

CUE
User Guide
3.6.18-1

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1 Introduction

Welcome to CUE, Stibo DX's new browser-based application for newsroom staff! CUE is now CUE's primary interface for all newsroom staff, and will eventually completely replace Content Studio. CUE is a joint CCI-Stibo DX project and is capable of acting as an interface to CCI Newsgate systems as well as CUE systems, so for newsrooms that use both CCI Newsgate and CUE, it provides a highly productive integrated interface to both systems.

You can use CUE to:

- Create and edit content
- Upload images and other binary content
- Insert in-line images into content items
- Drag and drop / cut and paste content from external systems such as Microsoft Word, Excel, browsers etc.
- Add relations to content items
- Edit sections
- Edit section pages
- Desk content items on section pages
- Tag content items
- Add content items to sections
- Edit lists and inboxes
- Publish content items
- etc...

CUE can in addition easily be extended with custom functionality to meet special workflow requirements, make use of external services and integrate with existing in-house systems. For more about this, see [chapter 6](#).

For information about using CUE with CCI Newsgate, please see "CUE-related CCI NewsGate Functionality for CUE 2.5", which you will find at <http://customer.ccieurope.com/documentation/release-notes/cci-newsgate.aspx> (log in using your CCI Customer Portal credentials).

2 Installing CUE

CUE requires the use of an **SSE Proxy** to manage the delivery of Server-sent Events from the CUE Content Store to CUE clients. This means that an CUE SSE Proxy must have been installed and configured to manage SSE for the Content Store, and the Content Store must have been configured to direct SSE connection requests to the SSE Proxy. For general information on how to install and configure an SSE Proxy, see the [SSE Proxy documentation](#). For specific guidance on how to configure the Content Store and the SSE Proxy to work together with CUE, see [Configure an SSE Proxy Connection for CUE](#).

CUE is available as a standard Debian installation package, making installation on Ubuntu or other Debian-based Linux systems very straightforward. CUE is a standalone web application. Although it needs to be connected to an CUE Content Store and/or a CCI Newsgate back end, it does not need to be co-located with either of them. It can be installed on the same server as a Content Store instance, but it does not need to be. An application server such as Tomcat is not required to serve CUE. Since it is a pure HTML/Javascript application, a web server such as nginx or Apache is sufficient.

A note about version code names

CUE and all related applications (CUE Content Store, CUE Print, Content Store plug-ins and so on) are released on a synchronized schedule where all product versions in a given release are known to work well together. Only these approved version combinations are supported. Each set of compatible product versions is identified by a code name, and during installation you can use this code name instead of the individual product's version number, thereby simplifying the installation process.

In the case of CUE and other Linux applications installed on Ubuntu using **apt**, the code name is actually the name of a repository containing compatible versions of all products. This means that in order to ensure version compatibility, all you need to do is add the name of the required repository to your `/etc/apt/sources.list.d/escenic.list` file. Once you have done this you do not need to specify any version numbers when installing individual packages - **apt** will just install the latest maintenance release from that repository.

Note that code names cannot be used in this way on CentOS/Red Hat installations, where the application packages to be installed must still be identified by their version numbers. This is also the case for CUE Print.

The code name for CUE 3.6.18-1 is **carbon**. To find the correct CUE Print version to install for the **carbon** release, check the [CUE Print release notes](#).

Installation procedure

The instructions given here are based on the use of an nginx web server, running on Ubuntu.

To install CUE:

1. Log in via SSH from a terminal window.
2. Switch user to root:

```
$ sudo su
```

3. If necessary, download and set the Escenic **apt** repository key:

```
| # curl --silent https://user:password@apt.escenic.com/repo.key | apt-key add -
```

where *user* and *password* are your Stibo DX download credentials (the same ones you use to access the Stibo DX Maven repository). If you do not have any download credentials, please contact [Stibo DX support](#).

4. Add the current version repository name to your list of sources.

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

5. You need to install version 1.7.5 or higher of nginx. The version available in the Ubuntu 14.04 repositories is too old, so in order to ensure that you install a new enough version, you need to add a repository containing a more recent version:

```
| # add-apt-repository ppa:nginx/stable
```

6. Update your package lists:

```
| # apt-get update
```

7. Download and install CUE:

```
| # apt-get install cue-web
```

8. Download and install nginx

```
| # apt-get install nginx
```

3 Configuring CUE

In order to complete the installation of CUE, you must:

- Carry out a basic configuration of CUE itself and the nginx web server that serves the CUE application.
- Configure nginx to support cross-origin communication between CUE and the CUE Content Store's web service

These mandatory configuration tasks are both described in [section 3.1](#).

There are in addition a number of more or less optional configuration tasks that you may need to carry out, depending on your specific requirements. These tasks are described in [section 3.2](#).

3.1 Mandatory Tasks

The configuration tasks described in this section are **required** in order to get CUE up and running.

3.1.1 Basic CUE Configuration

CUE configuration involves configuring CUE itself, and also configuring the nginx web server that serves the CUE application.

The actual CUE configuration consists of editing YAML format configuration files, identified by the file type extension `.yaml`. The delivered system includes a number of such configuration files containing CUE's default configuration settings. These files are located in the `/etc/escenic/cue-web` folder.

The `/etc/escenic/cue-web` folder also contains a file called `config.yaml.template`, containing the property settings that you always need to set when installing CUE. To use this file you rename it to `config.yaml` and then edit the contents.

To configure CUE:

1. If necessary, switch user to `root`.

```
| $ sudo su
```
2. Copy `/etc/escenic/cue-web/config.yaml.template` to `config.yaml`:

```
| # cp /etc/escenic/cue-web/config.yaml.template /etc/escenic/cue-web/config.yaml
```
3. Open the new `/etc/escenic/cue-web/config.yaml` for editing. For example

```
| # nano /etc/escenic/cue-web/config.yaml
```
4. Uncomment and set the required endpoint parameters (which you will find at the top of the file):

```
| endpoints:  
|   escenic: "http://escenic-host:81/webservice/index.xml"
```

```
newsgate: "http://newsgate-host/newsgate-cf/"
```

where:

- *escenic-host* is the IP address or host name of the Content Store CUE is to provide access to
- *newsgate-host* is the IP address or host name of the CCI Newsgate system CUE is to provide access to. If no CCI Newsgate system is present, then do not uncomment the **newsgate:** line.

5. If your CUE configuration makes use of an Escenic-CCI Newsgate bridge, then you will need to add a third line under **endpoints:**

```
endpoints:
  escenic: "http://escenic-host:81/webservice/index.xml"
  newsgate: "http://newsgate-host/newsgate-cf/"
  bridge: "http://bridge-host:7001/ngece-bridge/"
```

where *bridge-host* is the IP address or host name of an Escenic-CCI Newsgate bridge. (A bridge is a service capable of converting Escenic content to Newsgate format, and is required to support Newsgate write-to-fit functionality in CUE.)

6. Save the file.

7. Enter:

```
# dpkg-reconfigure cue-web-3.6
```

This reconfigures CUE with the Content Store web service URL you specified in step 3.

You now need to configure the nginx web server to serve the CUE application, as described in [section 3.1.2](#).

3.1.2 Nginx Configuration

To configure nginx:

1. If necessary, switch user to **root**.

```
$ sudo su
```

2. Open **/etc/nginx/sites-available/default** for editing, and replace the entire contents of the file with the following:

```
server {
    listen 81 default;
    include /etc/nginx/default-site/*.conf;
}
```

3. Create a new folder to contain your site definitions:

```
# mkdir /etc/nginx/default-site/
```

4. Add three files to the new **/etc/nginx/default-site/** folder, called **cue-web.conf** and **webservice.conf**:

```
# touch /etc/nginx/default-site/cue-web.conf
# touch /etc/nginx/default-site/webservice.conf
# touch /etc/nginx/conf.d/request-entity-size-limit.conf
```

5. Open **/etc/nginx/default-site/cue-web.conf** for editing and add the following contents:

```
location /cue-web/ {
    alias /var/www/html/cue-web/;
    expires modified +310s;
```

```
| }
```

Depending on the version of nginx that you have installed, the alias specified in `cue-web.conf` may need to be set to `/var/www/cue-web/` instead of `/var/www/html/cue-web/`.

6. Open `/etc/nginx/default-site/webservice.conf` for editing and add the contents described in [section 3.1.3](#).
7. Open `/etc/nginx/conf.d/request-entity-size-limit.conf` for editing and add the following contents:

```
| # Disable default 1Mb limit of PUT and POST requests.
| client_max_body_size 0;
```

(If you do not add this setting, then nginx will not allow larger files such as images and videos to be uploaded to CUE.)

You will now need to set up cross-origin communication between CUE and the Content Store web service as described in [section 3.1.3](#).

3.1.3 Web Service CORS Configuration

Your `cue-web` application is now running on the nginx default port, 81. In order to be able to run correctly it needs to be able to send requests to the CUE Content Store's web service. This web service may possibly be running on a different host in a different domain. Even if it is running on the same host as nginx, it will most likely be listening on port 8080 (Tomcat's default port). This means that by default any requests from the `cue-web` application to the Content Store web service will be rejected as cross-origin scripting exploits.

You can, however, enable cross-origin communication between the `cue-web` application and the Content Store web service by setting up an nginx proxy for the web service that redirects requests to the actual web service and also adds the [CORS](#) headers needed to ensure that the requests will not be rejected.

Here is an example of a suitable `/etc/nginx/default-site/webservice.conf`:

```
| location ~ "/(escenic|studio|webservice|webservice-extensions)/(.*)" {
|     if ($http_origin ~* (https?://[^\/*]\.dev\.my-cue-domain\.com(?:[0-9]+)?)$) {
|         set $cors "true";
|     }
|     if ($request_method = 'OPTIONS') {
|         set $cors "${cors}options";
|     }
|     if ($request_method = 'GET') {
|         set $cors "${cors}get";
|     }
|     if ($request_method = 'HEAD') {
|         set $cors "${cors}get";
|     }
|     if ($request_method = 'POST') {
|         set $cors "${cors}post";
|     }
|     if ($request_method = 'PUT') {
|         set $cors "${cors}post";
|     }
|     if ($request_method = 'DELETE') {
|         set $cors "${cors}post";
```

```

    }
    if ($cors = "trueget") {
        add_header "Access-Control-Allow-Origin" "$http_origin" always;
        add_header "Access-Control-Allow-Credentials" "true" always;
        add_header "Access-Control-Expose-Headers" "Link,X-ECE-Active-
Connections,Location,ETag,Allow" always;
    }
    if ($cors = "truepost") {
        add_header "Access-Control-Allow-Origin" "$http_origin" always;
        add_header "Access-Control-Allow-Credentials" "true" always;
        add_header "Access-Control-Expose-Headers" "Link,X-ECE-Active-
Connections,Location,ETag" always;
    }
    if ($cors = "trueoptions") {
        add_header 'Access-Control-Allow-Origin' "$http_origin";
        add_header 'Access-Control-Allow-Credentials' 'true';
        add_header 'Access-Control-Max-Age' 1728000;
        add_header 'Access-Control-Allow-Methods' 'GET, POST, HEAD, OPTIONS, PUT,
DELETE';
        add_header 'Access-Control-Allow-Headers' 'Authorization,Content-
Type,Accept,Origin,User-Agent,DNT,Cache-Control,X-Mx-ReqToken,Keep-Alive,X-Requested-
With,If-Modified-Since,If-Match,If-None-Match,X-Escenic-Locks,X-Escenic-media-
filename,X-Escenic-home-section-uri';
        add_header 'Content-Length' 0;
        add_header 'Content-Type' 'text/plain charset=UTF-8';
        return 204;
    }
    proxy_set_header Host $http_host;
    proxy_pass http://127.0.0.1:8080;
}

```

In the origin filter at the top of the file:

```

if ($http_origin ~* (https?://[^\/*]\.dev\.my-cue-domain\.com(?:[0-9]+)?)$) {
    set $cors "true";
}

```

you must replace *my-cue-domain*\.com with the actual domain name of your CUE installation.

3.2 Optional Tasks

The configuration tasks described in this section are optional. Whether or not they are necessary depends on your system requirements.

Most of the configuration tasks involve editing YAML configuration files in the CUE configuration folder (*/etc/escenic/cue-web*). In some cases, however, it is also necessary to make server-side configuration changes. This usually involves editing XML files called Content Store **resources**.

3.2.1 Third-Party Authentication

Both CUE Content Store and CCI Newsgate can be configured to allow third-party authentication of users. This lets you log in to CUE using your Google or Facebook ID, for example, rather than by entering a CUE-specific user name and password.

In order to be able to make use of third-party authentication in CUE:

- The Content Store/CCI Newsgate back-end system(s) must have been configured to allow third-party authentication. For details of how to enable third-party authentication in CUE, see [Third-Party Authentication](#).
- CUE itself must be configured to display the UI for the third-party authentication methods that have been enabled.

CUE supports two third-party authenticators – Google and Facebook.

3.2.1.1 Google Authentication

If the relevant back-end system(s) have been set up to support Google Authentication, then you can configure CUE support by adding a YAML configuration file to the CUE configuration folder (`/etc/escenic/cue-web`).

When you are configuring third-party authentication for the Content Store as described in [Configure OAuth Authentication](#), you need to add a CUE redirect URI to the **Authorized redirect URI** in step 16. The URI must be your CUE URI followed by `/oauth_callback.html`: for example `http://your-cue-host/cue-web/oauth_callback.html`.

Your configuration file must contain the following settings:

```
oauth:
  name: "Google"
  label: "Log in with Google account"
  authURI: "https://accounts.google.com/o/oauth2/auth"
  scope: "email"
  clientId: "google-client-id"
```

where `google-client-id` is the client ID you created in the steps described above.

When setting up Google authentication for the Content Store, you create two client IDs – one for desktop clients and one for web clients. Make sure that you use the web client ID for configuring CUE.

When you have saved this file, enter (as the `root` user):

```
# dpkg-reconfigure cue-web-3.6
```

This reconfigures CUE with the changes you have made. The CUE login page will now include a **Log in with Google account** option.

3.2.1.2 Facebook Authentication

If the relevant back-end system(s) have been set up to support Facebook Authentication, then you can configure CUE support by adding a YAML configuration file to the CUE configuration folder (`/etc/escenic/cue-web`). The file must contain the following settings:

```
oauth:
  name: "Facebook"
  label: "Log in with Facebook account"
  authURI: "https://graph.facebook.com/oauth/authorize"
  scope: "email"
  clientId: "facebook-client-id"
```

where *facebook-client-id* is the the **web client ID** you created when configuring access to the back-end system(s) (see [Configure OAuth Authentication](#)).

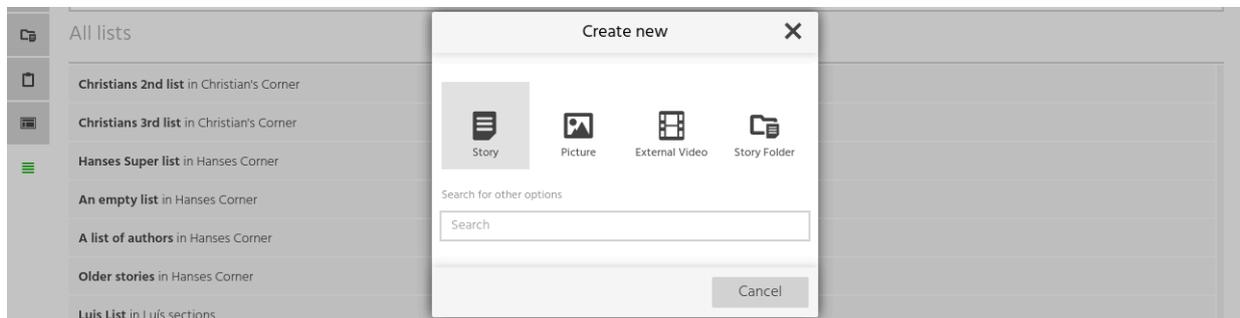
When setting up Facebook authentication for the Content Store, you create two client IDs – one for desktop clients and one for web clients. Make sure that you use the web client ID for configuring CUE.

When you have saved this file, enter (as the **root** user):

```
# dpkg-reconfigure cue-web-3.6
```

This reconfigures CUE with the changes you have made. The CUE login page will now include a **Log in with Facebook account** option.

3.2.2 Create new Dialog



The **Create new** dialog (shown above) is configurable: you can specify which content types are to be displayed as favorites in the top half of the dialog. There is space for a maximum of four favorites: all other options must be selected using the search field in the bottom half of the dialog.

To specify your required favourites:

1. If necessary, switch user to **root**.

```
$ sudo su
```

2. Open `/etc/escenic/cue-web/30-new-content-defaults.yml` for editing. For example

```
# nano /etc/escenic/cue-web/30-new-content-defaults.yml
```

3. Find the `newContentDefaults` parameter:

```
newContentDefaults:
- type: "story"
  icon: "story"
- type: "picture"
  icon: "picture"
- type: "video"
  icon: "video"
- type: "storyfolder"
  icon: "storyfolder"
- type: "gallery"
  icon: "picture"
```

4. Modify the list of content type/icon pairs to meet your requirements. If you use CUE to edit several publications that have different content types, then you may want to have more than four content types in the list even though a maximum of four can be displayed in the dialog. If

a publication has no **video** content type, for example, then the **Create new** dialog will display **story, picture, storyfolder** and **gallery** from the above list.

Note that if you create custom content type icons as described in [section 3.2.6](#), then any icon settings made in the **content-type** resource will override icon settings made here.

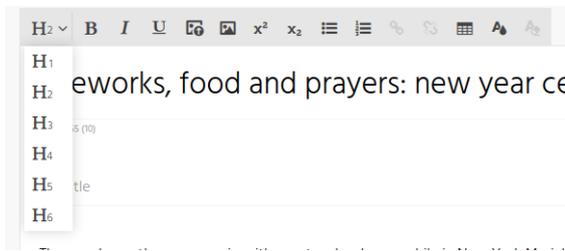
5. Save the file.
6. Enter:

```
# dpkg-reconfigure cue-web-3.6
```

This reconfigures CUE with the changes you have made.

3.2.3 Heading Levels

The rich text editor's formatting tool bar has a Heading button that you can use to insert HTML heading elements **h1**, **h2**, **h3** and so on. By default the button offers **h2** as the default selection, with headings **h1** and **h3 - h6** as options in a drop-down menu:



You can, however, change this default configuration as follows:

1. If necessary, switch user to **root**.

```
$ sudo su
```

2. Open **etc/escenic/cue-web-3.6/plugins/internal/EscenicHeading/EscenicHeading.yml** for editing. For example:

```
# nano etc/escenic/cue-web-3.6/plugins/internal/EscenicHeading/EscenicHeading.yml
```

3. To change the default heading level, edit the **defaultHeadingLevel** property:

```
defaultHeadingLevel: 2
```

4. To change the contents of the drop-down menu, edit the **headingLevels** property:

```
headingLevels: "1, 2, 3, 4, 5, 6"
```

5. Save the file.
6. Enter:

```
# dpkg-reconfigure cue-web-3.6
```

This reconfigures CUE with the changes you have made.

3.2.4 Automatic div Removal

CUE can be configured to automatically remove HTML **div** elements from text pasted into rich text fields. This functionality is useful for some customers, but not for others and is therefore disabled by default. To enable it:

1. If necessary, switch user to **root**.

```
| $ sudo su
```

2. Open **/etc/escenic/cue-web/config.yml** for editing. For example

```
| # nano /etc/escenic/cue-web/config.yml
```

3. Add the following setting:

```
|   removeDivsAutomatically: true
```

4. Save the file.

5. Enter:

```
| # dpkg-reconfigure cue-web-3.6
```

This reconfigures CUE with the changes you have made.

You can disable the functionality by setting **removeDivsAutomatically** to **false**.

3.2.5 Content Type Selection for Binaries

When a binary file is dropped in CUE, a content item is automatically created to contain it. In order to be able to do this, CUE searches for a content type that is configured to handle the binary file's MIME type. If some MIME types can be handled by more than one content type, then by default CUE uses the first one it finds. You can, however configure CUE to allow the user to choose the content-type.

To configure this kind of content type selection:

1. If necessary, switch user to **root**.

```
| $ sudo su
```

2. Open **/etc/escenic/cue-web/config.yml** for editing. For example

```
| # nano /etc/escenic/cue-web/config.yml
```

3. Add the following settings:

```
|   contentTypeSelection:  
|     enabled: true
```

4. Save the file.

5. Enter:

```
| # dpkg-reconfigure cue-web-3.6
```

This reconfigures CUE with the changes you have made.

If JPEG file types can be handled by three different content types, **picture**, **graphic** and **special**, then users who drop a JPEG file into CUE will now be prompted to select which of the three content types CUE should use.

If you don't want all available content types to be offered as options, you can exclude some by including an **ignoreContentTypes** property in the configuration file:

```
|   contentTypeSelection:  
|     enabled: true  
|     ignoreContentTypes: ["special"]
```

ignoreContentTypes accepts an array of content type names, so you can exclude multiple content types from the user prompt if you wish. If you exclude all content types except one, then no prompt is displayed in CUE since the user no longer has a choice.

3.2.6 Defining Custom Icons

Icons are widely used to represent different types of objects in CUE:

- Content items
- Story elements in storylines
- Workflow states
- Source monitors
- Macros

The icon used to represent a content item varies according to its type: stories are represented by document icons, pictures by image icons, and so on. Similarly, paragraph, image and table story elements are all represented by different icons, as are different workflow states, source monitors and macros. A number of standard icons are supplied with CUE for use with default content types, story element types, states and so on. It is of course possible to re-use some of these icons for your own content types, story element types and so on, but it is not recommended – you should define your own custom icons.

All of the above object types are defined in Content Store resource files of one kind or another as part of the publication definition process described in the Content Store [Publication Design Guide](#).

In general, defining an icon for one of the above object types involves creating the icon itself (that is, an image file) and then adding a `ui:icon` element that references the image to the object type's definition in the appropriate Content Store resource file. Suppose, for example, that you want to add an icon to your "Long Story" content type. In this case you would need to insert a `ui:icon` element as a child of the `<content-type name="longstory">` element in your publication's `content-type` resource. Similarly, for a "Special Para" story element type, you would need to insert a `ui:icon` element as a child of the `<story-element-type name="specialpara">` element in your `specialpara.xml` story element type resource.

The details of what kind of image you should create and how you should use the `ui:icon` element vary between the above object types. Content type icons, for example, must be .PNG files, while story element type icons can either be .PNG or .SVG files. For detailed instructions, see the Content Store [Publication Design Guide](#) and the reference description of the [ui:icon element](#).

3.2.7 Metadata Panel Sections

You can control which sections appear in the metadata panel on the right side of the CUE window (and the order in which they appear) by adding `metadata-panel` elements to your content type definitions in the Content Store `content-store` resource. For general information about the `content-store` resource and how to define CUE content types, see [The content-type Resource](#).

Using the `metadata-panel` element, you can define what sections are to be displayed in the metadata panel for each content type in a publication, and the order in which they are to appear. The `metadata-panel` element belongs to a special CUE-specific namespace: `http://xmlns.cuepublishing.com/configuration`. Before you add any `metadata-panel` elements to

your **content-type** resource, therefore, you should declare this namespace in the file's root element, and define a prefix for it (**cue** is recommended). For example:

```
<content-types xmlns="http://xmlns.escenic.com/2008/content-type"
  xmlns:ui="http://xmlns.escenic.com/2008/interface-hints"
  xmlns:doc="http://xmlns.vizrt.com/2010/documentation"
  xmlns:media="http://xmlns.escenic.com/2013/media"
  xmlns:video="http://xmlns.escenic.com/2010/video"
  xmlns:livecenter="http://xmlns.escenic.com/2015/live-center"
  xmlns:cci="http://cci/extension/integration"
  xmlns:cue="http://xmlns.cuepublishing.com/configuration"
  version="4">
  ...
</content-types>
```

Once you have done this, you can control the metadata panel sections displayed for items of a particular content type by adding a **cue:metadata-panel** element as a child of its defining **content-type** element. For example:

```
<content-type name="story">
  ...
  <cue:metadata-panel>
    my.relation-headshot
    cue.general-info
    my.extra-info
    cue.section
    cue.authors
    cue.related
    cue.tags
  </cue:metadata-panel>
  ...
</content-type>
```

The content of the **metadata-panel** element must be a white space-separated list of metadata panel section names. Only the sections you specify in the list will be displayed for content items of this type, and they will be displayed in the order specified. Content types for which you do not specify a **cue:metadata-panel** element will get the default metadata panel sections, displayed in the default order.

The sections must be specified using their CUE **tag names**. The tag names of the built-in metadata sections are listed in [section 3.2.7.1](#). The tag names of any metadata sections belonging to custom web components are defined in the web component configurations, as described in [section 6.1.2.5.1](#), for example.

3.2.7.1 Metadata Section Tag Names

CUE metadata panel sections are identified by **tag names**. All the built-in sections have tag names that start with the characters "**cue.**". To avoid possible future name clashes, you should choose a different prefix when naming any custom metadata sections you create.

CUE online sections

UI Label	Tag name
Schedule	cue.schedule

UI Label	Tag name
Authors	<code>cue.authors</code>
General info	<code>cue.general-info</code>
Related	<code>cue.related</code>
Section	<code>cue.section</code>
Tags	<code>cue.tags</code>
Usages	<code>cue.usage</code>
Measurements	<code>cue.online-measurements</code>

CUE Print sections

UI Label	Tag name
Properties	<code>cue.story-folder</code>
General info	<code>cue.text-general-info</code>
Package Properties	<code>cue.text-package-properties</code>
Package Properties (for storylines)	<code>cue.print-storyline-package-properties</code>
Proofreading	<code>cue.text-proof-state</code>
Related	<code>cue.text-related</code>
Related (for storylines)	<code>cue.print-storyline-related</code>
Text Properties	<code>cue.text-text-properties</code>
Assignment	<code>cue.assignment</code>
Measurements	<code>cue.print-measurements</code>

Shared sections

UI Label	Tag name
Versions	<code>cue.versions</code>

3.2.8 CUE Composer Integration for Storylines

It is possible to open a print story in CUE Composer directly from CUE. No configuration is required to make this integration available for rich text-based stories but for storyline stories, you need to explicitly enable it by including a `cue:integration-target` element in the storyline's content type definition. This element must contain the value `cue-print`.

