage version currently installed. This parameter will be written to the metadata file for the clip that is being encoded.

**Decode and Signatures.** Check to generate signature files (DNA, PAS or both, depending on settings and content). Log files and decode files are also generated. These files are written to the Metadata/Logging Output Directory, specified above.

The screenshot shows a configuration window for the Nielsen Watermark Engine. At the top, there is a dropdown menu for 'Content Type' set to 'Program Content'. Below this, the 'Nielsen Param Type' is 'Nielsen Watermark Engine' and the 'Nielsen Timecode Type' is 'Inserter TIC'. The 'Content Type' is 'Program Content' and the 'Process Type' is 'N2'. The 'Distribution Type' is 'Program-content codes'. There are several input fields for metadata: 'DsrcId', 'DsrcName' (containing 'DistributionType'), 'AssetId', 'AssetName', 'EpisodeId', 'HDContent', 'ApplicationName', and 'ApplicationVersion'. Each of these fields has a green three-dot menu icon to its right. At the bottom, there is a checked checkbox for 'Decode and Signature' with a green three-dot menu icon to its right.

## Commercial Content (SpotTrac)

**Process Type.** NWCC. Nielsen Watermark Commercial Code.

**AdvertiserName:** User defined metadata. Enter the Advertiser's Name to be reported in the metadata file.

**AdvertiserID:** User defined metadata. Enter the Advertiser ID to be reported in the metadata file.

**AgencyName:** User defined metadata. Enter the Ad Agency Name to be reported in the metadata file.

**AgencyId:** User defined metadata. Enter the Ad Agency ID to be reported in the metadata file.

**AssetId:** User defined metadata. Enter the Asset ID to be reported in the metadata file.

**BrandName:** User defined metadata. Enter the Brand Name of the advertised item to be reported in the metadata file.

**BrandId:** User defined metadata. Enter the Brand ID to be reported in the metadata file.

**ClientMediaName:** User defined metadata. Enter the Client Media Name to be reported in the metadata file.

**ClientId:** User defined metadata. Enter the Client ID to be reported in the metadata file.

**CommercialDistributor:** User defined metadata. Enter the Commercial Distributor of the advertised item to be reported in the metadata file.

**CommercialType:** User defined metadata. Enter the Commercial Type to be reported in the metadata file.

**Duration:** Duration (in seconds) of the source media file. The duration can be extracted and assigned to a variable by using an upstream Analysis action.

**IntendedUse:** User defined metadata. Enter the Intended Use to be reported in the metadata file.

**LanguageTypePrimary:** User defined metadata. Enter the Primary Language to be reported in the metadata file.

**LanguageTypeSecondary:** User defined metadata. Enter the Secondary Language to be reported in the metadata file.



**Decode and Signatures.** Check to generate signature files (DNA, PAS or both, depending on settings and content). Log files and decode files are also generated. These files are written to the Metadata/Logging Output Directory, specified above.

Content Type: Commercial Content

Nielsen Param Type: Nielsen Watermark Engine

Nielsen Timecode Type: Inserter TIC

Content Type: Commercial Content

Process Type: NWCC

Distribution Type: Program-content codes

AdvertiserName:  ...

AdvertiserId:  ...

AgencyName:  ...

AgencyId:  ...

AssetId:  ...

BrandName:  ...

BrandId:  ...

ClientMediaName:  ...

ClientId:  ...

CommercialDistributor:  ...

CommercialType:  ...

Duration:  ...

IntendedUse:  ...

LanguageTypePrimary:  ...

LanguageTypeSecondary:  ...

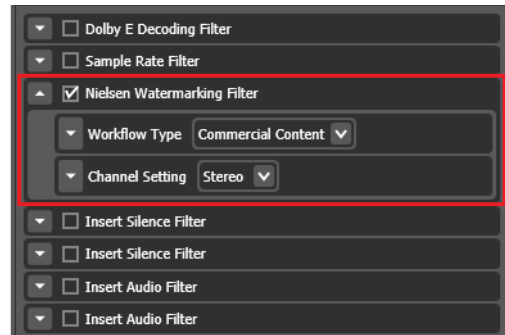
Decode and Signature ...

