User Manual

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Web SL Editor User Manual

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Abstract:

This document is meant to be a concise quick user manual for professional users who wish to use ImAc Web Sign language production tool.

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1. INTRODUCTION

This document aims to be a quick user manual for professional users who wish to use the ImAc Web SL Editor for the first time.

ImAc project, which has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 761974 is looking for development of solutions for access service in immersive environment.

One of the main objectives – among many – of ImAc is development of online editors aimed to **professional users** who wish to produce access service files for 360º content. This objective is achieved in the fourth work package of ImAc. Stakeholders of this environment are broadcasters and access service providers who wish to use the editors to produce access service files.

This document is addressed to stakeholders who wish to produce sign language (SL) interpretation using the ImAc Web SL Editor and is meant to be a quick user manual of this tool for learning purposes and pilots.

2. WHAT IS NEW

In general the most brand-new feature of this editor is the possibility to work in 360º environment and the angles. The important matter is why do we work with **angles**?

Since we are sign interpreting a spherical video, events happening are not always positioned in a static Field of View (FoV), because they can move in the 360º space. So when we are signing videos, sometimes the current point of interest location in spherical environment will be in our FoV, but if all of a sudden the same speaker or event in that location moves in spherical space or the speaker or occurring event changes, we need to move around to look for the speaker in his or her new position.

To tell the sign interpretation system where the speaker is, we need to look for the speaker in the video moving the FoV around with the mouse or the shortcuts. Imagine that a viewer is watching the 360º content at home. OK, the viewer is navigating through the video, BUT gets lost and misses the speaker. Maybe this viewer is deaf, so she lacks the auditory input.

The solution will be that an arrow or compass will appear to indicate where the speaker is. If we, as sign interpreter, do not provide this information (or metadata) when generating the sign language, then it would be impossible for the system to provide this information to the audience when they are playing the video at home. So this is why we need to set the angle of the FoV with the speaker. In next chapters we see how it is possible to work with angles in the Web SL Editor.

3. BEFORE STARTING

Before starting it is important to be sure that the requirements are met:

- **Hardware:** PC with at least i5 processor, 8 GB RAM with a good graphics card.

- **Video recording setup:** Good quality webcam, microphone and headphones. A HQ webcam is recommended.

- **Web browser:** Last version of Chrome or Firefox (at least Chrome version 74 or Firefox version 65).

- **Screen resolution:** At least 1920×1080 pixels and in the case of using this resolution make sure that "Size of text, apps and other items" are not scaled to 125% or more. In any case, the user can always click Ctrl+"mouse wheel down" to zoom out in order to get the right layout where all buttons in the edition area are shown.
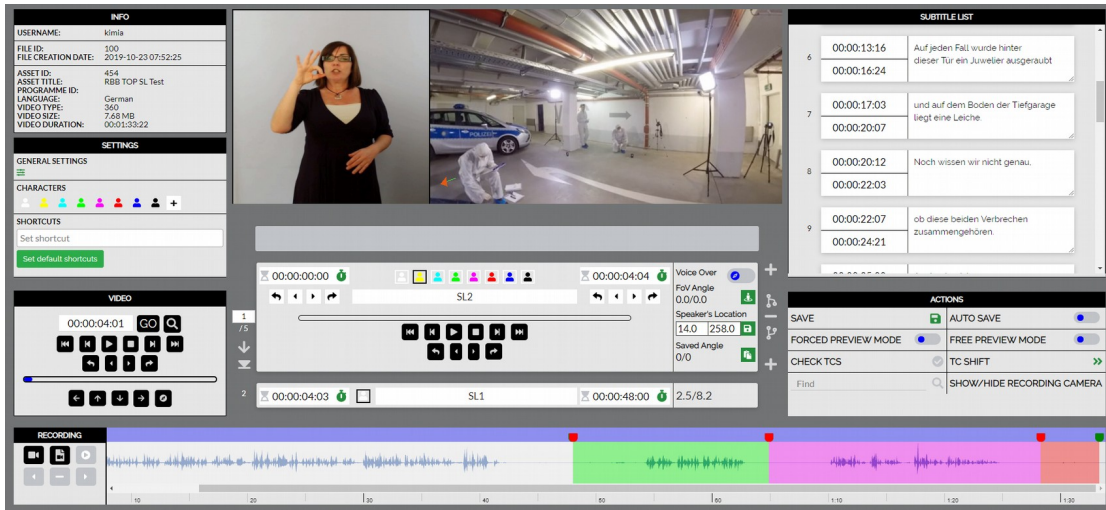

Illustration 1: Web SL Editor

- Good internet connection as the editors and the videos used during the sign interpretation are online and the recorded SL videos have to be uploaded to the cloud. At least 10 Mbps symmetrical bandwidth is required (for both uploading and downloading).