The **cue**: namespace prefix must be declared (usually in the content-type resource's root element as follows:

```
<content-types xmlns="http://xmlns.escenic.com/2008/content-type"
  xmlns:ui="http://xmlns.escenic.com/2008/interface-hints"
  xmlns:doc="http://xmlns.vizrt.com/2010/documentation"
  xmlns:media="http://xmlns.escenic.com/2013/media"
  xmlns:video="http://xmlns.escenic.com/2010/video"
  xmlns:livecenter="http://xmlns.escenic.com/2015/live-center"
  xmlns:cci="http://cci/extension/integration"
  xmlns:cue="http://xmlns.cuepublishing.com/configuration"
  version="4">
  ...
</content-types>
```

The **cue:integration-target** element must then be included in the content type definitions of all the storyline content types that you want to be able to open in CUE Composer. For example:

```
<content-type name="storyline">
  ...
  <cue:integration-target>cue-print</cue:integration-target>
  ...
</content-type>
```

If your installation includes multiple CUE Print instances (test, staging, production for example), they must all be configured with different system names. Otherwise this feature may open stories in the wrong instance of CUE Composer.

3.2.9 Smart Quotes

CUE has a "smart quotes" function that can automatically convert default "straight" single or double quotes to "curly" quotes of various kinds. Different languages (and different publishers) have different quotation mark conventions, so this function is configurable, allowing you to set up CUE to use the quotation marks you require.

Smart quoting is disabled by default. To enable it:

1. If necessary, switch user to **root**.


```
| $ sudo su
```
2. Open **/etc/escenic/cue-web/config.yml** for editing. For example:


```
| # nano /etc/escenic/cue-web/config.yml
```
3. Add a **useSmartQuotes** property, and set it to **true**:


```
| useSmartQuotes: true
```

This enables the smart quotes function.

4. Add a **smartQuotes** property with four child properties called **openDoubleCurly**, **closeDoubleCurly**, **openSingleCurly** and **closeSingleCurly**. Use these properties to specify the quotation marks you want to use. Straight double quotation marks are replaced by the characters you specify with **openDoubleCurly** and **closeDoubleCurly**, and straight single quotation marks are replaced by the characters you specify with **openSingleCurly** and **closeSingleCurly**. The following settings, for example:

```
| useSmartQuotes: true
| smartQuotes:
```

```
openDoubleCurly: "„"  
closeDoubleCurly: "”"  
openSingleCurly: "`"  
closeSingleCurly: "'"
```

will replace "quotation" with „quotation” and 'quotation' with ‘quotation’.

5. If you want to limit the smart quotes functionality to rich text fields only, add the following:

```
disableSmartQuotesInNonRichTextFields: true
```

The smart quotes functionality will then not work in plain text fields.

6. Save the file.

7. Enter:

```
# dpkg-reconfigure cue-web-3.6
```

This reconfigures CUE with the changes you have made.

3.2.10 Spelling Checker

CUE itself does not include a spelling checker, and depends on whatever spelling checker is provided by the browser it is running in. Chrome includes a built-in spelling checker, and there are also spelling checker plug-ins for Chrome. CUE Print, however **does** include a spelling checker, and CUE can be configured to use CUE Print's spelling checker instead of whatever is available in the browser.

By default, CUE does not make use of the CUE Print spelling checker, even if it is available. To enable it:

1. If necessary, switch user to **root**.

```
$ sudo su
```

2. Open **/etc/escenic/cue-web/config.yml** for editing. For example:

```
# nano /etc/escenic/cue-web/config.yml
```

3. Add the following settings:

```
cueSpellCheck:  
  enabled: true  
  defaultState: on
```

This both enables the CUE Print spelling checker and switches it on by default for all users. If you don't want it to be on by default for all users, then set **defaultState** to **off** instead.

4. Save the file.

5. Enter:

```
# dpkg-reconfigure cue-web-3.6
```

This reconfigures CUE with the changes you have made.

Whether you set the spelling checker on or off by default, CUE users can subsequently switch it on or off for themselves. The option can be found under **Personal preferences** on the **Settings** page. Their selected setting is saved on the device, so users who use multiple devices will need to make the setting separately on each device.

3.2.11 Content Card Date Type

The content cards displayed in lists such as search results lists include a date field that can be used as a sorting key. By default, the date shown in this field is the content item's creation date (or in fact its creation time). You can optionally replace the creation date/time with the last-modified date/time if you consider this to be a more useful sort key.

To replace creation date/time with last-modified date/time:

1. If necessary, switch user to **root**.

```
| $ sudo su
```

2. Open **/etc/escenic/cue-web/config.yml** for editing. For example:

```
| # nano /etc/escenic/cue-web/config.yml
```

3. Add the following setting:

```
| useModificationTimeOnContentCard = true
```

4. Save the file.

5. Enter:

```
| # dpkg-reconfigure cue-web-3.6
```

This reconfigures CUE with the change you made.

3.2.12 Search Filters

The CUE search panel offers a set of search filters that allow users to narrow down the results of a search by limiting the results to all documents of a specified type or all documents created after a certain date, and so on. It is difficult to design a set of filters that meets all customers' requirements, so the CUE search filters are configurable. By editing a Content Store configuration file, you can:

- Determine which filters appear in the search panel's filters list
- Determine the order in which the filters appear
- Add your own custom filters

Exactly how you modify the search filters offered in the CUE search panel depends on whether your CUE installation has a CUE Content Store back end, or an Escenic Content Engine back end:

- If you have a CUE Content Store back end, then it is a Content Store configuration task. No configuration work is required in CUE itself. For instructions on how to modify CUE's search filters, see [Custom Search Filter Definitions](#).
- If you have an Escenic Content Engine back end, then see [section 3.2.12.1](#) below.

3.2.12.1 Modifying the Search Filter Panel (Escenic Back End)

Custom filters are simpler than the predefined filters: they are simple tests that the CUE user can only turn on or off. You could, for example, create a "Premium content" filter that selects only content items with a Boolean **premium** field that is set to **true**.

To modify the search filter panel:

1. If necessary, switch user to **root**.

```
| $ sudo su
```

2. Open `/etc/escenic/cue-web/40-search-filter.yml` for editing. For example:

```
# nano /etc/escenic/cue-web/40-search-filter.yml
```

3. Modify the default search filter layout to meet your requirements:

```
searchFilter:
  - id: "document-types"
    name: "Document Types" #translate
  - id: "document-states"
    name: "Document States" #translate
  - id: "creation-date"
    name: "Creation date" #translate
  - id: "authors"
    name: "Authors" #translate
  - id: "sections"
    name: "Sections" #translate
  - id: "tags"
    name: "Tags" #translate
```

You can, for example, change the order of the predefined filters and remove any you don't need by commenting them out:

```
searchFilter:
  - id: "document-types"
    name: "Document Types" #translate
  - id: "document-states"
    name: "Document States" #translate
  - id: "creation-date"
    name: "Creation date" #translate
  - id: "sections"
    name: "Sections" #translate
  - id: "authors"
    name: "Authors" #translate
# - id: "tags"
#   name: "Tags" #translate
```

You can also add custom filters of your own. You can insert a custom filter anywhere you like, for example:

```
searchFilter:
  - id: "document-types"
    name: "Document Types" #translate
  - id: "document-states"
    name: "Document States" #translate
  - id: "creation-date"
    name: "Creation date" #translate
  - id: "premium-content"
    name: "Premium Content" #translate
    query: "premium_b:true"
  - id: "sections"
    name: "Sections" #translate
  - id: "authors"
    name: "Authors" #translate
# - id: "tags"
#   name: "Tags" #translate
```

4. Save the file.

5. Enter:

```
# dpkg-reconfigure cue-web-3.6
```

This reconfigures CUE with the changes you have made.

Note the following:

- A custom filter's **query** property of must contain a valid Solr query clause. This means that in order to write such a clause you need to know both [Solr query syntax](#) and your Solr schema (in order to know what fields are indexed and how to identify the fields correctly).
- The predefined search filters have fixed IDs. Make sure that your custom filter IDs do not clash with them.

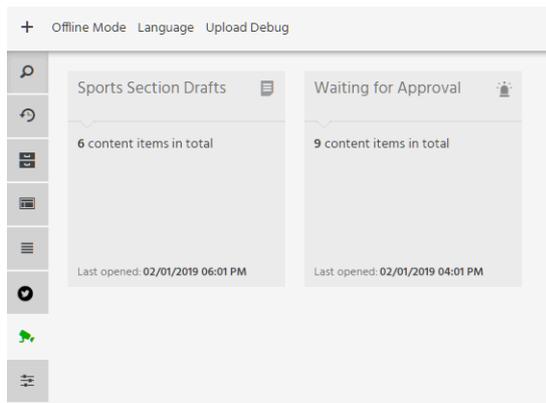
3.2.13 Source Monitors (Content Store only)

The functionality described in this topic depends on use of the CUE Content Store. If you are using CUE with an Escenic Content Engine back end, then it is not available.

Source monitors are constantly updated lists of content items maintained by CUE. They provide an easy way for editors and others to maintain control over the editorial workflow. You can, for example define one source monitor that lists all draft content items in the Sports section, one that lists all image content items in the approved state and another that lists all content items with a particular combination of tags. You can define any number of source monitors.

The content of a source monitor is updated every 30 seconds by default.

All the source monitors you define can be displayed on a dashboard by selecting  from the left hand navigation menu:



Each source monitor displayed includes information about the number of content items currently in its list and also the last time the list was opened. You can display the content of the source monitor list by double-clicking on the source monitor. The list is then displayed in a new tab.

A source monitor list looks more or less identical to the CUE search panel, since source monitors are in fact predefined searches. Like an ordinary search panel it has a search field at the top and a filter drop-down on the right that you can use to narrow down the contents of the list. And as with the standard search panel, you can also save searches. A saved search created in a source monitor panel belong to the source monitor: you will not find it in the standard search panel or in any other search monitor panel.

Creating source monitors is a Content Store configuration task. No configuration work is required in CUE itself. For instructions on how to create source monitors, see [Source Monitor Definitions](#).

You can, however, control how often source monitors are updated by adding some configuration settings as follows:

1. If necessary, switch user to **root**.

```
| $ sudo su
```

2. Open **/etc/escenic/cue-web/config.yml** for editing. For example

```
| # nano /etc/escenic/cue-web/config.yml
```

3. Add the following settings:

```
| sourceMonitor:
|   pollingEnabled: true
|   pollingInterval: interval
```

where *interval* is the required update interval in seconds (the default setting is 30).

4. Save the file.

5. Enter:

```
| # dpkg-reconfigure cue-web-3.6
```

This reconfigures CUE with the changes you have made.

You can disable source monitor updates altogether by setting **pollingEnabled** to **false**. All source monitors and the source monitor list will then only be updated if the user explicitly forces an update by refreshing the browser tab.

3.2.14 Autosave Interval

By default, changes made in a content editor are autosaved every three seconds. If you wish to change the autosave interval, you can do so by adding a configuration setting as follows:

1. If necessary, switch user to **root**.

```
| $ sudo su
```

2. Open **/etc/escenic/cue-web/config.yml** for editing. For example

```
| # nano /etc/escenic/cue-web/config.yml
```

3. Add the following setting:

```
| autoSaveInterval: interval
```

where *interval* is the required update interval in milliseconds (the default setting is 3000).

4. Save the file.

5. Enter:

```
| # dpkg-reconfigure cue-web-3.6
```

This reconfigures CUE with the changes you have made.

3.2.15 Quick View

CUE has a **quick view** feature that lets you quickly display a content item without having to actually open it in an editor. To display a quick view you select the content item you are interested in (for example, in a search results list) and press the space bar. This displays a pop-up window containing a simplified view of the content item. The quick view is superficially similar to a content editor but usually contains only a subset of the content item's fields, and it is not editable. You can navigate up and down in the content item list with the quick view open, and the contents of the view will change to show the currently selected item. To close the quick view, press the space bar a second time.

The quick view feature is available in:

- Search results lists
- Source monitor lists
- The **Recent** list
- The metadata panel **Related** and **Usage** sections
- The section page editor
- Inbox and list editors

In order to be useful, the quick view function must be configured by adding `ui:preview` elements to the fields in your content type and story element type definitions. Unless you do this, the main part of the quick view window will always be empty (although the metadata panel on the right of the window will contain some basic metadata).

To make a field show up in quick views, you need to add a `ui:preview` element as a child of its `field` type definition. For a storyline-based content item, this will be a `field` element in a story element type definition (see [Story Element Types](#)). For a rich text-based content item, it will be a field element in a content type definition (see [The content-type Resource](#)).

The following example shows a field definition containing a `ui:preview` element:

```
<field name="caption" type="basic" mime-type="text/plain">
  <ui:label>Caption</ui:label>
  <ui:preview/>
</field>
```

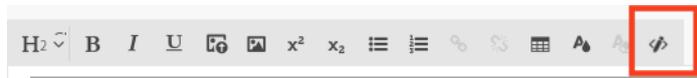
The `ui:preview` element currently only works for plain text, rich text and image binary fields. If you add it to other kinds of fields, it will be ignored.

3.2.16 HTML Source Editing

By default, CUE's rich text editor (used for editing XHTML-based rich text fields, not storyline content) does not include a source editing feature as in most cases it is not required. In some cases, however, rich text fields may end up containing unwanted or incorrect HTML markup. In such cases, access to a source editor may be needed to correct the problem.

You can therefore optionally enable a source editing option in the rich text editor. The editor cannot be globally enabled, but you can enable it for specific content types and / or specific rich text fields by adding `ui:allow-source-editor` elements to a publication's content-type resource. For detailed instructions on how to do use this element, see [allow-source-editor](#).

For any rich text field where HTML source editing is enabled, the following button is added to the editor toolbar:



The HTML source editing option is intended to be used for the correction/removal of invalid or unwanted HTML, not for the insertion of custom HTML content.

3.2.17 Cleaning up Pasted Content

Content copied from external sources such as web pages can contain a lot of unwanted and potentially dangerous markup. CUE therefore filters all content pasted into the rich text editor, removing everything except a small subset of HTML formats that are considered to be both useful and harmless. CUE's has two whitelists of allowed formats: a very restrictive one for print stories:

```
b i u sub sup p br ul ol li table thead tbody tfoot tr th td
```

and a slightly less restrictive one for online stories that includes headings, images and links:

```
h1 h2 h3 h4 h5 h6 b i u sub sup p br a[href] a[target] a[rel] ul ol li img[src]
img[alt] img[width] img[height] table thead tbody tfoot tr th td
```

The print whitelist is fixed, but you can override the online whitelist for a rich text fields by adding a `ui:whitelisted-elements-onpaste` element to the field definition in your publication's `content-type` resource. The `ui:whitelisted-elements-onpaste` element must be added as a child of the `field` element. If you want to change the whitelist of all the rich text fields in your publication then you must add a `ui:whitelisted-elements-onpaste` element to all the rich text `field` elements in your content-type resource.

Here is an example whitelist definition that is more restrictive than the default online whitelist:

```
<ui:whitelisted-elements-onpaste>
  h1 h2 h3 b i p br a[href] a[target] a[rel] a[class=myclass]
</ui:whitelisted-elements-onpaste>
```

For further information about the `ui:whitelisted-elements-onpaste` element, see [here](#).

3.2.18 CUE Print Access for Freelancers

To give freelancers full access to CUE print, including content creation rights:

1. If necessary, switch user to `root`.

```
$ sudo su
```

2. Open `/etc/escenic/cue-web/config.yml` for editing. For example:

```
# nano /etc/escenic/cue-web/config.yml
```

3. Add the following setting:

```
contractorExtendedAccess = true
```

4. Save the file.

5. Enter:

```
| # dpkg-reconfigure cue-web-3.6
```

This reconfigures CUE with the change you made.

Note that this freelancer access is limited to CUE print, it does not include online access.

3.2.19 Teaser Anchors in Section Page Previews

CUE can generate teaser-specific section page previews – previews that automatically scroll to a selected teaser. This can be very useful when working on publications with very long section pages. Instead of having to search for the teaser you are interested in after displaying the preview, you just select the teaser in CUE before you generate the preview: the preview then automatically scrolls to the correct location in the preview.

CUE generates a teaser-specific preview by including a fragment identifier in the URL passed to the preview tab:

```
| http://mywebsite.com/#ece-12345?poolId=104&token=-1361898978
```

This URL will cause the displayed preview to scroll down to the teaser marked with the anchor ``. CUE only includes a fragment ID in the preview URL if a teaser is selected in the section page editor when the preview button is pressed. The fragment ID has the form:

prefix content-item-id

where *prefix* is by default `ece-` and *content-item-id* is the internal ID of the selected teaser.

You can change the prefix that is used as follows:

1. If necessary, switch user to `root`.

```
| $ sudo su
```

2. Open `/etc/escenic/cue-web/config.yml` for editing. For example:

```
| # nano /etc/escenic/cue-web/config.yml
```

3. Add the following setting:

```
| previewAnchorPrefix = "your-preferred-prefix"
```

4. Save the file.

5. Enter:

```
| # dpkg-reconfigure cue-web-3.6
```

This reconfigures CUE with the change you made.

Required front-end configuration

In order for this feature to work, you must configure your front end application (i.e the CUE Front Waiter) to add matching HTML anchors to section page teasers. The Waiter application in the Tomorrow Online demo supplied with CUE Front 1.9 or higher includes a Twig template for this purpose called `anchor.twig`:

```
| <a id="ece-{{ articleId }}"></a>
```

If you want to know more, download the Tomorrow Online demo and look in the Twig templates to see how it is used.

3.2.20 Metadata Panel Section List Length

At installations where content items may appear in very many sections, displaying the complete list of sections in the metadata panel can become a performance problem. You can, however, reduce the impact of this problem by limiting the length of the metadata panel section list.

This option is disabled by default. To enable it, add the following setting to one of your CUE configuration files:

```
| filteredSectionPanel: true
```

When this option is enabled, a content item's section list will only contain the section in which the content item was created and the publication home section. You can expand the list to show all sections by selecting the **ADVANCED** link at the top of the metadata panel.

3.2.21 Default Tag Relevance

You can define the default relevance assigned to newly-created tags by adding the following setting to one of your CUE configuration files:

```
| defaultTagRelevance: relevance
```

where *relevance* is one of the following values:

- 0.2
Corresponds to one bar in the UI.
- 0.4
Corresponds to two bars in the UI.
- 0.6
Corresponds to three bars in the UI.
- 0.8
Corresponds to four bars in the UI.
- 1.0
Corresponds to five bars in the UI.

If the **defaultTagRelevance** property is not present or is set to any other value, then tags are assigned a default relevance of 1.0 (five bars).

Tags added by CUE Semantic are assigned a relevance by the back end tagging service, and are therefore not affected by the **defaultTagRelevance** setting.

4 Installing and Configuring Plug-ins

CUE's capabilities can be extended by installing **plug-ins**. CUE plug-ins fall into three categories:

- Base plug-ins supplied by Stibo DX that provide self-contained functional extensions. These plug-ins have no dependencies other than CUE itself and freely available system components such as the nodeJS engine. All the information you need to install and configure base plug-ins is here. The following base plug-ins are currently available:

cue-content-duplication-enrichment-service

This plug-in adds content duplication functions to the home page **Search** and **Latest Opened** panels in CUE and to the **Search** side panel. After installing the plug-in, the context menu displayed by right-clicking or long-pressing a content item in these panels will contain two new options, **Duplicate** and **Duplicate as**. These options allow you to quickly make copies of content items.

Base plug-in packages follow CUE version numbering: you should only install base plug-ins that have the same version number as CUE.

- CUE plug-ins supplied by Stibo DX. These CUE plug-ins are dependent on Content Store plug-ins as follows:

cue-plugin-live

Depends on CUE Live.

cue-plugin-menu-editor

Depends on the CUE Menu Editor plug-in.

cue-plugin-video

Depends on the CUE Video plug-in.

These plug-ins are automatically installed together with CUE. Any configuration that might be required is described in the appropriate Content Store plug-in guide.

- Third-party plug-ins that are not made by Stibo DX. These plug-ins may or may not have dependencies other than CUE itself. The information you need to install and configure these plug-ins must be provided by the plug-in supplier.

Base plug-ins are installed in the same way as CUE itself, using **apt-get install**, and can either be installed together with CUE, or at any time later. To install the **cue-content-duplication-enrichment-service** plug-in together with CUE, for example, you would do as follows:

```
# apt-get update
# apt-get install cue-web-3.6 cue-content-duplication-enrichment-service-3.6
```

To install it on its own after the installation of CUE, you would only need to enter:

```
# apt-get update
# apt-get install cue-content-duplication-enrichment-service-3.6
```

For additional instructions regarding the installation of the **cue-content-duplication-enrichment-service** plug-in, see [section 4.1](#).

4.1 cue-content-duplication-enrichment-service

This plug-in depends on nodeJS, version 6.4.0 or higher. The `node` command must be available in `$PATH`. To check whether this is the case, enter:

```
$ which node
```

If this command does not return the path of the `node` executable, then you need to either install it or add its location to `$PATH`. If `node` is available, make sure you check its version, since the version installed by default on Ubuntu systems is too old:

```
$ node -v
```

If the version number is less than 6.4.0, then you need to replace it with a newer version. For advice on how to do this on Ubuntu, see (for example) [this page](#).

4.1.1 Installing cue-content-duplication-enrichment-service

You can install the `cue-content-duplication-enrichment-service` plug-in either at the same time as you install CUE itself, or at any time later. The version number of `cue-content-duplication-enrichment-service` must match the version number of CUE. To install `cue-content-duplication-enrichment-service` on its own after the installation of CUE, log in as `root` and enter:

```
# apt-get update
# apt-get install cue-content-duplication-enrichment-service-3.6
```

This installs the enrichment service and starts it immediately.

4.1.2 Configuring cue-content-duplication-enrichment-service

The `cue-content-duplication-enrichment-service` is configured to run on port 8082 by default. If for some reason that won't work, you can change the port number as follows:

1. Log in as `root` if necessary.
2. Open `/etc/escenic/content-duplication-service-3.6/content-duplication-service.yaml` in an editor:

```
server:
  port: 8082
```

3. Set the port number to whatever value you require and save the file.
4. Restart the service as follows:

```
# /etc/init.d/content-duplication-service restart
```

You also need to configure CUE to access the duplication service. To do this:

1. Create a file called `/etc/escenic/cue-web/content-duplication-service.yaml`, open it in an editor and add the following content:

```
enrichmentServices:
  - name: "Duplicate Service"
    href: "http://myhost:8082/contentDuplicationService"
    title: "Duplicate Service"
    triggers:
```

```
    - name: "on-duplicate"
      properties: {}

authorizedEndpoints:
  - "http://myhost:8082/"

extendedContextMenuItems:
  - name: "duplicate-service"
    title: "Duplicate"
    trigger: "on-duplicate"
  - name: "duplicate-as-service"
    title: "Duplicate as ..."
    trigger: "on-duplicate"
```

where *myhost* is your CUE host's domain name.

2. If you have changed the duplication service's port number from **8082**, then replace both occurrences of this.
3. Save the configuration file.
4. Apply your configuration changes by entering:

```
| # dpkg-reconfigure cue-web-3.6
```

You should now be able to duplicate content items using the **Duplicate** and **Duplicate as** context menu options in CUE.

5 Using CUE

This chapter contains the information existing users of Content Studio need to get started using CUE. Although CUE is intended to work on any mobile or desktop device using any modern browser, with the current version you are recommended to use the following device/browser combinations:

- Chrome on all desktop/laptop computers (including Macs) and all Android devices
- Safari on all IOS devices

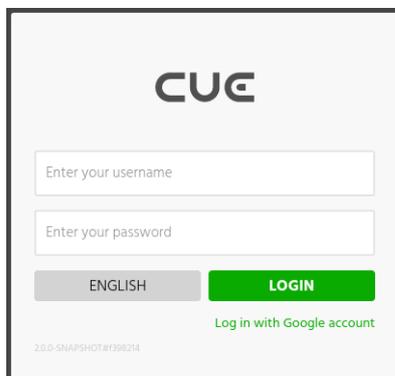
5.1 Getting Started

CUE is a **tab-based** webapp. What we mean by this is that CUE uses browser tabs as document containers. Every content item or section page you open or create is opened in a new browser tab, rather than everything happening in a single tab. If you've used Google Docs or Microsoft's Office Online before, then you'll know what to expect. The following video shows how CUE makes use of tabs.

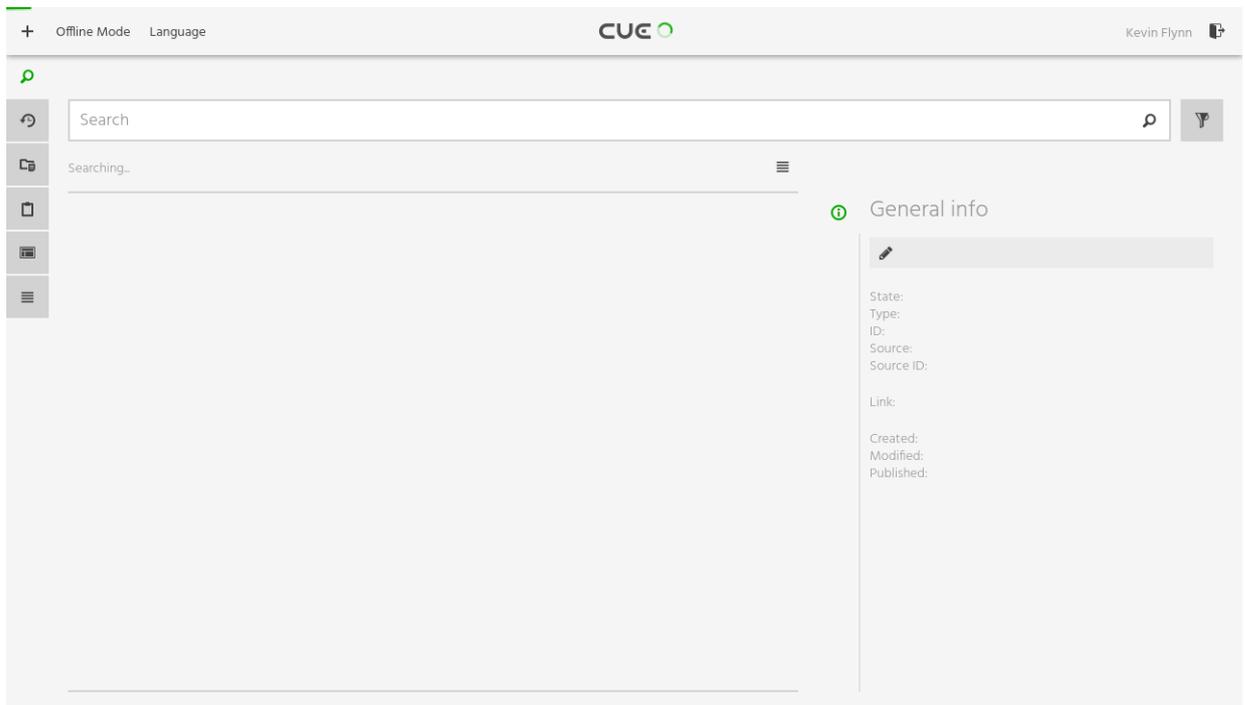
Video: getting started with CUE

To get started with CUE:

1. Open a browser.
2. Go to the CUE URL you have been given by your network/system manager. You will see the CUE login window:



3. Log in using the same credentials as you would use for Content Studio. You will then see the CUE **home page**, which looks something like this:



You can now get to work. But before you do, it's probably a good idea to take look at some of the CUE tab's components.