# IPTV VOD Encoder configuration

## Adding the Nielsen Watermarking Filter

To add the Nielsen Watermarking Filter to an IPTV VOD action, first add an Audio transcoder. Once the Audio transcoder has been added, select Nielsen Watermarking Filter from the selection panel on the right.

The Nielsen Watermarking Filter contains two configuration groups, Workflow Type and Channel Settings. Configure each group's settings as required by your desired workflow.



## Workflow Type group

There are three types of watermarking available in the IPTV VOD encoder; Program Content (D4), Commercial Content, or RTVOD. Each has different configuration parameters as described here.

## Program Content (D4)

**Watermark SID.** Nielsen assigns one or more SIDs (Source Identification) to each content provider or distribution source. The SID uniquely identifies the distribution source and is included as a component of each watermark.

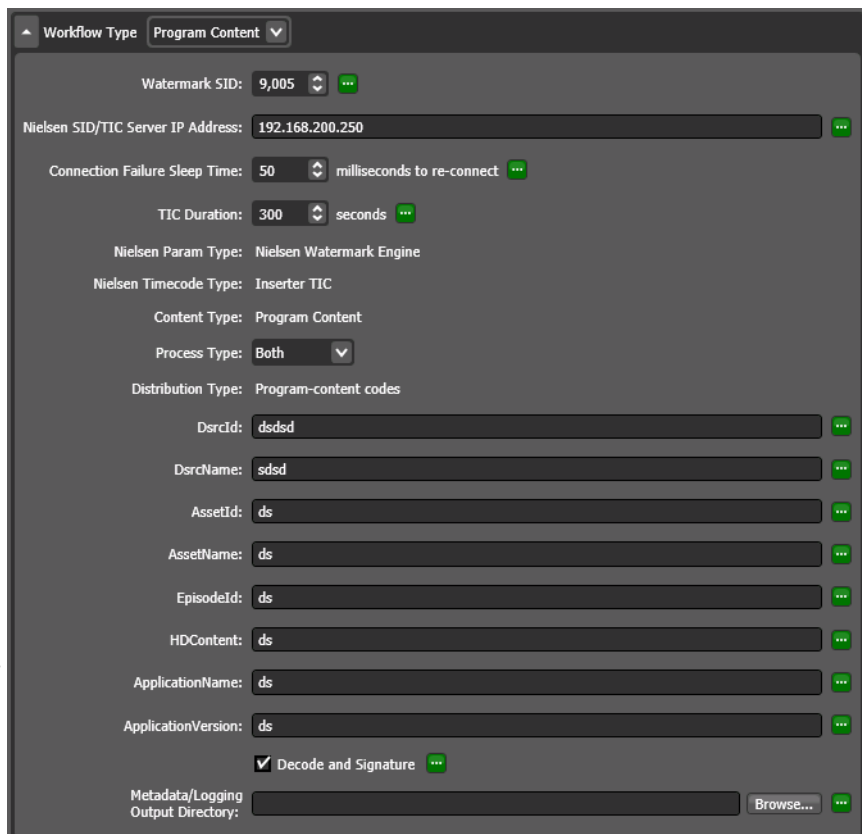
**Nielsen SID/TIC Server IP Address.** The IP address of the computer running the Nielsen licensing SID/TIC server system, which is required to run the Nielsen Watermarking. Nielsen must be contacted in order to obtain their licensing from the SID/TIC server system.

**If Nielsen Server connection failure, sleep for.** Retry delay value (in milliseconds) for the connection to the Nielsen SID/TIC server. If a connection attempt fails, Vantage waits the prescribed time until it attempts another connection. Upon failing a second time, the transcode action aborts.

**TIC Duration.** Approximate duration (in seconds) of the source media file. The SID/TIC Server uses the duration to allocate the proper range of TICs.

**Process Type.** N2, NW or Both

- N2—Nielsen Audio Encoder System II (also known as NAES2), the second-generation method of inserting a SID (Nielsen source identifier) and time stamp into a TV signal.



- NW—Nielsen Watermarks, a newer method of audio encoding that places an audio watermark in a lower-frequency portion of the active program than does NAES II technology. Its lower-frequency position enables NW to be more robust and much less likely to be “compressed out” of the program audio by TV distribution.
- Both—Encodes both N2 and NW watermarks in the audio stream.

