Video

Plug-in User Guide

4.2.0-5

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Table of Contents

1 Introduction 5

1.1 About Amazon Elastic Transcoder 5

2 Installation 7

2.1 Conventions 8

2.2 Package-based Installation 8

2.3 Old-style Installation 9

2.4 Re-assembling Applications 9

2.5 Verifying The Installation 10

2.6 Updating The Database Schema 10

2.7 Upgrading 11

2.7.1 Package-based Upgrade 11

2.7.2 Old-style Upgrade 11

2.8 CUE Plug-in Installation 12

2.8.1 Upgrading 12

3 Configuration 14

3.1 Quick Start 14

3.2 Common Configuration Layer Set-up 15

3.2.1 VideoFileSystemConfiguration.properties 15

3.2.2 KeyframeFileSystemConfiguration.properties 16

3.2.3 Storage.properties 16

3.2.4 DefaultTranscoderConfig.properties 16

3.2.5 TranscodingConfigFactory.properties 17

3.2.6 AWSClientConfig.properties 17

3.2.7 AWSClientService.properties 18

3.2.8 PreviewTranscoderConfig.properties 18

3.2.9 Poller.properties 19

3.2.10 StateChangeNotifier.properties 19

3.2.11 StudioConfig.properties 20

3.3 Application Configuration Layer Set-up 20

3.3.1 VideoArticleDecorator.properties 20

3.3.2 CloudFrontSignedURLGenerator.properties 21

3.3.3 S3PreSignedURLGenerator.properties 22

3.4 Transcoder Configuration Files 22

3.4.1 Example Transcoder Configuration File 23

3.4.2 transcoder-service ... 24
3.4.3 Using HLS Video Presets ... 27
3.5 Setting Section Parameters ... 28
3.6 Media Content Type Definition ... 28
3.6.1 Defining an AWS (Internal) Video Content Type ... 29
3.6.2 Defining a Brightcove Video Content Type ... 30
3.6.3 Defining an Internal Audio Content Type ... 31
3.6.4 Adding Pipeline and Preset Group Options ... 32
3.6.5 Including Key Frames in Video Content Items ... 33
3.7 Adding Watermarks To Video Content Items ... 35
3.7.1 Creating a Watermark Content Type ... 36
3.7.2 Configuring a Video Content Type to Use Watermarks ... 36
3.7.3 Uploading Watermark Images ... 37
3.7.4 Adding Watermark Section Parameters ... 37
3.8 SSE Proxy Set-up ... 38
4 Using Content Studio ... 40
4.1 Creating a Video Content Item ... 40
4.1.1 Creating an Internal Video Content Item ... 40
4.2 Using the Video Timeline Editor ... 41
4.3 Creating an Audio Content Item ... 42
4.4 Choosing Pipeline and Preset Group ... 43
4.5 Publishing Media Content Items ... 43
4.6 Transcoder Status and Notifications ... 45
4.6.1 The Transcoder Queue Panel ... 45
4.6.2 Notifications ... 45
5 Automated Media Import ... 47
5.1 AWS ... 47
5.1.1 Enabling the AWS Media Import Service ... 47
5.1.2 AWS Media Import Service Configuration ... 47
5.1.3 AWSMediaImporterService.properties ... 47
5.1.4 Pub1ImporterConfiguration.properties ... 48
5.2 Brightcove ... 49
5.2.1 ExternalProviderPollerService.properties ... 49
5.2.2 BrightcoveProfile.properties ... 49
5.2.3 BcovMediaImporterConfig.properties ... 49
5.2.4 BrightcoveClientConfig.properties ... 50
6 Automated Media Publishing ... 51

6.1 Web Service-Based Automation 51
6.2 Syndication-Based Automation 52
6.3 Working With Video/Audio Fields 52
6.3.1 Specifying Crop Points 52
6.3.2 Specifying Timeline Information 53
6.3.3 Complete Video Field Example 56
7 Accessing Media from Templates 57

1 Introduction

The Escenic Content Engine's Video plug-in extends Content Studio with the functionality required to efficiently manage web site media content.

The Video plug-in provides:

- Fully-automated transcoding of video and audio content using Amazon Elastic Transcoder
- Fully-automated distribution of published video and audio content using Amazon CloudFront
- Fully-automated import of external videos from online video platforms such as Brightcove
- Simple Video and Audio editing functionality in Content Studio

The Video plug-in's objective is to make handling media content in the context of web site production as painless as possible, so the editing functionality added to Content Studio is a very simple **timeline editor** that is specifically geared to the needs of online publishing. The timeline editor allows you to:

- **Crop** an audio or video clip (that is select the segment you actually want to publish)
- Add **cue points** (links that allow viewers/listeners to go directly to points of interest in the clip)
- Add **transient links** to a clip (links to related content that appear and disappear while a clip is playing)
- Select a **poster frame** for a video clip (a still that can be used to represent the clip when it is not playing)

All of these editing functions are **non-destructive**: that is, they do not modify the source media object, they only affect the published result.

The source media objects can either be **internal** or **external**, according to how they are stored:

- An **internal** media object is one that is stored under the control of the Content Engine, in exactly the same way as an image or any other kind of binary file. A media object of this kind is usually acquired by uploading to Content Studio (although they can also be imported in various ways, just like any other content items). Although internal media objects are stored under the control of the Content Engine, they are no longer stored locally: they are always stored in the cloud on Amazon S3. The terms **internal video/audio** and **AWS video/audio** are therefore interchangeable.
- An **external** media object is stored somewhere on the net - usually in a video cloud solution such as Brightcove. The Escenic content item doesn't contain the actual media object, it just contains a reference to its location on the net. Currently, Brightcove is the only external provider supported by the Video plug-in.

> In order for the Video plug-in to work, the Content Engine must use Amazon S3 as its back-end storage for binary files. For more about this, see chapter 2.

1.1 About Amazon Elastic Transcoder

Amazon Elastic Transcoder is an Amazon web service that provides on-demand transcoding of media files between all commonly used audio and video formats. Once the Video plug-in has been correctly configured, it is largely invisible to plug-in users, simply providing a background service. Two Elastic

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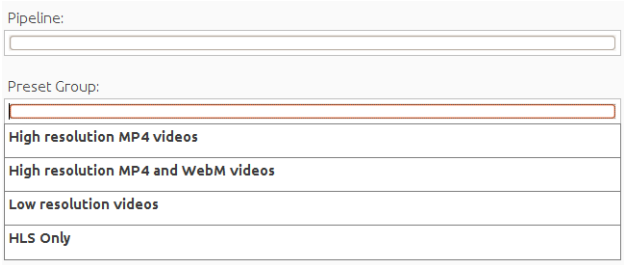
Transcoder concepts will, however, often be visible: when publishing a media file, the user will usually be able to choose between different **pipelines** and **preset groups**:



A **pipeline** is simply an Elastic Transcoder job queue. In a typical set-up there are two pipelines, one for normal jobs and one for high priority jobs, and the Content Studio user can choose which to use when publishing a media content item. There is no actual difference between the two pipelines other than their name, so the high priority pipeline will only work as a "fast lane" if it is actually reserved for a small number of high priority jobs. Pipelines are defined in Elastic Transcoder.

A **preset** is a set of parameters defining in great detail the output required from a transcoding job. For a video transcoding, it defines the file container format, video and audio codecs, bit rate, frame rate, width and height and so on. Presets are defined in Elastic Transcoder. A **preset group** is a named group of presets defined during the configuration of the Video plug-in. The idea is that a preset group should contain all the presets required to publish a particular type of media file in a particular context. Typically, a user will only need to choose between a small number of preset groups ("Standard Video" and "High Res Video", for example) and in some cases may not need to choose at all, since only one preset group has been defined.

The pipelines and preset groups available to the Video plug-in are defined in XML files called **transcoder configuration files**. Several of these files may be defined in order to provide different set-ups for different publications. For further information, see section 3.4.

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2 Installation

The following preconditions must be met before you can install Video 4.2.0-5 in a Content Engine:

- A suitable version of the Escenic Content Engine and Escenic assembly tool have been installed as described in the **Escenic Content Engine Installation Guide** and are in working order.
- You have set up an Amazon S3 account that you can use for storing video files. For general information about how to do this, and how to configure the Content Engine to use S3 for storage of binary files, see Amazon S3 Storage. More specific instructions about the Video plug-in's use of S3 storage is provided in chapter 3.
- You have set up an Amazon Elastic Transcoder account, and defined the **pipelines** and **presets** you are going to use. For details about how to do this, see the Elastic Transcoder documentation
- You have the credentials needed to access Escenic's SW repositories.

Choosing an installation method

Until recently, all Escenic-supplied components had to be installed by manually downloading and unpacking archive files. This is no longer the case. The Content Engine itself, the assembly tool, the ece scripts and all plug-ins are now available as **`deb`** packages (for installing on Ubuntu/Debian systems) and as **`rpm`** packages (for installation on RedHat/CentOS systems). This is now the recommended method of installing Escenic systems, although it is still possible to use the old method based on manually downloading and unpacking archives. Note, however, that when you are installing a plug-in on an existing Content Engine installation, you should use the same installation method as you used for the Content Engine itself.

Using the new package installation method offers many advantages over the old manual installation procedure:

- It is faster and quicker
- It is significantly less error-prone
- It supports a fully automated upgrade process in which not only the installed packages themselves are upgraded, but also deployed EAR files. An upgrade script automatically checks the EAR files for copies of JAR files that have been updated, and replaces then with the new versions.

The old installation method will continue to be documented for the moment. Components installed using the new method are installed in **`/usr/share/escenic`**, whereas the old method recommends installation in **`/opt/escenic`**, and some other path components are slightly different. To cope with these differences, the following placeholders are used in some paths:

Placeholder	NEW METHOD path	OLD METHOD path
engine-installation	**`/usr/share/escenic/escenic-content-engine-`***engine-version*	**`/opt/escenic/engine`**
assemblytool_installation	**`/usr/share/escenic/escenic-assemblytool`**	**`/opt/escenic/assemblytool`**

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When installing the Video plug-in, you should use the same method as you used to install the Escenic Content Engine.

> Note that if you are planning to install the Escenic Content Engine using the new package-based method, you can install the Video plug-in simultaneously by simply including the Video plug-in package name (**`escenic-video`**) in the **`apt-get`** installation command. You only need to follow this procedure if you have already installed the Content Engine and now need to install the Video plug-in.

If you use CUE as your Escenic editor and intend to use CUE for video handling, then in addition to installing the Escenic Video plug-in, you also need to install a matching CUE Video plug-in into the CUE editor itself. Whichever method you plan to use for installing the Escenic plug-in, CUE plugins are always package-based installations. For details, see section 2.8.

2.1 Conventions

The Content Engine and the software it depends on may be installed on one or several host machines depending on the type of installation required. In order to unambiguously identify the machines on which various installation actions must be carried out, the **Escenic Content Engine Installation Guide** defines a set of special host names that are used throughout the manual.

Some of these names are also used here:

assembly-host
: The machine used to assemble the various Content Engine components into a enterprise archive or .EAR file.

engine-host
: The machine(s) used to host application servers and Content Engine instances.

The host names always appear in a bold typeface. If you are installing everything on one host you can, of course, ignore them: you can just do everything on the same machine. If you are creating a larger multi-host installation, then they should help ensure that you do things in the right places.