At the top of the tab is the CUE menu bar.



This menu bar is present in all CUE tabs - document containers as well as the tab. Aside from the **Offline mode** and **Language** menus that are discussed later, the menu bar contains three important buttons:



This is the **New** button – it creates new content items.



This is the **Home** button – it opens a new CUE tab containing the home page. Not very useful when you're already on the home page, but useful if you're working on a content item or section page and don't have a home page open in your browser.



This is the **Log out** button.

Down the left hand side of the page is a column of **panel buttons** that determine what is displayed on the home page:



This button displays the CUE **Search** panel, that you can use to search for content. See [section 5.3](#) for further information.



This button displays the **Recent** panel, a list of documents you have been working with recently.



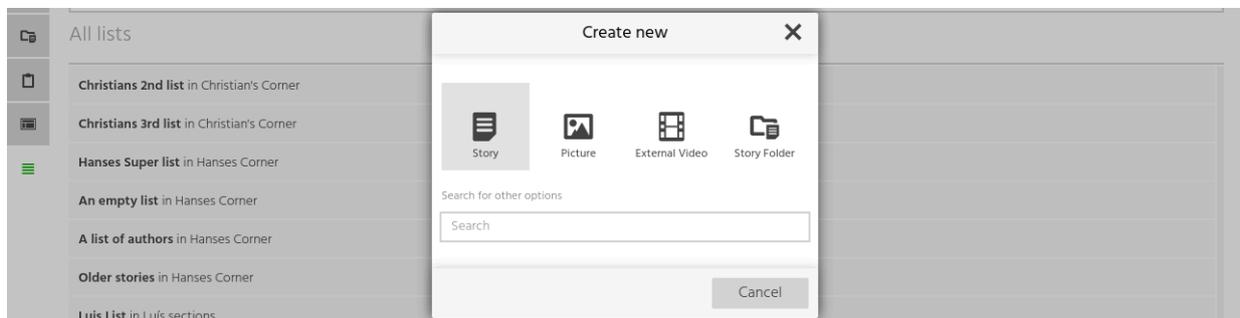
This button displays the **Sections** panel, which you can use to view and work with your publications' sections and section pages.



This button displays the **Lists** panel which contains a list of all your lists.

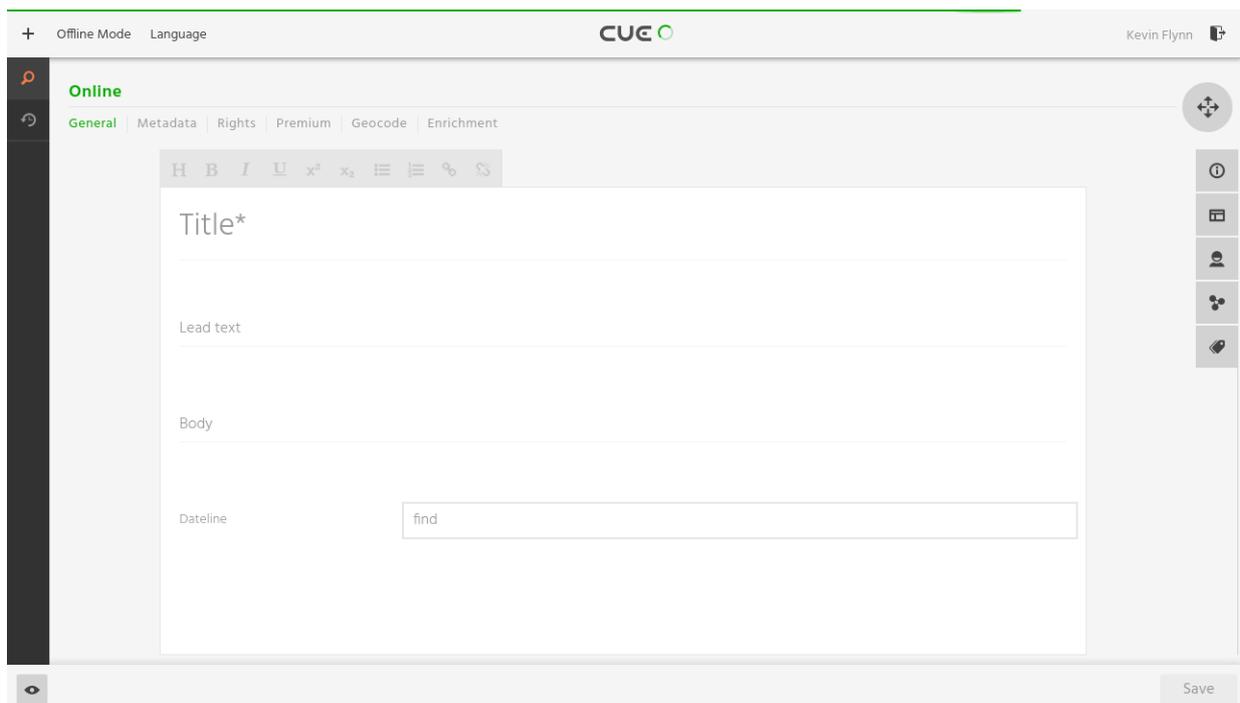
5.2 Creating Content

To create a new content item, select the **+** button (at the left end of the menu bar) and then select the required content type from the displayed dialog:



If you can't see a button for the content type you want to create, then use the **Search for other options** field to find the content type you want to create.

The new content item is displayed in a new browser tab and will look something like this:



Exactly what fields are included in the content item depends on its type. The fields are usually divided into groups that are displayed on separate pages. The group names are listed at the top of the content editor, and you can switch between the pages by clicking/tapping the group names. The most commonly-used fields are displayed in the first, default group, while less-used fields are relegated to the other groups.

Click / tap on these links to switch between the cards.

Now all you need to do is to fill in some fields (all the required ones marked with * at least) and click **Save** to save your content item.

If you've not used a tab-based webapp before, now is probably a good time to look closely at what has happened. You started up CUE in one tab, and when you clicked on the **+** button to create a new content item, the content item was created in a new tab. So now you have two CUE tabs open in your browser:

- The original CUE home page, which has the tab name **CUE**.
- Your new content item, which has the content item title as its tab name.

This means that if you have a number of CUE tabs open in your browser, you can easily see what is what.

The advantage of displaying each content item in its own browser tab is that each CUE content item effectively becomes a web page, with a unique and unchanging URL, just like any other web page. This means you can bookmark content items using your browser's bookmark functions if you want. And if you copy the URL of a content item and send it to another CUE user by mail or chat, then that person can open the content item in CUE by simply clicking on the link (and logging in if necessary).

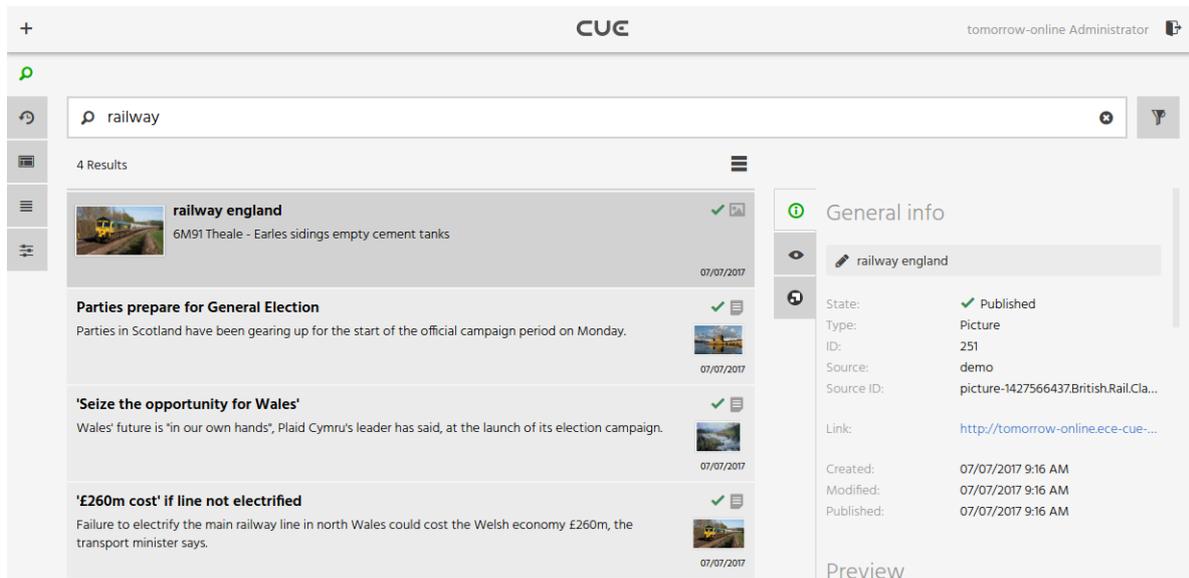
When you create a content item in this way using the menu bar **+** button, it is added to your publication's default section (usually called **New Articles** or something similar). You can move it, or add it to other sections as well if you want. You can, however, also create content items from the home page's **Sections** () panel: this allows you to create the content items directly in the correct section.

5.3 Finding and Opening Content

To find an existing content item:

1. Open the CUE home page.
2. Make sure that the search panel is displayed (select the  button if necessary).
3. Enter a search string in the field at the top of the panel.

The search results are displayed below the search field:



There are several different ways to open a content item:

Desktop	Mobile
Double-click the content item	Double-tap the content item
Right-click the content item, then select Open from the displayed menu	Long-press the content item, then select Open from the displayed menu
Select the content item, then press Enter on the keyboard	—

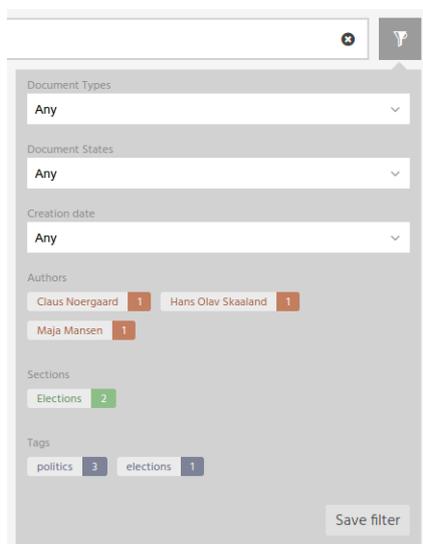
The selected content item is opened in a new tab, just the same as when you create a new content item.

For more information about searching for content, see [section 5.4](#).

5.4 Searching for Content

You've already seen in [section 5.3](#) how you can use the search field at the top of the CUE home page to find content items you are interested in. Sometimes, however, simple text string searches aren't enough to find what you want. CUE therefore also includes a powerful set of filters that you can use to narrow your search.

To display the search filters, click on the  button at the right-hand end of the search field:



You can now narrow down your results using up to six different criteria in addition to a search string: document type, document state, creation date, author, section (that is, the publication section content belongs to) and tags. The first three criteria are drop-down selections, and you can only choose one of the available options: if you select the "Story" document type, then you can't choose "Picture" as well. **Author** is also a single choice criterion: if you select one author label, then all the other options disappear. **Sections** and **Tags**, however are multiple choice criteria: if you pick several section labels, then the results will be narrowed down to include only documents that belong to all of the selected sections. Similarly, if you pick several tags, then the results will be narrowed down to include only documents that have all the selected tags.

Note how every selection you can make is followed by a number – this is the number of results that match all the criteria you have already specified **plus** that particular selection. This makes it easy to see how you can best narrow down the search results.

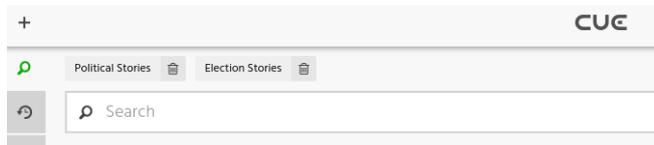
By default, CUE shows a small amount of content and some information about each document in the results list. If you want a more compact list, click on the  button at the top right to display titles only. Click a second time to expand the list again.

You don't have to go back to the CUE home page to search for content: document tabs have a side bar search function. To open the search side bar, click on the  button on the left side of the document tab. The search side bar contains all the same search and filtering functions as the home page.

5.4.1 Saving Search Filters

If you frequently use the same combination of filter selections to search for content, you can save time by saving search filters. To do this, just select the **Save filter** button at the bottom of the search filter

panel and enter a name for the filter. The filter will then appear as a button above the search field. You can create as many search filters as you like in this way.



You can instantly execute complex searches at any time by selecting these buttons. To cancel a selected filter, just select it a second time. To delete a filter when you no longer have any use for it, just select its trashcan icon.

Search filters are saved on the server, not on the device you are using. This means that if you use multiple devices and computers, the filters you create will always be available on all of them.

5.4.2 Sharing Searches

When you define a search or select a saved search filter, you may notice that the URL in the browser's URL field changes. This is because the search you have defined is added to the URL. This means that you can easily share a search you have defined with other CUE users by simply sending the URL to them. Copy the content of the URL field, paste it into a mail or messaging application and send it to any CUE user. The recipient will be able to see your search results by simply clicking on the link.

5.4.3 More About Search

This section contains more detailed information about how searches are performed.

Ignored characters

The following special characters in a search string are ignored (or to be precise, they are removed from the search string and replaced by space characters):

% ^ " / \ : ; () + ? ! { } [] ~ | -

In other words, if you enter the search string **Test%Search\String** it will be converted to **Test Search String** before it is submitted to the search engine.

Wild cards added

Once any special characters have been removed, wild cards are added to each word in the resulting search string as follows:

```
Test Search String => (Test Search String) OR ((Test OR Test*) (Search OR Search*)  
(String OR String*))
```

This means it will find not only occurrences of the specified words, but also occurrences of longer words that start with the same character sequence ("**Tested searching strings**", for example).

How filters are combined

Multiple filters **of the same type** are combined with an **OR** operator, so that items matching **any** of the specified criteria will be found. Adding more filters of the same type therefore potentially **increases** the number of results. Specifying the **Document Types** filters **Story** and **Picture**, for

example, will return both stories and pictures, whereas if you specify only **Story** then only stories will be returned.

Multiple filters of different types are combined with an **AND** operator, so that only items matching **all** of the specified criteria will be found. Adding more filters of the same type therefore potentially **decreases** the number of results. Specifying just the **Document Types** filter **Story**, for example, will return all all stories, whereas specifying both the **Document Types** filter **Story** and the **Authors** filter **Alice** will only return those stories that have Alice as an author. Specifying the **Document Types** filters **Story** and **Picture** and the **Authors** filters **Alice** and **Bob** will return both stories and pictures that have either Alice or Bob (or both) among their authors.

5.5 Editing Content

Once you have created or opened a content item, editing is simply a matter of clicking in the fields in the content editor and entering/editing content in the usual way. Different types of content items have different fields: they are customer-defined, so the content items in your particular system may have different fields from the examples you see here.

Content item fields are usually divided into groups that are displayed on separate pages. The group names are listed at the top of the content editor, and you can switch between the pages by clicking on the group names. The most commonly-used fields are displayed in the first, default group, while less-used fields are relegated to the other groups.

A content item can contain many different kinds of fields, designed to hold different kinds of values (plain text, formatted text (called **rich text**), numbers, specific values such as keywords, and so on. Many fields have constraints that limit what you can enter, such as maximum string lengths or minimum/maximum numerical values. Any fields that are marked with an asterisk (*) are required fields: until you have specified an allowed value in all required fields, the **Save** button is disabled so that you cannot save the content item.

When you edit a field, you'll see that a lock symbol is displayed below the field, indicating that the field is now locked by you – in order to prevent conflicts, nobody else is allowed to modify this field until you have saved your changes. Once you save your changes, the lock is removed, and other people can make changes to the field. Occasionally, you may notice that a field you want to edit is locked by somebody else, and you cannot change it.

Above all the fields in a group is a formatting toolbar:



This toolbar is only enabled when you are editing a rich text field.

You can copy text into a content item from other content items, from other browser tabs/windows or from other applications such as Word or Excel either by copying and pasting or by dragging and dropping.

You can preview the current state of the content item at any time by clicking or pressing the  button below the editor.

To save your edits select the **Save** button below the editor.

On the left hand side of a CUE content tab are two buttons,  (**Search**) and  (**Recent**). They have the same purpose as these buttons do on the home page (displaying search and recently opened panels) but in this case, the panels they display are just side bars. This allows you to search for other content while you are editing a content item – so that you can, for example, add them to the content item you are working on as **relations**. For more about this, see [section 5.5.3](#).

On the right side of a document tab is a column of buttons that you can use to display the document's **attributes panel**. Each button displays a different part of the attributes panel:



Displays **General info** – general information about the document.



Displays **Sections** – the sections to which the document belongs. You can add/remove the document to/from sections here: see [section 5.5.1](#) for details.



Displays **Authors** – the authors of the document. You can edit the document's list of authors here: see [section 5.5.2](#) for details.



Displays **Related** – the documents related to this document. You can add and remove relations here: see [section 5.5.3](#) for details.



Displays **Tags** – the document's tags. You can add and remove tags here: see [section 5.5.4](#) for details.

5.5.1 Adding Content to Sections

The sections to which a content item belongs are displayed in the attributes panel on the right of the content editor, in a division called **Sections**. To display the sections, click/tap the  button.



When you save a new content item it is automatically added to your publication's "new articles" section. To include it in other sections as well:

1. Make sure the attributes panel's **Section** division is expanded.
2. Click in the **Section** division's search field and start typing the name of the required section.
3. When the required section appears, select it to include the content item in the section.

Each section the content item belongs to is represented by a section bar that contains the name of the bar, plus the following buttons:



Moves the content item between this section's inboxes. A content item can only be in one inbox at a time.



Adds/removes the content item to/from this section's lists. A content item can be in several lists at the same time.



Sets the content item's home section. Just click on the  button of the section that you want to be the content item's home section.



Removes the content item from this section. You cannot remove a content item from its home section.

5.5.2 Changing a Document's Authors

A document's authors are displayed in the attributes panel on the right of the content editor, in a division called **Authors**. To display the list of authors, click/tap the  button.



By default, a document has one author: the user who initially created it. You can, however, add more names to the list of authors, or replace the default author.

To add an author:

1. Make sure the **Authors** division of the attributes panel is displayed.
2. Select the  button above the author field. This displays a **Select authors** dialog.
3. Select the content item you want to add as a relation. There is a search field at the top of the dialog to help you find the content item you want.
4. Click /tap **Add**.

To remove an author from the list of authors, select its  button.

5.5.3 Managing Relations

Relations between documents are very important in CUE systems. They are used to both represent links between documents (links to related articles, for example), and inclusions of one document in another (the inclusion of images and/or videos in articles, for example).

Relations are displayed in the attributes panel on the right of the document tab, in a division called **Related**. To display the relations, click/tap the  button.

You can then add a relation to the document in either of the following ways:

- 1. Open the **Search** () or **Recent** () side panel (on the left side of the document).
 2. Find the document you want in the side panel.
 3. Drag your chosen document across to the **Related** section.
 4. Drop it in the appropriate relation field.

- 1. Select the **+** button above one of the relation fields. This displays a **Pick relation** dialog.
- 2. Select the document you want to add as a relation. There is a search field at the top of the dialog to help you find the document you want.
- 3. Click /tap **Add**.

You can also add the document you are currently working on as a relation in another document. The other document must already be open in CUE as well. To do this:

1. Select the **drag handle** of the document you are currently working on. A document's drag handle is the  icon displayed in the top right corner of the document.
2. Drag the handle to the tab of the document you want to relate it to.
3. Hold the drag handle over the tab until the target document comes into view.
4. Drag the handle to the required relations field and drop it there. (You might need to first drag the handle to the  button and hold it there until the attributes panel opens and displays the **Related** section.)

To remove a relation, select its  button.

5.5.4 Tagging Content

A content item's tags are displayed in the attributes panel on the right of the content editor, in a division called **Tags**. To display the tags, click/tap the  button.

You can then add a tag to the content item as follows:

1. Start typing the name of the tag you want to insert in the **Find Tags** field. A list of matching tags will be displayed below the field.
2. Select tag you want to add.
3. The five bars to right of the tag represent the **relevance** of the tag to the content item. All tags you add are initially assigned a relevance of five, but you can change the relevance by clicking/tapping these bars. Relevance can be used to control the display of tags in your publications and to fine tune tag-based searching. If relevance is used in your publications, then you will most likely have been given some rules for how to set it - otherwise, you can just ignore it.

If the tag you enter does not already exist, then an option to create it is offered below the field instead of a list of matches.

To remove a tag, select its  button.

5.6 Editing Persons and Users

Content Store person and user objects appear in CUE as special content items called **Person** content items. **Person** content items differ from other content items in the following ways:

- They are predefined by the system, not user-defined as are all other types of content item.
- They have a fixed structure, with a fixed set of fields that cannot be modified.

- They are identified internally by the special name `com.escenic.person`, and this is the content type name you have to use in CUE's **Document types** search filter.
- They are subject to a different workflow and cannot be published.

The difference between a person and a user is that a user has a Content Store login. When you open a Person content item you can see whether it represents a person or user by checking the **User name** field under **General Info** in the metadata panel.

Person content items cannot themselves be published, as they are considered to contain private information such as addresses and telephone numbers. Person content items do, however, have a **Profiles** relation, which you can use to associate ordinary, publishable content items with Persons. Profile content items can be used to hold images, biographical details and so on for use in bylines.

The recommended approach is to define a special "Profile" content type that contains fields/relations for all the information you want to be able to publish about authors: biography, email address, Twitter handle, headshot and so on. A Profile content item is then created for each Person object and dropped in its **Profiles** relation.

Assuming you have administrator access rights then you can use CUE to edit Person content items (for both persons and users). You cannot, however, create or delete them. To do these things you need to use Web Studio (see [User Administration](#)).

If you do not have administrator access rights then you can only edit your own user's Person content item or persons (not users) that you have created yourself.

5.6.1 Changing User State

A user is always in one of the following states:

Enabled

This is the default state. In this state, a user has access to CUE, Content Studio, Web Studio and all other editorial applications.

Limited

In this state, a user only has access to Mobile Studio, and will not be able to log in to any other editorial applications. This state is useful for external contributors such as bloggers.

Suspended

Not currently used. Has the same effect as **Disabled**.

Banned

Not currently used. Has the same effect as **Disabled**.

Disabled

In this state a user has no access to any editorial applications.

When editing a user's Person content item, you can switch between these states using the workflow buttons at the bottom of the content editor.

5.7 Publishing Online Content

You can publish content items from CUE and make other state changes in much the same way as you do it in Content Studio.

5.8 Multimedia Publishing

If CUE is connected to a CCI NewsGate system as well as an CUE Content Store, then **ONLINE**, **PRINT** and **TABLET** options are displayed at the top of content tabs, allowing you to distribute content to print and tablet publications as well as to online publications.

To publish to print or tablet, select the corresponding view (**PRINT** or **TABLET**): you will then see the settings needed to publish to the selected medium. The settings and publishing process for print and tablet are similar to the settings and procedures in Newsgate.

If there is a print or tablet version of the current Escenic content item (or **online package** in Newsgate terminology) then the **PRINT** or **TABLET** option is displayed in black. If there is no such version, then the corresponding option is grayed out. You can however create a version of that type by clicking on the option.

5.9 NewsGate Story Folders

If CUE is connected to a CCI NewsGate system as well as an CUE Content Store, then an extra **Story folders** button is included in the column of **panel buttons** displayed on the left hand side of the home page. Selecting this button displays a panel containing all your Newsgate story folders.

You can filter the list of story folders by typing in the **Filter** field at the top of the navigation pane: only story folders containing the string you enter will be displayed.

Select a folder from the list to open it in a content tab.

A story folder contains the sections **Stories**, **Assets**, **Assignments**, **Team** and **Contacts**. All these sections have similar contents to the corresponding sections in CCI NewsGate, except for the **Stories** section. In NewsGate, stories are added to different packages for output to different media, whereas In CUE, a story can exist in different media versions, all of which share a common text.

To create a new story in CUE, select the **+** button **on the menu bar**. This creates a story in a new story folder, containing an online package (that is, an Escenic content item).

To simply add a new text to a story folder, select the **+** button **in the story folder**. The process of creating a new text is the same as in NewsGate.

The metadata properties displayed on the right of the story folder are the same as those displayed in CCI Newsgate and have the same meaning/functionality.

5.10 Setting Preferences

CUE has a Preferences page where you can make small adjustments to CUE's behavior. To display the Preferences page, select the  button from the CUE home page (on the left at the bottom), then select **Personal preferences**.

On this page you can specify the following options:

Spell checker

Select this option if you want to use the CUE Print spelling checker.

This option is only displayed if your CUE installation includes CUE Print and use of the CUE print spelling checker has been configured as described in [section 3.2.10](#).

Organizational Units

This option lets you choose which **organizational unit** you want to work in. If you belong to a large organization with many publications, they may well have been divided up into organizational units (the term corresponds to newsroom in many media organizations). The organizational unit you choose governs which publications you see while working in CUE.

