User Manual

Web ST Editor

INDEX

1 INTRODUCTION

The **Web ST Editors** is a cloud-based user friendly applications of FingerCloud to create, edit and verify subtitle files for access services such as **Subtitles for the Deaf or Hard-of-Hearing** (SDH), **Open Subtitles** and **Spoken Subtitles.**

This editor is totally inter-connected to the Accessibility Content Manager (ACM) of FingerCloud for the video, access service and support files. Metadata is also provided from the ACM.

The main stakeholders that will benefit from the use of the Web ST Editors are the following:

- Access service producers (service providers and freelancers) make usage of the Web ST Editor to produce and edit the subtitle (ST) files on a fully cloud-based environment. There are two cases:
  - The producer makes use of the broadcaster's FingerCloud licence. In this case all the production tasks are assigned by the broadcaster who provides all the support materials such as the LQ video file and metadata. The producer will use the Editor Interface of the ACM to view and complete the production tasks assigned to them. In this case the Web ST Editor is run from the production tasks in the Editor Interface of ACM.
  - The producer performs all the workflow of uploading the programme support materials such as the LQ video and metadata, and also performs the access service production. In this case the producers uses the Content Management Interface of the ACM to upload the support materials such as LQ video and metadata, and also to create, import and export access service files. In this case the Web ST Editor is run from the Content Management Interface of ACM.
- Broadcaster's QA department make usage of the Web ST Editor via the Content Management Interface of ACM to verify the access service files.
- Broadcaster's accessibility department make usage of the Web ST Editor via the Content Management Interface of ACM to preview the access service files.

In the Annexes the user will find useful information such as a list of Errors and Warnings, a list of the shortut keys and a HMD guide for 360º media.

Note: When the Web ST Editor is run from a production task in the Editor Interface of ACM, the editing features available in the editor are limited according to the editing permissions granted to the production task by the broadcaster, so such limitations include:

- Settings: only if this permission is granted, the producer will be able to modify the editor settings for this production, such as default duration, separation, characters, regions, import or export profiles, etc.
- Time slot: when the production task has been limited by a time slot (from one time-code to another time-code), the producer will only be able to edit the section of the programme in the time slot, so no time-code outside of the time slot is accepted and the video can only be played inside the time slot. This limitation is used by the broadcaster when the access service production is distributed to various producers by dividing the whole programme in several time slots and assigning each time slot to a different producer.

2 HOW TO RUN THE WEB ST EDITOR

In order to run the Web ST Editor there are some basic requirements:

- Hardware: PC with at least i5 processor, 8 GB RAM. Screen resolution should be at least 1920×1080 pixels (a good graphics card is recommended).
- Browser: Last version of Chrome or Firefox (at least Chrome version 74 or Firefox version 65).
- Fast internet connection as the tools are online and videos are used along the workflow.

The user logs in the ACM via the web browser (figure 1) and enters username and password previously provided by the administrator.
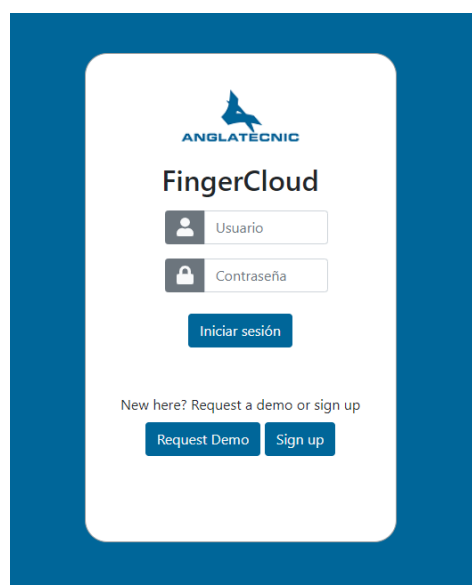
Figure 1: Login page

Once in the ACM, to run the Web ST Editor depends on the stakeholder and it is via one of the ACM interfaces:

- To learn how to run the Web ST Editor from the Editor Interface of the ACM read the chapter 4.3 (Editor Interface) of the Accessibility Content Manager User Manual.
- To learn how to run the Web ST Editor via the Content Management Interface of the ACM read the chapter 4.2 (Content Management Interface) of the Accessibility Content Manager User Manual.

3   WEB ST EDITOR

Figure 2, displays the editor window. This window is divided into an upper and down side. The upper side is only designed for viewing, setting and verification purposes. The down side is purely for edition and final preview.