- Although the video is provided to the sign language producers it is important to notice that the video provided must be HTML5 compatible Low Quality video to ensure that the 360º web player runs smoothly.

Also it is important to be aware of the following:

- The web editors are online tools, so after opening them some features may take some time before they are available such as the waveform and some data in the info box.

4. HOW TO START

4.1.   Login

User accesses the Editor Interface of ACM via the web browser (illustration 2) and enters username and password previously provided by administrator.
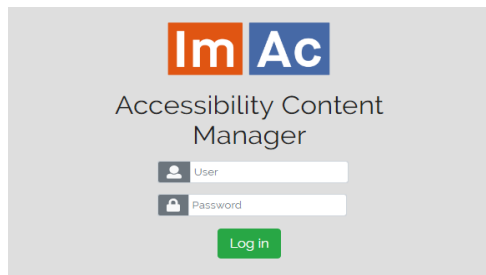
Illustration 2: ACM login page

4.2. Navigation on main page

When entered, a window with the list of assigned production tasks (sign language tasks for the purpose of this document) to the user with their corresponding videos appears (Table 1). Then the user can make use of the following tools:

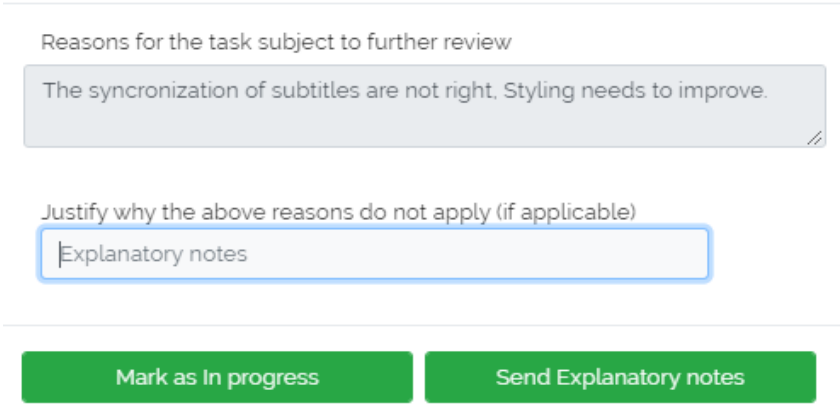|	
Search bar (1)	With this tool, the user can search through their assigned production tasks and view them alphabetically, including completed tasks or not, etc.
Task icon (2)	These icons show the type of production task we are dealing with: it can be either a subtitle, a sign language or an audio description task. For the purpose of this document we will only focus on the sign language tasks. The colour of the row shows the status of the task ("Pending": in grey, "In progress": in yellow, "Completed": in blue, "Rejected": in red, and "Verified": in green).
Task status (3)	The user can view the current status of the work and only can change it to "Completed" when the task is done. If a task is rejected, the producer is able to view the reason of the rejection by Content manager, fix the issue or even send back a justification note to the Content manager department.
Edit icon (4)	By clicking on this button in the sign language task card (for the purpose of this document) the Web SL Editor will be run with the video file and the sign language file for the SL production. The same applies with the other

	access service tasks but with the corresponding editor.
Feedback algorithm (5)	When a task is set to "Rejected" by for instance, Accessibility Quality Assurance Department of a broadcasting station, they need to justify this decision by a note. This note can been seen by the user by clicking on the status of the task and the below dialogue will appear. The user either can accept this note and mark the task as "In progress" in order to work on it or even send an explanatory note back to the Accessibility Quality Assurance department. Reasons for the task subject to further review The syncronization of subtitles are not right, Styling needs to improve. Justify why the above reasons do not apply (if applicable) Explanatory notes Mark as In progress Send Explanatory notes
System language (6)	The interface is available in various languages which can be chosen in this area and is saved as a user preference.

Table 1: Navigation elements on the Editing interface

User selects the sign language task, presses the "Edit" button and the Web SL Editor will open in a new window.