2.2 Package-based Installation

To install the Video on an Ubuntu or other Debian-based system, do the following on your **assembly-host** and on each of your **engine-hosts**:

1. Log in as **`root`**.
2. If necessary, add the Escenic **`apt`** repository to your list of sources:

   ```
   # echo "deb http://user:password@apt.escenic.com stable main non-free" >> /etc/
   apt/sources.list.d/escenic.list
   ```

   where *user* and *password* are your Escenic download credentials (the same ones you use to access the Escenic Maven repository). If you do not have any download credentials, please contact Escenic support.
3. Enter the following commands:

   ```
   # apt-get update
   ```

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```
# apt-get install escenic-video
```

On RedHat / CentOS systems, enter the following command as **`root`** on your **assembly-host** and each of your **engine-hosts**:

```
# rpm -Uvh https://user:password:yum.escenic.com/rpm/escenic-video-4.2.0-5.x86_64.rpm
```

where *version* is the correct version number of the package.

2.3 Old-style Installation

Installing the Video plug-in involves the following steps:

1. Log in as **`escenic`** on your **assembly-host**.
2. Download the Video distribution from the Escenic software repository. If you have a multi-host installation with shared folders as described in the **Escenic Content Engine Installation Guide**, then it is a good idea to download the distribution to your shared **`/mnt/download`** folder:

   ```
   $ cd /mnt/download
   $ wget https://user:password@maven.escenic.com/com/escenic/plugins/video/
   video/4.2.0-5/video-4.2.0-5.zip
   ```

   Otherwise, download it to some temporary location of your choice.
3. If the folder *engine-installation*`/plugins` does not already exist, create it:

   ```
   $ mkdir engine-installation/plugins
   ```
4. Unpack the downloaded distribution file:

   ```
   $ cd engine-installation/plugins
   $ unzip /mnt/download/video-dist-4.2.0-5.zip
   ```

2.4 Re-assembling Applications

After installation, you **may** need to reassemble your web applications. You need you reassemble in the following cases:

- You installed the Video plugin-in using the old-style installation method.
- You installed the Video plugin-in using the package-based installation method **and** your installation includes any old-style JSP-based Escenic publications.

If you installed the Video plugin-in using the package-based installation method and all your publications are based on DPRES, the new decoupled presentation layer then you do not need to reassemble any applications.

1. Log in as **`escenic`** on your **assembly-host**.
2. Run the **`ece`** script to re-assemble your Content Engine applications

   ```
   $ ece assemble
   ```

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This generates an EAR file (**`/var/cache/escenic/engine.ear`**) that you can deploy on all your **engine-host**s.

3. If you have a single-host installation, then skip this step.

   On each **engine-host**, copy **`/var/cache/escenic/engine.ear`** from the **assembly-host**. If you have installed an SSH server on the **`assembly-host`** and SSH clients on your **`engine-host`**s, then you can do this as follows:

   ```
   $ scp escenic@assembly-host-ip-address:/var/cache/escenic/engine.ear /tmp/
   ```

   where *assembly-host-ip-address* is the host name or IP address of your **assembly-host**.

4. On each **engine-host**, deploy the EAR file and restart the Content Engine by entering:

   ```
   $ ece stop deploy start --file /tmp/engine.ear
   $ ece restart
   ```

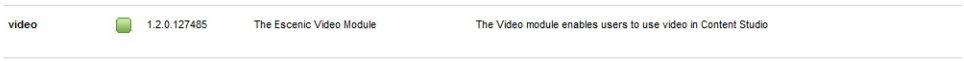
2.5 Verifying The Installation

To verify the status of the Video plug-in, open the Escenic Admin web application (usually located at **`http://`***server*`/escenic-admin`**) and click on **View installed plugins**. The status of all currently installed plug-ins is shown here, and indicated as follows:

The plug-in is correctly installed.

The plug-in is not correctly installed.

If the Video plug-in is correctly installed, you should see something like this in the displayed plug-in list:



2.6 Updating The Database Schema

The Video plug-in needs some additions to be made to the Content Engine database schema. The scripts needed to make the required additions are included in the **`misc/database/`** folder of the distribution. There are two sets of scripts, one for MySql databases, in **`misc/database/mysql`**, and one for Oracle databases in **`misc/database/oracle`**. There are three scripts in each folder:

- **`constraints.sql`**
- **`indexes.sql`**
- **`tables.sql`**

To run the scripts:

1. Log in as **`escenic`** on your **database-host**.

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2. Copy or unpack the appropriate scripts for your database to an appropriate location (for example **`/tmp/video/misc/database/mysql`**).
3. Run the scripts as follows
   - For MySql:

     ```
     $ cd /tmp/video/misc/database/mysql/
     $ for el in tables.sql indexes.sql constraints.sql; do \
       mysql -u ece-user -pece-password -h dbhost db-name < $el
       done;
     ```

     replacing *db-name*, *dbhost*, *ece-user* and *ece-password* with the correct values for your database.

2.7 Upgrading

How you upgrade the Video plug-in depends upon how you installed it in the first place. If you installed it using the new package-based method as described in section 2.2, then upgrading is very easy. If you installed it using the old method described in section 2.3, then it requires a bit more work.

2.7.1 Package-based Upgrade

> You can only use this upgrade method if you have previously installed the Video plug-in as described in section 2.2. Otherwise you need to follow the method described in section 2.7.2.

All you need to do to upgrade your Video plug-in is:

1. Read the release notes for your planned upgrade. Make a note of any special tasks that need to be carried out in connection with the upgrades.
2. Log in as **`root`** on your **assembly-host** and on each of your **engine-hosts**, and enter the following commands:

   ```
   # apt-get update
   # apt-get upgrade
   ```
3. Carry out any required upgrade tasks.

2.7.2 Old-style Upgrade

> You should only use this upgrade method if you have previously installed the Video plug-in as described in section 2.3. Otherwise you need to follow the method described in section 2.7.1.

To upgrade the Video plug-in to version 4.2.0-5:

1. Read the release notes for your planned upgrade. Make a note of any special tasks that need to be carried out in connection with the upgrades.
2. Log in as **`escenic`** on your **assembly host**.
3. Download the distribution file to a temporary location by entering:

   ```
   $ cd /tmp/
   $ wget http://user:password@maven.escenic.com/com/escenic/video/video/4.2.0-5/
   video-4.2.0-5.zip
   ```

   where *user* and *password* are the user name and password you have received from Escenic.
4. Remove the old version of the Video plug-in from your Content Engine **`plugins`** folder.

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```
$ mv /opt/escenic/engine/plugins/video/ /tmp/
```

5. Unpack the downloaded installation package into the **`plugins`** folder:

```
$ cd /opt/escenic/engine/plugins/
$ unzip /tmp/video-4.2.0-5.zip
```

6. Re-assemble the Content Engine by running the **`ece`** script:

```
$ ece assemble
```

7. **If you are installing everything on one host, then skip this step.**

   Log in as escenic on each of your **engine-hosts** and copy **`/var/cache/escenic/engine.ear`** from the **assembly-host**. If you have installed an SSH server on the assembly-host and SSH clients on your **engine-hosts**, then you can do this as follows:

```
$ ssh engine-host-ip-address
$ scp -r escenic@assembly-host-ip-address:/var/cache/escenic/engine.ear /var/
cache/escenic/
```

   where:

   engine-host-ip-address
   is the host name or IP address of one of your engine-hosts.

   assembly-host-ip-address
   is the host name or IP address of your assembly-host.

8. On each **engine-host**, deploy the EAR file by entering:

```
$ ece deploy
```

   and then restart the Content Engine by entering:

```
$ ece restart
```

9. Carry out any required upgrade tasks.

2.8 CUE Plug-in Installation

Installing the Video plug-in involves installing a CUE plug-in as well as the main Escenic plug-in. To do this:

1. Log in as **`root`** on the host on which your CUE editor is installed.
2. Update your package lists:

```
# apt-get update
```

3. Download and install the Video plug-in:

```
# apt-get install cue-plugin-video-4.2
```

2.8.1 Upgrading

To upgrade the CUE plug-in:

1. Log in as **`root`** on the host on which your CUE editor is installed.
2. Update your package lists:

```
# apt-get update
```

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3. Upgrade the plug-in:

```
# apt-get upgrade
```

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3 Configuration

In order to be able to use the Video plug-in after installing it (see chapter 2) you must configure it correctly with the values needed to access and use various external services:

- Amazon Elastic Transcoder
- Amazon S3
- Amazon Cloudfront

The configuration settings need to be made in the following places:

- The Content Engine's common configuration layer (see Configuring The Content Engine for general information about Escenic configuration layers).
- Your publications' application configuration layers. An application configuration layer works in more or less the same way as other Content Engine configuration layers, but it is publication-specific.
- One or more **transcoder configuration files**. These are XML files containing details of the Elastic Transcoder **pipelines** and **presets** to be used by your publications.
- Your publication's section parameters
- Your publications' **`content-type`** resource files (see The Publication Resources for general information about Escenic resource files).

While you are working on the configuration, it is a good idea to set the Content Engine logging level to **`DEBUG`** for the video plug-in. This will ensure that you get detailed information in the log file. Once the system is correctly configured you can set the logging level back to the default level. To change the logging level open a browser and go the **`escenic-admin`** application's **Logging Levels** page. Set the category **`com.escenic.video`** to the level you require (for example, **`DEBUG`**). For general information about setting logging levels, see Logging.

3.1 Quick Start

You don't necessarily need to carry out **all** the configuration tasks described in this chapter in order to get the Video plug-in running. The following list describes the fastest route to a working media production line.

1. Copy example configuration files to your common configuration layer as described in section 3.2.
2. Edit **`/com/escenic/storage/filesystems/VideoFileSystemConfiguration.properties`** as described in section 3.2.1.
3. Edit **`/com/escenic/storage/filesystems/KeyframeFileSystemConfiguration.properties`** as described in section 3.2.2.
4. Edit **`/com/escenic/storage/Storage.properties`** as described in section 3.2.3.
5. Edit **`/etc/escenic/engine/common/com/escenic/media/aws/DefaultTranscoderConfig.properties`** as described in section 3.2.4.
6. Edit **`/etc/escenic/engine/common/com/escenic/media/services/AWSClient.properties`** as described in section 3.2.6.

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7. If you will be producing HLS video (see section 3.4.3), then you may also want to edit **/etc/escenic/engine/common/com/escenic/media/services/AWSClientService.properties** as described in section 3.2.7.
8. Edit **/etc/escenic/engine/common/com/escenic/media/aws/transcode-config.xml** as described in section 3.4.
9. Edit **/etc/escenic/engine/common/com/escenic/media/aws/preview/PreviewTranscoderConfig.properties** as described in section 3.2.8.
10. Add media content types to your publication content-type resources as described in section 3.6.1 and section 3.6.3. You only need to create content types for the media you are interested in (that is, if you are not interested in audio content, then you don't need to create an audio content type).
11. If you will be using CUE to work with video or audio content instead of or alongside Content Studio, then you need to configure your SSE Proxy as described in section 3.8.

This quick-start configuration will give you an installation that:

- Uses the same transcoder configuration for all publications
- Uses S3 for storing transcoded media files, not Amazon CloudFront

If this does not meet all your requirements, then you will need to edit some additional configuration files, as described in the following sections.

3.2 Common Configuration Layer Set-up

This set-up task consists of copying example configuration files from the plug-in installation into the Content Engine common configuration layer (if necessary) and then modifying the copied files to meet your requirements. In detail, you must:

1. Log in to your Content Engine host as the **escenic** user.
2. If you installed the Video plug-in using the old-style installation method, copy all the supplied common configuration layer files as follows:

```
$ cp -r engine-installation/plugins/video-4.2.0-5/misc/siteconfig/common/com/
escenic \
> /etc/escenic/engine/common/com
```

> If you installed the Video plug-in using the new package-based installation method, then this step is not required: the configuration file are automatically installed in the correct location.

3. Edit the copied files as described in the following sections.
4. Edit **StudioConfig.properties** (which will already be in your common configuration layer) as described in section 3.2.11.

3.2.1 VideoFileSystemConfiguration.properties

The full path of this file is **/com/escenic/storage/filesystems/VideoFileSystemConfiguration.properties**.This file is used to define the cloud storage location in which you will store your video files.

For a detailed description of how to configure cloud storage file system components in general, see Create FileSystemConfiguration Components.

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3.2.2 KeyframeFileSystemConfiguration.properties

The full path of this file is **`/com/escenic/storage/filesystems/KeyframeFileSystemConfiguration.properties`**. It is used to define the cloud storage location in which Amazon Elastic Transcoder stores the key frame files it generates during transcoding.

The key differences between this file and **`/com/escenic/storage/filesystems/VideoFileSystemConfiguration.properties`** are that:

- The **`baseURI`** property must be set to point to the Amazon bucket that you set up as the thumbnail output bucket when configuring Amazon Elastic Transcoder
- It has the following additional property setting:

  ```
  readOnly=true
  ```

  which tells the Content Engine that it may not use this S3 location for storing files, only for reading them.

For a detailed description of how to configure cloud storage file system components in general, see Create FileSystemConfiguration Components.

3.2.3 Storage.properties

The full path of this file is **`/com/escenic/storage/Storage.properties`**. If you don't already have a copy of this file in your common configuration layer, then you will need to create it. It determines which storage systems the Content Engine uses for different kinds of files. It needs to reference the **`VideoFileSystemConfiguration`** and **`KeyframeFileSystemConfiguration`** components you have defined (plus possibly other cloud storage locations that you may have defined previously).

For a detailed description of how to configure this file in general, see Create FileSystemConfiguration Components.