The editor is responsive, so you may wish to set the browser zoom adequately (Ctrl+mouse wheel up or Ctrl+mouse wheel down) to fit all the boxes adequately in the screen.
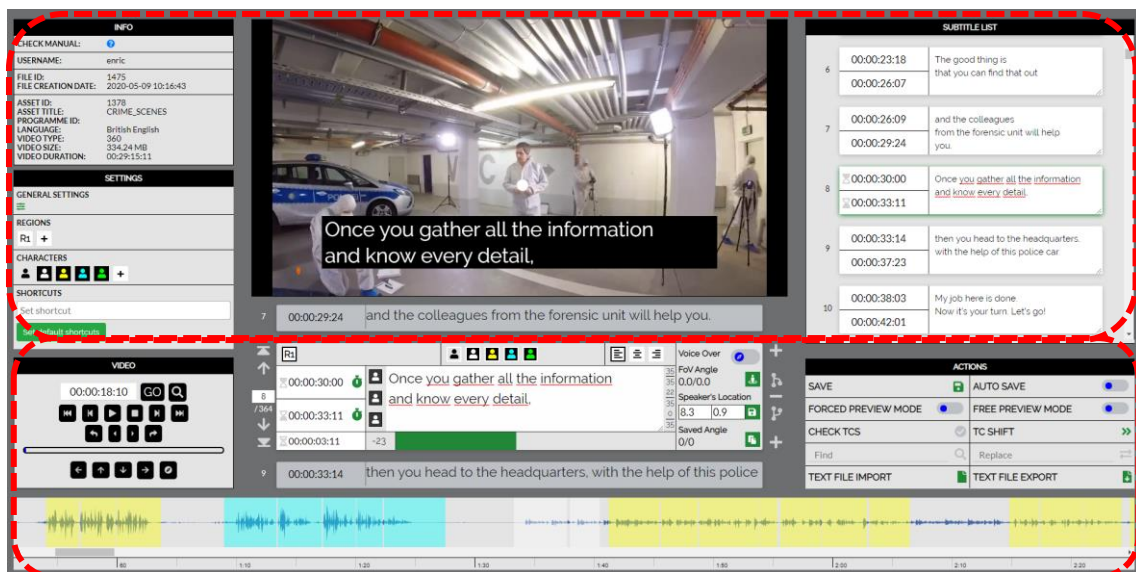
Figure 2: Web ST Editor
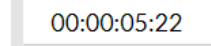
Moreover, it gives the possibility to the user to subtitle videos in both 2D and 360º videos. Depending on the video uploaded for the task, they are headed to the appropriate version of the editor (either 2D or 360º). In this user manual, the 360º video subtitle edition/production is presented as it is more comprehensive. Functionality of 2D videos subtitle edition/production is the same except for angle-related functions which are not active while the user is working with a 2D video. By reading this document, you will be able to work with both 2D and 360º videos.

4 HOW TO PRODUCE SUBTITLES

It is assumed that now you are inside the Web ST Editor. Let's take a look at how we use the editor to create a subtitle from scratch.

Your first tools are video controls. Table 2 demonstrates all the buttons with their functionality. With these buttons you navigate through the video, move the video Field of View (FoV) and jump to the video frame you wish.

Video controls
The above buttons are classic buttons to control videos accompanied by buttons compatible with 360º functionality which will be explained further. In order for the editor to be more intuitive, there is a time-line at the bottom of the page with see-through colours which symbolise the characters of speakers in time (more information later in the document). The waveform in the time-line helps the user find the desired moment of the video faster.

Frame backward	This button makes the video go backwards frame by frame (Alt+shift+left).
Fast backward	This button makes the video go backwards with a fast speed (F5).
Slow backward	This button makes the video go backwards with a slow speed (F6).
Toggle play/pause	This button plays and pauses the video (F2). **Note:** The F2 shortcut is used to Play and to Pause the video alternatively, nonetheless the F3 shortcut has also been added to Pause the video only.
Stop	This button makes the video stop and go to the beginning (F9).
Slow forward	This button makes the video go forward with a slow speed (F7).
Fast forward	This button makes the video go forward with a fast speed (F8).

Video controls	
▶ **Frame forward**	This button makes the video go forward frame by frame (Alt+shift+right).
🔍 **Find subtitle by TC**	With this button, you can find the subtitle that contains the TC (Ctrl+Shift+F).
↩ **Jump backward**	This button helps the user to jump some frames backward. The number of the frames to be jumped is configurable in General Settings (see table 5) (F1).
↪ **Jump forward**	This button helps the user to jump some frames forward. The number of the frames to be jumped is configurable in General Settings (see table 5) (F4).
← **Move FoV left**	With this button you move the Filed of View (FoV) to the left in the spherical video (Alt+left). You can also use the mouse and left button over the video and move to the left to do the same.
↑ **Move FoV up**	With this button you move the FoV up in the spherical video (Alt+up). You can also use the mouse and left button over the video and move up to do the same.
↓ **Move FoV down**	With this button you move the FoV to the down in the spherical video (Alt+down). You can also use the mouse and left button over the video and move to the bottom to do the same.
→ **Move FoV right**	With this button you move the FoV to the right in the spherical video (Alt+right). You can also use the mouse and left button over the video and move to the right to do the same.
00:00:05:22 GO	Enter a specific time of the video, press GO and you are taken to that video frame.
⊘ **Move FoV to "Speaker's location"**	By pressing this button the FoV moves to the angle where the speaker of current subtitle is found (Alt+F).