Default sections

By default, CUE adds all new content to a publication's **New Articles** section. You can, however, override this behavior here. You can override it in two ways:

1. By checking the **Default to last used section** option. If you do this, then a new content item will be added to whichever section of the publication you last worked in.
2. By specifying a preferred section for each publication you have access to.

If you check **Default to last used section**, then this will override any preferred section you have specified explicitly, so if you want to explicitly specify default sections, don't check **Default to last used section**.

5.11 Autosave and Recovery

CUE incorporates an autosave function for content, to ensure that you will not lose work in the event of a browser crash. CUE content editors automatically save your work at regular intervals (every three seconds by default). If the browser crashes while you are working on a content item, then when you restart CUE and reopen the content item you were working on, a prompt like this is displayed:



If you select **Recover** then the autosaved copy is loaded into the content editor, and you can continue editing from (almost) where you were interrupted. If you select **Discard**, then the last version you saved yourself is loaded into the content editor, and all subsequent editing is discarded.

The autosave function works in the same way for both classic (rich text-based) content and storyline content.

Autosaved changes are saved on your computer or mobile device, not the CUE server. This means the recovery function will only work if you restart CUE on the device where the crash occurred.

5.12 Keyboard Shortcuts

Once you are familiar with CUE's overall structure, keyboard shortcuts offer a faster and more efficient way of accessing functionality. CUE provides two different types of shortcut:

- Standard function keys and shortcuts of the kind available in most applications (arrow keys for navigating lists, **Ctrl-c** for copying, **Ctrl-v** for pasting and so on)
- Semantic shortcuts

These two types of shortcut are described in the following sections.

5.12.1 Standard Function Keys and Shortcuts

Here are some of the most commonly used function keys and shortcuts. There are more, that you can discover by using the semantic shortcut mechanism described in [section 5.12.2](#).

The plus sign in shortcut descriptions is used to indicate that keys should be pressed together. In other words, **Ctrl+c** below means hold the **Ctrl** and **C** keys down simultaneously. On a Mac you should use the **Cmd** key instead of the **Ctrl** key.

Key	Function
Space	Select highlighted object (equivalent to single mouse click)
Enter	Open selected object(s) (equivalent to double mouse click)
Up, Down arrow	Move highlight/selection up and down in a list. Holding down the Shift key simultaneously extends/shrinks the selection where appropriate.
Tab	Move focus to next field. Hold down the Shift key to move the focus to the previous field
Delete	Delete selected object(s)
Backspace	Delete selected object(s)
Home	Move highlight/selection to the first item in a list. Holding down the Shift key simultaneously extends/shrinks the selection where appropriate.
End	Move highlight/selection to the last item in a list. Holding down the Shift key simultaneously extends/shrinks the selection where appropriate.
Ctrl+c	Copy selected object(s)
Ctrl+x	Cut selected object(s)
Ctrl+v	Paste into selected location
Ctrl+s	Save current editor state
Ctrl+z	Undo last editor action
Shift+Ctrl+p	Display preview (in any editor that has a preview button)
Shift+Ctrl+s	Publish (in any editor that has a publish button)
Shift+Alt-1, . . . Shift+Alt-6	Change heading weight in rich text editor (Shift+Alt-2 , for example, applies the HTML h2 style).

5.12.2 Semantic Shortcuts

CUE's semantic shortcuts are so called because they are based on meaningful action names, in order to make them easy to remember. You can access the shortcuts anywhere in CUE by pressing the **Shift** key twice in quick succession. A small menu in a black box is then displayed listing the shortcuts currently available, for example:

C Create...
G Go to...

Pressing one of the suggested keys will either perform the corresponding action or (if the action name is followed by ...) display another menu containing further keypress options. Pressing the **G** key when the above menu is displayed will, for example display this menu:

I General Info
S Sections
T Tags
R Relations **Ctrl+Alt+R**
A Authors
U Usage

Pressing the key sequence **Shift Shift G A** will, in other words execute the command "Go to Authors", which displays the the **Authors** metadata panel.

The use of keypress options based on meaningful action names together with the menu display make CUE semantic shortcuts self-documenting and easy to learn.

The available shortcuts vary according to context. If you want to know what shortcuts are available in your current context, just press **Shift Shift** to display the shortcut menu.

You can use the semantic shortcut menus as a way of learning standard shortcuts too: If a semantic shortcut has a standard shortcut alternative, then the standard shortcut is listed in the menu alongside the semantic shortcut (as in the case of the **Relations** entry in the example shown above).

5.13 Exploring CUE

There's a lot more to CUE than we've covered in this short introduction. Most of the things you can do in Content Studio, you can now also do using CUE. You can use it, for example, to create and edit sections, section pages, lists and inboxes, crop images and so on.

Now you are familiar with CUE's basic content editing functionality, you should find it relatively easy to learn how to use CUE to accomplish other objectives, especially if you are already a Content Studio user.

6 Extending CUE

CUE is more than a simple editor for Content Store - it's an extensible platform. It includes three extension mechanisms that you can use to add your own functionality and to integrate external services into your editorial workflows. The extension mechanisms are:

Web components

CUE web components are HTML/CSS/Javascript components that you can use to add custom functionality to CUE. See [section 6.1](#) for further information.

Enrichment services

Enrichment services are a very powerful and flexible mechanism for extending CUE's functionality. An enrichment service is an HTTP service that communicates with CUE via a very simple protocol. You can implement your own enrichment services to provide additional functionality and integrate CUE with other systems in various ways. See [section 6.2](#) for further information.

Drop resolvers

Drop resolvers are HTTP services, rather like enrichment services. Drop resolvers, however, are specifically designed to handle the processing and import of foreign objects dropped into CUE. See [section 6.3](#) for further information.

URL-based content creation

CUE lets you create a draft content item by simply passing a URL to a browser. A script running in some other application such as Trello, Google Sheets or Slack can simply construct a CUE URL containing the details of a new content item and pass the URL to a browser. CUE will then start in the browser and create the requested content item, ready for the user to continue editing (if required), save and publish. See [section 6.4](#) for further information.

Logout triggers

A logout trigger is a simple HTTP **GET** request that is sent to a specified URL when the user logs out from CUE. It provides a mechanism for integrators to automatically perform other actions (such as logging out of a VPN) on logout from CUE. For further information see [section 6.6](#).

When a problem arises in CUE, it is sometimes difficult to determine whether the problem is in CUE itself or in an extension you have added. CUE therefore includes a **safe mode** feature that lets you easily disable extensions as a diagnostic aid. For details, see [section 6.7](#).

6.1 Web Components

[Web components](#) is the name given to a set of features being added to the W3C HTML and DOM specifications that support the creation of reusable components in web documents and web applications.

CUE makes use of this technology to enable the following types of extensions:

Editor side panel

An editor side panel is displayed as a pop-out panel on the left side of a CUE editor window (similar to an editor **Search** panel). A custom editor side panel works in the same way as the standard side panels: a new button is added to the column on the left side of the display, and selecting this button opens and closes the panel.

Editor metadata section

An editor metadata section is displayed in the pop-out attributes panel on the right side of a CUE editor window (similar to the **General info** and **Authors** sections). A metadata section works in the same way as the standard attributes sections: a new button is added to the column on the right side of the display, and selecting this button opens and closes the panel, focused on the appropriate section.

Custom field editor

A custom field editor extension changes the appearance and behavior of a content item field. You can, for example, configure CUE to display an integer field in a content item as a graphical slider instead of displaying a simple text field. You can also use it to display much more complex components containing many different controls and elements: a color picker component that offers the user several different ways to choose a color, for example.

Custom storyline element field editor (Content Store only)

A custom storyline element field editor extension changes the appearance and behavior of a storyline element field. It works in much the same way as a custom field editor, and enables the same kinds of possibilities. The map and table storyline elements included in the CUE Content Store's starter pack are implemented using custom storyline element field editors.

Home page panel

A home page panel occupies the main work area of the CUE home tab. A custom home page panel works in the same way as the standard **Search** and **Sections** panels: a new button is added to the column on the left side of the display, and selecting this button displays the panel in the main work area.

Home page metadata section

A home page metadata section is displayed in the pop-out attributes panel on the right side of a CUE editor window (similar to the **General info** and **Pages** sections displayed with the **Sections** home page panel). A metadata section works in the same way as the standard attributes sections: a new button is added to the column on the right side of the display, and selecting this button opens and closes the panel, focused on the appropriate section.

All you need to do to add a web component to CUE is:

- Create a JavaScript file containing the definition of your web component.
- Put the web component definition in a web location that is accessible to CUE.
- Add information about the web component to a YAML configuration file and save the file in the CUE configuration folder (`/etc/escenic/cue-web`). You can either create a separate configuration file for each of your web components, or create a single configuration file for all of them.

This process is described in more detail in the following sections.

6.1.1 Creating a Web Component

A web component is an ECMAScript (ES) module. It contains:

- A class extending `HTMLElement`. The class can use the `shadowRoot` to define **local** CSS styles. These styles are **only** applied to HTML elements inside that `shadowRoot` – they will not affect any elements in documents where the web component is displayed.
- A statement to register the class as a custom element. The custom element name **must** contain a `-`.

Here is a skeleton web component that you can use as a basis for your own web components:

```
/**
 * Creating the web component
 */
class MyComponent extends HTMLElement {
  constructor() {
    super();

    this.attachShadow({ mode: 'open' });
    this.shadowRoot.innerHTML = `
      <style>
        :host { width: 100%; display: block; } /* Styles the web component tag */
      </style>

      <!-- Add your web component HTML here -->
    `;
  }

  connectedCallback() {
    console.log('The CUE interface of the web component:', this.cueInterface);
    // The web component is now attached.
    // Add your logic here.
  }
}

customElements.define('my-component', MyComponent);

/**
 * Creating the icon (if required)
 */
class MyComponentIcon extends HTMLElement {
  constructor() {
    super();

    this.attachShadow({ mode: 'open' });
    this.shadowRoot.innerHTML = `<!-- Add your web component icon HTML here -->`;
  }

  connectedCallback() {
    console.log('The CUE interface of the icon:', this.cueInterface);
    // The icon is now attached.
    // Add your logic here.
  }
}

customElements.define('my-component-icon', MyComponentIcon);
```

Field editor web components have no use for an icon, so in this case the icon class can be omitted.

Drag and drop from web components

You can drag objects from all web components except rich text field extensions to drop zones in CUE. Anywhere in the CUE interface that you can drop an uploaded file, you can also drop an object that has been dragged from a web component, as long the object is correctly constructed. A correctly constructed draggable object is a JSON object with a single property, **files**. This property is an array of objects, each object being composed of three properties:

name

The file name of this object

contentType

The mime type of this object

dataURL OR url

For external objects, the third property is called **dataURL**, and holds the content of the object, encoded as a [data URL](#). The dropped object may, however, in some cases be an existing CUE content item, in which case the third property is called **url** and holds the URL of the content item.

The entire JSON object must be supplied as the drag event's **dragData** property and be assigned the mime type **application/x-web-component-data**.

6.1.2 The CUE Web Component API

A web component in general contains a class that extends **HTMLElement**. For building CUE web components, CUE provides its own base class that extends **HTMLElement**, **cue.core.webcomponents.CUEElement**, plus a number of subclasses for use in specific types of CUE extension. To make a CUE web component you need to extend one of these subclasses.

cue.core.webcomponents.CUEElement itself is defined as follows:

```
export abstract class CUEElement extends HTMLElement
  implements webcomponent.CUEElement {
  public user: webcomponent.User;
  public endpoints: StringMap<uri.URI>;
}
```

This class provides two properties:

user

The current user

endpoints

The URL(s) of CUE's back end(s)

The subclasses fall into three main groups:

Home page panel / Editor side panel extensions

There is only one class for extending home page panels and editor side panels, **cue.core.webcomponents.SidePanel**. Extend this class to display a home page panel that occupies the main work area of the CUE home tab or a pop-out panel on the left side of a CUE editor window. A custom home page panel works in the same way as the standard **Search** and **Sections** panels: a new button is added to the column on the left side of the display, and selecting this button displays the panel in the main work area. On an editor page, it is displayed as a pop-out panel on the left side, similar to an editor **Search** panel.

Metadata panel extensions

There are several classes you can use for adding custom sections to the pop-out metadata panel displayed on the right hand side of various pages. They all work in the same way: a new button is added to the column on the right side of the display, and selecting this button opens and closes the panel, focused on the appropriate section. The following classes are available:

cue.core.webcomponents.MetadataPanelCUEElement

Extend this class to add a custom metadata panel section to the following home page panels:

- The **Search** panel
- The **Recent** panel
- The **Source monitor** panel
- The **Archive** panel

cue.core.webcomponents.SectionsMetadataPanel

Extend this class to add a custom metadata panel section to the **Sections** home page panel.

cue.core.webcomponents.SectionPageMetadataPanelCUEElement

Extend this class to add a custom metadata panel section to the CUE section page editor.

cue.core.webcomponents.TextEditorMetadataPanel

Extend this class to add a custom metadata panel section to CUE content editors (rich text).

cue.core.webcomponents.StorylineCUEElement

Extend this class to add a custom metadata panel section to CUE content editors (storyline).

Custom field editors

There is only one class for creating custom field editors,

cue.core.webcomponents.CustomFieldEditor. Extend this class to change the appearance and behavior of a content item field (make an integer field in a content item be displayed as a graphical slider, for example).

These classes and their use are described in more detail in the following sections.

The CUE base classes replace an earlier method of implementing CUE web components based on passing a **cueInterface** object from CUE to the web component. This mechanism is still available but is deprecated – the **cueInterface** object will be withdrawn in a future release. You should therefore use the new API described here when implementing new web components. If you need information about the old **cueInterface**-based API, please refer to the [old documentation](#).

Currently, the new API is incomplete and does not support all of the web component types supported by the old API. These web component types can, however, be created by using the old API, as described in:

- [Custom Storyline Element Field Editor](#)
- [Content Summary Extension](#)

6.1.2.1 SidePanel

cue.core.webcomponents.SidePanel can be used to display either a home page panel that occupies the main work area of the CUE home tab or a pop-out panel on the left side of a CUE editor window (similar to an editor **Search** panel).

It is defined as follows:

```
export abstract class SidePanel extends CUEElement
  implements webcomponent.Panel {
  public name: string; // Name of panel
  public homeScreen: boolean; // true: home page panel, false: editor side panel
  public active: boolean; // Active state of the panel
```

```
// Function to be called whenever active state changes
public abstract addActiveWatcher(fn: (active: boolean) => void): () => void;
}
```

6.1.2.1.1 SidePanel Example Configuration

```
sidePanels:
  - id: "twitter-home-panel"
    name: "Twitter Timelines"
    directive: "cue-custom-panel-loader"
    isAngular: true
    webComponent:
      modulePath: "webcomponents/twitter/twitter-home-panel.js"
      icon: "twitter-home-panel-icon"
    mimeTypes: []
    homeScreen: true
    metadata: []
    active: false
    order: 705
```

6.1.2.1.2 SidePanel Example Implementation

```
window.twttr = (function(d, s, id) {
  var js, fjs = d.getElementsByTagName(s)[0],
      t = window.twttr || {};
  if (d.getElementById(id)) return t;
  js = d.createElement(s);
  js.id = id;
  js.src = "https://platform.twitter.com/widgets.js";
  fjs.parentNode.insertBefore(js, fjs);

  t._e = [];
  t.ready = function(f) {
    t._e.push(f);
  };

  return t;
})(document, "script", "twitter-wjs");
/**
 * Twitter Timeline
 */
class TwitterTimeline extends cue.core.webcomponents.SidePanel {
  constructor() {
    super();
    this.attachShadow({ mode: 'open' });
    this.shadowRoot.innerHTML = `
      <style>
        :host { margin: 0 20px 0 20px; padding: 0; width: 100%; display: block; }
      </style>
      <h1>Twitter Timelines</h1>
      <div id="timeline"></div>
    `;
  }

  connectedCallback() {
    twttr.ready(() => {
      twttr.widgets.load();
      twttr.widgets.createTimeline(
```

```

        {
            sourceType: 'profile',
            screenName: 'escenic'
        },
        this.shadowRoot.querySelector('#timeline'),
        {
            height: 1000
        }
    );
    });
}
}

customElements.define('twitter-home-panel', TwitterTimeline);

/**
 * Twitter icon
 */
class TwitterIcon extends cue.core.webcomponents.SidePanel {
    constructor() {
        super();

        this.attachShadow({ mode: 'open' });
        this.shadowRoot.innerHTML = `
            <style>
                :host { margin: 0 0px 0 0px; width: 26px; display: inline; float: left;
margin-right: 18px; }
                img { width: 20px; position: relative; top: 4px; left: 10px; }
            </style>
            <img class="icon">
        `;

        this.activeIconPath = 'twitter-home-panel-icon-active.png';
        this.inactiveIconPath = 'twitter-home-panel-icon.png';
    }

    connectedCallback() {
        this.activeStateChanged(this.active);
        this.addActiveWatcher(active => {
            this.activeStateChanged(active);
        });
    }

    activeStateChanged(active) {
        let img = this.shadowRoot.querySelector('img.icon');
        if (active) {
            img.src = this.getAbsolutePath(this.activeIconPath);
        }
        else {
            img.src = this.getAbsolutePath(this.inactiveIconPath);
        }
    }

    getAbsolutePath(path) {
        const baseURI = import.meta.url;
        return baseURI.substring(0, baseURI.lastIndexOf('/') + 1) + path;
    }
}

customElements.define('twitter-home-panel-icon', TwitterIcon);

```

6.1.2.2 HomePageMetadataPanel

`cue.core.webcomponents.HomePageMetadataPanel` can be used to add a custom metadata panel section to the **Search**, **Recent**, **Source monitor** or **Archive** home page panel:

It is defined as follows:

```
export abstract class HomePageMetadataPanel extends CUEElement
  implements webcomponent.CollectionPanel<webcomponent.Content> {
  public name: string; // Name of the metadata panel
  public active: boolean; // Active state of the metadata panel

  // Function to be called whenever active state changes
  public abstract addActiveWatcher(fn: (active: boolean) => void): () => void;

  // Function to be called whenever selection in home page panel changes
  public abstract addFocusWatcher(
    fn: (entries: webcomponent.Content[]) => void
  ): () => void;

  // Returns currently selected contents
  public abstract getSelections(): Promise<webcomponent.Content[]>;
}
```

This `PreviewPanel` class makes the `this.addFocusWatcher()` method available to the web component, so that it can provide a callback function that will be called whenever a new selection is made in the panel.

6.1.2.2.1 HomePageMetadataPanel Configuration

The following properties must be defined to configure a home page metadata section based on `HomePageMetadataPanel`:

- **homePanels**

An array of directive names of the home screen panel on which the metadata should be made available. The following directive names may be specified:

<code>cf-escenic-search-sidepanel</code>	CUE home screen Search panel
<code>cf-latest-opened-leftpanel</code>	CUE home screen Recent panel
<code>cf-source-monitor-sidepanel</code>	CUE home screen Source monitor panel
<code>cue-lists-sidepanel</code>	CUE home screen Lists panel

Remember also that the `homePanels` property name must be preceded by a hyphen (-).

directive

The tag name of the web component. The name you specify **must** contain a hyphen.

name

The display name of the component. The name is only actually displayed when the mouse is held over the metadata section button.

webComponent

Information about the web component:

modulePath

The URL of the web component

icon

The tag name of the web component's icon. The name you specify **must** contain a hyphen.

order

Determines the position of this section in the attributes panel (and the position of the button). The sections are arranged in numerical order from lowest to highest.

All the properties must be entered as a list item belonging to a **homeScreenMetadata** property. They must be indented correctly and the **homePanels** property must be preceded by a hyphen (-) to indicate the start of a new list item. The following example shows the required format:

```
homeScreenMetadata:
  - homePanels: ["cf-escenic-search-sidepanel", "cf-latest-opened-leftpanel"]
    directive: "content-preview"
    name: "Preview"
    webComponent:
      modulePath: "http://www.example.com/webcomponents/preview/preview.js"
      icon: "content-preview-icon"
    order: 804
```

6.1.2.2.2 HomePageMetadataPanel Example

```
class PreviewPanel extends cue.core.webcomponents.HomePageMetadataPanel {
  constructor() {
    super();

    this.attachShadow({ mode: 'open' });
    this.shadowRoot.innerHTML = `
<style>
:host {
margin: 0;
padding: 0;
width: 100%
}
h1 {
color: #9c9c9c;
font-size: 24px;
font-weight: 300;
}
img, video {
max-width: 100%;
}
</style>

<h1>Preview</h1>
<div id="preview-wrapper"></div>
`;

    this.blobUrl = undefined;
  }
}
```

```

connectedCallback() {
  this.addFocusWatcher(contents => this.focusedResultChanged(contents[0]));
}

focusedResultChanged(content) {
  if (this.blobUrl) {
    window.URL.revokeObjectURL(this.blobUrl);
  }
  let hide = true;
  if (content && content.mimeType) {
    hide = !_.includes(['x-ece/picture', 'x-ece/video'], content.mimeType);
  }
  this.info.hidden = hide;
  if (!hide) {
    this.showPreview(content.links['edit-media'].uri.toString(), content.mimeType);
  }
}

showPreview(binaryLink, mimeType) {
  let xhr = new XMLHttpRequest();
  xhr.open('GET', binaryLink, true);
  xhr.setRequestHeader('Authorization', this.cueInterface.escenic.credentials);
  xhr.responseType = 'blob';
  xhr.onload = () => {
    if (xhr.readyState === 4) {
      if (xhr.status === 200) {
        this.blobUrl = window.URL.createObjectURL(xhr.response);
        this.updatePreview(mimeType);
      }
      else {
        console.error(xhr.statusText);
      }
    }
  };

  xhr.onerror = () => {
    console.error(xhr.statusText);
  };

  xhr.send(null);
}

updatePreview(mimeType) {
  const wrapper = this.shadowRoot.querySelector('#preview-wrapper');
  if (mimeType === 'x-ece/video') {
    wrapper.innerHTML = '<video controls preload="metadata" src="' + this.blobUrl +
    '>';
  }
  else {
    wrapper.innerHTML = '</span>
`;
}

connectedCallback() {
  this.activeStateChanged(this.active);
  this.addActiveWatcher(active => {
    this.activeStateChanged(active);
  });
}

activeStateChanged(active) {
  const icon = this.shadowRoot.querySelector('.icon');
  if (active) {
    $(icon).addClass('active');
  }
  else {
    $(icon).removeClass('active');
  }
}
}
customElements.define('content-preview-icon', PreviewIcon);

```

6.1.2.3 SectionsMetadataPanel

`cue.core.webcomponents.SectionsMetadataPanel` can be used to add a custom metadata panel section to the **Sections** home page panel.

It is defined as follows:

```

export abstract class SectionsMetadataPanel extends CUEElement
  implements webcomponent.SectionsPanel {
  public active: boolean; // Active state of the metadata panel

  // Function to be called whenever selection in Sections home page panel changes
  public abstract addFocusWatcher(
    fn: (section: webcomponent.Section) => void

```

```

): () => void;

// Returns the sections that are currently selected in the section tree
public abstract getSelections(): webcomponent.Section[];

// Function to be called whenever active state changes
public abstract addActiveWatcher(fn: (active: boolean) => void): () => void;
}

```

6.1.2.3.1 SectionsMetadataPanel Configuration

The following properties must be defined to configure a home page metadata section based on **SectionsMetadataPanel**:

- homePanels

An array of directive names of the home screen panel on which the metadata should be made available. The array may only contain one directive name in this case: **cue-sections-sidepanel**, specifying the home screen **Sections** panel.

Remember also that the **homePanels** property name must be preceded by a hyphen (-).

directive

The tag name of the web component. The name you specify **must** contain a hyphen.

name

The display name of the component. The name is only actually displayed when the mouse is held over the metadata section button.

webComponent

Information about the web component:

modulePath

The URL of the web component

icon

The tag name of the web component's icon. The name you specify **must** contain a hyphen.

order

Determines the position of this section in the attributes panel (and the position of the button). The sections are arranged in numerical order from lowest to highest.