> When you are setting the **`fileSystemConfigurations`** property in this file, you must be sure to use **absolute paths** to specify the location of the **`VideoFileSystemConfiguration`** and **`KeyframeFileSystemConfiguration`** components (and any other file system components that will be used by the Video plug-in, should there be any). For example:
>
> ```
> fileSystemConfigurations=/com/escenic/storage/filesystems/
> KeyframeFileSystemConfiguration,/com/escenic/storage/filesystems/
> VideoFileSystemConfiguration
> ```
>
> This is only required for file system components used by the Video plug-in, it is not a general requirement.

3.2.4 DefaultTranscoderConfig.properties

The full path of this file is **`/etc/escenic/engine/common/com/escenic/media/aws/DefaultTranscoderConfig.properties`**. You need to set the following property in this file:

`serviceDefinition`
: The path to the XML configuration file containing your transcoding service configuration. For example:

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```
serviceDefinition=transcode-config.xml
```

For further information, see section 3.4.

If you want to have different transcoding set-ups for different publications, then you will need to create several copies of this file with different names (for example **`TranscoderConfigPub1.properties`**, **`TranscoderConfigPub2.properties`** and so on, and set the **`serviceDefinition`** property to reference a different transcoder configuration file in each copy. For example:

```
serviceDefinition=pub1-transcode-config.xml
```

For each additional copy of this file that you create, you also need to add an entry referencing the file to **`/etc/escenic/engine/common/com/escenic/media/aws/TranscodingConfigFactory.properties`** (see section 3.2.5).

3.2.5 TranscodingConfigFactory.properties

The full path of this file is **`/etc/escenic/engine/common/com/escenic/media/aws/TranscodingConfigFactory.properties`**.

> If you only want one transcoding set-up for all your publications, then you do not need to edit this file.

If you want to have different transcoding set-ups for different publications, then you need to set the following properties:

`defaultTranscodingConfig`
: This property must be set to reference your default transcoder configuration, for example:

```
defaultTranscodingConfig=./DefaultTranscoderConfig
```

`publicationTranscodingConfigs.`*`pub-name`*
: If you have made copies of **`DefaultTranscoderConfig.properties`** containing different transcoding configurations for different publications, then you can specify several **`publicationTranscodingConfigs`** properties to reference them, where *pub-name* is the name of a publication that requires specialized transcoding.

  The value of each property must be the name of a configuration file containing a specialized transcoding configuration, for example:

```
publicationTranscodingConfigs.DailyNews=./TranscoderConfigDailyNews
publicationTranscodingConfigs.WeeklyGossip=./TranscoderConfigEntertainment
publicationTranscodingConfigs.Entertainment=./TranscoderConfigEntertainment
```

  Note that, as in the example above, you can share a configuration file between several publications.

  You do not need to specify an entry for all your publications. If a publication is not specified here, then the default transcoding configuration specified with the **`defaultTranscodingConfig`** property is used.

3.2.6 AWSClientConfig.properties

The full path of this file is **`/etc/escenic/engine/common/com/escenic/media/services/AWSClientConfig.properties`**. You need to set the following properties in this file:

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accessKey
An access key for accessing your Amazon Web Services (AWS) account. This is the access key you got when you set up your Amazon S3 storage (see Amazon S3 Storage). For information about AWS access keys and AWS identity management in general, see the AWS IAM documentation.

```
accessKey=aws-access-key
```

secretKey
The secret key for the access key specified with the **accessKey** property. This is the access key you got when you set up your Amazon S3 storage (see Amazon S3 Storage).

```
secretKey=aws-secret-key
```

region
The name of the AWS Elastic Transcoder region you want to use. For example:

```
region=US_EAST_1
```

For a list of the currently available Elastic Transcoder regions, see Amazon Elastic Transcoder.

protocol
The protocol to use when generating pre-signed URLs for accessing content stored in S3. The allowed values are **HTTP** (the default) and **HTTPS**. For example:

```
protocol=HTTP
```

3.2.7 AWSClientService.properties

The full path of this file is **/etc/escenic/engine/common/com/escenic/media/services/AWSClientService.properties**. If you are using Elastic Transcoder to produce HLS video streams, you can control the length of the **.ts** segments in the streams by setting the following property:

segmentDuration
The duration of each **.ts** segment in generated HLS streams, specified in seconds. Allowed values are in the range 1 to 60. For example:

```
segmentDuration=15
```

The default value is **10**.

For more information about HLS video, see section 3.4.3.

3.2.8 PreviewTranscoderConfig.properties

The full path of this file is **/etc/escenic/engine/common/com/escenic/media/aws/preview/PreviewTranscoderConfig.properties**.

In order for the Content Studio media player / timeline editor to work it requires low resolution versions (often called **proxy versions**) of media objects to work with. As soon as a media object is uploaded or imported into a media content item, therefore, the Video plug-in sends it to Amazon Elastic Transcoder to be transcoded to the required proxy format. **PreviewTranscoderConfig.properties** contains the configuration settings required to access the Elastic Transcoder for this purpose.

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If you do not define a **`PreviewTranscoderConfig.properties`** file, then the Content Studio media player / timeline editor will not work. You will be able to publish media content, but you will not be able to preview or edit it in Content Studio.

You need to set the following properties in this file:

`pipelineID` (required)
The ID of the Elastic Transcoder pipeline to which proxy version transcoding jobs are to be submitted. For example:

```
pipelineID=pipeline-id
```

`audioPresetID` (required)
The ID of the Elastic Transcoder preset you have created for generating audio proxy versions. For example:

```
audioPresetID=preset-id
```

`videoPresetID` (required)
The ID of the Elastic Transcoder preset you have created for generating video proxy versions. For example:

```
videoPresetID=preset-id
```

3.2.9 Poller.properties

The full path of this file is **`/etc/escenic/engine/common/com/escenic/media/status/Poller.properties`**.

The settings in this file control the service that submits media content for transcoding.

You can **optionally** set the following properties in this file:

`enableService`
Determines whether or not the service is enabled. It is enabled by default on all hosts, although it only ever actually runs on one host. You should never disable it in the common configuration layer, although you can disable it on specific hosts (presentation hosts, for example) by copying the file to a host-specific configuration layer and setting the property to false.

`pollingInterval`
Specifies how often the service should check for media content that needs transcoding, in milliseconds. The default value of 30000 means that the service checks for new or modified media content every 30 seconds, and if it finds any, submits it to Elastic Transcoder for transcoding. You might want to shorten this interval, for example:

```
pollingInterval=10000
```

3.2.10 StateChangeNotifier.properties

The full path of this file is **`/etc/escenic/engine/common/com/escenic/media/services/StateChangeNotifier.properties`**.

You can **optionally** use it to enable notifications of the following events related to media content items:

- Transcoding completed

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- Content item published
- Content item unpublished

Notifications are sent to the author and creator of a content item and to the initiators of any of the above events.

> In order for notifications to work, the Content Engine Notes plug-in must be installed.

You only need to set one property in this file to enable notifications:

```
serviceEnabled=true
```

3.2.11 StudioConfig.properties

The full path of this file is **`/etc/escenic/engine/common/com/escenic/webstart/StudioConfig.properties`**. This file is part of a standard Content Engine installation.

Adding Support for New MIME Types

If you need to change Content Studio's MIME type mappings or add support for new MIME types, you can do so by adding a **`property.com.escenic.external-mimetypes`** entry to **`StudioConfig.properties`** (or editing the existing entry if it already exists). You can, for example, add support for MXF format, and associate it with the **`.mxf`** extension with the following setting:

```
property.com.escenic.external-mimetypes={mxf:'application/mxf'}
```

For further information, see MIME Type Mappings.

3.3 Application Configuration Layer Set-up

This set-up task consists of copying example configuration files from the plug-in installation into your publications' application configuration layers and then modifying the copied files to meet your requirements. In detail, you must:

1. Log in to your Content Engine host as the **`escenic`** user.
2. For each publication, create an application configuration layer (if it does not already exists) as follows:

   ```
   $ mkdir -p /etc/escenic/engine/webapp/pub-name/com/escenic
   ```

   where *pub-name* is the name of the publication.
3. Copy all the supplied application configuration layer files as follows:

   ```
   $g cp -r engine-installation/plugins/video-4.2.0-5/misc/siteconfig/webapp/com/
   escenic/video \
   > /etc/escenic/engine/webapp/pub-name/com/escenic
   ```
4. Edit the copied files as described in the following sections.

3.3.1 VideoArticleDecorator.properties

The full path of this file is:

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/etc/escenic/engine/webapp/*pub-name*/com/escenic/video/presentation/VideoArticleDecorator.properties

where *pub-name* is the name of the publication. You only need to set the following property in this file:

URLGenerator
How you set this property depends on whether or not you are using CloudFront to distribute your transcoded media content. If you are using CloudFront, then you should set it as follows:

```
URLGenerator=./CloudFrontSignedURLGenerator
```

If you are not using CloudFront then you should set it as follows:

```
URLGenerator=./S3PreSignedURLGenerator
```

Any other properties defined in the file should be left unmodified.

3.3.2 CloudFrontSignedURLGenerator.properties

The full path of this file is:

/etc/escenic/engine/webapp/*pub-name*/com/escenic/video/presentation/CloudFrontSignedURLGenerator.properties

where *pub-name* is the name of the publication.

You only need to edit this file if you are using CloudFront to distribute your transcoded media content. If you are not using CloudFront, then you should edit **S3PreSignedURLGenerator.properties** instead (see section 3.3.3).

httprotocol
The protocol you want to be used to access your distributed media files. For example:

```
protocol=http
```

The allowed values are:

- **http**
- **https**
- **rtmp** (for Flash streaming)

distributionDomain
The domain name at which the media files are to be published. CloudFront generates a domain name when you create a distribution, consisting of a long id followed by "**.cloudfront.net**". You can, however, configure CloudFront to use a domain name of your own, such as:

```
distributionDomain=media.mycompany.com
```

For more information about CloudFront distribution domain names and how to replace them with your own, see Getting Started with CloudFront.

privateKeyFile
The path of a file containing a CloudFront private key. For example:

```
privateKeyFile=/etc/escenic/engine/webapp/demo/com/escenic/video/presentation/
cloudfront-pk.der
```

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CloudFront generates public/private key pairs that you can use to provide access to restricted content (paid content, for example). The keys are used to create **signed URLs**: automatically generated URLs that allow a customer access to restricted content for a limited period. For more information about this, see Serving Private Content through CloudFront.

> A private key should under no circumstances be shared with any third party, including Escenic and Amazon.

`keyPairId`
The ID of the CloudFront public/private key used to secure your CloudFront content. This is supplied to you along with the private key at the time it is generated.

```
keyPairId=key-pair-id
```

`expiredTime`
The lifetime of the pre-signed URLs generated by CloudFront, specified in minutes. Once this period is over, a pre-signed URL will no longer work and the user will no longer have access to the restricted content. The default value is **`900`** (= 15 hours).

```
expiredTime=900
```

3.3.3 S3PreSignedURLGenerator.properties

The full path of this file is:

`/etc/escenic/engine/webapp/`*pub-name*`/com/escenic/video/presentation/S3PreSignedURLGenerator.properties`**

where *pub-name* is the name of the publication.

You only need to edit this file if you are **not** using CloudFront to distribute your transcoded media content. If you **are** using CloudFront, then you should edit **`CloudFrontSignedURLGenerator.properties`** instead (see section 3.3.2).

`expiredTime`
All content stored in S3 buckets is private. In order to allow users to access content, pre-signed URLs are generated. These URLs have a limited lifetime: once one expires, the content it referenced is no longer accessible. This property specifies the lifetime of the pre-signed URLs, in minutes. The maximum allowed value is **`10080`** (= 7 days). For further information, see Amazon S3 Authentication Policy. The default value is **`900`** (= 15 hours).