4.3. Web SL Editor

For the description of the Web SL Editor the classic layout will be used. There's an alternative compact layout explain in chapter 7. To interchange between these layouts the user much click the switch in the settings box when in classic layout (left image in illustration 3) and in the top left when in compact layout (right image in illustration 3)
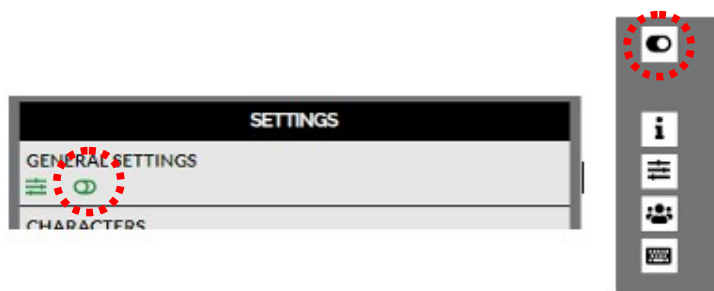
Illustration 3: Layout interchange in Web SL Editor

Illustration 4 displays the two main areas of the editor. The upper area (INFO, SETTINGS, VIDEO PREVIEW, SUBTITLE LIST) is only designed for viewing, setting and verification purposes. The down area (VIDEO CONTROLS, EDITION AREA, ACTIONS, RECORDING and SOUND-WAVE) is purely for edition and final preview or actions.

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.
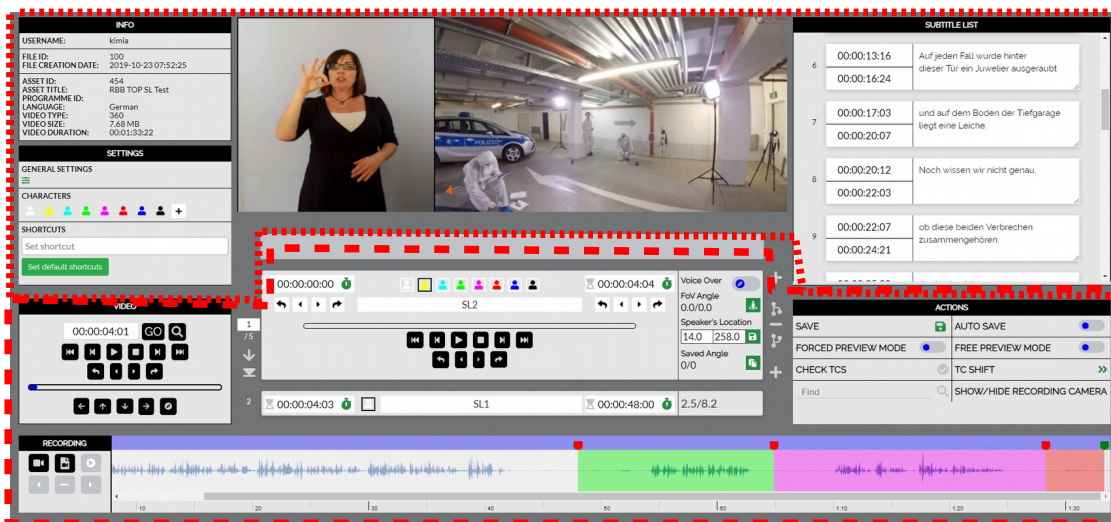

Illustration 4: Web SL Editor main areas

5. How to produce Sign language segments

It is assumed that now you are inside the Web SL Editor. In this editor the user deals with two videos (original video to be sign interpreted and the second video to be recorded by the signer). In this document the first video is referred to as "Main video" and the second one is referred to as "SL video" (See annex I for terminology).

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

Video controls

Frame backward	◀	This button makes the video go backwards frame by frame

Video controls		
	◄◄	(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).
Frame forward	🔍	This button makes the video go forward frame by frame (Alt+shift+right).
Find segment by TC	↩	With this button, you can find the segment 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 6) (F1).
Jump forward	←	This button helps the user to jump some frames forward. The number of the frames to be jumped is configurable in in General Settings (see table 6) (F4).
Move FoV left	↑	With this button you move the Field 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. You can see the angle of the FoV in the edition area.
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. You can see the angle of the FoV in the edition area.
Move FoV down		With this button you move the FoV 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. You can see the angle of the FoV in the edition area.

Video controls	
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. You can see the angle of the FoV in the edition area.
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 current segment is set (Alt+F).