**DsrcId:** Distribution Source ID

**DsrcName:** Distribution Source Name

**AssetId:** The asset ID to be reported in the metadata file for the clip that is being encoded.

**AssetName:** The asset name to be reported in the metadata file for the clip that being encoded.

**EpisodeId:** The optional episode ID to be written to the feed-point metadata file.

**HDContent:** True or False; True if and only if content is high definition.

**ApplicationName:** Enter *Vantage*. This parameter will be written to the metadata file for the clip that is being encoded.

**ApplicationVersion:** Enter the Vantage version currently installed. This parameter will be written to the metadata file for the clip that is being encoded.

**Decode and Signatures.** Check to generate signature files (DNA, PAS or both, depending on settings and content). Log files and decode files are also generated. These files are written to the Metadata/Logging Output Directory, specified above.

**Metadata/Logging Output Directory.** Fully-qualified directory (from the perspective of the Vantage domain server) where Vantage writes metadata, log, and signature output files containing information about the transcode and the watermarked content. Enter or browse to select the directory path—usually a share—which is required, if you have a distributed (multi-server) domain. Vantage must have write permission for this directory.

The resulting files can be sent to Nielsen using the Nielsen secure delivery application.

## Commercial Content (SpOTTac)

**Watermark SID.** Nielsen assigns one or more SIDs (Source Identification) to each content provider or distribution source. The SID uniquely identifies the distribution source and is included as a component of each watermark.

### Nielsen SID/TIC Server IP Address.

The IP address of the computer running the Nielsen licensing SID/TIC server system, which is required to run the Nielsen Watermarking. Nielsen must be contacted in order to obtain their licensing from the SID/TIC server system.

### If Nielsen Server connection failure, sleep for.

Retry delay value (in milliseconds) for the connection to the Nielsen SID/TIC server. If a connection attempt fails, Vantage waits the prescribed time until it attempts another connection. Upon failing a second time, the transcode action aborts.

**TIC Duration.** Duration (in seconds) of the source audio. The SID/TIC Server uses the duration to allocate the proper range of TICs.

**Process Type.** NWCC

**AdvertiserName:** User defined metadata. Enter the Advertiser's Name to be reported in the metadata file.

**AdvertiserID:** User defined metadata. Enter the Advertiser's ID to be reported in the metadata file.

**AgencyName:** User defined metadata. Enter the Ad Agency's Name to be reported in the metadata file.

**AgencyId:** User defined metadata. Enter the Ad Agency's ID to be reported in the metadata file.

**AssetId:** User defined metadata. Enter the Asset ID to be reported in the metadata file.

**BrandName:** User defined metadata. Enter the Brand Name of the advertised item to be reported in the metadata file.

**BrandId:** User defined metadata. Enter the Brand ID of the advertised item to be reported in the metadata file.

**ClientMediaName:** User defined metadata. Enter the Client Media Name to be reported in the metadata file

The screenshot shows a configuration window titled 'Workflow Type Commercial Content'. It contains various settings for Nielsen SID/TIC server integration. At the top, 'Watermark SID' is set to 9,005. Below it, 'Nielsen SID/TIC Server IP Address' is 192.168.200.250. 'Connection Failure Sleep Time' is 50 milliseconds, and 'TIC Duration' is 30 seconds. The 'Nielsen Param Type' is 'Nielsen Watermark Engine' and 'Nielsen Timecode Type' is 'Inserter TIC'. The 'Content Type' is 'Commercial Content' and 'Process Type' is 'NWCC'. 'Distribution Type' is 'Program-content codes'. A series of text input fields follow for metadata: AdvertiserName, AdvertiserId, AgencyName, AgencyId, AssetId, BrandName, BrandId, ClientMediaName, ClientId, CommercialDistributor, CommercialType, Duration, IntendedUse, LanguageTypePrimary, and LanguageTypeSecondary. A 'Decode and Signature' checkbox is checked. At the bottom, there is a 'Metadata/Logging Zip File Output Directory' field with a 'Browse...' button.