Table 1: Video controls

For each subtitle you must enter the subtitle text in the text field and after finding the appropriate video frames the time-codes (TC) must be entered: TCin by clicking on the TCin clock icon (Shift+Page up) and TCout by clicking on the TCout clock icon (Shift+Page down). Figure 3 displays all the information you need in this sense. Each subtitle can have a maximum of 3 lines and up to 3 characters.

The below reading speed thermometer reflects the reading difficulty of the subtitle for the given duration. At first it is green, then if we are excessing the ideal reading difficulty it turns into red. The red oval shows the used/total characters possible in each line.
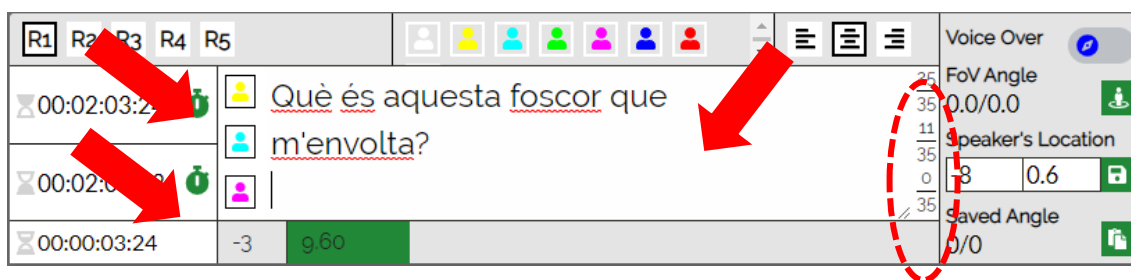

Figure 3: Subtitle edition area

As the next step, when you are sure about the text itself and its time codes, you may set region, character of the speaker and alignment for this subtitle (figure 4). For the characters the user may use the shortcuts from Shift + F1 for Character C1 until Shift + F8 for Character C8.

The characteristics of the available options for each one (region, character, alignment) are configurable by the user in SETTINGS which will be explained later in this manual.
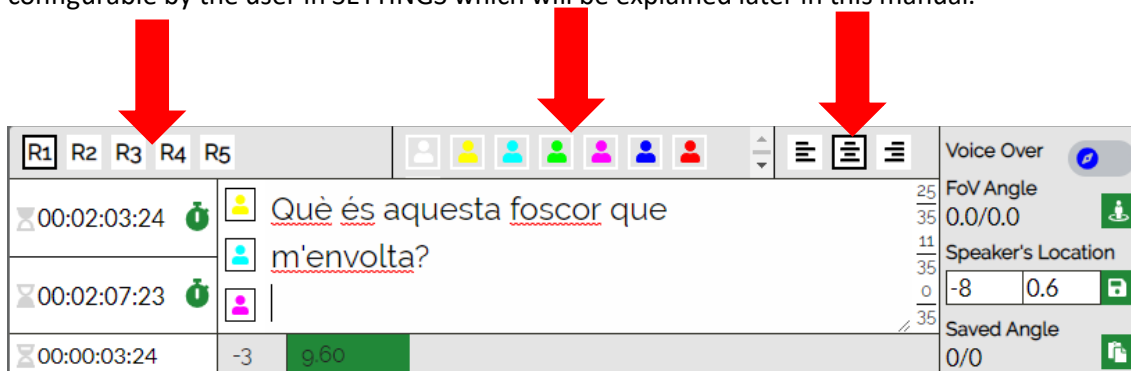

Figure 4: Subtitle edition tools

Figure 5: Video waveform in time

As observed before, at the bottom of the Web ST Editor, a time-line with a waveform belonging to the video is plotted and the subtitles are symbolised by their character colour. After finishing the above steps, there is an additional possibility: user can drag the characters in the waveform by mouse button to change their time-codes accordingly.

As a result, a subtitle text and its styling are created successfully. However, this editor works in 360º media as well and matter of angles is important when the user wishes to work in this sense. So next step is setting proper angles for the subtitle (to indicate the speaker's coordinates in the

360º sphere) which is done in the same area demonstrated in figure 3. Table 3 explains the procedure of angle setting for a subtitle.

Subtitle edition – Angles
By default, at first the video has the current angle as longitude: 0.00° and latitude: 0.00° Also, the **voice over** option can be marked when there is no speaker in the 360º scene.

<table>
<tr>
<td rowspan="4">

Voice Over   🧭

FoV angle
-5.6/359.6   ⚓

Speaker's Location
-26.3   81.7   💾

Saved angle
-8.7/322.9   📋

</td>
<td>

Voice over: This option should be activated when there is only voice and no speaker in the 360º video frame.