Table 2: Main video controls

The producing of the SL file consist of the following phases:

- Phase 1: Preparation

- Phase 2: Recording

- Phase 3: Adjusting

Preferably the signer receives the main video to be signed with subtitles and its angles. This is beneficial in following scenarios:

- The signer is deaf/hard of hearing. Hence, they can read easily from the provided subtitles and perform the sign interpretation.

- When the angles of the subtitles are delivered, they are useful for the interpreter during the process of recording as the FoV of the main video changes automatically to show the speaker.

When this is the case, **Phase 1 can be skipped** and the producer is able to jump straight to phase 2 (Recording).

In a number of exceptions, phase 1 is required to be performed before actual recording:

1. Main video is delivered without subtitles

2. Main video is delivered with subtitles but without angles

3. Main video is delivered with subtitles and its angles, but the user is not satisfied with how the angles are set and wishes to change them before getting to recording (phase 2)

If the user finds themselves in any of the above conditions, phase 1 is mandatory because angles with proper timing are necessary in phase 2 during recording. The interpreter needs that the FoV of the main video moves automatically to the speaker's location.

Phase 1: Preparation

This section describes the preparation phase in case it cannot be skipped (see previous paragraph).

Each segment are prepared following the next steps (see illustration 5):

1. The producer needs to set TCin of the segment using this box.

2. The producer needs to set TCout of the segment using this box.

3. Finally the producer sets the angle. Due to its importance, table 3 is plotted to describe the angle setting process.
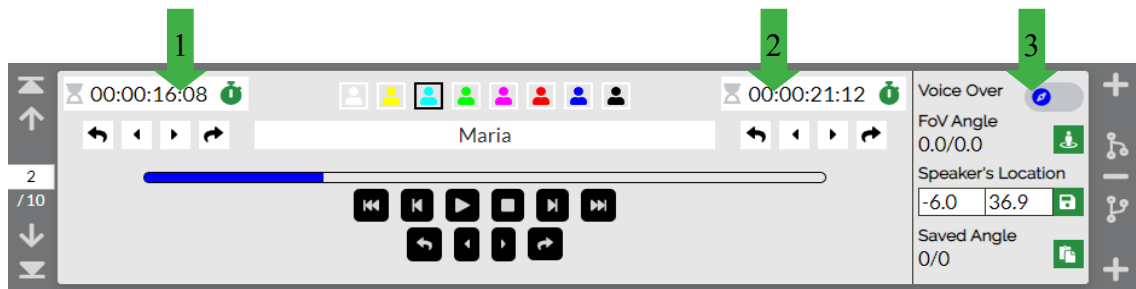
Illustration 5: SL segment edition area

Segment preparation – Angles	
By default, at first the video has the current FoV 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.	
Voice Over [compass icon] FoV Angle -2.0/337.3 [person icon] Speaker's Location 2.0 61.7 [save icon] Saved Angle 0/0 [paste icon]	**Voice Over:** Only when there is only voice and no speaker in the 360º video frame (Alt+O).
	FoV angle: This is the current field of view (camera) angle and it changes while navigating through video ourselves and 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" of the segment (see next row).
	Speaker's Location: This is set by the producer and corresponds to the angle of the FoV where the speaker is located. This is done solely by finding the desired FoV and setting its angle to the segment (see previous row). By pressing the green save button next to it, the "Speaker's Location" value is copied to the "Saved angle" (Alt+C) for it to be used in other segments (see next row). The aim of this button is to copy this angle for later pasting it to other segments.
	Saved angle: This angle is kept in this register (see previous row) so it can be used in other segments. The button next to it pastes the "Saved angle" to the "Speaker's Location" of the segment (Alt+V). The aim of this button is to use the angle from another segment that was copied previously.

Table 3: SL preparation

Next, the producer may add more segments and prepare them as well. The tools to operate between segments such as add, move to next segment or split a segment into two are explained in Table 4.