**ClientId:** User defined metadata. Enter the Client ID to be reported in the metadata file

**CommercialDistributor:** User defined metadata. Enter the Commercial Distributor to be reported in the metadata file

**CommercialType:** User defined metadata. Enter the Commercial Type to be reported in the metadata file

**Duration:** Duration (in seconds) of the source media file. The duration can be extracted and assign to a variable by using an upstream Analysis action.

**IntendedUse:** User defined metadata. Enter the Intended Use to be reported in the metadata file.

**LanguageTypePrimary:** User defined metadata. Enter the Primary Language to be reported in the metadata file.

**LanguageTypeSecondary:** User defined metadata. Enter the Secondary Language to be reported in the metadata file.

**Decode and Signatures.** Check to generate signature files (DNA, PAS or both, depending on settings and content). Log files and decode files are also generated. These files are written to the Metadata/Logging Output Directory, specified above.

**Metadata/Logging Output Directory.** Fully-qualified directory (from the perspective of the Vantage domain server) where Vantage writes a ZIPPED file containing information about the transcode and the watermarked content (metadata, log, and signature output files). Enter or browse to select the directory path—usually a share—which is required, if you have a distributed (multi-server) domain. Vantage must have write permission for this directory.

This resulting ZIPPED file should be sent to Nielsen using FTP.

## RTVOD

**Watermark Type:** Selects either C3 or C7 Nielsen rating system.

**ADIFilename:** If a Cable Labs ADI file is used to populate the Nielsen metadata, enter it here.

**ClientName:** User defined metadata. Enter the Client Name to be reported in the metadata file.

**AssetId:** The asset ID to be reported in the metadata file for the clip that is being encoded.

**AssetName:** The asset name to be reported in the metadata file for the clip that being encoded.

**EpisodeId:** The optional episode ID to be written to the feed-point metadata file.

**Duration:** Duration (in seconds) of the source media file. The duration can be extracted and assign to a variable by using an upstream Analysis action.

The screenshot displays the configuration panel for the 'RT VOD Flag' workflow type. It includes the following fields and settings:

- Workflow Type: RT VOD Flag
- Nielsen Param Type: Nielsen Watermark Engine
- Nielsen Timecode Type: Inserter TIC
- Content Type: Offline Content
- Watermark Type: C3
- ADIFilename: dsds
- ClientName: dsds
- AssetId: dsd
- AssetName: dsds
- EpisodeId: ds
- Duration: 0
- Decode and Signature:
- Metadata/Logging Zip File Output Directory: [Field with Browse... button]

**Decode and Signatures.** Check to generate signature files (DNA, PAS or both, depending on settings and content). Log files and decode files are also generated. These files are written to the Metadata/Logging Output Directory, specified above.

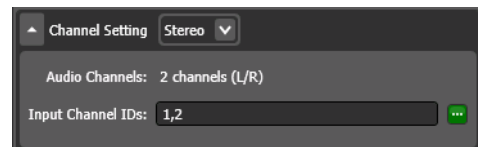
**Metadata/Logging Output Directory.** Fully-qualified directory (from the perspective of the Vantage domain server) where Vantage writes a ZIPPED file containing information about the transcode and the watermarked content (metadata, log, and signature output files). Enter or browse to select the directory path—usually a share—which is required, if you have a distributed (multi-server) domain. Vantage must have write permission for this directory.

The resulting ZIPPED file can be sent to Nielsen using the Nielsen secure delivery application.

## Channel Settings

**Channel Setting.** Select the type of audio you are watermarking.

- Stereo: Requires 2 channels - for example 1,2. If you are generating a signature file, channel 1 is used.
- 5.1 AC-3: Requires either 5 or 6 channels. If you are generating a signature file, specify one channel number for LEFT (typically FRONT LEFT) and one for the CENTER channel. For example, 1,3, or 3,4. These two channels are mixed and used.
- Quad Stereo: Requires 8 channels. If you are generating a signature file, specify one channel number for LEFT (typically FRONT LEFT) and one for the CENTER channel. For example, 1,3, or 3,4. These two channels are mixed and used.
- Other: 1 to 8 channels required. The first channel in the list is used.



**Input Channel IDs.** Specify the channel number or numbers, separated by comma. Or, click the Variable Browse button and select a text variable assigned an appropriate text string value (for example: 1,2) by an upstream action.