</td>
</tr>
<tr>
<td>

FoV angle: This is the current field of view angle (FoV) and it changes while we move the FoV of the video ourselves. it corresponds to the video direction that we see (you can change the FoV angle using the navigation buttons in the video control area or moving the mouse with left button over the video).

The green button next to it (Alt+Enter) sets the FoV angle to the "Speaker's location" fileds of the subtitle (see next row).

</td>
</tr>
<tr>
<td>

Speaker's location: This fields is set by the subtitler. It corresponds to the angle in the video where the speaker of this subtitle is located which is important in immersive media. It is important to know how to bind an angle to the subtitle. This is done solely by finding the desired angle by navigating and setting it to the subtitle.

By pressing the green save button next to it, the "Speaker's location" values are copied to the "Saved angle" (Alt+C) for it to be used in other subtitles (see next row). The aim of this button is to copy this angle for later pasting it to other subtitles.

</td>
</tr>
<tr>
<td>

Saved angle: This angle is kept in this register (see previous row) so it can be used in other subtitles.

The button next to it pastes the "Saved angle" to the "Speaker's location" of the subtitle (Alt+V). The aim of this button is to use the angle from another subtitle that was copied previously.

</td>
</tr>
</table>

Table 2: Subtitle creation - angle settings

You may want to repeat the procedure for the remaining subtitles and finish them all (text, styling, angles). You may need some buttons in order to organise/edit/improve the sequence of the subtitles. Table 4 shows you the buttons (and their shortcuts) you have available for this purpose.
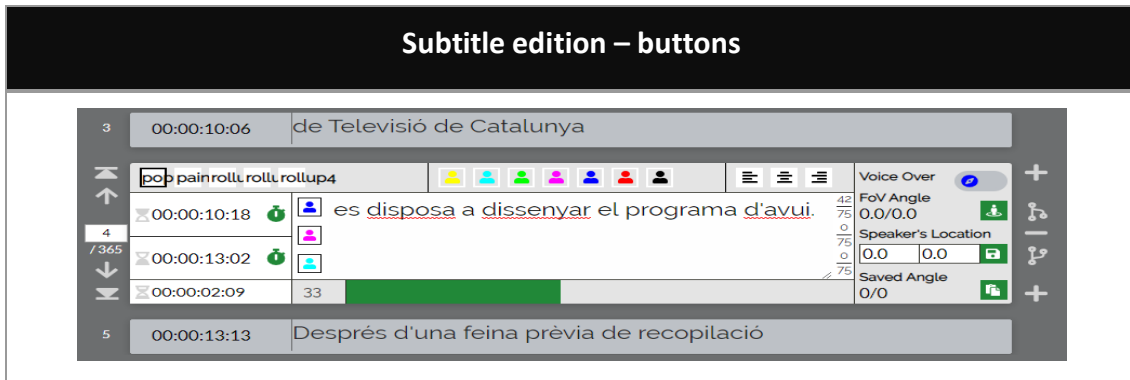
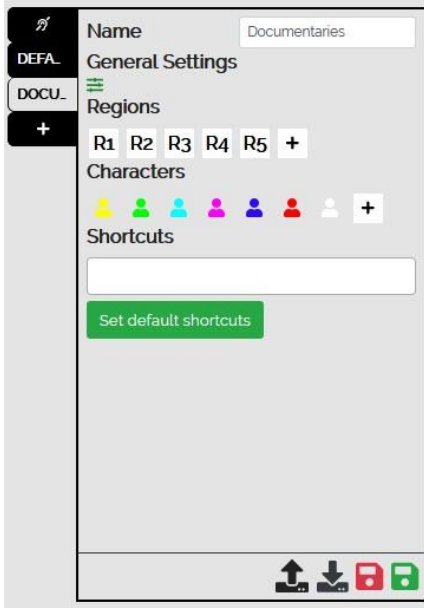| Subtitle edition – buttons	
The buttons are visible in this box, also the top and bottom grey areas display the previous and next subtitle.	
First subtitle	This button takes you to the first subtitle (Alt + Page up).
Previous subtitle	This button takes you to the previous subtitle in relation to your current position (Page up).
Next subtitle	This button takes you to the next subtitle in relation to your current position (Page down).
Last subtitle	This button takes you to the last subtitle (Alt + Page down).
Jump to subtitle	This part takes you to a specific subtitle. But you need to enter the number of the subtitle. It also informs you of the total number of subtitles.
Insert subtitle before	This button is useful for the insertion of a new subtitle before the existing subtitle (Ctrl+U).
Split subtitle on cursor position	This button splits the current subtitle text into two subtitles and gives us two separate subtitles (Ctrl+Insert).
Delete subtitle	This button deletes the selected subtitle (Ctrl+D).
Join subtitle with next	This button joins the current subtitle with the next one and creates a single subtitle containing both texts of the previous ones (Ctrl+Delete).