SL segment operations – buttons
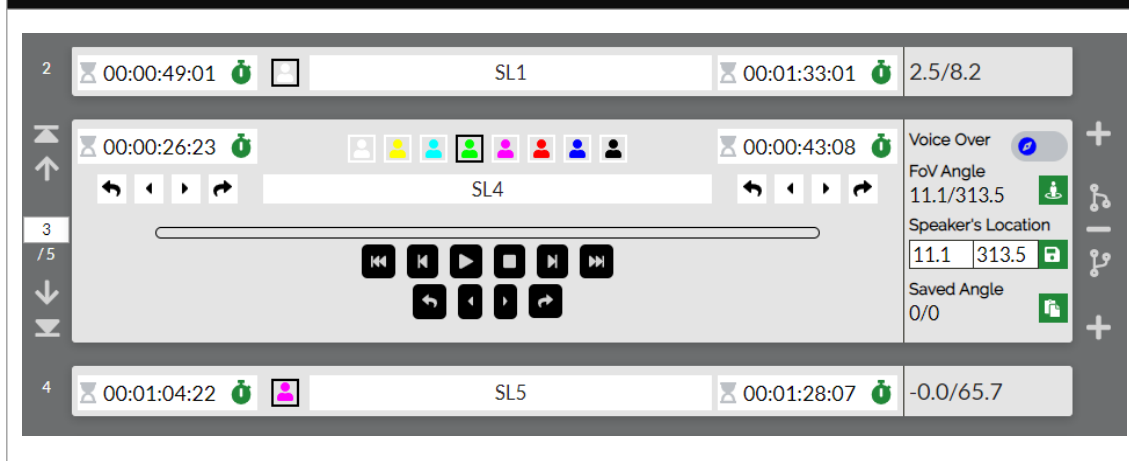
| First segment		This button takes you to the first segment (Alt + Page Up).
Previous segment		This button takes you to the previous segment in relation to your current position (Page Up).
Next segment		This button takes you to the next segment in relation to your current position (Page Down).
Last segment		This button takes you to the last segment (Alt + Page Down).
Jump to segment value		This part takes you to a specific segment by entering the number of the segment. It also informs you of the number of segments.
Insert before		This button is useful for the insertion of a new segment before the existing segment (Ctrl + U).
Split from cursor position		This button splits the current segment text into two separate segments (Ctrl + Insert). The timing is organized accordingly.
Delete segment		This button deletes the selected segment (Ctrl + D).
Join this with next		This button joins the current segment with the next one and creates a single segment containing both texts of the previous ones. The reading speed thermometer is modified accordingly but timings remain the same as the first previous segment (Ctrl + Delete).
Insert after		This button is useful for insertion of a new segment after the existing segment (Ctrl + Shift + U).

Table 4: SL segment tools

Phase 2: Recording

In the case that the main video is delivered to the user with subtitles and right angles, this is the first phase to be performed by the user. In the other case, this phase is performed after finishing Phase 1 (Preparation).

Table 5 explains the recording video controls. There is no time limit for video recording. This means that that user can interpret the whole main video as a single recording or record multiple videos.

Table 5 explains more details on how this organization works.

	Recording video controls
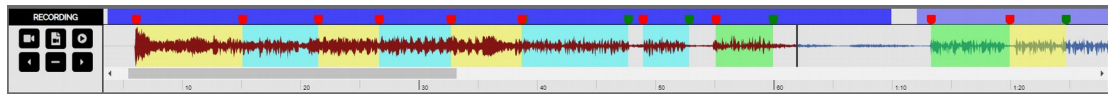
The sound-wave displays the main video sound, the black vertical line shows the current moment of the main video with a timeline below it. The transparent colours along the sound-wave reflect the SL segments in time that have been prepared previously, this colour can vary according to the character colour set by the user previously.

The far left buttons are designed for recording actions and explained in detail in this table.

The top purple colour symbolizes the SL videos in time which can be multiple or a single one. The SL videos are selected by clicking on the purple areas and actions can be performed on them.

	The user is able to record the video of the SL by pressing the "Record" button (Ctrl + alt + r). This recording can be as long as desired (maximum value is the main video length) and the user is notified about the recording getting started with a countdown on the centre. The procedure of recording can take place in three screen modes: • Default mode: the default form as shown in illustration 1. • Expanded mode: a mode where the videos preview section expands and only recording control buttons and the segments visualization are visible. • Full screen mode: a mode where the videos preview is in full screen without anything else on the screen. The recording control is performed by shortcuts. The purple bar above the sound-wave symbolizes the SL video and can be selected using mouse button. After recording, the purple bar may take some time to be shown as the SL video is uploaded to the Internet server.
	By this button, the user is able to import a pre-recorded video from hard disk (Ctrl + alt + i).
	This button previews the selected recorded video. While being played, the same button acts as a "Pause" button (Ctrl + alt + F2).
	This deletes the selected recorded video (Ctrl + Shift + F2).