All the properties must be entered as a list item belonging to a **homeScreenMetadata** property. They must be indented correctly and the **homePanels** property must be preceded by a hyphen (-) to indicate the start of a new list item. The following example shows the required format:

```

homeScreenMetadata:
- homePanels: ["cue-sections-sidepanel"]
  directive: "section-info"
  cssClass: "section-info"
  title: "General info" #translate
  name: "General Info"
  webComponent:
    modulePath: "webcomponents/section-info/section-info.js"
    icon: "section-info-icon"
  order: 702

```

6.1.2.3.2 SectionsMetadataPanel Example

```
class SectionInfo extends cue.core.webcomponents.SectionsMetadataPanel {
  constructor() {
    super();

    this.attachShadow({ mode: 'open' });
    this.shadowRoot.innerHTML = `
<style>
:host {
margin: 0;
padding: 0;
width: 100%;
}
::selection {
background: rgba(9, 171, 0, 0.5);
color: white;
}
h1 {
display: inline-block;
line-height: 48px;
font-size: 14px;
font-weight: 600;
text-transform: uppercase;
color: #797878;
white-space: nowrap;
overflow: hidden;
text-overflow: ellipsis;
height: 38px;
margin-bottom: 0;
}
.property {
display: flex;
flex-direction: row;
flex-wrap: wrap;
margin-bottom: 20px;
}
.property .row {
display: flex;
flex-direction: row;
width: 100%;
font-weight: 300;
font-size: 14px;
}
.property .row .left {
flex-grow: 1;
width: 20%;
color: #9c9c9c;
}
.property .row .right {
flex-grow: 1;
width: 80%;
white-space: nowrap;
overflow: hidden;
text-overflow: ellipsis;
}
.selectable {
user-select: auto;
}
a {
```

```

color: #457dce;
text-decoration: none;
}
</style>

<h1>General info</h1>
<div class="property">
<div id="id" class="row" title="ID">
<div class="left">ID:</div>
<div class="right selectable"></div>
</div>
<div id="name" class="row" title="Name">
<div class="left">Name:</div>
<div class="right"></div>
</div>
<div id="uri" class="row" title="URI">
<div class="left">URI:</div>
<div class="right"></div>
</div>
</div>
<div class="property">
<div id="created" class="row" title="Created">
<div class="left">Created:</div>
<div class="right"></div>
</div>
<div id="modified" class="row" title="Modified">
<div class="left">Modified:</div>
<div class="right"></div>
</div>
<div id="published" class="row" title="Published">
<div class="left">Published:</div>
<div class="right"></div>
</div>
</div>
`;
}

connectedCallback() {
  this.addFocusWatcher(section => {
    this.focusedSectionChanged(section);
  });
}

focusedSectionChanged(section) {
  const addCredentials = xhr => {
    xhr.setRequestHeader('Authorization', this.cueInterface.escenic.credentials);
  };

  $.ajax({
    url: section.uri.toString(),
    type: 'GET',
    beforeSend: addCredentials
  })
  .done(document => {
    this.updateView(document);
  })
  .fail(error => {
    console.error(error);
  });
};
};

```

```

updateView(document) {
  const resolver = function (namespace) {
    switch (namespace) {
      case 'atom':
        return 'http://www.w3.org/2005/Atom';
      case 'app':
        return 'http://www.w3.org/2007/app';
      case 'dcterms':
        return 'http://purl.org/dc/terms/';
    }
  };

  const formatDate = date => {
    return moment(date, moment.ISO_8601, true).format('lll');
  };

  const created = document.evaluate('./atom:entry/dcterms:created', document,
  resolver)
    .iterateNext().firstChild.nodeValue;
  const modified = document.evaluate('./atom:entry/app:edited', document, resolver)
    .iterateNext().firstChild.nodeValue;
  const publishedNode = document.evaluate('./atom:entry/atom:published', document,
  resolver)
    .iterateNext();
  const published = publishedNode ? formatDate(publishedNode.firstChild.nodeValue) :
  '';

  this.shadowRoot.querySelector('#id .right').innerHTML =
  this.cueInterface.homePanel.getSectionId();
  this.shadowRoot.querySelector('#name .right').innerHTML =
  this.cueInterface.homePanel.getSectionName();
  this.shadowRoot.querySelector('#uri .right').innerHTML = "<a
  target='_blank' href='" + this.cueInterface.homePanel.getSectionUri() + "'>" +
  this.cueInterface.homePanel.getSectionUri() + "</a>";
  this.shadowRoot.querySelector('#created .right').innerHTML = formatDate(created);
  this.shadowRoot.querySelector('#modified .right').innerHTML =
  formatDate(modified);
  this.shadowRoot.querySelector('#published .right').innerHTML = published;
  };
}
customElements.define('section-info', SectionInfo);

class SectionInfoIcon extends cue.core.webcomponents.SectionsMetadataPanel {
  constructor() {
    super();

    this.attachShadow({ mode: 'open' });
    this.shadowRoot.innerHTML = `
<style>
:host {
margin: 0;
display: block;
}
.icon:before {
font: 16px 'cf';
font-style: normal;
font-weight: normal;
color: #444444;
content: '\\e8ad';

```

```

-webkit-font-smoothing: antialiased;
-moz-osx-font-smoothing: greyscale;
}
.icon.active:before {
color: #09ab00;
}
</style>
<span class="icon"></span>
`;
}

connectedCallback() {
  this.activeStateChanged(this.active);
  this.addActiveWatcher(active => {
    this.activeStateChanged(active);
  });
}

activeStateChanged(active) {
  const icon = this.shadowRoot.querySelector('.icon');
  if (active) {
    $(icon).addClass('active');
  }
  else {
    $(icon).removeClass('active');
  }
};
}
customElements.define('section-info-icon', SectionInfoIcon);

```

6.1.2.4 SectionPageMetadataPanel

`cue.core.webcomponents.SectionPageMetadataPanel` can be used to add a custom metadata panel section to the CUE section page editor.

It is defined as follows:

```

export abstract class SectionPageMetadataPanel extends CUEElement
  implements webcomponent.SectionPageEditor {
  public name?: string; // Name of the metadata panel
  public active: boolean; // Active state of the metadata panel
  public mimeType: string; // MIME type of content being edited (always x-ece/section-
page in this case)

  // Function to be called whenever selection in section page editor changes
  public abstract addFocusWatcher(
    fn: (entries: webcomponent.Content[]) => void
  ): () => void;

  // Returns content items currently selected in the section page editor
  public abstract getSelections(): Promise<webcomponent.Content[]>;

  // Sets the value of the specified teaser field in the currently selected content
  item on the section page
  public abstract setFieldValue(fieldName: string, value: any): void;
}

```

6.1.2.4.1 SectionPageMetadataPanel Configuration

```

editors:
  metadata:
    - name: "Preview"
      directive: "section-page-content-preview"
      mimeTypes: ["x-ece/section-page"]
      webComponent:
        modulePath: "webcomponents/preview/preview.js"
        icon: "section-page-content-preview-icon"
      order: 730

```

6.1.2.4.2 SectionPageMetadataPanel Example

```

class PreviewPanel extends cue.core.webcomponents.SectionPageMetadataPanel {
  constructor() {
    super();

    this.attachShadow({ mode: 'open' });
    this.shadowRoot.innerHTML = `
      <style>
        :host {
          margin: 0;
          padding: 0;
          width: 100%
        }
        h1 {
          color: #9c9c9c;
          font-size: 24px;
          font-weight: 300;
        }
        img, video {
          max-width: 100%;
        }
      </style>

      <h1>Preview</h1>
      <div id="preview-wrapper"></div>
    `;

    this.blobUrl = undefined;
  }

  connectedCallback() {
    this.addFocusWatcher(contents => this.focusedResultChanged(contents[0]));
  }

  focusedResultChanged(content) {
    if (this.blobUrl) {
      window.URL.revokeObjectURL(this.blobUrl);
    }
    let hide = true;
    if (content && content.mimeType) {
      hide = !_.includes(['x-ece/picture', 'x-ece/video'], content.mimeType);
    }
    this.info.hidden = hide;
    if (!hide) {
      this.showPreview(content.links['edit-media'].uri.toString(), content.mimeType);
    }
  }
}

```

```

showPreview(binaryLink, mimeType) {
  let xhr = new XMLHttpRequest();
  xhr.open('GET', binaryLink, true);
  xhr.setRequestHeader('Authorization', this.cueInterface.escenic.credentials);
  xhr.responseType = 'blob';
  xhr.onload = () => {
    if (xhr.readyState === 4) {
      if (xhr.status === 200) {
        this.blobUrl = window.URL.createObjectURL(xhr.response);
        this.updatePreview(mimeType);
      }
      else {
        console.error(xhr.statusText);
      }
    }
  };

  xhr.onerror = () => {
    console.error(xhr.statusText);
  };

  xhr.send(null);
}

updatePreview(mimeType) {
  const wrapper = this.shadowRoot.querySelector('#preview-wrapper');
  if (mimeType === 'x-ece/video') {
    wrapper.innerHTML = '<video controls preload="metadata" src="' + this.blobUrl +
    '>';
  }
  else {
    wrapper.innerHTML = '</span>
    `;
}

connectedCallback() {
    this.activeStateChanged(this.active);
    this.addActiveWatcher(active => {
        this.activeStateChanged(active);
    });
}

activeStateChanged(active) {
    const icon = this.shadowRoot.querySelector('.icon');
    if (active) {
        $(icon).addClass('active');
    }
    else {
        $(icon).removeClass('active');
    }
}
}
}
customElements.define('section-page-content-preview-icon', PreviewIcon);

```

6.1.2.5 TextEditorMetadataPanel

`cue.core.webcomponents.TextEditorMetadataPanel` can be used to add a custom metadata panel section to CUE content editors (rich text).

It is defined as follows:

```

export abstract class TextEditorMetadataPanel extends CUEElement
    implements webcomponent.TextEditor, webcomponent.Panel {
    public name: string; // Name of the metadata panel section
    public mimeType: string; // MIME type of content being edited
    public active: boolean; // Active state of the metadata panel section
    public selection: webcomponent.EditorSelection; // Current text selection in editor

    // Sends the specified trigger to the specified enrichment service
    public abstract triggerService(
        triggerName: string,
        serviceName: string
    ): void;

    // Sets the value of the specified field in the content editor.
    // Will throw error if CUE fails to set the value
    public abstract setFieldValue(fieldName: string, value: any): void;

    // Function to be called whenever some content is changed in the editor
    public abstract addContentWatcher(
        watcher: (content: webcomponent.Content) => void
    ): () => void;

    // Gets the content being edited
    public abstract getContent(): Promise<webcomponent.Content>;

```

```
// Returns the xml representation of the content being edited
public abstract getContentXML(): Promise<string | undefined>;

// Returns current container object
getContainer: () => webcomponent.Container;

// Sets current container slug
setContainerSlug: (slug: string) => void;

// Returns whether container slug is editable
isContainerSlugEditable: () => boolean;

// Returns references to all the content items in which this
// content item appears as a relation or inline relation
getContentUsages: () => Promise<webcomponent.Content[]>;
}
```

The **TextEditorMetadataPanel** class provides read/write access to the current text selection in the editor via its **selection** property:

```
interface EditorSelection {
  getCurrentSelection: () => Selection | undefined;
  replaceSelection: (newContent: string, selection: Selection) => void;
  forEachBlockInSelection: (
    range: Range,
    forEachBlock: (element: Element) => void
  ) => void;
  replaceElement: (
    element: Element,
    elementName: string,
    className: string,
    text?: string
  ) => void;
  replaceBlockElement: (
    element: Element,
    elementName: string,
    className: string
  ) => void;
  addSelectionWatcher: (
    watcher: (selection: Selection | undefined) => void
  ) => void;
}
```

6.1.2.5.1 TextEditorMetadataPanel Configuration

The following properties must be defined to configure an editor metadata section based on **TextEditorMetadataPanel**:

- **name**

The name of the web component, preceded by a hyphen (-). By convention it is usually the same as the web component's **tagName**, but does not have to be.

tagName

The tag name of the web component. The name you specify here must contain a hyphen and must be the name specified with **customElements.define()** in the web component definition.

modulePath

The URL of the web component

attributes

Information about the web component:

title

The display name of the component. The name is only actually displayed when the mouse is held over the metadata section button.

icon

The tag name of the web component's icon. The name you specify **must** contain a hyphen.

All the properties must be entered as a list item belonging to a **customComponents** property. They must be indented correctly and the **name** property must be preceded by a hyphen (-) to indicate the start of a new list item. The following example shows the required format:

```

customComponents
- name: "content-history"
  tagName: "content-history"
  modulePath: "webcomponents/history/history.js"
  attributes:
    title: "Content History"
    icon: "content-history-icon"
    
```

In order for a metadata section defined in this way to actually appear in CUE, you also need to add a configuration to one or more **content-type** resources in the Content Store. For further information about this, see [section 3.2.7](#).

6.1.2.5.2 TextEditorMetadataPanel Example

```

class TextModification extends cue.core.webcomponents.TextEditorMetadataPanel {
  constructor() {
    super();

    this.attachShadow({ mode: 'open' });
    this.shadowRoot.innerHTML = `
    <style>
      :host { width: 100%; display: block; } /* Styles the web component tag */
      h1 {
        color: #9c9c9c;
        font-size: 24px;
        font-weight: 300;
      }
      button {
        display: block;
        font-size: 16px;
        font-family: "Hind", Helvetica Neue, Helvetica, Arial, Sans-serif;
        line-height: 32px;
        height: 32px;
        text-align: center;
        border: none;
        border-radius: 3px;
        background-color: #d3d3d3;
        color: #444444;
        cursor: pointer;
        padding: 0 10px;
        margin-bottom: 10px;
    `;
  }
}
    
```

```

    }
    button:disabled {
      background-color: #efefef;
      color: #999999;
      pointer-events: none;
    }
    button:hover {
      background-color: #efefef;
    }
  </style>

  <h1>Text Modification</h1>
  <button class="character-tag">Insert Character Tag</button>
  <button class="macro-tag">Insert Macro Tag</button>
  <button class="em-dash">Insert Em dash</button>
  <button class="queen">Insert #</button>
  `;
}

connectedCallback() {
  if (this.selection) {
    this.addButtonEventListeners();
    this.currentSelection = this.selection.getCurrentSelection();
    this.selection.addSelectionWatcher(newSelection => {
      this.currentSelection = newSelection;
      this.setButtonStates(!newSelection);
    });
  }
  this.setButtonStates(!this.currentSelection);
}

addButtonEventListeners() {
  this.addCharacterTagEventListener();
  this.addMacroTagEventListener();
  this.addEmDashEventListener();
  this.addQueenEventListener();
}

addCharacterTagEventListener() {
  const button = this.shadowRoot.querySelector('.character-tag');
  $(button).on('click', () => {
    if (this.currentSelection.rangeCount) {
      this.selection.forEachBlockInSelection(this.currentSelection.getRangeAt(0),
element => {
        this.selection.replaceElement(element, 'span', 'quote_attr');
      });
    }
  });
}

addMacroTagEventListener() {
  const button = this.shadowRoot.querySelector('.macro-tag');
  $(button).on('click', () => {
    this.selection.replaceSelection('<span class="cci-codes">&lt;extra_leading&gt;</span>', this.currentSelection);
  });
}

addEmDashEventListener() {

```

```

const button = this.shadowRoot.querySelector('.em-dash');
$(button).on('click', () => {
  this.selection.replaceSelection('-', this.currentSelection);
});
}

addQueenEventListener() {
  const button = this.shadowRoot.querySelector('.queen');
  $(button).on('click', () => {
    this.selection.replaceSelection('#', this.currentSelection);
  });
}

setButtonStates(enabled) {
  const buttonSelectors = ['.character-tag', '.macro-tag', '.em-dash', '.queen'];

  _.forEach(buttonSelectors, selector => {
    const button = this.shadowRoot.querySelector(selector);
    $(button).prop('disabled', !enabled);
  });
}

}

customElements.define('text-modification', TextModification);

class TextModificationIcon extends cue.core.webcomponents.TextEditorMetadataPanel {
  constructor() {
    super();

    this.attachShadow({ mode: 'open' });
    this.shadowRoot.innerHTML = `
      <style>
        :host { margin: 0; padding: 2px; display: block; } /* Styles the web
component icon tag */
        .icon:before {
          font: 16px 'cf';
          font-style: normal;
          font-weight: normal;
          color: #444444;
          content: '\\e8a6';
          -webkit-font-smoothing: antialiased;
          -moz-osx-font-smoothing: grayscale;
        }
        .icon.active:before {
          color: #09ab00;
        }
      </style>

      <span class="icon"></span>
    `;
  }

  connectedCallback() {
    this.activeStateChanged(this.active);
    this.addActiveWatcher(active => {
      this.activeStateChanged(active);
    });
  }

  activeStateChanged(active) {

```

```

const icon = this.shadowRoot.querySelector('.icon');
if (active) {
  $(icon).addClass('active');
}
else {
  $(icon).removeClass('active');
}
}
}
}
customElements.define('text-modification-icon', TextModificationIcon);

```

6.1.2.5.3 TextEditorMetadataPanel / Enrichment Service Example

This example shows how a **TextEditorMetadataPanel** web component can be used to invoke an enrichment service. The **TextEditorMetadataPanel** configuration looks like this:

```

editors:
  metadata:
    - name: "Enrichment service"
      directive: "enrichment-service"
      mimeTypes: ["x-ece/story"]
      webComponent:
        modulePath: "webcomponents/enrichment-service.js"
        icon: "enrichment-service-icon"
      order: 731

```

In this case, an enrichment service configuration is also required:

```

enrichmentServices:
  - name: "Text plain service"
    href: "http://localhost:8082/textPlainService"
    title: "Text plain service"
    triggers:
      - name: "on-click"
        properties: {}
  - name: "VDF payload service"
    href: "http://localhost:8082/vdfPayloadService/payload"
    title: "VDF payload service"
    triggers:
      - name: "on-click"
        properties: {}

```

The web component implementation looks like this:

```

class EnrichmentService extends cue.core.webcomponents.TextEditorMetadataPanel {
  constructor() {
    super();

    this.attachShadow({ mode: 'open' });
    this.shadowRoot.innerHTML = `
<style>
  :host {
    margin: 0;
    padding: 0;
    width: 100%;
  }
  ::selection {
    background: rgba(9, 171, 0, 0.5);
    color: white;

```

```

    }
    h1 {
      color: #9c9c9c;
      font-size: 24px;
      font-weight: 300;
    }
    .property {
      display: flex;
      flex-direction: row;
      flex-wrap: wrap;
      margin-bottom: 20px;
    }
    .property .row {
      display: flex;
      flex-direction: row;
      width: 100%;
      font-weight: 300;
      font-size: 14px;
    }
    .property .row .left {
      flex-grow: 1;
      width: 30%;
      color: #9c9c9c;
    }
    .property .row .right {
      flex-grow: 1;
      width: 70%;
      white-space: nowrap;
      overflow: hidden;
      text-overflow: ellipsis;
    }
  }
</style>

<h1>Enrichment service</h1>
<div class="property">
  <div>
    <button class="text-plain">Invoke Service (text/plain)</button>
  </div>
  <hr/>
  <div>
    <button class="vdf-payload">Invoke Service (vdf)</button>
  </div>
</div>
`;
};

connectedCallback() {
  const textPlain = this.shadowRoot.querySelector('.text-plain');
  $(textPlain).on('click', () => {
    this.triggerService('on-click', 'Text plain service');
  });
  const vdfPayload = this.shadowRoot.querySelector('.vdf-payload');
  $(vdfPayload).on('click', () => {
    this.triggerService('on-click', 'VDF payload service');
  });
}
}

customElements.define('enrichment-service', EnrichmentService);

```

```

class EnrichmentServiceIcon extends cue.core.webcomponents.TextEditorMetadataPanel {
  constructor() {
    super();

    this.attachShadow({ mode: 'open' });
    this.shadowRoot.innerHTML = `
<style>
:host {
  margin: 0;
  display: block;
}
.icon:before {
  font: 16px 'cf';
  font-style: normal;
  font-weight: normal;
  color: #444444;
  content: '\\e0f3';
  -webkit-font-smoothing: antialiased;
  -moz-osx-font-smoothing: greyscale;
}
.icon.active:before {
  color: #09ab00;
}
</style>
<span class="icon"></span>
`;
  }

  connectedCallback() {
    this.activeStateChanged(this.active);
    this.addActiveWatcher((active) => {
      this.activeStateChanged(active);
    });
  }

  activeStateChanged(active) {
    let icon = this.shadowRoot.querySelector('.icon');
    if (active) {
      $(icon).addClass('active');
    }
    else {
      $(icon).removeClass('active');
    }
  }
}

customElements.define('enrichment-service-icon', EnrichmentServiceIcon);

```

For detailed information about enrichment services, see [section 6.2](#).

6.1.2.5.4 TextEditorMetadataPanel / History Example

This example shows how to add a "history" metadata section using **TextEditorMetadataPanel**. The configuration looks like this:

```

customComponents
- name: "content-history"
  tagName: "content-history"
  modulePath: "webcomponents/history/history.js"

```

```
attributes:
  title: "Content History"
  icon: "content-history-icon"
```

The web component implementation looks like this:

```
class HistoryElement extends cue.core.webcomponents.TextEditorMetadataPanel {
  constructor() {
    super();

    this.attachShadow({ mode: 'open' });
    this.shadowRoot.innerHTML = `
      <style>
        :host {
          margin: 0;
          padding: 0;
          width: 100%
        }
        h1 {
          color: #9c9c9c;
          font-size: 24px;
          font-weight: 300;
        }
        .entry {
          width: 100%;
          display: flex;
          flex-direction: row;
        }
        .state {
          width: 25%
        }
        .date {
          width: 42%;
        }
        .author {
          width: 33%;
        }
      </style>

      <h1>History</h1>
      <div class="entries"></div>
    `;
  }

  connectedCallback() {
    this.fetchHistory();
    this.addContentWatcher(() => {
      this.fetchHistory();
    });
  }

  fetchHistory() {
    this.getContent().then(content => {
      const historyLinks = content.links['http://www.vizrt.com/types/relation/log'];
      if (historyLinks && historyLinks.length > 0) {
        const historyLink = historyLinks[0];
        $.ajax({
          url: historyLink.uri.toString(),
          type: 'GET',
          accept: historyLink.mimeType.format(),

```

```

        beforeSend: xhr => {
            xhr.setRequestHeader('Authorization',
this.cueInterface.esenic.credentials);
        },
        success: result => {
            this.displayHistory(result);
        },
        error: (request, error) => {
            console.error(error);
        }
    });
}
});
}

displayHistory(document) {
    const entriesDiv = this.shadowRoot.querySelector('.entries');
    const parsedEntries = this.parseDocument(document);
    entriesDiv.innerHTML = '';
    parsedEntries.forEach(entry => {
        entriesDiv.innerHTML += '<div class="entry">' +
            '<span class="state">' + entry.state + '</span>' +
            '<span class="date">' + entry.updated.format('lll') + '</span>' +
            '<span class="author">' + entry.author + '</span>' +
            '</div>';
    });
}

parseDocument(document) {
    const resolver = function (namespace) {
        switch (namespace) {
            case 'app':
                return 'http://www.w3.org/2007/app';
            case 'atom':
                return 'http://www.w3.org/2005/Atom';
            case 'vaext':
                return 'http://www.vizrt.com/atom-ext';
        }
    };
};

const entries = document.evaluate('//atom:entry', document, resolver);
let entry = entries.iterateNext();
let parsedEntries = [];
while (entry) {
    const updated = document.evaluate('./atom:updated', entry,
resolver).iterateNext().firstChild.nodeValue;
    const state = document.evaluate('./app:control/vaext:state', entry,
resolver).iterateNext().attributes.getNamedItem('name').value;
    const authorNode = document.evaluate('./atom:author/atom:name', entry,
resolver).iterateNext().firstChild;
    const author = authorNode ? authorNode.nodeValue : '';
    parsedEntries.push({
        updated: moment(updated, moment.ISO_8601, true),
        state: state,
        author: author
    });
    entry = entries.iterateNext();
}
return parsedEntries;
}
}

```

```

}
customElements.define('content-history', HistoryElement);

/**
 * Creating the icon (if required)
 */
class HistoryIcon extends cue.core.webcomponents.TextEditorMetadataPanel {
  constructor() {
    super();

    this.attachShadow({ mode: 'open' });
    this.shadowRoot.innerHTML = `
      <style>
        :host {
          margin: 0;
          display: block;
        }
        .icon:before {
          font: 16px 'cf';
          font-style: normal;
          font-weight: normal;
          color: #444444;
          content: '\\e8b9';
          -webkit-font-smoothing: antialiased;
          -moz-osx-font-smoothing: grayscale;
        }
        .icon.active:before {
          color: #09ab00;
        }
      </style>
      <span class="icon"></span>
    `;
  }

  connectedCallback() {
    this.activeStateChanged(this.active);
    this.addActiveWatcher(active => {
      this.activeStateChanged(active);
    });
  }

  activeStateChanged(active) {
    const icon = this.shadowRoot.querySelector('.icon');
    if (active) {
      $(icon).addClass('active');
    }
    else {
      $(icon).removeClass('active');
    }
  }
}
customElements.define('content-history-icon', HistoryIcon);

```

6.1.2.5.5 TextEditorMetadataPanel / Content XML Example

This example shows how to add a "Content XML" metadata section using **TextEditorMetadataPanel**. The configuration looks like this:

```
customComponents
```

```
- name: "content-xml"
  tagName: "content-xml"
  modulePath: "webcomponents/content-xml/content-xml.js"
  attributes:
    title: "Content XML"
    icon: "content-xml-icon"
```

The web component implementation looks like this:

```
const script = document.createElement('script');
script.src = '//cdn.jsdelivr.net/gh/highlightjs/cdn-release@9.18.0/build/
highlight.min.js';
document.head.appendChild(script);

class ContentXml extends cue.core.webcomponents.TextEditorMetadataPanel {
  constructor() {
    super();

    this.attachShadow({mode: 'open'});
    this.shadowRoot.innerHTML = `
<style>
@import url('https://cdn.jsdelivr.net/gh/highlightjs/cdn-release@9.18.0/build/styles/
default.min.css');
:host {
margin: 0;
padding: 0;
width: 100%;
}
::selection {
background: rgba(9, 171, 0, 0.5);
color: white;
}
h1 {
color: #9c9c9c;
font-size: 24px;
font-weight: 300;
}
</style>

<h1>Content XML</h1>
<pre><code class="xml"></code></pre>
<button class="content-xml">Content XML</button>
`;
  }

  async connectedCallback() {
    this.addButtonEventListener();
  }

  addButtonEventListener() {
    $(this.shadowRoot.querySelector('.content-xml')).on('click', () => this.prettyXML());
  }

  async prettyXML() {
    const xmlElement = this.shadowRoot.querySelector('.xml');
    const sourceXML = await this.getContentXML();
    const html = this.htmlEscape(this.prettifyXml(sourceXML));
    $(xmlElement).html(html);
    hljs.highlightBlock(xmlElement);
  }
}
```

```

}

prettifyXml(sourceXml) {
const xmlDoc = new DOMParser().parseFromString(sourceXml, 'application/xml');
const xsltDoc = new DOMParser().parseFromString([
'<xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform">',
'  <xsl:strip-space elements="*" />',
'  <xsl:template match="para[content-style][not(text())]">',
'    <xsl:value-of select="normalize-space(.)" />',
'  </xsl:template>',
'  <xsl:template match="node()|@">',
'    <xsl:copy><xsl:apply-templates select="node()|@" /></xsl:copy>',
'  </xsl:template>',
'  <xsl:output indent="yes" />',
'</xsl:stylesheet>',
].join('\n'), 'application/xml');

const xsltProcessor = new XSLTProcessor();
xsltProcessor.importStylesheet(xsltDoc);
const resultDoc = xsltProcessor.transformToDocument(xmlDoc);
return new XMLSerializer().serializeToString(resultDoc);
}

htmlEscape(s) {
return s
.replace(/&/g, '&amp;');
.replace(/</g, '&lt;');
.replace(/>/g, '&gt;');
}
}

customElements.define('content-xml', ContentXml);

class ContentXmlIcon extends cue.core.webcomponents.TextEditorMetadataPanel {
constructor() {
super();

this.attachShadow({mode: 'open'});
this.shadowRoot.innerHTML = `
<style>
:host {
margin: 0;
display: block;
}
.icon:before {
font: 16px 'cf';
font-style: normal;
font-weight: normal;
color: #444444;
content: '<x>';
-webkit-font-smoothing: antialiased;
-moz-osx-font-smoothing: greyscale;
}
.icon.active:before {
color: #09ab00;
}
</style>
<span class="icon"></span>
`;
}
}