```
expiredTime=900
```

3.4 Transcoder Configuration Files

A transcoder configuration file is an XML file containing details of the Amazon Elastic Transcoder **pipelines** and **presets** available for use with a particular publication or set of publications. A pipeline is a queue for holding transcoding jobs, and a preset is a set of parameters defining how to transcode between two specified formats. Neither pipelines nor presets are **defined** in a transcoder configuration file: they must be defined using Elastic Transcoder, and are then simply referenced from transcoder configuration files. For further information, see the Elastic Transcoder documentation.

You should have already defined the pipelines and presets you are going to need in Elastic Transcoder. You use the transcoder configuration files to specify which pipelines and presets are going to be used

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by your publications. If all your publications are going to use the same pipelines and presets, then you only need one transcoder configuration file, and you can use the default **/etc/escenic/engine/common/com/escenic/media/aws/transcode-config.xml**:

1. Log in to your Content Engine host as the **escenic** user.
2. Open **/etc/escenic/engine/common/com/escenic/media/aws/transcode-config.xml** for editing.
3. Edit the file to make use of the Elastic Transcoder pipelines and presets you have defined. For further information see section 3.4.1 and section 3.4.2.

If, on the other hand, your publications have different transcoding requirements, you may need to create several different files. Copy the supplied **transcode-config.xml** as many times as required, for example:

1. Log in to your Content Engine host as the **escenic** user.
2. Copy the supplied **transcode-config.xml** as many times as required, for example:

```
$ cd /etc/escenic/engine/common/com/escenic/media/aws/transcode-config.xml
$ cp transcode-config.xml transcode-config-dailynews.xml
$ cp transcode-config.xml transcode-config-entertainment.xml
```

3. Edit all the files to make use of the Elastic Transcoder pipelines and presets you have defined. For further information see section 3.4.1 and section 3.4.2.
4. Make sure that the files you create are correctly referenced by the transcoder configurations in your common configuration (see section 3.2.4). Check the **serviceDefinition** property in your **DefaultTranscoderConfig.properties** file and make sure it correctly references your default transcoder configuration file (**transcode-config.xml**). Similarly, check any copies that you have made of **DefaultTranscoderConfig.properties** and make sure that their **serviceDefinition** properties point to the correct transcoder configuration files (**transcode-config-dailynews.xml** or **transcode-config-entertainment.xml**, for example).

3.4.1 Example Transcoder Configuration File

```
<?xml version="1.0" encoding="UTF-8"?>
<service-definition xmlns="http://xmlns.escenic.com/2012/transcoder-service"
                    xmlns:ui="http://xmlns.escenic.com/2008/interface-hints">
  <pipelines>
    <pipeline default="true" name="low-priority">
      <ui:title>Normal</ui:title>
      <id>pipeline-id</id>
    </pipeline>
    <pipeline name="high-priority">
      <ui:title>High priority</ui:title>
      <id>pipeline-id</id>
    </pipeline>
  </pipelines>
  <presetGroups>
    <presetGroup type="video" name="low-res">
      <ui:title>Low resolution videos</ui:title>
      <presets>
        <preset id="preset-id">
          <thumbnails/>
        </preset>
        <preset id="preset-id"/>
```

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```
        <preset id="preset-id"/>
      </presets>
    <presetGroup type="video" name="high-res" default="true">
      <ui:title>High resolution videos</ui:title>
      <presets>
        <preset id="preset-id">
          <thumbnails/>
        </preset>
        <preset id="preset-id"/>
        <preset id="preset-id"/>
        <preset id="hls-preset-id"/>
        <preset id="hls-preset-id"/>
        <preset id="hls-preset-id"/>
      </presets>
    </presetGroup>
  </presetGroups>
</service-definition>
```

This example defines a service that provides two pipelines and two preset groups. *pipeline-id* and *preset-id* in a real service definition file would be replaced by Elastic Transcoder IDs - long, unique strings of characters generated when you create a pipeline or preset. Note the following:

- Two pipelines, one of which is for high priority jobs, is a typical set-up. There is no actual difference between the two pipelines. The idea is that most jobs are put in the "normal" pipeline, which may result in long queues during busy periods. Since the "high priority" pipeline is reserved for occasional high priority jobs, long queues should not arise. The prioritization mechanism is therefore dependent on disciplined use.
- A **preset group** is a group of Elastic transcoder presets suitable for a particular purpose: in the example above, **`low-res`** contains the presets needed to convert low-resolution videos to all the required output formats. **`high-res`** does the same for high resolution videos, and includes a set of **HLS** presets that are combined to form an HLS stream. See section 3.4.3 for more about this. What preset groups you create is entirely determined by your particular requirements.
- A preset group must contain either only audio presets or only video presets, and must have a **`type`** attribute indicating what kind of preset group it is.
- One preset group of each type (audio and video) must have the attribute **`default="true"`** set.
- The **`ui:title`** elements are used to specify the names displayed in Content Studio pipeline and preset group selection controls.

3.4.2 transcoder-service

The **`transcoder-service`** schema defines the Escenic Video plug-in transcoder service definition format. You can use it to define the Amazon Elastic transcoder pipelines and presets available for use in a specific publication or group of publications.

Namespace URI

The namespace URI of the **`transcoder-service`** schema is **`http://xmlns.escenic.com/2012/transcoder-service`**.

Root Element

The root of a **`transcoder-service`** file must be a **`service-definition`** element.

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3.4.2.1 id

The pipeline ID. This is a number generated by Amazon Elastic Transcoder when a pipeline is created.

Syntax

```
<id>
  text
</id>
```

3.4.2.2 pipeline

Represents an Elastic Transcoder transcoder **pipeline**. A pipeline is a queue for transcoding jobs. For more information see the Elastic Transcoder documentation.

Syntax

```
<pipeline
    default="(true|false)"?
    name="NCName"
  >
  <ui:title>...</ui:title>
  <id>...</id>
</pipeline>
```

Attributes

`default="(true|false)"` (optional)
Whether or not this is the default **`pipeline`**. One **`pipeline`** element should have **`default`** set to **`true`**, and one only.

`name="`*NCName*`"`
The name of the **`pipeline`** element.

3.4.2.3 pipelines

Contains definitions of the pipelines available in this transcoder service.

Syntax

```
<pipelines>
  <pipeline>...</pipeline>+
</pipelines>
```

3.4.2.4 preset

Represents an Elastic Transcoder **preset**. A preset is a template for transcoding media files from one format to another. For more information see the Elastic Transcoder documentation.

Syntax

```
<preset
    id="text"
  />
```

Attributes

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id="*text*"
The preset ID. This is a number generated by Amazon Elastic Transcoder when a preset is created.

3.4.2.5 presetGroup

Defines a preset group. A preset group is a group of **preset**s.

Syntax

```
<presetGroup
    type="(audio|video)"
    name="NCName"
    default="(true|false)"?
  >
  <presets>...</presets>
</presetGroup>
```

Attributes

type="(audio|video)"
The media type this **presetGroup** is intended to handle.

Allowed values are:

audio
The **presetGroup** is intended to handle audio content.

video
The **presetGroup** is intended to handle video content.

name="*NCName*"
The name of the **presetGroup** element.

default="(true|false)" (optional)
Whether or not this is the default **presetGroup**. One **presetGroup** element should have **default** set to **true** for each setting of the **type** attribute. That is, there should be one default preset group for video, and one default preset group for audio.

3.4.2.6 presetGroups

Contains definitions of the preset groups available in this transcoder service.

Syntax

```
<presetGroups>
  <presetGroup>...</presetGroup>+
</presetGroups>
```

3.4.2.7 presets

A container for **preset** elements.

Syntax

```
<presets>
  <preset/>+
```

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```
</presets>
```

3.4.2.8 service-definition

The root element of an Escenic Video plug-in transcoder service definition.

Syntax

```
<service-definition>
  <pipelines>...</pipelines>
  <presetGroups>...</presetGroups>
</service-definition>
```

3.4.2.9 ui:title

The display name of a pipeline or preset group. It is used when displaying pipeline/preset group options in Content Studio.

Syntax

```
<ui:title>
  text
</ui:title>
```

3.4.3 Using HLS Video Presets

HLS is a standard for **adaptive streaming**, which allows clients to adjust the bitrate of a video stream to match the currently available bandwidth. The way HLS works is that the server produces several streams of different quality (i.e, different bitrates), each of which is divided up into short, fixed-duration segments (say 10 seconds each). The client is then able to monitor the available bandwidth, and if necessary switch stream every 10 seconds in order to maintain the best possible video stream. This description of HLS includes a good illustration of this process.

In order to provide an HLS stream, you have to use HLS presets. Amazon Elastic Transcoder provides a range of predefined HLS presets, or you can define your own. An Elastic transcoder HLS preset generates one of the substreams that go to make up a complete HLS stream. So if you define a preset group like this:

```
<presetGroup type="video" name="high-res" default="true">
  <ui:title>High resolution videos</ui:title>
  <presets>
    <preset id="preset-id">
      <thumbnails/>
    </preset>
    <preset id="preset-id"/>
    <preset id="preset-id"/>
    <preset id="hls-preset-id"/>
    <preset id="hls-preset-id"/>
    <preset id="hls-preset-id"/>
  </presets>
</presetGroup>
```

Then the result is four transcoded outputs: three fixed bit-rate videos and one HLS video stream offering three different bitrates.

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The short video segments that make up an HLS video stream are stored in files with the extension **`.ts`**. Each substream is represented by a playlist file with the extension **`.m3u8`**. This is a simple text file that contains correctly ordered references to all the **`.ts`** files in the stream. The whole HLS stream is represented by yet another **master playlist** **`.m3u8`** file that contains references to each of the substreams. This structure is automatically created by the Elastic Transcoder, and is the structure expected by HLS-capable clients. All you need to be aware of is that the HLS presets you define in a preset group get merged to a single HLS output stream, represented by a **`.m3u8`** playlist file.

You can control the length of the **`.ts`** segments generated by Elastic Transcoder by setting a **`segmentDuration`** property (see section 3.2.7). This will determine how quickly a client responds to changes in available bandwidth.

3.5 Setting Section Parameters

You can override the default global or publication level **`pipeline`** or **`presetGroup`** settings for part of a publication by setting section parameters in one of the publication's section. The section parameters to use are:

`video.transcoder.config.pipeline`
: If specified, this parameter sets the default pipeline to be used for transcoding video content in the current section and all its subsections. The default can be overridden for individual content items if video content types are configured with a pipeline option (see section 3.6.4).

`audio.transcoder.config.pipeline`
: If specified, this parameter sets the default pipeline to be used for transcoding audio content in the current section and all its subsections. The default can be overridden for individual content items if audio content types are configured with a pipeline option (see section 3.6.4).

`video.transcoder.config.presetGroup`
: If specified, this parameter sets the default preset group to be used for transcoding video content in the current section and all its subsections. The default can be overridden for individual content items if video content types are configured with a preset group option (see section 3.6.4).

`audio.transcoder.config.presetGroup`
: If specified, this parameter sets the default preset group to be used for transcoding audio content in the current section and all its subsections. The default can be overridden for individual content items if audio content types are configured with a preset group option (see section 3.6.4).

3.6 Media Content Type Definition

In order to be able to use the Video plug-in, you need to add at least one suitably configured media content type to your publication's **`content-type`** resource. For general information about the **`content-type`** resource and how to edit it, see the Escenic Content Engine Resource Reference.

A media content type must either be a **video** content type or an **audio** content type (not currently supported), and both of them can either be **internal** or **external**:

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Internal
An internal media content type includes a **link** field for holding an actual video/audio object (an MPEG or MP3 file, for example). Such content items can therefore hold video/audio content, not just a reference to the content. An internal content item is usually created in Content Studio by uploading the video/audio content that is to be published (although it can also be imported in various ways, just like any other content). It is actually stored in the Amazon cloud and is therefore also often referred to as an AWS video.

External
An external media content type doesn't contain the actual video, it just contains a reference to content stored in some other location - usually a video cloud solution such as Brightcove. Currently, Brightcove is the only external provider supported by the Video plug-in. The plugin must be configured with Brightcove credentials in order to be able to automatically import videos from Brightcove.

The Video Plug-in distribution file contains an example **content-type** resource file (**video/misc/example/content-type.xml**) with more complete examples of the content type definitions described in the following sections.

3.6.1 Defining an AWS (Internal) Video Content Type

The AWS video content type must at least have the following:

- A **media** child element belonging to the namespace **http://xmlns.escenic.com/2013/media**. This element must have a **type** attribute set to **video**, thereby identifying the content type as a video content type managed by the Video plug-in.
- A parameter called **com.escenic.article.staging** set to **false**, which specifies that content item staging must be disabled for this content type. If content item staging is disabled generally at your installation or for the whole publication, then you can omit this parameter.
- A **link field** for holding a link to a locally stored video file. The **link** element must have a child **relation** element containing the value **com.escenic.edit-media**.
- A **basic** field with:
  - **mime-type** set to **application/json**
  - a **video** sub-element with an **enabled** attribute set to **true**. This element must belong to the namespace **http://xmlns.escenic.com/2010/video**.
- A decorator called **videoArticleDecorator**
- An interface-hints element called **list-style** set to **video** to show proper listing at CUE.

The following example shows such a minimal **content-type**:

```
<content-type name="aws-video">
  <media xmlns="http://xmlns.escenic.com/2013/media" type="video" enabled="true"
 dropable="true"/>
  <parameter name="com.escenic.article.staging" value="false"/>
  <ui:decorator name="videoArticleDecorator"/>
  <panel name="main">
    <field name="binary" type="link">
      <relation>com.escenic.edit-media</relation>
    </field>
    <field name="video" type="basic" mime-type="application/json">
      <video xmlns="http://xmlns.escenic.com/2010/video" enabled="true"/>
    </field>
```

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```
    </panel>
  </content-type>
```

When a new content item of this type is created in Content Studio, an **Open file** dialog is automatically displayed so that the user can upload a suitable file to the **link** field. You can use a **constraints** element to limit the file types it is possible to upload. For example:

```
<field name="binary" type="link">
  <constraints>
    <mime-type>video/mpeg</mime-type>
    <mime-type>video/mp4</mime-type>
    <mime-type>application/mxf</mime-type>
  </constraints>
</field>
```

Content Studio has a default set of MIME type mappings that cover most commonly used formats. You might, however need to change the default settings or add new MIME types (such as the **.mxf** extension used in the example above). For information, on how to do this, see section 3.2.11.