Subtitle edition – buttons	
	The reading speed thermometer is modified accordingly but timings remain the same as the first previous subtitle.
➕ Insert subtitle after	This button is useful for the insertion of a new subtitle after the existing subtitle (Ctrl+Shift+U).

Table 3: Subtitle edition - navigation buttons

5 MORE OPTIONS

The procedure in which we produce a subtitle is over, but we still have more options to work with.

Remember the regions, characters and buttons we introduced earlier. All these are customisable using "SETTINGS". Table 5 shows the corresponding information.

Subtitle settings	
Settings Profiles

By means of Setting Profiles the user can have pre-defined editor settings for different types of production. Each user may have more than one Settings Profile stored in its database.

On the left side of the Settings Profile pannel the user will find serveral tabs:

• The first tab with a crossed-ear icon is called File Profile and contains the settings extracted from the access service file, so these are the settings that were used during the previous edition of the file. |

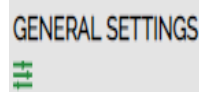| **Subtitle settings**	
	• The following tabs correspon to the different Settings Profiles that are stored in the user database. • The following tab contains a '+' button to create a new Settings Profile. On the right side of the Settings Profile pannel the settings are displayed and can be modified by the user. Each profile contains a name and the data described in the following rows of this table. Once the settings have been edited, the user must save them using the corresponding button on the bottom right of the panel (Save current profile). If the user wants to delete one of its Settings Profile, the profile has to be selected and then click on the "Remove current profile". A Settings Profile can be exported to a file (.json) to be shared between producers or to save it as a backup in the local disk. Therefore this file can be imported by another user, for instance to apply the same character colors in all the files within a series. To export a Settings Profile, the user must choose a profile and then click on the "Export profile from server" button. To import a Settings Profile from a JSON file, the user must click on the "Import profile settings to current profile", and then select the file from the local disk. The editor uses the settings of the profile that is selected on the left side. When the user saves the file, the settings used during the production will be saved in the file in order to have the same settings when the file is open by any user. When the editor is run with an access service file, the profile selected by defauld is the File Profile with the setting that were used during the previous edition of the file.
General settings	GENERAL SETTINGS This is related to the general setting. When clicked on the green icon the general settings dialogue appears (see table 6).

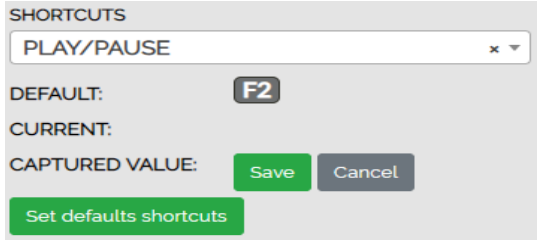|	Subtitle settings
	Edit General Settings Default time duration for subtitles 00:00:01:00 Default time separation between subtitles 00:00:00:04 Minimum time duration for subtitles 00:00:01:00 Minimum time separation between subtitles 00:00:00:02 Reading speed Video jump 00:00:00:05 Don't prompt me again Max characters for subtitles 35 Use autobreak Save Cancel If any of the minimum numbers in the settings are not met, when previewing the final result (or check TCs) the user will get a warning/error and needs to fix it before continuing.
Regions	REGIONS R1 R2 R3 R4 R5 + Regions correspond to the area in which the subtitle is going to appear on the FoV (Field of View) while being played. By clicking on the plus sign you create a new region and by clicking on any of the existing ones the region setting dialogue appears so you can edit the style of the region with these options available: • Direction, align display, origin top and left (%), extend width and height (%)
Characters	CHARACTERS 👤 👤 👤 👤 👤 👤 + Characters correspond to different speakers of the video. They are distinguished by their colour. By clicking on a character button the user is able to edit it with below settings available: • Font family, font size, letter spacing, padding, colour, background colour, transparent background, weight, decoration, style, variant

Subtitle settings	
Shortcuts	 During the production of a subtitling, it is convenient to work only with keyboard instead of changing between keyboard and mouse buttons constantly. To allow this, most of the editor's buttons have a shortcut key assigned by default. These default shortcuts are configurable and can be changed from here by the user. By pressing the "Set default shortcuts" the user can recover the default shortcuts. A list of the default shortcuts for the editor is presented as an annex at the end of this document. The shortcuts are also shown when hovering over the buttons in the Web ST Editor. **WARNING: Some shortcuts are not advisable such as the ones that are used for editing the subtitle text and the ones that are used by the browser. There is a blacklist of key combinations that cannot be used as shortcuts, however the user must be aware when customizing specific shortcuts (for instance not to use the same key for two different shortcuts).**

Table 4: Subtitle options

Table 6, describes the options available in GENERAL SETTINGS and their definition.