```

```

}

connectedCallback() {
  this.activeStateChanged(this.active);
  this.addActiveWatcher(function (active) {
    this.activeStateChanged(active);
  }.bind(this));
}

activeStateChanged(active) {
  var icon = this.shadowRoot.querySelector('.icon');
  if (active) {
    $(icon).addClass('active');
  } else {
    $(icon).removeClass('active');
  }
}

}

}

customElements.define('content-xml-icon', ContentXmlIcon);

```

6.1.2.5.6 TextEditorMetadataPanel / Container slug Example

This example shows how to add a "Container Slug" metadata section using **TextEditorMetadataPanel** to modify a container slug. The configuration looks like this:

```

customComponents
- name: "slug-modification"
  tagName: "slug-modification"
  modulePath: "webcomponents/slug-modification/slug-modification.js"
  attributes:
    title: "Slug Modification"
    icon: "slug-modification-icon"

```

The web component implementation looks like this:

```

class SlugModification extends cue.core.webcomponents.TextEditorMetadataPanel {
  constructor() {
    super();

    this.attachShadow({ mode: 'open' });
    this.shadowRoot.innerHTML = `
<style>
:host { width: 100%; display: block; }
h1 {
  color: #9c9c9c;
  font-size: 24px;
  font-weight: 300;
}
.slug-text {
padding: 10px 5px;
}
.slug-text:hover {
border: 1px solid grey;
}
.slug-input {
width: 100%;

```

```

}
</style>

<h1>Slug Modification</h1>
<div class="slug-text" title="Click to Edit"></div>
<input type="text" class="slug-input" hidden>
`;
}

connectedCallback() {
  this.loadSlug();
  this.addSlugEventListener();
  this.addContentWatcher(() => {
    this.loadSlug()
  });
}

loadSlug() {
  const container = this.getContainer();
  if(container.slug) {
    const slugText = this.shadowRoot.querySelector('.slug-text');
    $(slugText).html(container.slug);
  }
}

addSlugEventListener() {
  const slugInput = this.shadowRoot.querySelector('.slug-input');
  const slugText = this.shadowRoot.querySelector('.slug-text');

  $(slugText).on('click', () => {
    if(this.isContainerSlugEditable()) {
      $(slugInput).css('display', 'block');
      const container = this.getContainer();
      $(slugInput).val(container.slug);
      $(slugText).css('display', 'none');
    }
  });

  $(slugInput).on('keyup', e => {
    if (e.keyCode === 13) {
      this.setContainerSlug($(slugInput).val());
      $(slugInput).css('display', 'none');
      $(slugText).html($(slugInput).val());
      $(slugText).css('display', 'block');
    }
  });
}

customElements.define('slug-modification', SlugModification);

class SlugModificationIcon extends cue.core.webcomponents.TextEditorMetadataPanel {
  constructor() {
    super();

    this.attachShadow({ mode: 'open' });
    this.shadowRoot.innerHTML = `
<style>
:host { margin: 0; padding: 2px; display: block; } /* Styles the web component icon
tag */

```

```
.icon:before {
  font: 16px 'cf';
  font-style: normal;
  font-weight: normal;
  color: #444444;
  content: 'Sl';
  -webkit-font-smoothing: antialiased;
  -moz-osx-font-smoothing: grayscale;
}
.icon.active:before {
  color: #09ab00;
}
</style>

<span class="icon"></span>
`;
}

connectedCallback() {
  this.activeStateChanged(this.active);
  this.addActiveWatcher(active => {
    this.activeStateChanged(active);
  });
}

activeStateChanged(active) {
  const icon = this.shadowRoot.querySelector('.icon');
  if (active) {
    $(icon).addClass('active');
  }
  else {
    $(icon).removeClass('active');
  }
}
}
}
customElements.define('slug-modification-icon', SlugModificationIcon);
```

6.1.2.5.7 TextEditorMetadataPanel / Field editor Example

This example shows how to add a "Field editor" metadata section using **TextEditorMetadataPanel** to modify a field. The configuration looks like this:

```
customComponents
- name: "field-editor"
  tagName: "field-editor"
  modulePath: "webcomponents/field-editor/field-editor.js"
  attributes:
    title: "Field editor"
    icon: "field-editor-icon"
```

The web component implementation looks like this:

```
class FieldEditor extends cue.core.webcomponents.TextEditorMetadataPanel {
  constructor() {
    super();

    this.attachShadow({ mode: 'open' });
```

```

this.shadowRoot.innerHTML = `
<style>
:host { width: 100%; display: block; }
h1 {
color: #9c9c9c;
font-size: 24px;
font-weight: 300;
}
.slug-text {
padding: 10px 5px;
}
.slug-text:hover {
border: 1px solid grey;
}
.slug-input {
width: 100%;
}
</style>

<h1>Field Editor</h1>
<input type="text" class="title-field" placeholder="Title">
`;

async connectedCallback() {
this.addContentWatcher(content => {
this.setViewValue(content.values['title']);
});
const content = await this.getContent();
this.setViewValue(content.values['title']);

this.addFieldChangeListener();
}

addFieldChangeListener() {
const field = this.shadowRoot.querySelector('.title-field');
$(field).on('change', () => {
this.setValue('title', $(field).val());
});
}

setViewValue(value) {
const field = this.shadowRoot.querySelector('.title-field');
$(field).val(value);
}

setValue(key, value) {
try {
this.setFieldValue(key, value);
} catch (e) {
console.error(`Failed to set ${key} value!`, e);
}
}
}
customElements.define('field-editor', FieldEditor);

class FieldEditorIcon extends cue.core.webcomponents.TextEditorMetadataPanel {
constructor() {
super();
}
}

```

```

this.attachShadow({ mode: 'open' });
this.shadowRoot.innerHTML = `
<style>
:host { margin: 0; padding: 2px; display: block; } /* Styles the web component icon
  tag */
.icon:before {
font: 16px 'cf';
font-style: normal;
font-weight: normal;
color: #444444;
content: 'E';
-webkit-font-smoothing: antialiased;
-moz-osx-font-smoothing: grayscale;
}
.icon.active:before {
color: #09ab00;
}
</style>

<span class="icon"></span>
`;
}

connectedCallback() {
this.activeStateChanged(this.active);
this.addActiveWatcher(active => {
this.activeStateChanged(active);
});
}

activeStateChanged(active) {
const icon = this.shadowRoot.querySelector('.icon');
if (active) {
$(icon).addClass('active');
}
else {
$(icon).removeClass('active');
}
}
}
customElements.define('field-editor-icon', FieldEditorIcon);

```

6.1.2.5.8 TextEditorMetadataPanel / Usages Example

This example shows how to add a "Usages" metadata section using **TextEditorMetadataPanel** to return references to all the content items in which this content item appears as a relation or inline relation. The configuration looks like this:

```

customComponents
- name: "usages"
  tagName: "content-usages"
  modulePath: "webcomponents/usages.js"
  attributes:
    title: "Usages" #translate
    icon: "usages-icon"

```

The web component implementation looks like this:

```

class Usages extends cue.core.webcomponents.TextEditorMetadataPanel {
  constructor() {
    super();

    this.attachShadow({ mode: 'open' });
    this.shadowRoot.innerHTML = `
    <style>
    :host { width: 100%; display: block; }
    h1 {
    color: #9c9c9c;
    font-size: 24px;
    font-weight: 300;
    }
    .slug-text {
    padding: 10px 5px;
    }
    .slug-text:hover {
    border: 1px solid grey;
    }
    .slug-input {
    width: 100%;
    }
    </style>

    <h1>Content Usages</h1>
    <ul class="usages"></ul>
    `;
  }

  async connectedCallback() {
    const usages = await this.getContentUsages();
    usages.forEach(usage => {
      const ul = $(this.shadowRoot.querySelector('.usages'));
      ul.append(`<li><a href="${usage.links['alternate']}" ?
      usage.links['alternate'].uri.toString() : usage.links['self'].uri.toString() "><span>
      ${usage.values['title']}</a></span></li>`);
    });
  }
}
customElements.define('content-usages', Usages);

class UsagesIcon extends cue.core.webcomponents.TextEditorMetadataPanel {
  constructor() {
    super();

    this.attachShadow({ mode: 'open' });
    this.shadowRoot.innerHTML = `
    <style>
    :host { margin: 0; padding: 2px; display: block; } /* Styles the web component
    icon tag */
    .icon:before {
    font: 16px 'cf';
    font-style: normal;
    font-weight: normal;
    color: #444444;
    content: 'U';
    -webkit-font-smoothing: antialiased;
  
```

```

-moz-osx-font-smoothing: grayscale;
}
.icon.active:before {
color: #09ab00;
}
</style>

<span class="icon"></span>
`;
}

connectedCallback() {
this.activeStateChanged(this.active);
this.addActiveWatcher(active => {
this.activeStateChanged(active);
});
}

activeStateChanged(active) {
const icon = this.shadowRoot.querySelector('.icon');
if (active) {
$(icon).addClass('active');
}
else {
$(icon).removeClass('active');
}
}
}
customElements.define('content-usages-icon', UsagesIcon);

```

6.1.2.6 StorylineEditorMetadataPanel

`cue.core.webcomponents.StorylineEditorMetadataPanel` can be used to add a custom metadata panel section to CUE content editors (storyline).

It is defined as follows:

```

export abstract class StorylineEditorMetadataPanel extends CUEElement {

// Returns the storyline being edited
public storyline: webcomponent.Storyline;

// Function to be called whenever the storyline changes
public abstract addStorylineWatcher(
  watcher: (storyline: webcomponent.Storyline) => void
): () => void;

// Function to be called whenever a new story element gets the focus in the editor
public abstract addStoryElementFocusWatcher(
  watcher: (storyelement: webcomponent.StoryElement) => void
): () => void;

// Function to be called whenever the text selection changes in the editor
public abstract addTextSelectionWatcher(
  watcher: (selection: webcomponent.StorylineTextSelection) => void
): () => void;

// Gets the story element currently in focus
getFocusedStoryElement(): webcomponent.StoryElement | undefined;

```

```

// Sets the value of the specified field in the specified story element in the
editor
public abstract setStoryElementFieldValue(
    storyElementId: string,
    fieldName: string,
    fieldValue: any
): void;

// Sets the value of the story element in the editor
public abstract updateStoryElementValue(
    storyElementId: string,
    fieldValue: any
): void;
}

```

6.1.2.6.1 StorylineEditorMetadataPanel Configuration

```

editors:
  metadata:
    - name: "storyline-stat"
      directive: "storyline-stat"
      cssClass: "storyline-stat"
      title: "Storyline Stat" #translate
      webComponent:
        modulePath: "webcomponents/storyline/storyline-stat.js"
        icon: "storyline-stat-icon"
        mimeTypes: ["x-ece/story", "x-ece/new-content; type=story"]
        order: 731

```

6.1.2.6.2 StorylineEditorMetadataPanel Example

```

const titleShortcut = 'wct';
const dummyTitle = 'Cool Title from Storyline stat web component';
const bodyShortcut = 'wcbd';
const dummyBody = 'Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do
    eiusmod tempor incididunt ut ' +
    'labore et dolore magna aliqua. Magna etiam tempor orci eu. Sed libero enim ' +
    'sed faucibus turpis in eu mi. Urna porttitor rhoncus dolor purus non enim ' +
    'praesent elementum. Magna fermentum iaculis eu non diam phasellus vestibulum
    lorem.'

class StorylineStatPanel extends cue.core.webcomponents.StorylineEditorMetadataPanel {
  constructor() {
    super();

    this.attachShadow({mode: 'open'});
    this.shadowRoot.innerHTML = `
<style>
:host {
margin: 0;
padding: 0;
width: 100%;
}
::selection {
background: rgba(9, 171, 0, 0.5);
color: white;
}
h1 {

```

```
display: inline-block;
line-height: 48px;
font-size: 14px;
font-weight: 600;
text-transform: uppercase;
color: #797878;
white-space: nowrap;
overflow: hidden;
text-overflow: ellipsis;
height: 38px;
margin-bottom: 0;
}
h2 {
display: inline-block;
font-size: 13px;
font-weight: 600;
color: #797878;
white-space: nowrap;
overflow: hidden;
text-overflow: ellipsis;
margin-bottom: 0;
}
.property {
display: flex;
flex-direction: row;
flex-wrap: wrap;
margin-bottom: 20px;
}
.property .row, .elementId {
display: flex;
flex-direction: row;
width: 100%;
font-weight: 300;
font-size: 14px;
}
.property .row .left {
flex-grow: 1;
width: 80%;
color: #9c9c9c;
}
.property .row .right {
flex-grow: 1;
width: 20%;
white-space: nowrap;
overflow: hidden;
text-overflow: ellipsis;
}
.property .elementId .left {
flex-grow: 1;
width: 10%;
color: #9c9c9c;
}
.property .elementId .right {
flex-grow: 1;
width: 90%;
white-space: nowrap;
overflow: hidden;
text-overflow: ellipsis;
}
.property .row.total {
```

```

background: #efefef;
font-weight: bold;
}
</style>

<h1>Storyline Stats</h1>
<div class="property">
<div id="headline" class="row">
<div class="left">Number of headlines:</div>
<div class="right"></div>
</div>
<div id="paragraph" class="row">
<div class="left">Number of paragraph:</div>
<div class="right"></div>
</div>
<div id="lead_text" class="row">
<div class="left">Number of Lead Text:</div>
<div class="right"></div>
</div>
<div id="image" class="row">
<div class="left">Number of images:</div>
<div class="right"></div>
</div>
<div id="video" class="row">
<div class="left">Number of videos:</div>
<div class="right"></div>
</div>
<div id="embed" class="row">
<div class="left">Number of embeds:</div>
<div class="right"></div>
</div>
<div id="others" class="row">
<div class="left">Others Elements:</div>
<div class="right"></div>
</div>
<div id="total" class="row total">
<div class="left">Total Count:</div>
<div class="right"></div>
</div>
</div>
<h2>Focus Element Stats:</h2>
<div class="property">
<div id="id" class="elementId">
<div class="left">Id:</div>
<div class="right"></div>
</div>
<div id="general" class="row">
<div class="left">Number of general fields:</div>
<div class="right"></div>
</div>
<div id="settings" class="row">
<div class="left">Number of settings fields:</div>
<div class="right"></div>
</div>
<div id="chars" class="row">
<div class="left">Number of Chars:</div>
<div class="right"></div>
</div>
</div>

```

```

<h2>Selection Stats:</h2>
<div class="property">
  <div id="selWords" class="row">
    <div class="left">Number of words:</div>
    <div class="right"></div>
  </div>
  <div id="selChars" class="row">
    <div class="left">Number of Chars:</div>
    <div class="right"></div>
  </div>
  <div id="selVowels" class="row">
    <div class="left">Number of vowels:</div>
    <div class="right"></div>
  </div>
</div>
`;

}

connectedCallback() {
  this.updateView();
  this.addStorylineWatcher(storyline => {
    this.storyline = storyline;
    this.updateView();
    this.fillStoryElementTitleAndBody();
  });
  this.addStoryElementFocusWatcher(storyelement =>
this.updateViewOnStoryElementFocus(storyelement));
  this.addTextSelectionWatcher(selection =>
this.updateViewOnSelectionChange(selection));
}

updateView() {
  const totalCount = this.storyline.elements.length;
  const storyElements = this.getStoryElements();
  const getElementsByType = type => storyElements
.filter(element => element.model.name === type);

  const headlineCount = getElementsByType('headline').length;
  const paragraphCount = getElementsByType('paragraph').length;
  const leadTextCount = getElementsByType('lead_text').length;
  const imageCount = getElementsByType('image').length;
  const videoCount = getElementsByType('video').length;
  const embedCount = getElementsByType('embed').length;
  const others = totalCount -
    (headlineCount
+ paragraphCount
+ leadTextCount
+ imageCount
+ videoCount
+ embedCount);

  this.shadowRoot.querySelector('#headline .right').innerHTML = headlineCount;
  this.shadowRoot.querySelector('#paragraph .right').innerHTML = paragraphCount;
  this.shadowRoot.querySelector('#lead_text .right').innerHTML = leadTextCount;
  this.shadowRoot.querySelector('#image .right').innerHTML = imageCount;
  this.shadowRoot.querySelector('#video .right').innerHTML = videoCount;
  this.shadowRoot.querySelector('#embed .right').innerHTML = embedCount;
  this.shadowRoot.querySelector('#others .right').innerHTML = others;
  this.shadowRoot.querySelector('#total .right').innerHTML = totalCount;

```

```

    }

    updateViewOnStoryElementFocus (storyElement) {
      const generalFieldCount = storyElement.model.fields.filter(field =>
        field.isVisible && !field.isSettings).length;
      const settingsFieldCount = storyElement.model.fields.filter(field =>
        field.isSettings).length;
      const stringFieldValues = storyElement.model.fields
        .filter(field => field.type === 'string')
          .map(field => storyElement.values[field.name])
          .filter(value => !!value);
      const charsCount = stringFieldValues.reduce((result, value) => result +
        value.length, 0);

      this.shadowRoot.querySelector('#id .right').innerHTML = storyElement.id;
      this.shadowRoot.querySelector('#general .right').innerHTML = generalFieldCount;
      this.shadowRoot.querySelector('#settings .right').innerHTML = settingsFieldCount;
      this.shadowRoot.querySelector('#chars .right').innerHTML = charsCount;
    }

    updateViewOnSelectionChange (selection) {
      const selectedText = selection.selectedText;
      const charCount = selectedText.length;
      const vowelCount = (selectedText.match(/[aeiou]/gi) || []).length;
      const wordCount = selectedText.trim().split(/\s+/).length

      this.shadowRoot.querySelector('#selChars .right').innerHTML = charCount;
      this.shadowRoot.querySelector('#selVowels .right').innerHTML = vowelCount;
      this.shadowRoot.querySelector('#selWords .right').innerHTML = wordCount;
    }

    fillStoryElementTitleAndBody() {
      const storyElements = this.getStoryElements();
      const textElements = storyElements
        .filter(element => element.model.name === 'lead_text'
        || element.model.name === 'headline'
        );
      textElements.forEach(storyElement => {
        const fieldName = storyElement.model.fields[0].name;
        const fieldValue = storyElement.values[fieldName];
        if(fieldValue && (fieldValue.search(titleShortcut) > -1 ||
        fieldValue.search(bodyShortcut) > -1 )) {
          const newValue = fieldValue.replace(titleShortcut, dummyTitle)
            .replace(bodyShortcut, dummyBody);
          this.updateStoryElementValue(storyElement.id, newValue);
        }
      });
    }

    getStoryElements() {
      return this.storyline.elements
        .map(elementId => this.storyline.storyElements.get(elementId));
    }
  }

  customElements.define('storyline-stat', StorylineStatPanel);

  class StorylineStatIcon extends cue.core.webcomponents.MetadataPanelCUEElement {
    constructor() {

```

```

    super();

    this.attachShadow({ mode: 'open' });
    this.shadowRoot.innerHTML = `
<style>
:host { margin: 0; padding: 2px; display: block; } /* Styles the web component icon
tag */
.icon:before {
font: 16px 'cf';
font-style: normal;
font-weight: normal;
color: #444444;
content: 'St';
-webkit-font-smoothing: antialiased;
-moz-osx-font-smoothing: grayscale;
}
.icon.active:before {
color: #09ab00;
}
</style>

<span class="icon"></span>
`;
}

connectedCallback() {
    this.activeStateChanged(this.active);
    this.addActiveWatcher(active => {
        this.activeStateChanged(active);
    });
}

activeStateChanged(active) {
    const icon = this.shadowRoot.querySelector('.icon');
    if (active) {
        $(icon).addClass('active');
    }
    else {
        $(icon).removeClass('active');
    }
}
}
customElements.define('storyline-stat-icon', StorylineStatIcon);

```

6.1.2.7 CustomFieldEditor

`cue.core.webcomponents.CustomFieldEditor` can be used to create a custom field editor.

It is defined as follows:

```

export abstract class CustomFieldEditor extends CUEElement
    implements webcomponent.CustomFieldEditor {

    // Field MIME type as defined in the content type
    public mimeType: string;

    // Sets the value of the specified field (that is a different field from this one)
    public abstract setFieldValue(fieldName: string, value: any): void;

```

```

// Function to be called whenever the value of this field changes
public abstract addValueWatcher(watcher: (value: any) => void): () => void;

// Sets the value of this field
public abstract setValue(value: any): void;

// The value of this field
public abstract getValue(): any;

// Function to be called whenever the read-only status of this field changes
public abstract addReadOnlyWatcher(watcher: (value: boolean) => void): () => void;

// The read-only status of this field
public abstract isReadOnly(): boolean;

// Returns the content being edited in the editor
public abstract getContent(): Promise<webcomponent.Content>;
}

```

6.1.2.7.1 CustomFieldEditor Configuration

The following properties must be defined to configure a custom field editor based on **CustomFieldEditor**:

- **name**

The name of the web component. The name you specify **must** contain a hyphen. Remember also that the id property name must be preceded by a hyphen (-).

tagName

The name of the custom HTML element that is used to encapsulate the component: the name used in the **document.registerElement()** call in the component's **script** element.

modulePath

The URI of the component.

All the properties must be entered as a list item belonging to a **customComponents** property. They must be indented correctly and the **id** property must be preceded by a hyphen (-) to indicate the start of a new list item. The following example shows the required format:

```

customComponents:
  - name: "custom-slider"
    tagName: "my-slider"
    modulePath: "http://www.example.com/webcomponents/my-slider.js"

```

6.1.2.7.2 Custom Field Editor Invocation

To use a custom field editor for a particular field, you need to add a **ui:editor** to the field's definition in the **content-type** resource. The **ui:editor** element has two attributes:

type

This must always be set to **web-component**.

name

This must be set to the name of the component as defined in the field editor configuration file.

To use the slider field editor defined in [section 6.1.2.7.1](#), for example, you would need to add the following **ui-editor** element to your field definition:

```

<field type="number" name="percentage">
  <ui:label>Percentage</ui:label>
  <ui:editor type="web-component" name="custom-slider"/>
</field>

```

6.1.2.7.3 CustomFieldEditor Example

```

class NumberSlider extends cue.core.webcomponents.CustomFieldEditor {
  constructor() {
    super();

    this.attachShadow({ mode: 'open' });
    this.shadowRoot.innerHTML = `
<style>
:host {
margin: 0;
padding: 0px;
width: 100%;
display: block;
}

.spacer {
padding: 10px;
height: 30px;
overflow: hidden;
}

#thefield {
width: 100%;
}
</style>
<div class="spacer">
<input id="thefield" type="range" max="100" min="0" value="0"><br/>
</div>
`;
  }

  connectedCallback() {
    this.updateViewValue();
    this.updateReadOnly();
    this.shadowRoot.querySelector('input').addEventListener('input', () =>
this.updateModelValue());
    this.addValueWatcher((value) => {
      this.updateViewValue();
    });
    this.addReadOnlyWatcher((value) => {
      this.updateReadOnly();
    });
  }

  updateViewValue() {
    this.shadowRoot.querySelector('input').value = this.getValue();
  };

  updateModelValue() {
    this.setValue(parseInt(this.shadowRoot.querySelector('input').value));
  };

  updateReadOnly() {

```

```

    this.shadowRoot.querySelector('input').readOnly = this.isReadOnly();
  };
}
customElements.define('number-slider', NumberSlider);

```

6.1.2.8 Sending Notifications from Web Components

You can send notifications from your web components. These notifications will appear in CUE's notification center in exactly the same way as CUE's own notifications. Notifications are managed by the **notificationCenter** object which can be accessed via the **cueInterface** object. The **notificationCenter** object provides two methods - one for creating notifications, and one for deleting them.

Currently the **notificationCenter** object is accessed via the **cueInterface** object. However, the **cueInterface** object is in the process of being replaced by a new web component API, and will not be required to access notification-related functionality in the future. Once all the **cueInterface** object's functionality has been replicated in the new web component API, it will be deprecated. For this reason, there is no overall description of the **cueInterface** object in the current CUE documentation. For general information about the **cueInterface** object, see the CUE 3.4 documentation, [here](#).

6.1.2.8.1 showNotification

```

showNotification({
  id?: string;
  title: string;
  body: string;
})

```

showNotification() requires an object with the following properties as input:

id (optional)

This property is only required if you want to update an existing notification. For a new notification it should be omitted.

title

The title of the notification.

body

The body of the notification.

The method returns a string promise (a notification ID that will be returned by CUE).

6.1.2.8.2 deleteNotification

```

deleteNotification(
  notificationId: string;
)

```

deleteNotification() requires one input parameter:

notificationId

The ID of the notification to be deleted.

If the specified notification ID exists, then it is deleted. If it does not exist, then the method throws a promise rejection.

The method returns a promise.

6.1.2.8.3 Web Component Notification Example

This example shows part of a web component in which a drop handler listens for drop events in a particular HTML element and sends notifications each time one occurs.

```

let notificationId;
connectedCallback() {
  this.shadowRoot.querySelector('div').addEventListener('dragover', event =>
    event.preventDefault());
  this.shadowRoot.querySelector('div').addEventListener('drop', event =>
    this.dropHandler(event));
}

dropHandler(event) {
  event.preventDefault();

  const uriList = event.dataTransfer.getData('text/uri-list');
  const uri = event.dataTransfer.getData('x-cue/uri');
  this.shadowRoot.querySelector('#uri-list .right').innerHTML = uriList;
  this.shadowRoot.querySelector('#uri .right').innerHTML = uri;
  const notificationCenter = this.cueInterface.notificationCenter;
  if (notificationCenter) {
    if (this.notificationId) {
      notificationCenter.deleteNotification(this.notificationId);
    }
    notificationCenter
      .showNotification({
        title: 'Drop Data',
        body: `URI: ${uri}. URI List: ${uriList}.`,
      })
      .then(notificationId => (this.notificationId = notificationId));
  }
}

```

6.2 Enrichment Services

It is not feasible for CUE to meet every user's requirements out of the box – particularly when it comes to integration with external systems. Such integrations are increasingly important as organizations adapt their workflows to make use of popular online productivity tools, publish content to social media and so on. When you publish a story in CUE, for example, you might also want to:

- Connect it to a Slack channel
- Create a card in Trello
- Push it to a Wordpress site
- Share it on one or more social media
- Send it to a legacy print system

CUE's enrichment services provide the means for you to satisfy such requirements for yourself, in a surprisingly straightforward way.