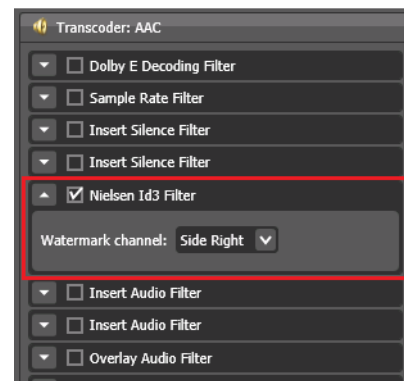
## Multiscreen Encoder configuration

The Multiscreen encoder converts Nielsen Watermarking codes into ID3 metadata tags within the Adaptive Biterate HLS output files.

### Adding the Nielsen ID3 Filter

To add the Nielsen ID3 Filter to a Multiscreen encoder action, first add an AAC Audio transcoder in the Transcoder section. Once the Audio transcoder has been added, select Nielsen ID3 Filter from the selection panel on the right.

The Nielsen ID3 Filter contains one parameter setting—Watermark channel.



From the Watermark channel drop down list, select the channel to examine for the Nielsen watermarks. After selecting the audio channel to examine, complete the other Multiscreen configurations and save.

## Example #1 - Program Content - C3/C7 RTVOD

C3/C7 VOD media is created by capturing the Linear Broadcast's baseband signal into the file format required for VOD delivery. A baseband capture device, such as a VTR or digital capture encoder or Telestream's Pipeline HD Dual network encoder, is used to create Program Content C3/C7 VOD media files for VOD distribution. This allows for credit for VOD viewing of the program within the C3/C7 time window.

The combination of a Pipeline HD Dual and Vantage is the ideal solution for customers who are airing Linear Broadcast content. This combination captures the watermarked baseband feed (after Nielsen embedding—see the diagram presented later in this document) and transcodes it on-the-fly as the broadcast is ongoing. When the broadcast ends an encoded VOD media file containing C3/C7 codes and RTVOD flag is delivered to the distribution partner, along with all the respective Nielsen metadata, just seconds after the broadcast is complete. Supporting both baseband SDI and non-Pipeline file-based Vantage workflows makes for a highly flexible, cost-effective solution.

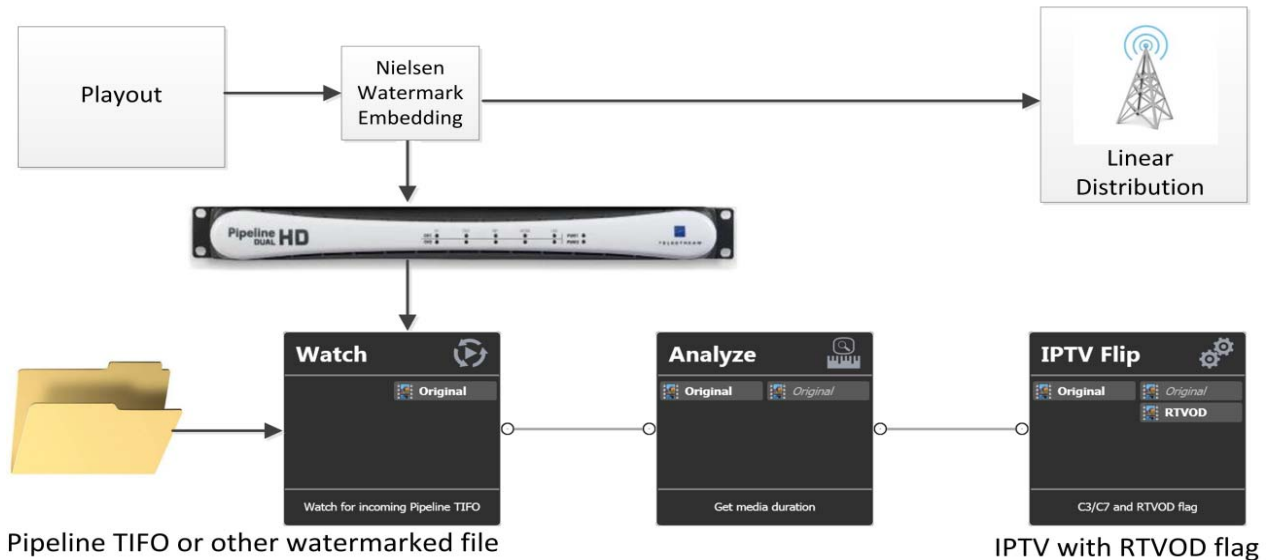
The RTVOD flags can also be added to Program Content (C3/C7 VOD) media files previously captured from the linear broadcast baseband signal, then repurposed for IPTV VOD distribution.