General settings	
Default time duration for subtitles	The default time duration of subtitles in seconds (TCout – TCin), if not set by the user.
Default time separation between subtitles	The default time between subtitles in seconds (TCin of current subtitle – TCout of previous subtitle), if not set by the user.
Minimum time duration for subtitles	Minimum time duration for subtitles in seconds that needs to be met. If not, the user will receive and error when checking TC at the end.

General settings	
Minimum time separation between subtitles	Minimum time in seconds between subtitles that needs to be met. If not, the user will receive an error when checking TC at the end.
Reading speed	It can either be set to WPM (Words Per Minute) or CPS (Characters Per second). Both of them are measurements of average typing speed parameters but with different criteria (Word or Character/minute or second). For the purpose of typing measurement, a word is standardized to five characters or keystrokes, including spaces and punctuation.
Video jump	In video controls, there are two buttons that jump a number of frames backward or forward. This defines the number of frames to be jumped.
Don't prompt me again	If set to "Yes", the user will not receive an informative message when doing specific repeated actions on the editor.
Max characters for subtitle	Maximum number of characters for subtitle that is displayed as well.
Use auto-break	If set to "Yes", it automatically uses line break where required.

Table 5: Subtitle general settings

Figure 6 shows four different videos with different regions and styling. The dot corresponds to the current speaker's location. As you can see, it is the same colour as the character's colour.

Figure 6: Video viewing at the center

The last step after finishing edition is verification. For this, we have created preview modes as below. Table 7 gives the information you need in this sense in addition to general actions.

Subtitle actions

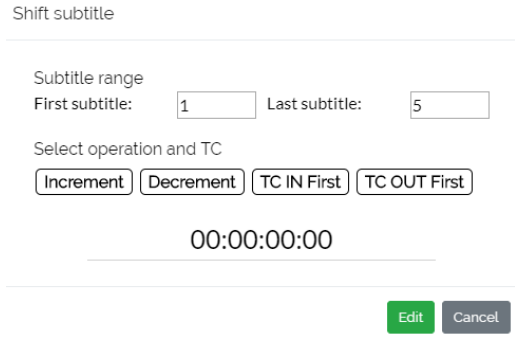|	
Save	This button saves the subtitle work.
Auto save	Saves the work automatically.
Check TCs	This button checks if all the timings and things related to them are correct. As mentioned in table 2, if the criteria set in the settings are not met, user will receive an error or warning accordingly (Ctrl+Q), a red icon with an exclamation will appear and the first subtitle with an error/warning will be shown. By moving the mouse over the subtitles with error/warning the user can see the type of error/warning and how to resolve it. If everything is OK, the icon turns green.
Forced preview	This mode is used for verification. This verification mode makes it easier for the subtitler as the video will move the Field of View (FoV) (change angle) when needed during the playback of the video. You cannot freely move the FoV at your wish, as the video itself takes you to the speaker's angle (the "Speaker's location" of the subtitle) each time a subtitle is presented (F11). When this mode is on, the user cannot do editing any more and needs to turn it off when edition is required (F11). **Note**: when clicking this button, Check TCs is executed first.
Free preview	This mode is used for verification. This verification mode is more real for the subtitler as if playing back the video with subtitles using HMD. It

Subtitle actions	
	means that you can move FoV (it is not fixed to the speaker) during the playback of the video. When this mode is on, the user cannot do editing any more and needs to turn it off when edition is required (F12). In the current version of Web ST Editor, it is possible to have a free preview with an HMD being worn by the user (see Annex III to learn how to use an HMD to use this preview mode and also to check HMD models tested on the tool).
TC shift	This shifts the time codes of a group of subtitles. The user defines a range of subtitles, then selects the desired operation which can be increment, decrement and also the desired time-code between first TCin or first TCout. Shift subtitle Subtitle range First subtitle: 1 Last subtitle: 5 Select operation and TC [Increment] [Decrement] [TC IN First] [TC OUT First] 00:00:00:00 Edit Cancel
Find/Replace	This helps the user find specific words and replace them if needed.
Text import	This button lets the user choose a subtile file (text, .srt, .xml) from their PC disk and import it as subtitles to work with.
Text export	This button lets the user export their work to PC (download) in either plain text, .srt, web-vtt or Ebu-tt(D) formats.

Table 6: Actions

Also at the upper side you have informative sections (figure 7):

- On your left, general information of the production task.