An enrichment service is a simple HTTP service that has a defined workflow. When it receives a request it recognizes from CUE, it responds in such a way as to guide CUE through the workflow, providing CUE with explicit instructions on what it should do next. You can, for example, configure CUE so that when the user clicks on **Publish** to publish a story, the story is not immediately published, but instead sent to an enrichment service you have created. The enrichment service can then perform some check on the story – count the related links, for example – and return a response to CUE. In this case the response could either be an "OK, continue", allowing the story to be published, or an instruction to display a message saying "please add 3 related links" and cancel the publish operation.

It is also possible to define much more complex interactions though: you can instruct CUE to display a sequence of dialogs for the user to fill in, and use the supplied data to modify the content of the submitted story. You can also trigger enrichment services in different ways, not only when the **Publish** button is pressed.

Here is an example workflow for publishing to social media that could be implemented using an enrichment service:

1. The user selects **Publish**.
2. CUE displays a dialog containing:
 - A **Title** text field (max 140 characters). It is pre-filled with either the story's title or the first 140 characters of its lead text field if available, but the user can edit it if required.
 - A **Social media** drop-down field, containing the names of supported social media.
 - Three buttons:
 - **Share**: publishes the story and then shares it on the selected medium, using the specified title.
 - **Don't share**: publishes the story without sharing it.
 - **Cancel**: cancels both operations – the story is neither published nor shared.

If the user selects **Share**, then the enrichment service will make an appropriate HTTP request to a back-end server that will take care of sharing a link to the published story, using the specified **Title**.

Despite the fact that this additional functionality is implemented in an enrichment service completely outside CUE, it appears to be fully integrated from the user's point of view: the dialog is constructed and displayed by CUE and looks just like any other CUE dialog.

Enrichment services can be created to handle a number of different CUE structures, not only content items. You can, for example, create enrichment services to handle section pages. Enrichment services for the following items are, however, not supported at present:

- Lists
- CUE Live events
- CUE Print-related structures such as assignments and story folders

To create an enrichment service you need to:

- Configure CUE to access a service.
- Create the service. It must be an HTTP service that accepts specific kinds of requests from CUE, and supplies specific kinds of response.

6.2.1 Configuring Enrichment Services in CUE

Configuring CUE to access an enrichment service is very straightforward – all you need to do is add a few entries to the CUE configuration file, `/etc/escenic/cue-web/config.yml`. Open this file for editing. If it does not already contain an `enrichmentServices` entry, then add one:

```
enrichmentServices:
```

Underneath this entry, you can add sub-entries for all the enrichment services you want to define. An enrichment service configuration contains the following entries:

```
- name: service-name
  href: http://host:port/service-url
  title: service-title
  triggers:
    - name: trigger-name
```

where:

name

Is the name of the enrichment service. The name must be unique since CUE identifies the services by their name. Any service definition with a duplicate name will be ignored.

href

Is the URI of the enrichment service. CUE will **POST** the current content item to this URI as an Atom entry.

title

Is the title of the enrichment service. This title is displayed by CUE in headers and labels as appropriate.

triggers

Is a list of one or more triggers defining when CUE is to **POST** the content item to the enrichment service.

Optionally, a trigger may include a **contentType** setting. This is a list of MIME types for which the trigger is to fire. If you specify this property, then the trigger will only fire for the MIME types specified in the list. The possible MIME types that may appear are shown in the following table:

x-ecce/story	CUE story-type content item
x-ecce/picture	CUE image content item
x-ecce/video	CUE video content item
x-ecce/gallery	CUE gallery content item
x-ecce/new-content	New CUE content that has not yet been saved
x-ecce/section	CUE section
x-ecce/section-page	CUE section page
x-ecce/*	All kinds of CUE content

Some triggers may have properties that need to be specified, in which case the service configuration will also include a **properties** value consisting of a sequence of one or more property settings.

Here is an example trigger definition with both a **mimeType** setting and a list of properties.

```
triggers:
  - name: trigger-name
    mimeType: [mimetype-list]
    properties:
      property-name: property-value
      property-name: property-value
```

See [section 6.2.1.1](#) for further information.

6.2.1.1 Enrichment Service Triggers

CUE supports a number of different triggers that make it possible to call enrichment services at different points in the editing/publishing process. There is also a timer-based trigger that will call an enrichment service repeatedly at a specified interval. The triggers vary slightly according to the type of enrichment service.

6.2.1.1.1 Content Item Triggers

The available triggers for content item enrichment services are:

before-save

Before saving, when the user presses the **Save** button. No properties required.

after-save

After saving, when the user presses the **Save** button. No properties required.

before-save-state-state-name

Before saving, when the user changes the state to *state-name*. If CUE has an Escenic Content Engine back end, then *state-name* can only be the name of one of the CUE default states (**draft**, **submitted**, **approved**, **published** or **deleted**). If CUE has a CUE Content Store back end, then *state-name* can either be one of these standard names or the name of a custom state defined in a custom workflow (see [Custom Workflow Definitions](#)). No properties required. Not supported for section page enrichment services.

after-save-state-state-name

After saving, when the user changes the state to *state-name*. If CUE has an Escenic Content Engine back end, then *state-name* can only be the name of one of the CUE default states (**draft**, **submitted**, **approved**, **published** or **deleted**). If CUE has a CUE Content Store back end, then *state-name* can either be one of these standard names or the name of a custom state defined in a custom workflow (see [Custom Workflow Definitions](#)). No properties required. Not supported for section page enrichment services.

editor-opened

A specified number of seconds after the content item is opened for editing. You must specify the number of seconds to wait as a property: **delay**: *n*.

editor-recurring

At specified intervals for as long as the content item is open for editing. You must specify the length of the interval (in seconds) as a property: **interval**: *n*.

on-click

When the user clicks a button in the content item. No properties required. For more information about this kind of trigger see the last example in [section 6.2.1.3](#).

6.2.1.1.2 Section Page Triggers

The available triggers for section page enrichment services are:

before-save

Before saving/publishing, when either:

- The section page is in the **published** state and the user presses the **Publish** button.
- The section page is in the **draft published** state and the user presses the **Save** button.

after-save

After saving/publishing, when either:

- The section page is in the **published** state and the user presses the **Publish** button.
- The section page is in the **draft published** state and the user presses the **Save** button.

before-save-state-save

Before saving, when the section page is in the **published** state and the user presses the **Save** button. No properties required.

after-save-state-save

After saving, when the section page is in the **published** state and the user presses the **Save** button. No properties required.

before-save-state-publish

Before saving, when the section page is in the **draft published** state and the user presses the **Publish** button. No properties required.

after-save-state-publish

After saving, when the section page is in the **draft published** state and the user presses the **Publish** button. No properties required.

editor-opened

A specified number of seconds after the section page is opened for editing. You must specify the number of seconds to wait as a property: **delay**: *n*.

editor-recurring

At specified intervals for as long as the section page is open for editing. You must specify the length of the interval (in seconds) as a property: **interval**: *n*.

6.2.1.2 Enrichment Service Authentication

In order for an enrichment service to be able to make Content Store web service calls on behalf of the user, it must be able to authenticate itself. You can make this possible by defining **authorized endpoints**.

Any enrichment service deployed on an authorized endpoint (or on the same origin as CUE) is given the user's credentials. This enables the enrichment service to make requests to the web service on the user's behalf and thereby perform tasks such as publishing related content items or creating new content items.

To define authorized endpoints, add an `authorizedEndpoints` entry to your `config.yml` file. This entry can contain an array of authorized endpoint URLs (each preceded by a hyphen). For example:

```
authorizedEndpoints:
  - "http://my-enrichment-service.info:1234/"
  - "http://some-other-enrichment-service.info:1234/"
```

6.2.1.3 Configuration Examples

Here are a few example enrichment service configurations:

- Check that a content item has at least three tags before it is saved:

```
- name: check-minimum-tag
  href: http://host:port/checkMinimumTag
  title: Minimum Tags
  triggers:
    - name: before-save
```

- Check that a content item has no unpublished relations before it is published:

```
- name: check-unpublished-related-content
  href: http://host:port/checkUnpublishedContent
  title: Unpublished Related Content
  triggers:
    - name: before-save-state-published
```

- Check a content item's spelling at regular intervals:

```
- name: check-spelling
  href: http://host:port/spellChecker
  title: Spell Checker
  triggers:
    - name: editor-recurring
      properties:
        interval: 20
```

- Print a content item:

```
- name: print-article
  href: http://host:port/printArticle
  title: Print Article
  triggers:
    - name: on-click
```

In order for this configuration to work there must not only be an enrichment service to print the content item at `http://host:port/printArticle`, the content item being edited must also contain a **Print** button for the user to click. Such buttons must be defined in content type definitions in the publication content-type resource. An enrichment service trigger button is defined by a content item `field` element with a `ui:editor` child element. The `ui:editor` child element must have a `type` attribute with the value `enrichment-service` and a name attribute that matches the name of the CUE enrichment service. For example:

```
<field name="enrichmentbutton" type="basic" mime-type="text/plain">
  <ui:label>Print</ui:label>
  <ui:editor type="enrichment-service" name="print-article"/>
</field>
```

6.2.1.4 Enrichment Service Context Menu Entries

In some cases you may want users to be able to send a content item to an enrichment service by selecting a menu entry. You can achieve this by adding menu entries to content item context menus. A context menu can be displayed by right clicking on the content cards displayed in search results and other lists of content item, or by clicking on the "hamburger" button displayed in the top right corner of a content editor. To add an enrichment service to the context menus, you need to add a configuration like this to `/etc/escenic/cue-web/config.yml`, as well as the main enrichment service configuration:

```
extendedContextMenuItems:
  - name: "print-service"
    title: "Print"
    trigger: "on-print-menu-item-click"
    publication: "tomorrow-online"
    mimeTypes: ["x-ece/story"]
```

The `extendedContextMenuItems` property can contain any number of children, each defining a menu entry for a different enrichment service. Each menu entry definition should consist of the following properties:

name

A name for the menu entry definition.

title

The label to appear on the menu entry.

trigger

A trigger name for the menu item. The name(s) you specify here must also appear in the enrichment service's list of triggers. If you have specified `on-print-menu-item-click` as in the example shown above, then the same trigger name would need to appear in the print enrichment service configuration:

```
- name: print-article
  href: http://host:port/printArticle
  title: Print Article
  triggers:
    - name: on-click
    - name: on-print-menu-item-click
```

publication (optional)

The publication with which the menu entry is to be associated. The menu entry will only appear in the context menu of content items that belong to the specified publication. If you omit this property then the menu entry will appear in the context menu of content items belonging to any publication.

mimeTypes (optional)

The MIME types with which the menu entry is to be associated. The menu entry will only appear in the context menu of content items of the specified MIME types. If you omit this property then the menu entry will appear in the context menu of content items of all MIME types.

contentTypes (optional)

The content types with which the menu entry is to be associated. The menu entry will only appear in the context menu of content items of the specified types. If you omit this property then the menu entry will appear in the context menu of content items of all types.

states (optional)

The states with which the menu entry is to be associated. The menu entry will only appear in the context menu of content items in the specified states. If you omit this property then the menu entry will appear in the context menu of content items in all types.

selection (optional)

This property must be set to one of the following values:

["single"] (default)

This menu entry is only displayed for single item selections.

["multi"]

This menu entry is only displayed for multiple item selections. You should only specify this option if the target enrichment service has been designed to handle multiple content items. For details see [section 6.2.3](#).

["single", "multi"]

This menu entry is displayed for both multiple and single item selections. You should only specify this option if the target enrichment service has been designed to handle multiple content items. For details see [section 6.2.3](#).

It doesn't make sense to specify both a **mimeTypes** and a **contentTypes** property. If you do, then the **contentTypes** property is ignored, and only the **mimeTypes** property is used.

6.2.2 Creating an Enrichment Service

An enrichment service is a standard web service that accepts HTTP **POST** requests from CUE, and responds with a specific subset of HTTP responses understood by CUE. You can create an enrichment service using any web technology or platform you like so long as it conforms to CUE's enrichment service protocol requirements.

When an enrichment service is triggered, CUE sends an HTTP **POST** request to the enrichment service URL, with an Atom entry in the body of the request. The Atom entry will contain the content item currently being edited in CUE, packaged as a VDF payload document. This is the same packaging that is used to send content items to the Content Store web service - for details, see the [Content Engine Integration Guide](#).

The enrichment service can then examine the supplied content item, apply tests to it, modify it, modify other content in the Content Store (via the Content Store's web service), make use of external web services such as spelling or grammar checkers, publish the content item in external channels and so on. It must, however, finally send one of the following HTTP responses back to CUE:

400 (Bad Request)

The enrichment service can give this response to indicate that the **POSTed** content item has failed some test or other, and the response can contain an explanatory message that is displayed by CUE or sent to the notification center. A service that checks for unpublished relations, for example, could send a **400** response if it found any unpublished relations. CUE would then cancel the trigger operation (publish, presumably) and either display an error dialog or notification containing the response message. The response body can be one of the following types:

text/plain

A plain text response message to be displayed in an error dialog.

text/html

A formatted HTML response message to be displayed in an error dialog.

application/vnd.cue.notification+json

JSON data containing a notification to be sent to the CUE notification center. The JSON data must have the following form:

```
{
  "title" : "Notification title",
  "body"  : "Notification body"
}
```

204 (No Content)

The enrichment service can give this response to indicate that CUE should just carry on as normal. A service that checks for unpublished relations, for example, could send a **204** response if it did **not** find any unpublished relations: CUE would then simply complete the publish operation that triggered the enrichment service call, and take no further action.

200 (OK)

The enrichment service can give this response in a number of different circumstances. Exactly what it means, and how it is used by CUE depends on the content returned in the body of the response. This can be one of the following types:

text/plain

This response is functionally the same as a **204 (No Content)** response from CUE's point of view: the only difference is that CUE displays the text content of the response in an information dialog. An enrichment service that automatically adds the content item to an automatically selected list might, for example, return information about which list the content item has been added to: "Item added to list 'urgent'".

text/html

This response is similar to a **200** response with **text/plain** content except that the information dialog displayed by CUE will contain formatted HTML.

application/vnd.cue.notification+json

In this case, the response body is JSON data containing a notification to be sent to the CUE notification center. The JSON data must have the following form:

```
{
  "title" : "Notification title",
  "body"  : "Notification body"
}
```

application/atom+xml

The Atom entry is expected to contain a content item. How the content item is handled depends on the entry's `<link rel="self"/>` element:

- If the **link** element contains the same **self** URL as the Atom entry originally **POSTed** by CUE, then it is assumed to be a modified version of the **POSTed** content item (returned, for example, from a grammar correction service). If the Atom entry contains all the fields originally **POSTed** by CUE, CUE overwrites the current content item with the returned version and then continues with the operation that triggered the enrichment service call (saving or publishing, for example). If, on the other hand, the Atom entry only contains **some** of the fields originally **POSTed** by CUE, then CUE only updates these fields before continuing with the operation that triggered the enrichment service call.
- If the **link** element contains a different **self** URL from the original Atom entry, then CUE opens the referenced content item in a new editor and completes the operation that triggered the enrichment service call (saving or publishing the original content item, for example).

This type of response cannot be sent by a multi-select enrichment service (see [section 6.2.3](#)).

application/vnd.vizrt.payload+xml

This response is a VDF payload document (described in [Content Engine Integration Guide](#)). It is expected to contain a sequence of field definitions. CUE constructs and displays a dialog box containing the fields specified in the VDF document, plus an **OK** and **Cancel** button. The expectation is that the user will fill in the form and click **OK**, or else click **Cancel**.

If the user clicks **OK**, then the content of the filled form is submitted to the enrichment service URL. The enrichment service can then process the content of the form and respond again in any of the ways listed above. It could, for example, return a **204 (No Content)** response, or it could get CUE to display another dialog by returning another **200 (OK)** response with a different **application/vnd.vizrt.payload+xml**. In this way the enrichment service can, if necessary, force CUE to display a long sequence of dialogs before finally performing some operation and terminating the operation that initially triggered the enrichment service.

If the user clicks **Cancel**, then the operation that triggered the enrichment service is cancelled.

6.2.3 Multi-select Enrichment Services

The ability to submit content items to an enrichment service by selecting a context menu entry opens the possibility of submitting multiple content items in one go. You can enable this possibility by specifying **selection: ["multi"]** or **selection: ["single", "multi"]** when configuring a context menu entry, as described in [section 6.2.1.4](#). However, in order for this to work the enrichment service must be able to handle multiple selections correctly. It must therefore differ from a single-select enrichment service in the following ways:

- It must be designed to accept a **text/uri-list** holding the URIs of the selected content items rather than an Atom entry holding the selected content item itself.
- If its purpose is to modify the selected content items, then it must do so by submitting **GET** and **PUT** requests to the Content Store web service for each URI in the list. It cannot include the modified content items in an HTTP **200 (OK)** response (which is what a single-select enrichment service does).

These are the only differences between a multi-select enrichment service and a single-select enrichment service.

If your enrichment service needs to handle **both** single and multiple selections then you must design it as a multi-select service that handles **text/uri-lists** rather than Atom entries, and add a **requestContentType** property setting to the enrichment service's trigger configurations as follows:

```
- name: print-article
  href: http://host:port/printArticle
  title: Print Article
  triggers:
    - name: on-click
      properties:
        requestContentType: text/uri-list
    - name: on-print-menu-item-click
      properties:
        requestContentType: text/uri-list
```

This property setting forces CUE to send a **text/uri-list** to the enrichment service rather than an Atom entry even for single content items.

6.2.4 Some Examples

This provides a couple of examples of how enrichment services can be used:

- A "text analysis" enrichment service that makes use of the "update content" action triggered by an **application/atom+xml** response.
- A "post to Slack" enrichment service that makes use of the dialog sequence triggered by an **application/vnd.vizrt.payload+xml** response.

Both example descriptions assume that an Atom entry like this is **POST**ed to the enrichment service:

```
<entry xmlns="http://www.w3.org/2005/Atom"
  xmlns:app="http://www.w3.org/2007/app"
  xmlns:metadata="http://xmlns.escenic.com/2010/atom-metadata"
  xmlns:dcterms="http://purl.org/dc/terms/">
  <id>http://host-ip-address/webservice/escenic/content/43</id>
  <title type="text">Test</title>
  <app:edited>2010-06-23T09:09:50.654Z</app:edited>
  <dcterms:created>2010-06-22T10:22:20.000Z</dcterms:created>
  <author>
    <name>demo Administrator</name>
    <uri>http://host-ip-address/webservice/escenic/person/2</uri>
  </author>
  <dcterms:identifier>4</dcterms:identifier>
  <metadata:reference source="ece-auto-gen" sourceid="6d7203c9-27d5-4fce-b14a-
a466ead83875"/>
  <link rel="http://www.vizrt.com/types/relation/home-section"
    href="http://host-ip-address/webservice/escenic/section/4"
    title="New Articles"
    type="application/atom+xml; type=entry"/>
  <link href="http://wrk-ermo:12345/publication-id/incoming/article4.ece"
    rel="alternate"/>
  <link href="http://host-ip-address/webservice/escenic/lock/article/43"
    rel="http://www.vizrt.com/types/relation/lock"/>
  <link rel="http://www.vizrt.com/types/relation/publication"
    href="http://host-ip-address/webservice/escenic/publication/demo"
    title="demo"
    type="application/atom+xml; type=entry"/>
  <metadata:creator>
    <name>demo Administrator</name>
  </metadata:creator>
  <metadata:publication href="http://host-ip-address/webservice/escenic/publication/
demo">
    <link rel="http://www.vizrt.com/types/relation/home-section"
      href="http://host-ip-address/webservice/escenic/section/4"
      title="New Articles"
      type="application/atom+xml; type=entry"/>
    <link rel="http://www.vizrt.com/types/relation/section"
      href="http://host-ip-address/webservice/escenic/section/4"
      title="New Articles"
      type="application/atom+xml; type=entry"/>
  </metadata:publication>
  <link href="http://host-ip-address/webservice/escenic/content/43" rel="edit"/>
  <link href="http://host-ip-address/webservice/escenic/content/43" rel="self"/>
  <content type="application/vnd.vizrt.payload+xml">
```

```

<vdf:payload xmlns:vdf="http://www.vizrt.com/types"
  model="http://host-ip-address/websevice/escenic/model/another">
  <vdf:field name="TITLE">
    <vdf:value>Test</vdf:value>
  </vdf:field>
  <vdf:field name="BODY">
    <vdf:value>
      <div xmlns="http://www.w3.org/1999/xhtml">
        <p>This is a test</p>
      </div>
    </vdf:value>
  </vdf:field>
  <vdf:field name="ANALYSIS"></vdf:field>
</vdf:payload>
</content>
</entry>

```

6.2.4.1 A "Text Analysis" Enrichment Service

This service sends the content of a story to an external text analysis service which returns some kind of results (a list of keywords, for example). One way of handling this would be to include a hidden "analysis" field in all the content types you want to be analyzed, to be used as a container for the keywords. Your enrichment service could then forward the content of all the visible fields to the analysis service, and add the keywords returned from the service to the hidden "analysis" field.

Here are the configuration settings for such a service:

```

enrichmentServices:
- name: "Analyze text"
  href: http://my-web-service-host/analysis-service
  title: "Analyze text"
  triggers:
  - name: after-save-state-published
    properties: {}
    mimeTypes: ["x-ecce/story"]

```

This configuration specifies that any "story-type" content items (content items that don't contain any binary fields such as video or images, and aren't live events or Newsgate stories) will be posted to the enrichment service at <http://my-web-service-host/analysis-service> when they are published.

When the enrichment service receives such a content item, it forwards the content from all the visible fields to a text analysis service. When it gets the results back from the text analysis service, it sends an **HTTP 200** response back to CUE with an **application/atom+xml** body containing a copy of the original Atom entry posted by CUE. The only part of the Atom entry that is modified is the VDF payload. All the fields except the **ANALYSIS** field have been removed, and the **ANALYSIS** field now contains the keywords returned from the text analysis service:

```

<vdf:payload xmlns:vdf="http://www.vizrt.com/types"
  model="http://host-ip-address/websevice/escenic/model/another">
  <vdf:field name="ANALYSIS"></vdf:field>
    <vdf:value>sport,football,brazil</vdf:value>
  </vdf:field>
</vdf:payload>

```

When CUE receives this response from the enrichment service, it overwrites the **ANALYSIS** field of the content item with the value supplied by the enrichment service and publishes the content item. No other fields are modified.

6.2.4.2 A "Post to Slack" Enrichment Service

This enrichment service posts a link to the [Slack](#) messaging service whenever a story is published. Before it posts the link, however, it needs to prompt the CUE user to enter a short name for the story, and the name of the Slack channel in which it is to be posted.

Here are the configuration settings for such a service:

```
enrichmentServices:
  - name: "Post to Slack"
    href: http://my-web-service-host/slack-service
    title: "Post to Slack"
    triggers:
      - name: after-save-state-published
        properties: {}
        mimeTypes: ["x-ece/story"]
```

This configuration specifies that any "story-type" content items (content items that don't contain any binary fields such as video or images, and aren't live events or Newsgate stories) will be posted to the enrichment service at `http://my-web-service-host/slack-service` when they are published.

When the Slack enrichment service receives such a content item, it returns an **HTTP 200** response with an **application/vnd.vizrt.payload+xml** body containing a VDF payload document. The VDF document contains the prompts to be displayed in the dialog, for example:

```
<vdf:payload xmlns:vdf="http://www.vizrt.com/types" model="http://web-service-host/
slack-channel-description.xml">
  <vdf:field name="slack-name">
    <vdf:value>red-herring</vdf:value>
  </vdf:field>
  <vdf:field name="channel">
    <vdf:value>#sports</vdf:value>
  </vdf:field>
</vdf:payload>
```

Note the following about this document:

- The **vdf:payload** element's **model** attribute must contain the URI of a **VDF model document** defining the structure of the payload. You must create this model document yourself and make it available somewhere (most likely on the same host as the enrichment service itself). The VDF model document for the example payload shown above might look like this:

```
<model xmlns:vdf="http://www.vizrt.com/types">
  <schema>
    <fielddef name="slack-name" label="Story name in Slack" xsdtype="string"/>
    <fielddef name="channel" label="Slack channel" xsdtype="string"/>
  </schema>
</model>
```

For a description of the VDF model document format, see [here](#).

- The values in the fields are defaults. If you do not want to supply defaults to the fields in the form, you can omit the values.

When CUE receives the payload document, it looks up the referenced model document and uses the information to construct and display a dialog containing the specified fields. The user can then enter the required values. When the user selects **OK**, CUE will **POST** the payload document (with any changes made by the user) back to the enrichment service. The enrichment service can then post the

story to Slack and return **HTTP 204** (No Content) to CUE, allowing CUE to complete the operation that initiated the enrichment service call. Alternatively, the enrichment service could return **HTTP 200** (OK) with a **text/plain** Content-Type header in order for CUE to display a message indicating that the story has been posted to Slack. If the user selects **Cancel** instead of **OK**, then nothing is sent to the enrichment service and CUE just carries on and completes the operation that initiated the enrichment service call.

6.2.5 Learning More About Enrichment Services

If you want to learn more about CUE enrichment services, take a look at this series of articles on <http://blogs.escenic.com>:

[Diving into enrichment services](#)

6.3 Drop Resolvers

A **drop resolver** is an HTTP service that reacts to objects dropped into CUE relation drop zones. A drop resolver is invoked when an object that matches a specified MIME type or URL pattern is dropped in a drop zone. The drop resolver is passed a **drop context** containing the information needed to be able to upload content to the CUE Content Store or the CCI Newsgate back end. A drop resolver can therefore be used to seamlessly import external objects dropped into CUE.

A typical use of a drop resolver would be to handle the import of images dragged into CUE from a Digital Asset Management (DAM) system. When such an image is dropped into a story relation in CUE, CUE checks the dropped image's MIME type or URI and calls the appropriate drop resolver. The drop resolver then uploads the dropped image in the background to the appropriate back end, and return the URI of the uploaded content to CUE. This allows CUE to continue with the drop operation using the URL of the uploaded copy rather than the object that was originally dropped.