The combination of a Pipeline HD Dual and Vantage can be used to capture and create Program Content C3/C7 VOD media files and add the RTVOD flag in parallel.

## IPTV VOD C3/C7 with RTVOD workflow

There are multiple ways of implementing this workflow depending on how the initial C3/C7 watermarking was applied. In this example a watermarked SDI stream is captured using a Pipeline HD Dual encoder into a TIFO container. The TIFO file is immediately processed by Vantage concurrently while capturing the linear broadcast. The Vantage workflow produces a watermarked VOD file containing RTVOD flags just moments after the linear broadcast has ended.

### Vantage IPTV RTVOD workflow



### Pipeline Capture Setup

The Pipeline encoder's SDI input is connected to an SDI signal that contains the Nielsen watermarking codes. Pipeline captures the SDI signal into an appropriate codec wrapped in a TIFO container. The TIFO file is submitted to Vantage using Pipeline Control's Vantage Publish plug-in, allowing the growing TIFO file to be processed through Vantage while capturing of the broadcast is ongoing.

### Vantage Workflow

The Vantage workflow accepts the file via a Receive or Watch action. The incoming media is Analyzed in order to populate a Duration variable. The duration variable is passed on to the IPTV VOD action where it populates a duration parameter within the Nielsen Watermarking Filter.

The IPTV VOD action produces a VOD file containing C3/C7 watermarking codes plus RTVOD flags, and all appropriate metadata files.



## Example #2 - Program Content - D4 VOD

The availability of non-traditional viewing of Program content beyond the C3/C7 time window is increasing rapidly. Nearly every home now has a Set Top Box (STB) containing a DVR which allows for delayed, time-shifted and VOD viewing. The addition of this type of watermarking (D4) allows for these programs to be delivered through an STB while allowing for continued audience viewer monitoring beyond the C3/C7 window.

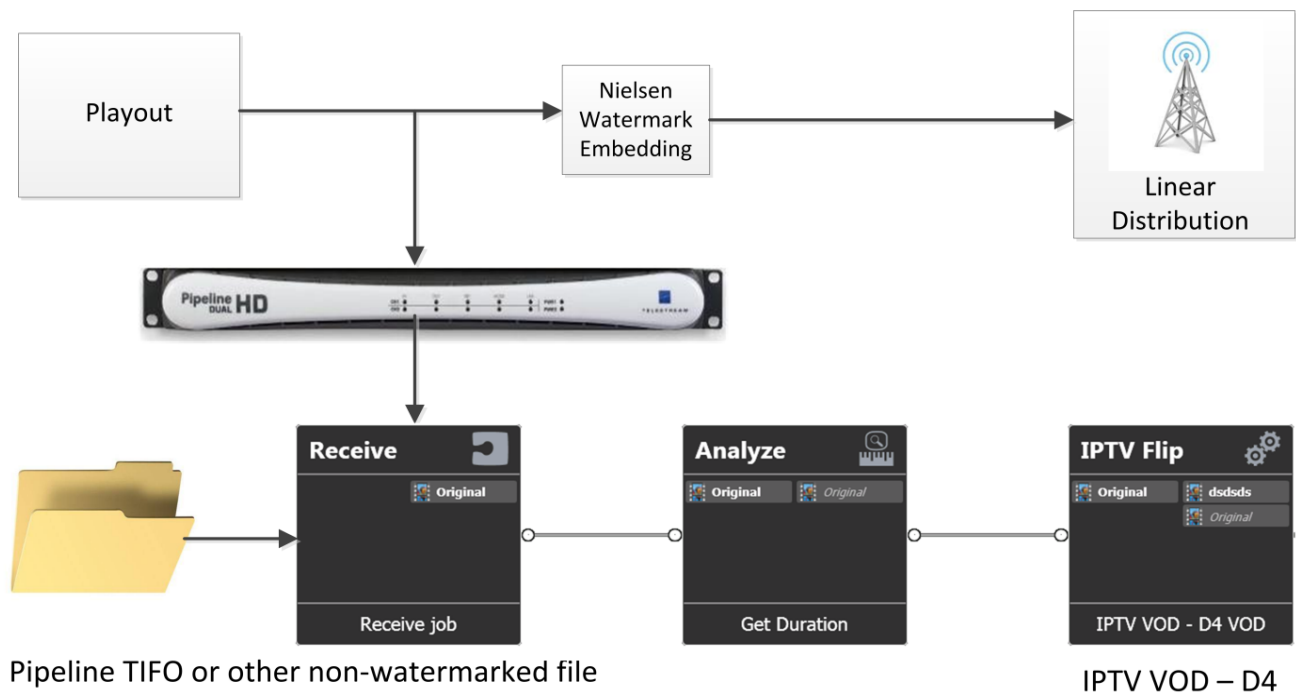
After the C3/C7 time window, Program Content (C3/C7 VOD) media files are replaced with Program Content (D4 VOD) media files. This watermarking can be done by capturing a clean baseband feed of the program or within a file based workflow using media files that do not contain any audio watermarking.