- On your right, subtitle texts with their number and time-codes.
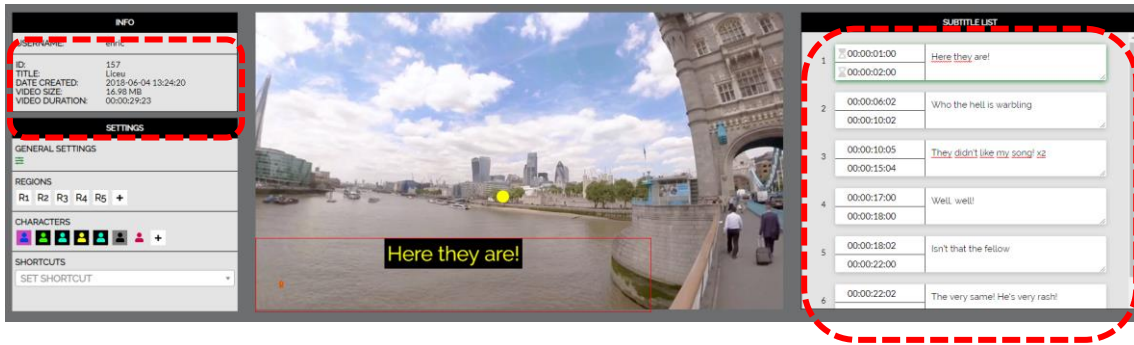
Figure 7: Informative section

ANNEX I: ERRORS & WARNINGS

Error/Warnings message	Cause
Error: Minimum duration fail	This error appears in the subtitles that don't meet the minimum duration condition (TCout – TCin < minimum duration). The minimum duration can be changed in General Settings.
Error: Minimum separation fail	This error appears in the subtitles that don't meet the minimum separation between adjacent subtitles condition (TCin current subtitle – TCout previous subtitle < minimum separation). The minimum separation can be changed in General Settings.
Error: Unordered TC values	This error appears in the subtitles that are not in order (TCin current < TCin previous).
Warning: Overlapped subtitles	The warning appears when there at least two subtitles in which the TCout of the first one is equal or greater than the TCin of the second one.
Warning: multi-line subtitle	The warning appears when there is a subtitle with three lines.

ANNEX II: SHORTCUT KEYS

Functionality	Shortcut button
Toggle play/pause	F2
Pause	F3
Jump backward	F1
Jump forward	F4
Fast backward	F5
Slow backward	F6
Slow forward	F7
Fast forward	F8
Stop (Jump video to first frame)	F9
Frame backward	Alt + Shift + Left
Frame forward	Alt + Shift + Right
Move FoV left	Alt + Left
Move FoV right	Alt + Right
Move FoV up	Alt + Up
Move FoV down	Alt + Down
Move FoV to "Speaker's location" of the subtitle	Alt + F
Previous subtitle	Page up
Next subtitle	Page down
First subtitle	Alt + Page up
Last subtitle	Alt + Page down
Find subtitle with video TC	Ctrl + Shift + F
Set TCin	Shift + Page up
Set TCout	Shift + Page down

| Functionality	Shortcut button
Jump video to TCin frame	Ctrl + Alt + Page up
Jump video to TCout frame	Ctrl + Alt + Page down
Set character C1	Shift + F1
Set character C2	Shift + F2
Set character C3	Shift + F3
Set character C4	Shift + F4
Set character C5	Shift + F5
Set character C6	Shift + F6
Set character C7	Shift + F7
Set character C8	Shift + F8
Set FoV angle to "Speaker's location" of the subtitle	Alt + Enter
Copy "Speaker's location" of the subtitle to "Saved angle"	Alt + C
Paste "Saved angle" to "Speaker's location" of the subtitle	Alt + V
Split subtitle on cursor point	Ctrl + Insert
Join subtitle with next	Ctrl + Delete
Delete subtitle	Ctrl + D
Insert subtitle before	Ctrl + U
Insert subtitle after	Ctrl + Shift + U
Check TCs	Ctrl + Q
Forced preview	F11
Free preview	F12

ANNEX III: HMD GUIDE

In Web ST Editor it is possible to view the final result (the 360º video with the produced subtitles) with an HMD. HMD models which are tested and work in the editor include:

- Oculus Go
- Oculus Quest

The procedure is straight forward. Note that first and second step is only needed when the user uses the HMD for the very first time and needs to pair the VR id with their user ID in SM (System Management interface) due to security reasons and choose the player portal as well (in the case of not having access to SM by the user, administrator is able to do this for them beforehand). The steps to take:

1. Wear HMD and choose the appropriate server so the HMD browser will appear as in figure. Click on "PAIR VR" (libraries→ unknown sources → server).
2. Go to SM user settings to pair the HMD with user. When it is done successfully a confirmation message will appear in HMD browser.
3. Get back to Web ST Editor, click on Free Preview Mode (F12).
4. Wear HMD again and see how the browser looks like. It may take some moments for the video and subtitles to load depending on their volume. Click on "Enter VR" so the additional menu will disappear and start previewing your work.
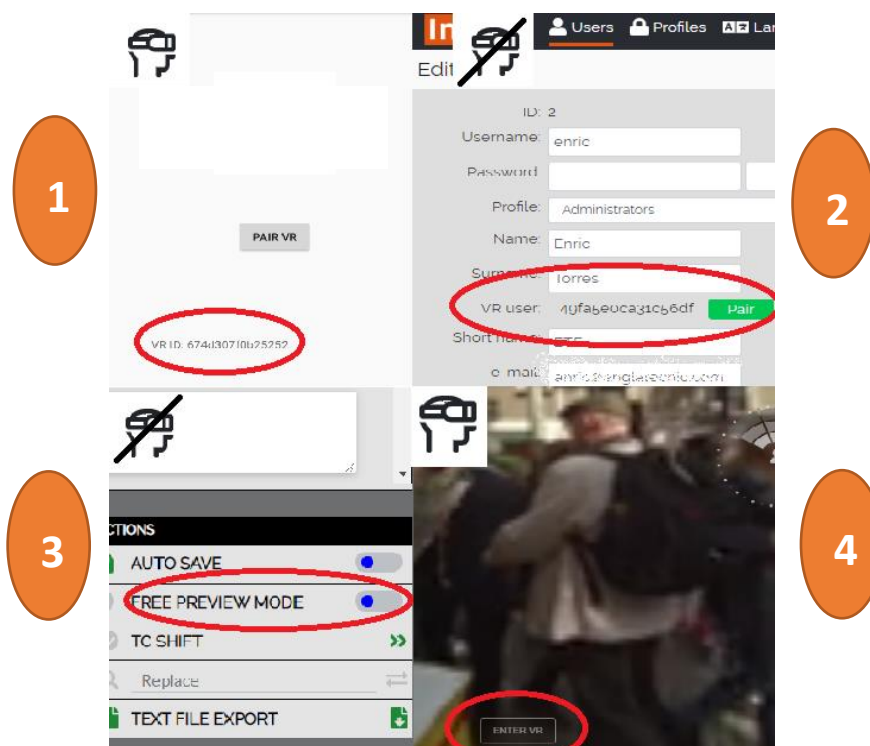
After entering F12 (entering the preview mode), it takes some moments for the video and the browser to load. Then the user enters VR mode using HMD remote. The below figure is an example of what they will see with possibility to do basic actions of video navigation. All shortcut buttons related to VIDEO CONTROLS are functional in HMD mode as well (see Annex II).

Let me express my hatred
in a single word!
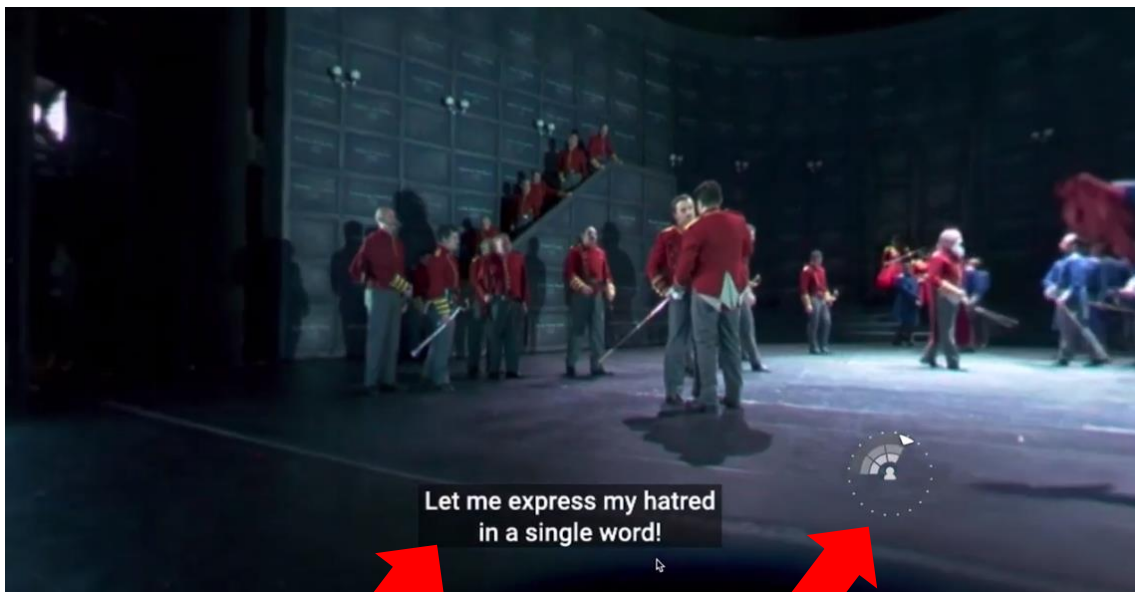
Current subitle (with styling)

Radar to help finding the subtitle location (current speaker´s location) in relation to the head´s position