Drop resolvers can also be used to customize what happens when relations are created by dropping existing content items into other content items' relation drop zones. You can use a drop resolver, for example, to copy an image dragged from a foreign publication into the publication where it is being dropped, so that the resulting dropped image is not cross-published.

6.3.1 Configuring Drop Resolvers in CUE

All you need to do make CUE call a drop resolver is add a few entries to the CUE configuration file, `/etc/escenic/cue-web/config.yml`. Open this file for editing. If it does not already contain a **dropTriggers** entry, then add one:

```
dropTriggers:
```

Underneath this entry, you can add sub-entries for all the drop resolvers you want to define. A drop resolver configuration contains the following entries:

```
- name: resolver-name
  href: http://host:port/service-url
  resultMimeType: mime-type
  attributes:
    custom-resolver-attribute
    ...
  triggers:
```

```
trigger-specification
```

where:

name

Is the name of the resolver. The name must be unique since CUE identifies the resolvers by their names. Any resolver definition with a duplicate name will be ignored.

href

Is the URI of the resolver service. The resolver service **can** run in a different domain from CUE, but will then need to be specified as an **authorized endpoint** in order to be granted access to CUE's endpoints (see [section 6.2.1.2](#)).

resultMimeType

Is a CUE MIME type, identifying the type of the content returned from the drop resolver.

attributes

Is an optional property that you can use to send custom parameters to the drop resolver. For example:

```
attributes:
  my-resolver-param-1: "value1"
  my-resolver-param-2: "value2"
```

In general, you can choose any names that you like for these attributes. There is, however, one attribute name that you must avoid, since it is reserved by CUE. This reserved name is **serviceUri**. In the situation where the MIME type of a dropped object is supported by more than one content type in the publication, CUE can automatically display a dialog asking the user to choose which content type to use for the dropped object. CUE then creates a **serviceUri** attribute from the name of the selected content type (for example **http://content-store-host/web-service/publication/publication-name/binary/content-type-name**) and adds it to the object passed to the drop resolver. This content type selection dialog is only displayed if CUE is configured to display it (see [section 3.2.5](#)).

triggers

A specification of the conditions that will trigger CUE to send a dropped object to the drop resolver. The specification can either consist of an array of MIME types or an array of URI patterns (but not both). For example:

```
triggers:
  mimeTypeTypes: [mime-type, ...]
```

or:

```
triggers:
  urlPatterns: [url-pattern, ...]
```

If **mimeTypeTypes** is specified, then the drop resolver will be called whenever an object with a MIME type that matches one of the specified MIME types is dropped into CUE.

If **urlPatterns** is specified, then the drop resolver will be called whenever an object with a URL that matches one of the specified URL patterns is dropped into CUE.

Here is an example configuration for a Google image import drop resolver:

```
dropTriggers:
- name: "GoogleImageImport"
  href: "http://my-server/GoogleImageImport"
  resultMimeType: "x-ecv/picture"
```

```
triggers:
  urlPatterns: ['^https?:\\/\www\.google\.\.*\imgres\?.*\']
```

This configuration will cause CUE to forward any dropped object with a URL that matches the regular expression `^https?:\\/\www\.google\.\.*\imgres\?.*\` to the drop resolver `http://my-server/GoogleImageImport`.

6.3.2 Drop Resolver Parameters

When CUE triggers a drop resolver, it passes an object to the resolver containing the following parameters:

uri

The URI of the dropped object.

endpoints

CUE's configured endpoints (one or more of Content Store, CCI Newsgate and the bridge).

attributes

Any parameters supplied in the **attributes** object of the drop resolver configuration (see [section 6.3.1](#)).

accessTokens

Access tokens that can be used to authenticate any requests the drop resolver sends to CUE's endpoints. These access tokens will only be passed to the drop resolver if it:

- Either belongs to the same domain as CUE
- Or is listed as an **authorized endpoint** (see [section 6.3.1](#)).

context

The context of the drop operation. For an CUE publication, this consists of the following structure:

```
publication:
  name: publication-name
  uri: publication-uri
```

where:

- *publication-name* is the name of the CUE publication in which the drop operation occurred.
- *publication-uri* is the URI of the CUE publication in which the drop operation occurred.

For a Newsgate publication, the context is:

```
storyId: story-folder-id
```

where *story-folder-id* is the ID of the story folder in which the drop operation occurred.

6.3.3 Drop Resolver Return Values

A drop resolver must return one of the following HTTP responses on termination:

HTTP 200 (OK)

The drop resolver has terminated successfully. The body of the HTTP response must contain the URI of a resource in the Content Store or CCI Newsgate back end (usually this will be an imported version of the object that was dropped by the user). CUE will then complete the drop operation using the supplied URI.

HTTP 204 (No Content)

The drop resolver has terminated successfully, but does not have a URI to return. CUE will then:

- If the dropped object was external, abandon the drop operation.
- If the dropped object was an CUE content item, complete the drop operation with the original content item.

HTTP 4xx OR 5xx

An error of some kind has occurred. The body of the HTTP response must contain an error message text. CUE will then abandon the drop operation and display the supplied error message in a dialog box.

6.4 URL-based Content Creation

CUE lets you create a draft content item by simply passing a URL to a browser. A script running in some other application such as Trello, Google Sheets or Slack can simply construct a CUE URL containing the details of a new content item and pass the URL to a browser. CUE will then start in the browser and create the requested content item, ready for the user to continue editing (if required), save and publish.

If the user is currently logged in to CUE then the new content item is created immediately. If the user is not logged in, then the CUE login screen is displayed in the browser. Once the user has logged in, the content item is created.

6.4.1 Content Creation URL Structure

A content creation URL must have the following overall structure:

```
| http://your-cue-host/cue-web/#/main?parameter-list"
```

where *your-cue-host* is the host name (and possibly the port number) of your CUE host and *parameter-list* is a sequence of three URL parameters separated by **&** characters:

```
| uri=source-id&mimetype=mime-type&extra=content-definition
```

These parameters must contain the following values:

uri=source-id

A source ID is a unique string used to identify a content item. The example script generates an ID from the current date and time, but you can use whatever method you choose to supply a unique string.

mimetype=mime-type

You must specify the MIME type **x-ecce/new-content**; **type=story**.

extra=content-definition

content-definition is a JSON value with the following structure:

```
| {
  |   "modelURI": {
  |     "string": "model-uri",
  |     "$class": "URI"
  |   },
  |   "homeSectionUri": "home-section-uri",
```

```

    "values": "content-item-field-values"
  }

```

where:

model-uri

Is the web service URI of the content model for the content item you want to create.

home-section-uri

Is the web service URI of the section to which you want to add the new content item.

values

Is an array of field values defining the content you want to add to the new content item. You can leave this array empty if you don't want any of the fields in the new content item to be predefined, for example:

```

    "values": {}

```

The fields must be identified by their names as specified in the CUE **content-type** resource, not by the labels displayed in CUE. To predefine values for the **title** and **body** fields of a content item, you would need to specify:

```

    "values": {
      "title": "This is the title",
      "body": "<p>This is the body.</p>"
    }

```

Note that all the field names and values in the JSON structure **must** be enclosed in quotes, otherwise the URL will not be accepted by CUE.

The values of the three URL parameters must all be [URL-encoded](#).

6.4.2 Example Script

The following example bash script shows how to construct a content creation URL and submit it to CUE.

```

#!/bin/bash

urlencode() {
  # urlencode <string>
  old_lc_collate=$LC_COLLATE
  LC_COLLATE=C

  local length=${#1}
  for (( i = 0; i < length; i++ )); do
    local c=${1:i:1}
    case $c in
      [a-zA-Z0-9._~_-]) printf "$c" ;;
      *) printf '%%%02X' "$c" ;;
    esac
  done
  LC_COLLATE=$old_lc_collate
}

cue="http://your-cue-host/cue-web"
webservice="http://your-escenic-webservice-host/webservice"
homesection="$webservice/escenic/section/section-id"
modeluri="$webservice/escenic/publication/demopub/model/content-type/story"

```

```

relations=("Content_ID1|group1" "Content_ID2|group2") # eg. ("2015|images" "2016|
images")

mimetype="x-ecce/new-content; type=story"
sourceid=`date '+%y%m%d-%H%M%S'`
title="My Title"
body="<p>My first paragraph.</p><p>My second paragraph.</p>"

relationsJSON="["
for i in "${relations[@]}"
do :
    contentUri=`echo $i | cut -d'|' -f1`
    contentUri="$webservice/escenic/content/$contentUri"
    group=`echo $i | cut -d'|' -f2`
    relationsJSON="$relationsJSON{\"group\":\"${group}\",\"contentUri\":
\"${contentUri}\"}, "
done
if [ ${#relationsJSON} -gt 1 ]
then
    relationsJSON="$relationsJSON%?"
else
    relationsJSON="$relationsJSON]"
fi
extra="{\"modelURI\":{\"string\":\"${modeluri}\",\"class\":\"URI\"},\"homeSectionUri
\": \"${homesection}\",\"values\":{\"title\":\"${title}\",\"body\":\"${body}\"},
\"relations\":${relationsJSON}}"

url=$cue/#/main?uri=$(urlencode "$sourceid")&mimetype=$(urlencode
"$mimetype")&extra=$(urlencode "$extra")

google-chrome $url &

```

If you edit this script to match your installation, then running it should start the Chrome browser and create a draft content item with the title "My Title". You would need to replace *your-cue-host* and *your-escenic-webservice-host* with the correct host names and replace *section-id* with the ID of a section in one of your publications before running it. Otherwise, as long as you have a content type called **story**, it should work.

6.5 URL-based Content Editing

CUE lets you open a content item by simply passing a URL to a browser. A script running in some other application such as Trello, Google Sheets or Slack can simply construct a CUE URL containing ID of an existing content item and pass the URL to a browser. CUE will then start in the browser and open the requested content item, ready for the user to continue editing (if required), save and publish.

If the user is currently logged in to CUE then the new content item is opened immediately. If the user is not logged in, then the CUE login screen is displayed in the browser. Once the user has logged in, the content item is opened.

6.5.1 Content Editing URL Structure

A content editing URL must have the following overall structure:

```
http://your-cue-host/cue-web/#/main?escenicid=content-item
```

where:

- *your-cue-host* is the host name (and possibly the port number) of your CUE host
- *content-item* is the ID of the content item to be edited. The ID can be supplied in the following three forms:

- Just the ID itself. For example:

```
| http://mycueserver.com:81/cue-web/#/main?escenicid=1234
```

- As a Content Store web service URL, specified relative to the CUE installation's **escenic** endpoint:

```
| http://mycueserver.com:81/cue-web/#/main?escenicid=escenic/content/1234
```

- As a complete Content Store web service URL:

```
| http://mycueserver.com:81/cue-web/#/main?escenicid=http://
| mycontentstore.com:8080/webservice/escenic/content/1234
```

6.6 Logout Triggers

A logout trigger is a simple HTTP **GET** request that is sent to a specified URL when the user logs out from CUE. It provides a mechanism for integrators to automatically perform other actions (such as logging out of a VPN) on logout from CUE. You can define multiple logout triggers. In this case, a **GET** request will be sent to each specified URL when the user logs out.

The CUE logout process does not wait for any response from the defined trigger URLs – it simply makes the requests and then performs the logout operation.

To define logout triggers:

1. If necessary, switch user to **root**.

```
| $ sudo su
```

2. Open **/etc/escenic/cue-web/config.yml** for editing. For example:

```
| # nano /etc/escenic/cue-web/config.yml
```

3. Add a **logoutTriggers** property containing a list of trigger URLs to which **GET** requests are to be sent:

```
| logoutTriggers:
|   - http://my-vpn-service/logout
|   - http://my-other-service/logout
```

4. Save the file.

5. Enter:

```
| # dpkg-reconfigure cue-web-3.6
```

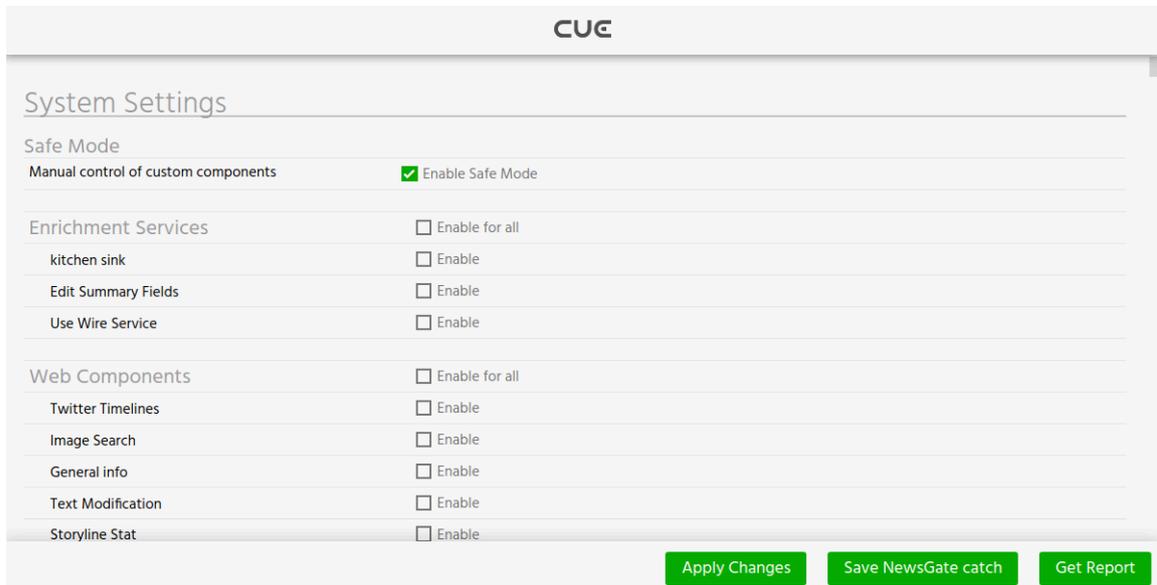
This reconfigures CUE with the changes you have made.

6.7 CUE Safe Mode

CUE safe mode lets you easily disable some or all extensions of you have installed to help you track down the cause of any problems that may arise.

To disable all web components, enrichment services and drop resolvers you have installed:

1. Open the **Settings** panel by selecting the  panel button (on the left).
2. Double-click **System Settings and Information** to display the **System Settings** page.
3. Check the Enable safe mode option at the top of the page:



4. Select **Apply Changes**.
5. Refresh any open CUE browser tabs to see the effects of the change.

All extensions are now disabled. You can re-enable extensions individually or in groups by selecting the individual check boxes on the rest of the page, selecting **Apply Changes** and once again refreshing any open CUE browser tabs. By enabling and disabling extensions and then testing you can often determine whether or not an extension is the cause of your problem and if so, which one.

7 DC-X Integration

This section provides a preliminary description of the DC-X extension for CUE. DC-X is a Digital Asset Management system offering simple but sophisticated functionality for the creation, management and storage of digital assets such as text, images, video and audio.

The main components of the CUE DC-X extension are:

- A DC-X side panel in CUE that allows users to search DC-X for images, videos and so on, for import into CUE.
- A related **drop resolver** (an HTTP service that reacts to objects dropped into CUE). This drop resolver listens for drops of DC-X resources, dragged either from the DC-X side panel or from a DC-X client running on the same device as CUE. On detecting such an event, the drop resolver imports the dropped resource(s) into CUE. For general information about drop resolvers, see [section 6.3](#).

7.1 DC-X Drop Resolver Installation

The DC-X extension requires the installation of the DC-X drop resolver. Currently this component is not available for download via the usual channels. Contact Stibo DX through your sales or support representative to obtain a copy of the DC-X drop resolver and instructions on how to install it.

7.2 DC-X Extension Configuration

These instructions are based on the assumption that the DCX drop trigger has been installed and is accessible from CUE.

1. Switch user to **root** (if necessary)


```
| $ sudo su
```
2. Open `/etc/escenic/cue-web/config.yml` for editing. For example


```
| # nano /etc/escenic/cue-web/config.yml
```
3. Edit the file as described in the following sections.
4. Save the file.
5. Enter the following to reconfigure CUE:


```
| # dpkg-reconfigure cue-web-3.6
```

7.2.1 Endpoint Configuration

The DC-X system with which CUE is to communicate must be configured as an endpoint, in the same way as the Content Store and CUE Print back ends. Add the URI of the DC-X endpoint as a new property under **endpoints**. For example:

```
| endpoints:
  escenic: "http://escenic-host:81/webservice/index.xml"
  newsgate: "http://newsgate-host/newsgate-cf/"
  dc-x: "http://dcx-host/dc-x/"
```

7.2.2 Side Panel Configuration

Add `endpointServices` and `sidePanels` configurations, which should look something like this:

```
endpointServices:
  dc-x:
    - serviceName: "dcx-login.service"
sidePanels:
  - id: "dcx-assets"
    isAngular: true
    name: "DC-X Assets" #translate
    cssClass: "dcx dcx-assets"
    directive: "dcx-search-sidepanel"
    mimeTypes: ["x-ece/story", "x-ece/new-content; type=story", "x-ece/event", "x-ece/gallery"]
    homeScreen: false
    active: true
    requires: ["dc-x"]
    order: 302
    attributes:
      dcxChannels: ['ch020dcxsystempoolapict', 'ch060dcxsystempoolvideo', 'ch050dcxsystempoolnative']
```

There is an example configuration file called `DCX.yml` included in the CUE distribution that you can copy and uncomment.

Make sure that the `dcxChannels` property is correctly set. This property must contain a list of the DC-X channels that CUE should have access to. You must use the channel IDs to specify the channels, not their names.

7.2.3 Drop Resolver Configuration

Add a drop resolver (or drop trigger) configuration, which should look something like this:

```
dropTriggers:
  - name: DCXToContentStoreImport
    href: "http://drop-resolver-host/DCXToContentStoreImport"
    triggers:
      mimeTypes: ["x-dcx/picture", "x-dcx/video", "x-dcx/other"]
      urlPatterns: ['^https?:\\//dcx-host\\dcx\\api\\document\\.*', '^https?:\\//dcx-host\\dcc\\document\\.*']
    resultMimeType:
      - sources: ["x-dcx/picture", "x-dcx/other"]
        results: ["x-ece/picture"]
      - sources: ["x-dcx/video"]
        results: ["x-ece/video"]
      - sources: ['^https?:\\//dcx-host\\dcx\\api\\document\\.*', '^https?:\\//dcx-host\\dcc\\document\\.*']
        results: ["x-ece/picture", "x-ece/video"]
    attributes:
      defaultState:
        - dcxTypes: ["Image", "Postscript", "Illustrator", "PDF", "Video"]
          state: "published"
      fieldMapping:
        - dcxTypes: ["Image", "Postscript", "Illustrator", "PDF"]
          mapping:
            - name: "title"
              value:
```

```

- dcxField: "Filename"
- name: "caption"
  value:
    - dcxField: "body"
    - dcxField: "Headline"
- name: "credit"
  value:
    - dcxField: "Provider"
- name: "byline"
  value:
    - dcxField: "Creator"
- dcxTypes: ['Video']
  mapping:
    - name: "title"
      value:
        - dcxField: "Filename"
    - name: "description"
      value:
        - dcxField: "body"
        - dcxField: "Headline"
    - name: "credit"
      value:
        - dcxField: "Provider"
    - name: "byline"
      value:
        - dcxField: "Creator"

```

where *drop-resolver-host* and *dcx-host* are replaced by the appropriate host names.

The **defaultState** attribute determines which states will be assigned to dropped assets. You can differentiate the dropped assets by their DC-X type and assign different states to different types of asset. In the example shown above, all types of asset are assigned the state **published**.

The **fieldMapping** defines how DC-X field values are to be mapped on to Content Store fields. You can differentiate the dropped assets by their DC-X type and set different field mappings for different types of asset. In the example shown above, video assets are assigned different field mappings from the other asset types. You can map several DC-X fields onto one Content Store field:

```

- name: "description"
  value:
    - dcxField: "body"
    - dcxField: "Headline"

```

In this case the DC-X fields must be specified in priority order: the first non-empty field is used to fill the Content Store field.

7.2.4 Usage Reporting Configuration

Information about the use of DC-X assets in CUE is reported back to DC-X. This reporting is carried out via the CUE Zipline extension (primarily intended to support CUE Print integration). CUE Zipline is currently not available for download via the usual channels. Contact Stibo DX through your sales or support representative to obtain a copy of CUE Zipline and instructions on how to install it.

In order to enable DC-X usage reporting you need to add a DC-X processor definition to the **processors** entry in the CUE Zipline configuration:

```
processors:
```

```
...
# Reporting usage information for DC assets
- type: dcx
  endpoint:
    # URL of DCX API endpoint
    url: dcx-integration-endpoint
    user: dcx-integration-user
    password: dcx-integration-password
  cache:
    # Override default cache capacity (10000)
    max_size: dcx-integration-cachesize

# Base URL of CUE web installation (e.g., http://server:port/cue-web/)
cue_web: cue-web-endpoint

# Configuration of usage info block
info:
  view:
    label: View
    link_text: Browse
  edit:
    label: Edit
    link_text: Open in CUE
```

The DC-X processor definition contains the following properties:

type

Must be set to **dcx**.

endpoint

Must contain properties specifying the DC-X endpoint URL plus a valid DC-X user name and password.

cache

May optionally be used to specify cache settings.

cue_web

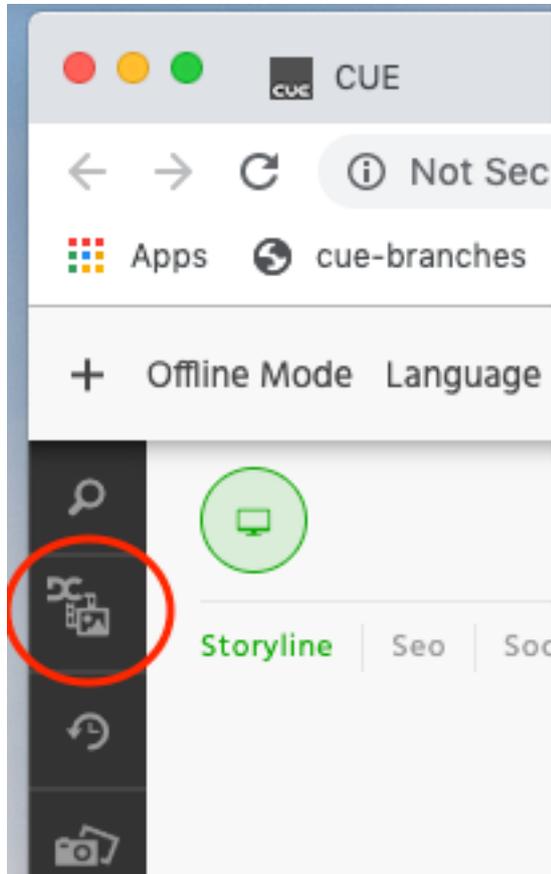
Must contain the CUE endpoint URL.

7.3 Login Credentials

The DC-X extension uses the credentials supplied when you log in to CUE as login credentials for DC-X as well. You must therefore use the same username/password combinations in both systems for the DC-X extension to work.

7.4 Using the DC-X Integration

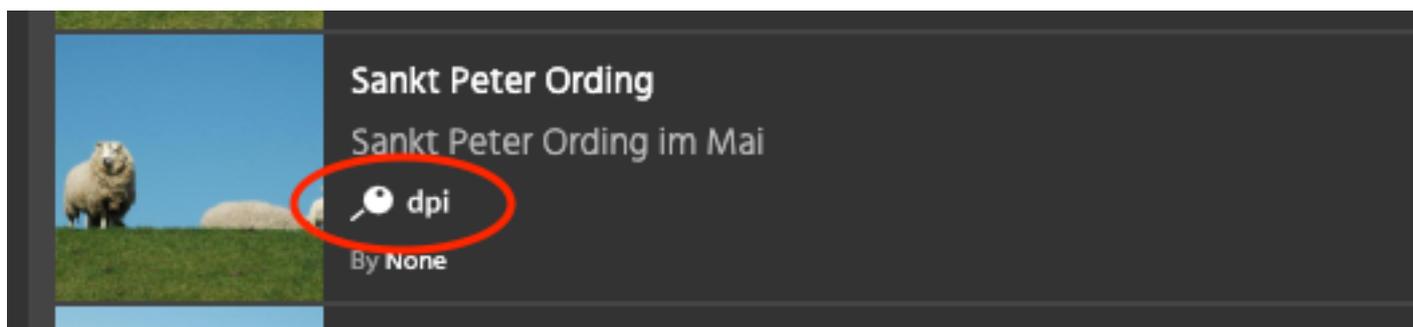
Once the DC-X integration is correctly installed and configured, DC-X appears as a secondary search panel on the left side of the CUE window:



When expanded, the DC-X panel looks and behaves like the main CUE search panel with the following differences:

- It offers access to DC-X assets, rather than ordinary CUE content
- The search and filtering options reflects the search and filtering functionality provided by DC-X

Each DC-X asset is represented in the panel search results by an entry consisting of a thumbnail preview image, a title, description, owner and a series of DCX **flags** describing attributes of the asset such as its resolution, whether it is an online-only asset, whether it is expensive and so on:



To use DC-X assets in a publication, you simply drag them from the search results list and drop them in an appropriate location in a content item, in exactly the same way as you would drop images and videos selected from the ordinary search panel. When an asset is dropped in this way, a content item of the appropriate type is created for it, and a copy of the binary object is stored in the Content Store. The copied object is marked to indicate it is a DC-X asset, and the new content item is set to a state defined in the DC-X drop trigger configuration (or **draft** if the drop trigger configuration does not specify a state). If the dropped asset has been dropped before and already exists as a content item in CUE, then that content item is used and its state is not modified.

If you have a DC-X client running on the same machine as CUE, you can also drag assets directly from the DC-X client into CUE. Assets added in this way behave in exactly the same way as assets dragged from the DC-X search panel in CUE.

Information about the use of DC-X assets in CUE is reported back to DC-X. The usage information is recorded in DC-X as follows:

- Assets related to a published story are assigned a usage entry with the state **Published**, along with the publication date and URL of the story.
- Assets related to a story that is not published (or to the working copy of a published story) are assigned a usage entry with the state **Planned**.

When assets are removed from a story, the corresponding usage entry is removed from DC-X.