**Note:** Program Content (D4 VOD) watermarking must be applied to clean non-watermarked content files.

The combination of a Pipeline HD Dual and Vantage can capture a clean (non-watermarked) version of the program (with or without ads), to create Program Content D4 VOD media files. This workflow can also be achieved with clean media files captured by non-Pipeline capture devices.

Vantage allows for an easy SDI/file-based application of D4 VOD watermarking, which can be coupled with VOD Producer DAI for the complete system. Supporting both baseband SDI and file-based workflows makes for a higher degree of flexibility, which gives Vantage an advantage over other competitive offerings.

### Vantage IPTV D4 workflow

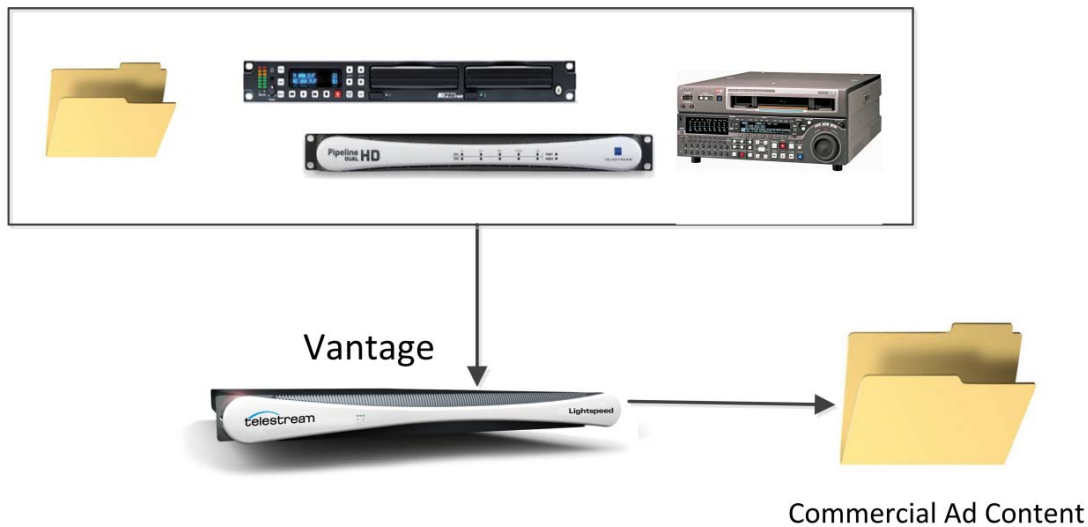


## Example #3 - Commercial Ad Content (SpoTTrac)

Commercial (Advertisements) are tracked separately from the Program content. Nielsen watermarking for commercial spots, commonly known as "SpoTTrac", is embedded in commercial spot media within file-based workflows prior to being delivered to a commercial ad distribution server.