Here is a more realistic version of an AWS video content type, this time including a title field, label and so on, but with the important parts highlighted.

```
<content-type name="aws-video">
  <media:media type="video"/>
  <parameter name="com.escenic.article.staging" value="false"/>
  <ui:icon>graphic</ui:icon>
  <ui:label>VideoCloud video</ui:label>
  <ui:title-field>title</ui:title-field>
  <ui:decorator name="videoArticleDecorator"/>
  <ui:list-style>video</ui:list-style>
  <panel name="main">
    <field name="title" type="basic" mime-type="text/plain"/>
    <field name="binary" type="link">
      <constraints>
        <mime-type>video/mpeg</mime-type>
        <mime-type>video/mp4</mime-type>
        <mime-type>application/mxf</mime-type>
      </constraints>
    </field>
    <field name="video" type="basic" mime-type="application/json">
      <video xmlns="http://xmlns.escenic.com/2010/video" enabled="true"/>
    </field>
  </panel>
</content-type>
```

3.6.2 Defining a Brightcove Video Content Type

The Brightcove video content type must at least have the following:

- A **media** child element belonging to the namespace **http://xmlns.escenic.com/2013/media**. This element must have an **enabled** attribute set to **true**.
- A parameter called **com.escenic.article.staging** set to **false**, which specifies that content item staging must be disabled for this content type. If content item staging is disabled generally at your installation or for the whole publication, then you can omit this parameter.
- A **basic** video field with:

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    - **mime-type** set to **application/json**
    - a **video** sub-element belonging to the namespace **http://xmlns.escenic.com/2010/video** with an **enabled** attribute set to **true**.
- A decorator called **bcovVideoArticleDecorator**
- An interface-hints element called **list-style** set to **video** to show proper listing at CUE.
- A **basic** external media metadata field with:
    - **mime-type** set to **application/json**
    - a **media** sub-element belonging to the namespace **http://xmlns.escenic.com/2013/media**.

> The **external-media-metadata** field should be a hidden field. It contains the actual Brightcove video JSON data. You can retrieve any information you need about the video from this field. You can, for example, retrieve tags that have been added to the video in Brightcove.

Here is an example Brightcove video content type with the important parts highlighted:

```
<content-type name="brightcove-video">
  <media:external-video enabled="true"/>
  <parameter name="com.escenic.article.staging" value="false"/>
  <ui:icon>graphic</ui:icon>
  <ui:label>Brightcove Video</ui:label>
  <ui:title-field>title</ui:title-field>
  <ui:decorator name="bcovVideoArticleDecorator"/>
  <ui:list-style>video</ui:list-style>
  <panel name="main">
    <field name="title" type="basic" mime-type="text/plain"/>
    <field name="video" type="basic" mime-type="application/json">
      <video xmlns="http://xmlns.escenic.com/2010/video" enabled="true"/>
    </field>
    <field name="external-media-metadata" type="basic" mime-type="application/json">
      <media:external-media/>
      <ui:label>External media JSON</ui:label>
      <ui:hidden/>
    </field>
  </panel>
</content-type>
```

3.6.3 Defining an Internal Audio Content Type

A internal audio content type must at least have the following:

- A **media** child element belonging to the namespace **http://xmlns.escenic.com/2013/media**. This element must have a **type** attribute set to **audio**, thereby identifying the content type as an audio content type managed by the Video plug-in.
- A parameter called **com.escenic.article.staging** set to **false**, which specifies that content item staging must be disabled for this content type. If content item staging is disabled generally at your installation or for the whole publication, then you can omit this parameter.
- A **link field** for holding a link to a locally stored audio file. The **link** element must have a child **relation** element containing the value **com.escenic.edit-media**.
- A **basic** field with:
    - **mime-type** set to **application/json**

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  - an **audio** child element with an **enabled** attribute set to **true**. This element must belong to the namespace **http://xmlns.escenic.com/2013/audio**.
  - a **ui:hidden** element which prevents it from being displayed in Content Studio.
- A decorator called **audioArticleDecorator**

The following example shows such a minimal **content-type**:

```
<content-type name="internal-audio">
  <media xmlns="http://xmlns.escenic.com/2013/media" type="audio"/>
  <parameter name="com.escenic.article.staging" value="false"/>
  <ui:icon>graphic</ui:icon>
  <ui:label>Internal audio</ui:label>
  <ui:title-field>title</ui:title-field>
  <ui:decorator name="audioArticleDecorator"/>
  <panel name="main">
    <field name="title" type="basic" mime-type="text/plain"/>
    <field name="binary" type="link">
      <relation>com.escenic.edit-media</relation>
    </field>
    <field name="audio" type="basic" mime-type="application/json">
      <audio xmlns="http://xmlns.escenic.com/2013/audio" enabled="true"/>
    </field>
  </panel>
</content-type>
```

When a new content item of this type is created in Content Studio, an **Open file** dialog is automatically displayed so that the user can upload a suitable file to the **link** field. You can use a **constraints** element to limit the file types it is possible to upload. For example:

```
<field name="binary" type="link">
  <constraints>
    <mime-type>audio/mp3</mime-type>
    <mime-type>audio/mp4</mime-type>
  </constraints>
</field>
```

A real internal audio content type will of course usually contain other fields and elements too - see the expanded example in section 3.6.1.

3.6.4 Adding Pipeline and Preset Group Options

Adding pipeline and preset group options to media content types enable editorial users to override default pipeline and preset group settings for individual content items.

A pipeline/preset group selection option is a **field** element that:

- Has **mime-type** set to **text/plain**
- Has a child **pipeline** or **preset-group** element that belongs to the namespace **http://xmlns.escenic.com/2013/media** and has the attribute **enabled ="true"**

A minimal pipeline option field definition, in other words, would look like this:

```
<field name="pipeline" type="basic" mime-type="text/plain">
  <ui:label>Pipeline</ui:label>
  <pipeline xmlns="http://xmlns.escenic.com/2013/media" enabled="true"/>
```

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```
</field>
```

In practice, however, such a field definition would require Content Studio users to know the names of the available pipelines and enter them correctly. The preferred method is to use a **collection field**. A collection field can be configured to get all currently defined pipeline names from an Atom feed provided by the Video plug-in. The retrieved names are then offered as suggestions when the user starts typing. Here is an example of the recommended way to define a pipeline option field:

```
<field name="pipeline" type="collection" mime-type="text/plain"
       src="escenic/video/config/pipelines" select="content">
  <ui:label>Pipeline</ui:label>
  <pipeline xmlns="http://xmlns.escenic.com/2013/media" enabled="true"/>
</field>
```

The **src** attribute contains the path of the Video plug-in's pipeline Atom feed and must be set to **escenic/video/config/pipelines**. The **select** attribute must be set to **content**.

A preset group option field can be created in exactly the same way:

```
<field name="preset" type="collection" mime-type="text/plain"
          src="escenic/video/config/presets/video" select="content">
          <ui:label>Preset Group</ui:label>
          <preset-group xmlns="http://xmlns.escenic.com/2013/media" enabled="true"/>
          </field>
```

For video preset groups the **field** element's **src** attribute must be set to **escenic/video/config/presets/video**, while for audio preset groups, it must be set to **escenic/video/config/presets/audio**:

```
<field name="preset" type="collection" mime-type="text/plain"
          src="escenic/video/config/presets/audio" select="content">
          <ui:label>Preset Group</ui:label>
          <preset-group xmlns="http://xmlns.escenic.com/2013/media" enabled="true"/>
          </field>
```

For a detailed description of how collection fields work, see Collection Fields.

3.6.5 Including Key Frames in Video Content Items

Key frames are still images generated from a video clip. They can be hand-selected images of significant points in the video, or they can be automatically generated at fixed intervals. Key frames can be used to represent the video in various contexts - a keyframe image is usually used, for example, to represent the video when it is not being played.

Amazon Elastic Transcoder can be configured to generate key frames (called **thumbnails** in the Elastic Transcoder user interface) at fixed intervals. If you want to save the keyframes and associate them with the video to which they belong, then you need to add the following items to your **content-type** resource:

A content type for holding the key frames

This content type needs to contain a **link** field for storing the key frame images. A minimal key frame content type might look like this:

```
<content-type name="keyframe">
  <ui:label>Key Frame</ui:label>
  <ui:title-field>name</ui:title-field>
```

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```
  <panel name="main">
    <ui:label>Image content</ui:label>
    <field name="name" type="basic" mime-type="text/plain">
      <ui:label>Name</ui:label>
      <constraints>
        <required>true</required>
      </constraints>
    </field>
    <field type="link" name="binary">
      <relation>com.escenic.edit-media</relation>
      <constraints>
        <mime-type>image/jpeg</mime-type>
        <mime-type>image/png</mime-type>
      </constraints>
    </field>
  </panel>
</content-type>
```

A relation definition

This relation definition is needed to associate key frame content items with their source video content items. It might look like this:

```
<relation-type-group name="default-relation-type-group">
  <relation-type name="keyframes">
    <ui:label>Key frame images</ui:label>
  </relation-type>
</relation-type-group>
```

Relation references

You will need to add a reference to the above relation definition to each of the video content types that you want to include key frames. For example:

```
<content-type name="aws-video">
  <media xmlns="http://xmlns.escenic.com/2013/media" type="video" enabled="true"
 dropable="true"/>
  <parameter name="com.escenic.article.staging" value="false"/>
  <ui:decorator name="videoArticleDecorator"/>
  <panel name="main">
    <field name="binary" type="link">
      <relation>com.escenic.edit-media</relation>
    </field>
    <field name="video" type="basic" mime-type="application/json">
      <video xmlns="http://xmlns.escenic.com/2010/video" enabled="true"/>
    </field>
    <ref-relation-type-group name="default-relation-type-group"/>
  </panel>
</content-type>
```

A `store-keyframes` element

This element causes the Video plug-in to store the generated key frames as content items of the correct type. The element must belong to the namespace **`http://xmlns.escenic.com/2010/video`** and must have the following attributes:

- **`content-type`**, specifying the name of the key frame content type you have defined
- **`relation`**, specifying the name of the key frame relation you have defined
- **`state`(optional)**, specifying the state to be applied to generated key frame content items. If not specified, the default state is **`published`**

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- **relate-keyframe-state(optional)**, specifying the state in which generate key frame content items will be related. It's value only be **submitted** or **published**. If not specified, the default state is **published**

You must add such an element to the video field in each of the video content types that you want to include key frames. For example:

```
<content-type name="aws-video">
  <media xmlns="http://xmlns.escenic.com/2013/media" type="video" enabled="true"
 dropable="true"/>
  <parameter name="com.escenic.article.staging" value="false"/>
  <ui:decorator name="videoArticleDecorator"/>
  <panel name="main">
    <field name="binary" type="link">
      <relation>com.escenic.edit-media</relation>
    </field>
    <field name="video" type="basic" mime-type="application/json">
      <video xmlns="http://xmlns.escenic.com/2010/video" enabled="true"/>
      <store-keyframes xmlns="http://xmlns.escenic.com/2010/video"
                       content-type="keyframe" relation="keyframes"
 state="draft"/>
    </field>
    <ref-relation-type-group name="default-relation-type-group"/>
  </panel>
</content-type>
```

For information about configuring Amazon Elastic Transcoder to actually generate the key frames (or thumbnails) you want, see Thumbnail Settings.