Vantage can be used to add an audio watermark that is used by Nielsen to monitor the broadcast of Ad content and report to the content owner when and where the content was broadcast. Use Vantage to embed commercial watermarking into the commercial advertisement files prior to delivering them to a commercial distribution server. Both SDI/Tape and file-based workflows are supported. This type of watermarking is also known as Nielsen "SpoTTrac".

Vantage allows for an easy file-based application of Commercial Ads Content watermarking, which can be coupled with VOD Producer DAI for the complete system. Used with Pipeline this solution can ingest tape-based material and process it through Vantage rapidly for immediate delivery.

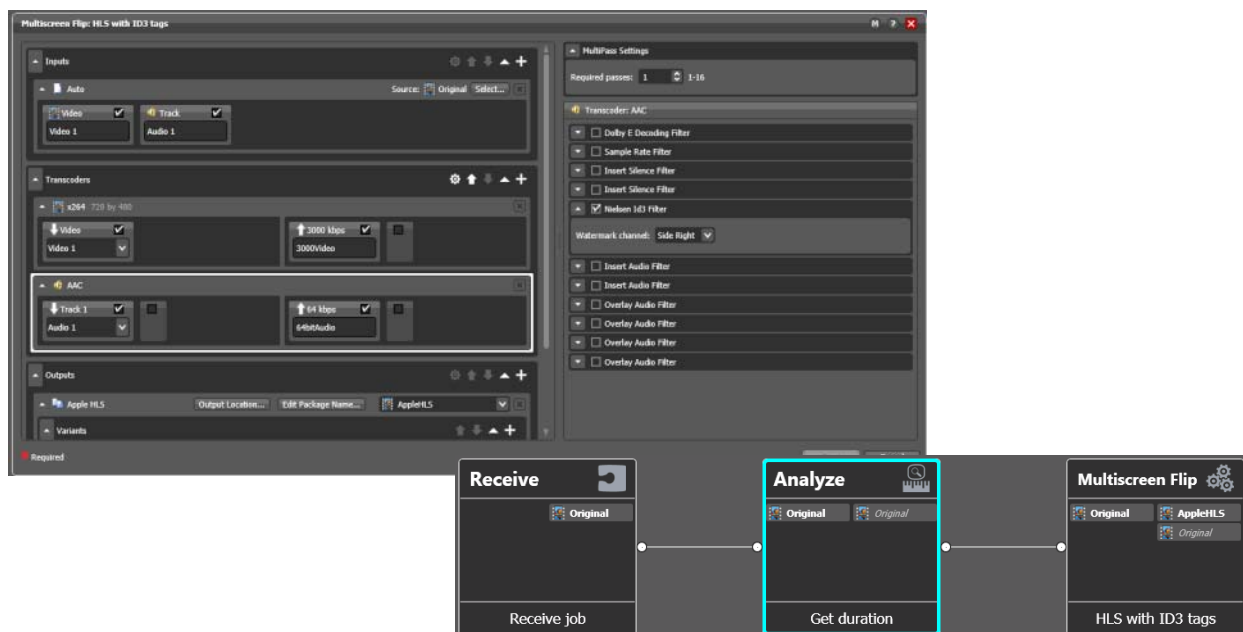


# Example #4 - Convert Watermarks into ID3 Metadata for HLS

When creating content for Adaptive Bitrate HTTP Live Streaming (HLS) delivery, Nielsen uses ID3 metadata tags embedded in the HLS stream to monitor audience.

Vantage Transcode Multiscreen can be used with media files that already contain Nielsen audio watermarks. Vantage converts the existing watermarks into ID3 metadata tags embedded in the HLS stream output.

The combination of Pipeline and Vantage is the ideal solution for customers who are creating Adaptive Bit-Rate HLS content. This combination can capture a watermarked baseband feed (after Nielsen embedding) and transcode it on the fly, converting the embedded watermarks to ID3 tags and then delivering the HLS media packages, including all the respective Nielsen metadata just seconds after the broadcast is done. Supporting both baseband SDI and non-Pipeline file-based workflows makes for a highly flexible, cost-effective solution.



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