3.7 Adding Watermarks To Video Content Items

A watermark is an image (such as a television channel logo) that is overlaid on a broadcast video. The Amazon Elastic Transcoder supports the addition of PNG and JPEG watermarks to videos during transcoding. Up to four different watermarks can be overlaid on a video in this way. The characteristics of these watermarks (size, position and so on) must be defined in your Elastic Transcoder presets.

Before you can configure the Video plug-in to add watermarks to your videos, therefore, you need to make sure that your Elastic Transcoder presets contain the watermark definitions you will be using. Each watermark definition has an ID that you will need to use when you are configuring the Video plug-in. Escenic recommends that you use the following watermark IDs in all your presets: **TopLeft**, **TopRight**, **BottomLeft** and **BottomRight**.

For general information about Elastic Transcoder watermarks, see AWS Watermark documentation. For information about how to create presets, see Creating a Preset in Elastic Transcoder.

Once you have created the Elastic Transcoder presets, you can configure a publication to add watermarks to videos by:

- Creating a content type for storing watermark images
- Configuring your video content type(s) by adding a reference to the new relation plus a **watermarks** element
- Uploading the watermark images you want to use
- Adding watermark section parameters to one or more of the sections in your publication

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These steps are described in the following sections.

3.7.1 Creating a Watermark Content Type

A watermark content type is a standard image content type with a **link** field for storing a reference to the watermark image. In addition, however, it must have a **parameter** that identifies it as a watermark image. This parameter must have the name **com.escenic.video.watermark.image** and the value **true**.

Here is a simple example of a watermark content type:

```
<content-type name="watermark">
  <parameter name="com.escenic.video.watermark.image" value="true"/>
  <ui:label>Watermark</ui:label>
  <ui:title-field>name</ui:title-field>
  <panel name="main">
    <ui:label>Image content</ui:label>
    <field name="name" type="basic" mime-type="text/plain">
      <ui:label>Name</ui:label>
      <constraints>
        <required>true</required>
      </constraints>
    </field>
    <field type="link" name="binary">
      <relation>com.escenic.edit-media</relation>
      <constraints>
        <mime-type>image/jpeg</mime-type>
        <mime-type>image/png</mime-type>
      </constraints>
    </field>
  </panel>
</content-type>
```

3.7.2 Configuring a Video Content Type to Use Watermarks

In order to configure a video content type to make use of watermarks, you must:

- Make sure that it contains a reference to the watermarks relation you have created
- Add a **watermarks** element to the content type. This element ensures that the Video plug-in stores the watermarks correctly.

The **watermarks** element must belong to the namespace **http://xmlns.escenic.com/2010/video**. It has two attributes:

content-type (required)
This attribute specifies the name of the watermark image content type you have defined.

disable-field (optional)
This attribute specifies the name of a boolean field in this content type that can be used to disable watermarking for the current article. You must then also add such a field to the content type. If you add such a field, then any video content item in which it is set to true will not be watermarked, even if it belongs to a section in which watermarking is enabled.

The following example shows a video content type that includes a "Disable Watermarking" field:

```
<content-type name="aws-video">
```

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```
  <media xmlns="http://xmlns.escenic.com/2013/media" type="video" enabled="true"
 dropable="true"/>
  <parameter name="com.escenic.article.staging" value="false"/>
  <ui:decorator name="videoArticleDecorator"/>
  <panel name="main">
    <field name="binary" type="link">
      <relation>com.escenic.edit-media</relation>
    </field>
    <field name="video" type="basic" mime-type="application/json">
      <video xmlns="http://xmlns.escenic.com/2010/video" enabled="true"/>
      <watermarks xmlns="http://xmlns.escenic.com/2010/video"
                  content-type="watermark" disable-field="disable-watermark" />
    </field>
    <ref-relation-type-group name="default-relation-type-group"/>
  </panel>
</content-type>
```

3.7.3 Uploading Watermark Images

Once you have made the required configuration changes to your publication's **`content-type`** resource, and uploaded it to the Content Engine, you can upload the watermark images you want to use. Start Content Engine and create a watermark content item for each watermark. You will be prompted to supply an image file to upload. Note that the image file you supply **must** have one of the following file extensions:

`.jpg`
`.jpeg`
`.png`

The file extension must be lower case as shown above. Amazon Elastic Transcoder uses the file extension to determine the file type, and only recognises these three extensions. A file with a different extension will be rejected even if it is in fact of the correct type.

Once you have created each content item, make a note of its ID, as you will need to use it when adding section parameters to the publication.

3.7.4 Adding Watermark Section Parameters

The final step is to add some section parameters to your publication in order to control which watermark images are actually added to videos in various contexts. Escenic section parameters are inheritable, so if you want to use the same watermarks everywhere in your publication, then you can just set these parameters in your publication's root section. If you want different watermarks in a particular section, then you can override the global settings by redefining the parameters in that section.

You need to set two different parameters:

com.escenic.aws.watermark.content_ids
This parameter specifies which watermarks are to be added to videos. It has the following form:

```
com.escenic.aws.watermark.content_ids = watermark-image-id-list
```

where *watermark-image-id-list* is a comma-separated list of content item IDs identifying the watermark images to be used. For example:

```
com.escenic.aws.watermark.content_ids=12345,23456
```

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com.escenic.aws.watermark_id.*content-id*

One parameter like this must be added for each content item ID specified with **`com.escenic.aws.watermark.content_ids`**. Each parameter has the form:

```
com.escenic.aws.watermark_id.content-id=watermark-id
```

where:

- *content-id* is a watermark image content ID.
- *watermark-id* is an Elastic Transcoder watermark ID that effectively determines where the watermark will be placed on the video.

For example:

```
com.escenic.aws.watermark_id.12345=TopRight
com.escenic.aws.watermark_id.23456=BottomLeft
```

If you want to switch watermarking off in a section of your publication, you can do so by setting **`com.escenic.aws.watermark.content_ids`** to no value in that section. For example:

```
com.escenic.aws.watermark.content_ids =
```

For general information about section parameters and how to set them, see http://docs.escenic.com/ece-pub-admin-guide/6.1/the_edit_section_parameters_page.html.

3.8 SSE Proxy Set-up

If you will be using CUE to work with video or audio content instead of or alongside Content Studio, then you will need to add a setting to your Content Engine's SSE Proxy. The Content Engine uses SSE (Server-sent Events) to send information about content changes to CUE clients, so that CUE does not need to poll the Content Engine for changes. The Content Engine sends these SSE notifications via an **SSE Proxy**, a lightweight web proxy installed somewhere in the network. If you are already using CUE with the Content Engine, therefore, you will already have an SSE Proxy installed in your network. If you are currently in the process of moving to CUE, then you will need to set up an SSE Proxy. For general information about the SSE Proxy and how it is installed and Configured, see SSE Proxy.

In order to be able to work with video or audio content in CUE, you need to add an extra back-end service definition to the SSE Proxy's **`sse-proxy.yaml`** configuration file. The file will already contain a back-end service definition for basic Content Engine events that should look something like this:

```
backends:
  - uri: "http://editorial.example.com:8081/webservice/escenic/changelog/sse"
    credentials:
      username: "someuser"
      password: "verysecret"
```

All you need to do is add a second service definition with the URI **`http://`***engine-host*`:`*port*`/webservice/escenic/video/mediaStatusSSE`**. *engine-host* and *port* should be the same as for the existing entry, and so should the user name and password. For example:

```
backends:
  - uri: "http://editorial.example.com:8081/webservice/escenic/changelog/sse"
    credentials:
      username: "someuser"
      password: "verysecret"
```

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```
  - uri: "http://editorial.example.com:8081/webservice/escenic/video/mediaStatusSSE"
    credentials:
      username: "someuser"
      password: "verysecret"
```

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4 Using Content Studio

This chapter describes how you can use Content Studio to:

- Create video and audio content items
- Use the video and audio timeline editors to:
  - Crop video/audio items
  - Add cue points to video/audio items
  - Decorate video/audio items with transient links to related content
- Publish video and audio content items

4.1 Creating a Video Content Item

How you create a video content item depends upon what kind it is:

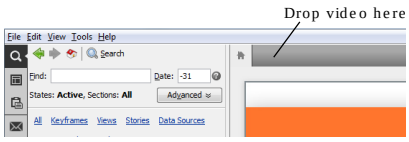
Internal
In this case, you upload a video clip from your local machine and it is stored by the Content Engine before being included in your content item.

External
In this case, video clips are automatically imported from an external provider on the net such as Brightcove, so uploading is not necessary. Once external videos have been created, you can change the content item fields in the same way as for internal videos.

4.1.1 Creating an Internal Video Content Item

To create an internal video content item:

1. Use Explorer (Windows) or Finder (Mac) to find the video clip you want to use.
2. Drag your selected video clip into the Content Studio work area. You must drop it right at the top of the work area where content editor tabs are displayed:



   When you drop the video, a new content item of a suitable type is created, and the video is added to it.
3. Enter the required values into the content item's fields (you will usually need to add at least a title) and click **Save**.

Alternatively, you can create the content item first (by selecting **File** > **New** > **<your-internal-video-content-type>** from the Content Studio menu in the usual way). A **File Open** dialog is then displayed, allowing you to select the video file you want to upload.

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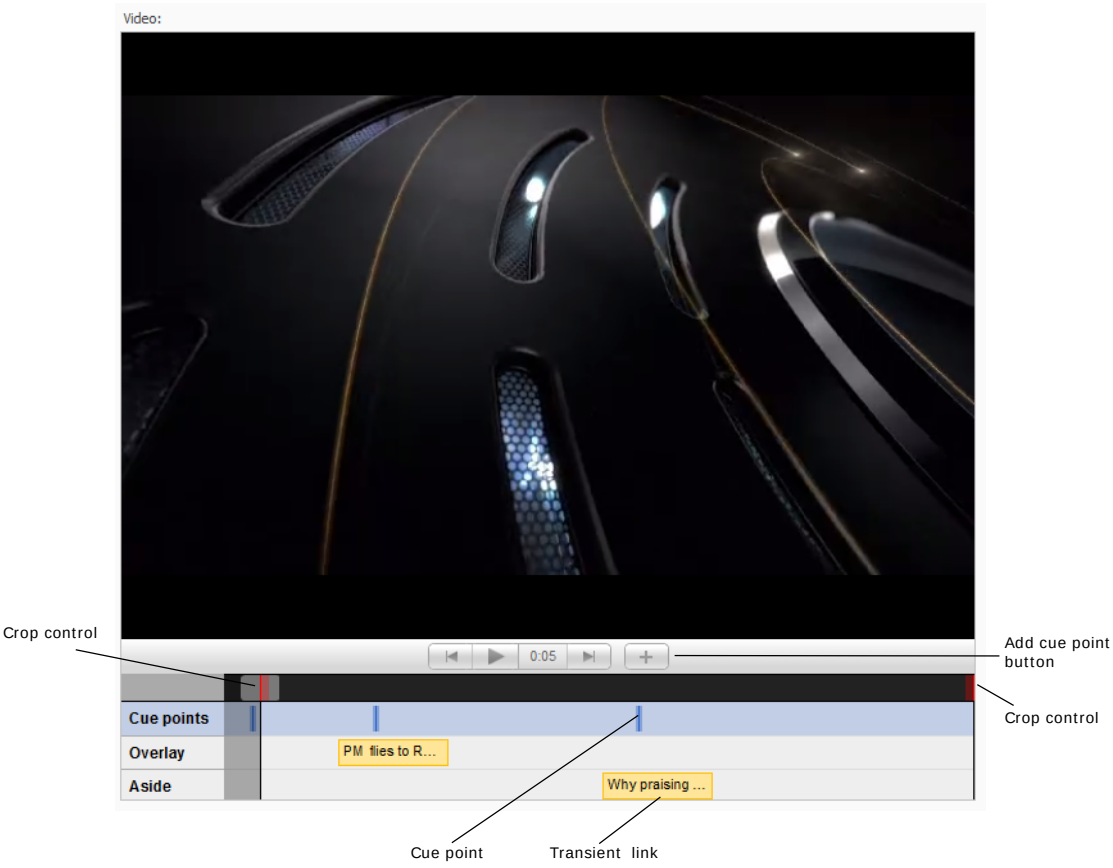
4.2 Using the Video Timeline Editor

The video in a video content item is displayed in a **timeline editor**:



The timeline editor is a video player that incorporates a number of simple editing functions for:

Cropping
That is, removing footage from the start and/or end of the video.

Adding cue points
A cue point marks a point of interest in the video (the start of a particular scene or event). It can be used to make a link that starts playback at the cue point.

Adding transient links
A transient link is a link that appears at a certain point during video playback and/or disappears at a certain point. It makes it possible to display links that are relevant to the content being viewed by users.

All of these functions involve placing components on the **timeline**. The timeline is the thick black stripe displayed below the video playback controls, which represents the playing time of the video. When the video is played back, a cursor representing the current frame moves along the timeline. You can move the cursor to specific frames by clicking in the timeline.

To crop the video

You can crop the video by simply dragging the red crop controls at either end of the timeline towards the center of the timeline. You can move them back and forth as much as you want and play back the

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video to check the results. Note that cropping in this way does not modify the original video in any way, it just lets you select the segment you want to publish.

To add a cue point

Position the cursor at the required point by clicking in the timeline. Then click on the + button alongside the video playback controls. An **Edit Cue Point** dialog is then displayed in which you can enter a **Title** and a **Description** for the cue point, and then click on **OK** or press **`Enter`** to create the cue point. If you want to insert a new line in the description field, press **`Shift+Enter`** rather than just **`Enter`**. You can move existing cue points by dragging them along the time line. If you hold the mouse pointer over a cue point, (edit) and (delete) buttons are displayed. Clicking on redisplays the **Edit Cue Point** dialog, and clicking on deletes the cue point.

Exactly how the title and description you enter are used depends upon the templates in your publication. Typically, the title is used as link text and the description as some kind of tooltip/hover text.

To add transient links

Drag the content item to which you want to create a link into one of the transient link fields and drop it approximately where you would like it to appear in the timeline. An **Edit Timeline Element** dialog is displayed in which you can enter a **Title**, and **Start time**/**End time** values and then click on **OK** to create the link.

You can also adjust the link's start and end times by dragging the link along the time line, and dragging its start and end points. If you hold the mouse pointer over a link, (edit) and (delete) buttons are displayed. Clicking on redisplays the **Edit Timeline Element** dialog, and clicking on deletes the link.

By default, the timeline editor has two transient link fields called **Overlay** and **Aside**. The **Overlay** field is intended to hold transient links that appear as overlays (that is, inside the video frame) and the **Aside** field is intended to hold transient links that appear somewhere nearby but outside the video frame. Exactly how the links are displayed in publications, however, is determined by the template developer.

> The transient link fields may vary between installations. They are not necessarily called **Overlay** and **Aside**, and there may be more (or less) than two of them.

4.3 Creating an Audio Content Item

You can create an audio content item in all the same ways that you can create a video content item. The only differences are:

- The transient link field name **Overlay** has no particular meaning in the case of audio content items.

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4.4 Choosing Pipeline and Preset Group

Your media content items **may** contain pipeline and preset group options. The default content types delivered with the Video plug-in contain the following two fields, which you will find on the content items' **Metadata** tabs:

Pipeline

Pipelines are Amazon Elastic Transcoder job queues (see section 1.1 for details). Usually you will have two pipelines to choose from:

Default

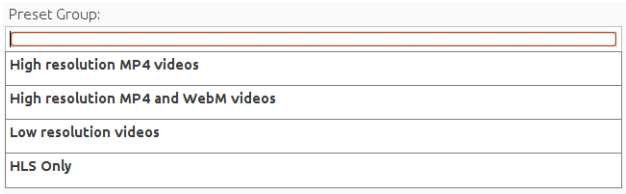
Use this queue unless the content item needs to be transcoded and published in a hurry

High Priority

Use this queue only for rush jobs

Preset Group

A preset is an Amazon Elastic Transcoder parameter set defining the output required from a transcoding job (see section 1.1 for details). By choosing a preset group, you determine what formats your audio or video item will be published in. You will usually have a fairly small number of options to choose from, for example:



> These fields may not be available in your media content items (or may be present in some, but not others), and may have different names.

4.5 Publishing Media Content Items

The general process of publishing a content item in Content Studio involves pushing it through a series of states. When you first save a new content item, it is saved in the state **draft**. It can then be pushed through the states **submitted** (that is, submitted for approval), **approved** and **published**. A content item is only visible to users of your web site when it reaches the **published** state. Content Studio does not enforce the use of all these states - it is perfectly possible to skip **submitted** and **approved**, and move a content item straight from **draft** to **published** if you have sufficient access rights.

Publishing media content items is a rather more complex process than publishing text and image content items, because it is not just an administrative process - it also involves:

- Transcoding the video/audio content to a variety of formats and encodings for display/playback on different devices and platforms
- Copying the transcoded videos/audios to their published destinations in the network

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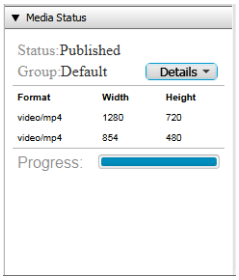
The different stages in this process are represented by the content item's **media status**, which is displayed in a special **Media Status** section of the Content Studio attributes panel:



This section is only present in video/audio content item editors. It shows the media status of the video/audio, the pipeline used to process it and other progress-related information. There is a **Compact**/**Details** button that you can use to control the amount of information displayed.

The following table shows the sequence of **Media Status** messages corresponding to each Content Studio state:

Content Studio state	**Media Status**
Draft	**Not Transcoded**
Submitted	**Started** **Transcoding** **Transcoded**
Approved	**Publishing** **Published**
Published	**Published**

As with other content types, you can skip states and publish a **draft** content item without first moving it through the intermediate states (if you have sufficient access rights). If you do so, however, you will see that the content item in fact does pass through the intermediate states as the video/audio clip is processed.

For video/audio content items there is no distinction between the states **approved** and **published**. If you move a content item to the approved state then it ends up **published**.

Content Studio state changes only trigger transcoding/media publishing actions and media state changes when you move the content item **forward** through the states. No transcoding/media publishing actions are triggered if you unpublish a **published** content item by changing its state back to **draft**.

Two other **Media Status** messages you may see are:

Failed
: This status indicates that transcoding has failed.

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Restarted

You may see this status if you change the cropping on an existing video or audio clip that is already published, and publish your changes. It means that the old transcoded clips have been deleted and a new set is being transcoded.

4.6 Transcoder Status and Notifications

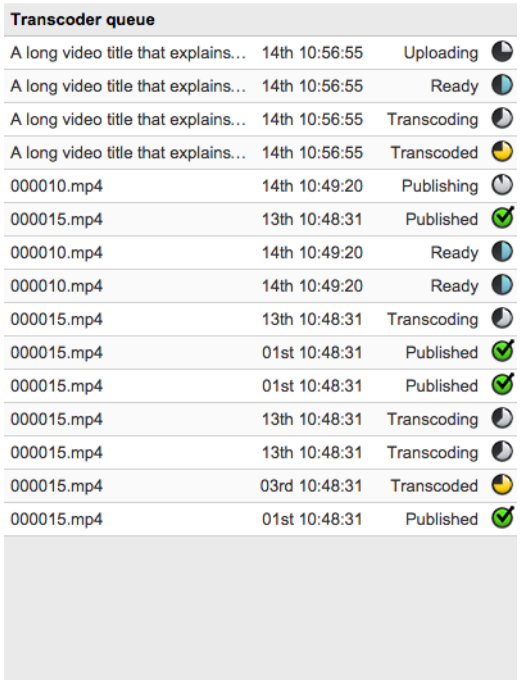
The Video plug-in provides two tools for monitoring the transcoding process:

- A transcoder queue panel
- Notifications (optional)

4.6.1 The Transcoder Queue Panel

The Video plug-in adds a **Transcoder queue** panel to the navigation area on the left hand side of the Content Studio window. To display the **Transcoder queue** panel, click on the button on the left hand side of the window.

The **Transcoder queue** panel contains a list of the last 20 jobs submitted for transcoding, with the most recently submitted job at the top of the list. It shows the current status of each job:



4.6.2 Notifications

Depending on how your installation is configured, you may receive notifications informing you of various events related to the media publishing process:

- Transcoding completed
- Content item published

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- Content item unpublished

Notifications are sent to the author and creator of a content item and to the initiators of any of the above events.

> In order for notifications to work, the Content Engine Notes plug-in must be installed.

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5 Automated Media Import

This section contains detailed information about how to import media content automatically from different cloud service providers such as AWS and Brightcove. The Video plugin includes import services that can be configured to automatically run a number of independent import tasks.

5.1 AWS

The import service for AWS periodically checks a specified folder path on Amazon S3 storage for new media content to import. If files are available, they are imported to a specified destination folder (also on Amazon S3 storage) as defined in configuration files. How many different import tasks you define is up to you. You will need to create at least one task for each publication to which you want to import media content.

5.1.1 Enabling the AWS Media Import Service

In order to enable the import service, you need to open the file **`configuration-root/Initial.properties`** for editing in one of your configuration layers, and add the following line (at the bottom of the file):

```
service.3.3-aws-import-service=/com/escenic/media/aws/services/AWSMediaImporterService
```

5.1.2 AWS Media Import Service Configuration

You need to:

1. For each publication, create a common configuration layer (if it does not already exists) as follows:

   ```
   $ mkdir -p /etc/escenic/engine/common/com/escenic/media/aws/services/import/pub1
   ```

2. To import AWS media, copy all the supplied common configuration layer files to the required locations as follows:

   ```
   $ cp -r engine-installation/plugins/video-4.2.0-5/misc/siteconfig/common/com/
   escenic/media/aws/services/AWSMediaImporterService.properties \
                > /etc/escenic/engine/common/com/escenic/media/aws/services
   $ cp -r engine-installation/plugins/video-4.2.0-5/misc/siteconfig/common/com/
   escenic/media/services/MediaImporterConfiguration1.properties \
                > /etc/escenic/engine/common/com/escenic/media/aws/services/import/
   pub1/Pub1ImportConfiguration.properties
   ```

   If you installed the Video plug-in using the new package-based installation method, then this step is not required: the configuration file are automatically installed in the correct location.

3. Edit the configuration files as described in the following sections.

5.1.3 AWSMediaImporterService.properties

The full path of this file is:

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/etc/escenic/engine/common/com/escenic/media/aws/services/AWSMediaImporterService.properties

importerConfigurations
Set this property as follows:

```
importerConfigurations=./import/pub1/Pub1ImportConfiguration
```

You can if necessary specify multiple configuration files separated by commas:

```
importerConfigurations=./import/pub1/Pub1ImportConfiguration,./import/pub2/Pub2ImportConfiguration,./import/pub3/Pub3ImportConfiguration
```

5.1.4 Pub1ImporterConfiguration.properties

The full path of this file is:

/etc/escenic/engine/common/com/escenic/media/aws/services/import/pub1/Pub1ImporterConfiguration.properties

publicationId
The ID of the publication in which the content item is to be created. For example:

```
publicationId=1
```

sectionId
The ID of the section in which the content item is to be created. For example:

```
sectionId=8
```

state
The state to which the created content item is to be set: **draft**, **submitted** or **published**. For example:

```
state=draft
```

contentType
The type of the created content item. For example:

```
contentType=aws-video
```

syndicationBucketBaseURI
The base URI of the AWS syndication bucket – the root folder to which media files are to be uploaded. For example:

```
syndicationBucketBaseURI=s3://bucket-name/storage/path/
```

errorBucketBaseURI
The base URI of the AWS error bucket – the root folder to which failed media files will be copied. It must have a different path than **syndicationBucketBaseURI**. For example:

```
errorBucketBaseURI=s3://bucket-name/storage/path/
```

mediaType
The media type of the imported content: **Video**, **Audio** or **Image**. This property is optional – if you don't specify a value then the media type is detected. If, however, you know that only one specific media type is to be, imported, then you are recommended to set it. For example:

```
mediaType=Video
```

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5.2 Brightcove

The Brightcove import service periodically checks the Brightcove video cloud for new videos to import to Escenic. This service only imports videos that have already been transcoded in Brightcove.

Assuming you already have copied all configuration files to your common configuration layer as described in section 3.2, then all you need to do to configure the Brightcove import service is edit the configuration files described in the following sections.

5.2.1 ExternalProviderPollerService.properties

The full path of this file is **`/etc/escenic/engine/common/com/escenic/media/ext/poll/ExternalProviderPollerService.properties`**. You need to set the following properties in this file.

`serviceEnabled`
: It controls the external media import service, which is disabled by default. In order to enable the service, add the following property.

```
serviceEnabled=true
```

`interval`
: This property determines how frequently the import service runs. By default, the interval between the termination of one execution and the commencement of the next is 30000 milliseconds. You can, however, override it as follows:

```
interval=20000
```

5.2.2 BrightcoveProfile.properties

The full path of this file is **`/etc/escenic/engine/common/com/escenic/media/ext/BrightcoveProfile.properties`**. It contains the following property:

```
startDate=start-date
```

which you can use to control how far back in time the import service will look for videos to import. By default, the import service uses the current date as start date, which means that old videos in the Brightcove video cloud from before you started using the import service will not be imported. If you want (for example) to ensure that videos from the last year (for example) are imported, then you should set the **`startDate`** property to the required date.

The required date format is *yyyy-MM-dd hh:mm:ss*. The specified date is compared with the Brightcove cloud videos' "last modified" dates. So if you specify:

```
startDate=2016-01-01 00:00:00
```

then all Brightcove videos created or modified since the beginning of 2016 will be imported.

5.2.3 BcovMediaImporterConfig.properties

The full path of this file is **`/etc/escenic/engine/common/com/escenic/media/bcov/BcovMediaImporterConfig.properties`** You need to set the following properties in this file:

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publicationId
The id of the publication in which media content items are to be created.

```
publicationId=publication-id
```

sectionId
The id of the section in which media content items are to be created. By default, it takes the default section of the publication. However, you can override this.

```
sectionId=section-id
```

state
The state to be assigned to newly-created media content items: **draft**, **submitted** or **published**. By default, the content items are assigned the state **draft**. You can, however, override this. For example:

```
state=submitted
```

contentType
The content type of the media content items created by the import service. For example:

```
contentType=external-media
```

5.2.4 BrightcoveClientConfig.properties

The full path of this file is **/etc/escenic/engine/common/com/escenic/media/ext/client/BrightcoveClientConfig.properties** You need to set the following properties in this file

accountId
Your Brightcove video cloud account id

```
accountId=accound-id
```

clientId
The client ID used to access Brightcove. For information on how to get a client ID, see Managing API Authentication Credentials.

```
clientId=client-id
```

clientSecret
The secret needed to authenticate your Brightcove client ID. For details, see Client credential flow.

```
clientSecret=client-secret
```

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6 Automated Media Publishing

This section contains detailed information about how to implement automated media publishing workflows. There are two basic methods you can use to implement such a workflow:

- Web service-based automation, where media content is passed to the Content Engine via its REST web service
- Syndication-based automation, where media content is passed to the Content Engine via its import/export or **syndication** subsystem

Whichever method you use, the basic objective is the same. You need to:

1. Define a content item of the correct type in the Content Engine.
2. Create the defined content item.
3. Change the status of the content item to **`published`**. This causes the Content Engine to send the video/audio to Amazon Elastic Transcoder for transcoding and key frame generation.

6.1 Web Service-Based Automation

The recommended way to implement an automated media publishing process is to use the Content Engine's web service. This web service allows you to interact with the Content Engine by sending HTTP requests to the web service. For a description of the web service and how to use it in general, see the Escenic Content Engine Integration Guide. The web service allows an external process to perform most of the operations that end users can perform from Content Studio. In this case the objective is to create a video/audio content item, which involves the following steps:

1. POST the media file you want to publish to the Content Engine web service. The web service has a special fixed URI to which media files and other binary files can be POSTed
2. GET the web service URI for the publication/section to which the content item is to be added.
3. Make an XML document (specifically, an Atom entry) containing all the information required to create the required content item and POST it to the correct URI.

The process of creating a media content item is in fact no different from the process of creating other kinds of binary content items (images, PDFs, office documents and so on). It is described in detail in the following sections of the **Escenic Content Engine Integration Guide**:

- Navigate The Section Hierarchy tells you how to get the upload URL of the section you want to add the content item to.
- Create a Content Item tells you how to create and upload a content item in general.
- Creating Binary Content items provides the additional information you need about uploading binary files to the Content Engine web service.
- Creating Content Items in Different States tells you how to set the state of the content item you create. In order to trigger transcoding and publishing, you need to set the state of the content item to **`published`**.

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6.2 Syndication-Based Automation

You can also implement an automated video/audio publishing process using the Content Engine's syndication format. This is a proprietary Escenic XML file format that can be used for import/export purposes. It is described in detail in the Escenic Content Engine Syndication Reference.

To define and create a content item in this way you simply create a syndication file containing all the required information and upload it to a specified import folder on the Content Engine server. The Content Engine will then automatically import the file and create a corresponding content item, triggering the transcoding and key frame generation process.

For a general description of how to use the Content Engine's import service, see The Import Service.

Note also that, in order to trigger transcoding, the content items must be published on import, by setting the **`content`** element's **`state`** attribute to **`published`**.

6.3 Working With Video/Audio Fields

A video content item must have a **video field** to store various items of video-specific information. The video field usually has the name "video", but if it doesn't you can find out which is the content item's video field by examining the **`content-type`** resource. The video field is the one that contains a **`video`** element, like this:

```
<field name="video" type="basic" mime-type="application/json">
  <video xmlns="http://xmlns.escenic.com/2010/video" enabled="true"/>
</field>
```

The video field is used to contain JSON data defining crop points, cue points and transient links, as described in the following sections.

6.3.1 Specifying Crop Points

You can specify that the loaded video or audio clip is to be cropped before it is transcoded. To do this you must include a **`playback`** key-value pair in the map. For example:

```
{
  ...
  "playback":{
     "in":1.5,
     "out":5.6
  }
}
```

The value of the **`playback`** key must be a map containing the following key-value pairs:

`in`
: The point at which the transcoded, published clip is to start, measured from the start in seconds.

`out`
: The point at which the transcoded, published clip is to end, measured from the start in seconds.

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6.3.2 Specifying Timeline Information

You can also include timeline information (cue points and transient links). To do this you must include a **`timeline`** key-value pair in the map:

```
{
  ...
  "timeline":{
    "cuepoints":cuepoint-values,
    "tracks":track-values
  }
}
```

The value of the **`timeline`** key must be a map containing the following key-value pairs:

`cuepoints`
An array of one or more cue point definitions (see section 6.3.2.1).

`tracks`
A map containing default transient link definitions for the transient link tracks defined at your installation (see section 6.3.2.2). By default there are two such tracks, called **Overlay** and **Aside**.

6.3.2.1 Specifying Cue Points

Cue points are defined in an array. Each value in the array is a map of key-value pairs:

```
{
  ...
  "timeline":{
    "cuepoints":[
      {
        "id":"cue1",
        "time":"3.176",
        "title":"cue one",
        "description":"this is cue one"
      },
      {
        "id":"cue2",
        "time":"7.520",
        "title":"cue two",
        "description":"this is cue two"
      },
      ...
    ],
    "tracks":tracks-value
  }
}
```

The key-value pairs are:

`id`
An ID for the cue point.

`time`
The point at which the cue point is to be placed, measured in seconds from the start of the original uncropped clip.

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`title`
The title of the cue point.

`description`
The description of the cue point.

6.3.2.2 Specifying Transient Links

The **`timeline`** map can contain one key-value pair for each defined transient link track. If your installation has the standard two tracks called **Overlay** and **Aside**, then you can add transient links by including the keys **`OverlayDefault`** and **`AsideDefault`** in the **`timeline`** map. The actual links to be included in each track are defined in an array, and each value in the array is a map of key-value pairs:

```
{
  ...
  "timeline":{
    "cuepoints":cuepoints-value,
    "tracks":{
      "OverlayDefault":[
        {
          "contentID": "117",
          "startTime": 20.0609756097561,
          "endTime": 23.262195121951216,
          "title": "DVCPro50_NTSC_4ch_16bit.mxf"
        },
        {
          "contentID": "118",
          "startTime": 33.87195121951219,
          "endTime": 39.96951219512194,
          "title": "DVCPro50_NTSC_4ch_16bit.mxf"
        }
      ],
      "AsideDefault":[
        {
          "contentID": "114",
          "startTime": 5.48780487804878,
          "endTime": 8.536585365853657,
          "title": "DVCPro50_NTSC_4ch_16bit.mxf"
        }
      ]
    }
  }
}
```

The key-value pairs are:

`contentID`
An ID for the linked content.

`startTime`
The point at which display of the link is to start, measured in seconds from the start of the original uncropped clip.

`endTime`
The point at which display of the link is to end, measured in seconds from the start of the original uncropped clip.

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`title`
The title of the link.

You can add further tracks in exactly the same way:

```
{
  ...
  "timeline":{
    "cuepoints":tracks-value,
    "tracks":{
      "OverlayDefault":[
        {
          "contentID": "117",
          "startTime": 20.0609756097561,
          "endTime": 23.262195121951216,
          "title": "DVCPro50_NTSC_4ch_16bit.mxf"
        },
       ],
       "AsideDefault":[
        {
          "contentID": "114",
          "startTime": 5.48780487804878,
          "endTime": 8.536585365853657,
          "title": "DVCPro50_NTSC_4ch_16bit.mxf"
        }
       ],
       "ExtraTrack":[
         {
          "contentID": "105",
          "startTime": 3.48780487804878,
          "endTime": 5.536585365853657,
          "title": "DVCPro60_NTSC_5ch_18bit.mxf"
         }
       ]
      }
    }
   }
```

If you want to display a transient link to an external web site rather than to an Escenic content item, you can do so by replacing the **`contentID`** key/value pair with a **`url`** key/value pair:

```
"timeline":{
    "cuepoints":tracks-value,
    "tracks":{
      "OverlayDefault":[
        {
          "u
          rl": "http://www.escenic.com/",
          "startTime": 20.0609756097561,
          "endTime": 23.262195121951216,
          "title": "DVCPro50_NTSC_4ch_16bit.mxf"
        },
       ]
      }
    }
   }
```

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6.3.3 Complete Video Field Example

Here is a complete JSON example showing the content of a video field:

```
{
  "timeline": {
    "cuepoints":[
      {
        "id":"cue1",
        "time":"3.176",
        "title":"cue one",
        "description":"this is cue one"
      },
      {
        "id":"cue2",
        "time":"7.520",
        "title":"cue two",
        "description":"this is cue two"
      }
    ],
    "tracks": {
      "OverlayDefault":[
        {
          "contentID": "117",
          "startTime": 20.0609756097561,
          "endTime": 23.262195121951216,
          "title": "DVCPro50_NTSC_4ch_16bit.mxf"
        },
        {
          "contentID": "118",
          "startTime": 33.87195121951219,
          "endTime": 39.96951219512194,
          "title": "DVCPro50_NTSC_4ch_16bit.mxf"
        }
      ],
      "AsideDefault":[
        {
          "contentID": "114",
          "startTime": 5.48780487804878,
          "endTime": 8.536585365853657,
          "title": "DVCPro50_NTSC_4ch_16bit.mxf"
        }
      ]
    }
  },
  "playback": {
    "in":1.5,
    "out":10.0
  }
}
```

If you download an existing video content item using the web service, or export one, you may see other fields in the data structure that are added by the Content Engine after a content item has been created, but you do not need to supply values for these fields when creating content items.

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7 Accessing Media from Templates

You can access the transcoded versions of a video/audio clip from your JSP templates using JSTL as follows (in all the examples *video-field-name* is the name of the video field in your content type and *audio-field-name* is the name of the audio field in your content type and *index* is the index of the transcoded version you want).

Note that if a video's transcoded outputs include an HLS stream, then the number of transcoded versions will not match the number of presets in the selected preset group, since all HLS presets are merged and result in only one HLS stream. For further information about this, see section 3.4.3.

- To access the URI of a transcoded video:

  ```
  ${article.fields.video-field-name.value.video[index].uri}
  ```

- To access the video's MIME type:

  ```
  ${article.fields.video-field-name.value.video[index]['mime-type']}
  ```

  HLS streams generated by Elastic Transcoder are given the MIME type **`application/x-mpegURL`**.

- To access the video's height:

  ```
  ${article.fields.video-field-name.value.video[index].height}
  ```

- To access the video's width:

  ```
  ${article.fields.video-field-name.value.video[index].width}
  ```

- To access the video's duration:

  ```
  ${article.fields.video-field-name.value.duration}
  ```

- To access the video's timeline information:

  ```
  ${article.fields.video-field-name.value.timeline.cuepoints}
  ```

  ```
  ${article.fields.video-field-name.value.timeline.tracks}
  ```

  ```
  ${article.fields.video-field-name.value.playback}
  ```

- To access the video's key frames:

  ```
  ${article.relatedElements.KEYFRAMES.items}
  ```

  If a poster frame is selected than the first key frame will be the poster frame.

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