Recording video controls	
◀ ▶	These two buttons are used to move the selected video frame by frame and it helps adjusting the recorded video to the main video. Both frame backward (Ctrl + alt + left) and forward are possible (Ctrl + alt + right). It is possible to move the recorded videos via right mouse button.

Table 5: SL recording video controls

Phase 3: Adjustment

After finishing the recording (phase 2) the user needs to create or adjust SL segments.

The procedure consists of creating SL segments as below. Illustration 6, displays available tools used in this phase of SL production:

1. Adjusting TCin of the first segment by moving the red spot at the beginning of the segment using the mouse (red arrow – Illustration 6) or in case that more precision is needed by using the buttons under the TCin box (red oval – Illustration 6). The buttons change the TCin frame by frame/jump a by number of frames.

2. Adjusting TCout of the first segment by moving the green spot at the end of the segment using the mouse (green arrow – Illustration 6) or in case that more precision is needed by using the buttons under the TCout box (green oval – Illustration 6). The buttons change the TCout frame by frame/jump a by number of frames.

3. Setting a character (character's name and style are customizable – see table 7)

4. Setting an angle for the segment (see table 3).

5. Testing the segment using video controls buttons provided for this purpose (orange arrow – Illustration 6). These buttons operate like the normal video controls buttons (table 1). However, these buttons only belong to the selected segment. For instance if the Play button is pressed, the videos will play from 00:00:06:12 to 00:00:15:02 which correspond to this segment specifically.

6. Adding new segment (see table 4) or moving to the next one. By default new segments are added immediately after its previous one. Repeat 1 – 6.

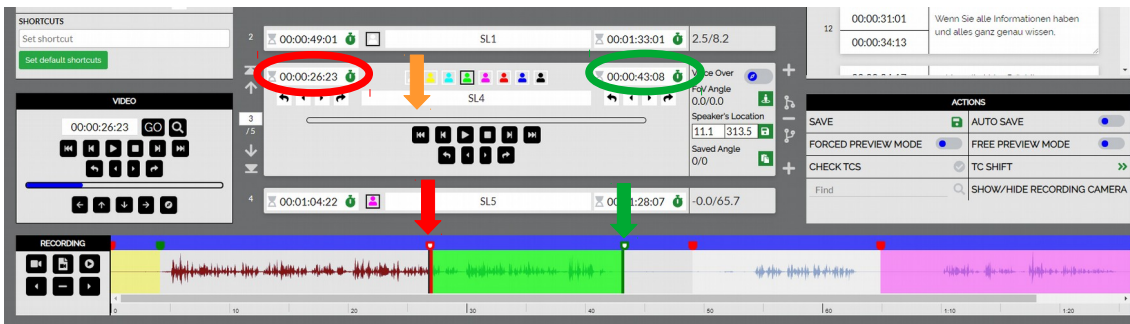7. Preview result (see chapter 6: More options)

Illustration 6: Segments adjustment

6. MORE OPTIONS

The procedure in which we produce the sign language content is over, but we still have more options to work with. Remember the buttons that were introduced earlier, some of these are customisable using "SETTINGS". Table 6 shows the setting for the file and editor.

SL settings
General settings

By pressing this icon the following dialogue appears for the general setting of the editor that are set and saved by the user (sign interpreter).

If any of the minimal numbers above are not met the user gets an error when verifying the SL file and needs to fix it before continuing.

The toggle button changes the Editor layout to a more graphical one (see chapter 7).

characters — A full list of available characters are seen. By clicking on any of them the user can set a new name or styling for the character. The plus icon, adds a new character to the list.
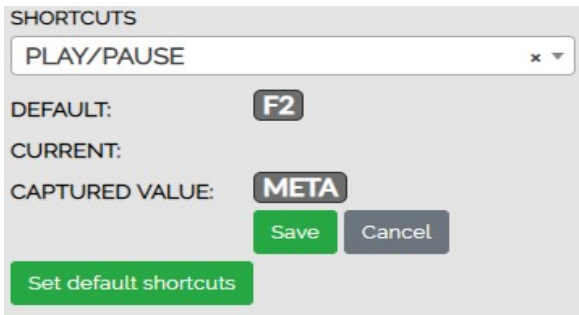
SL settings

Shortcuts	During the production of SL segments, it is convenient to work only with keyboard instead of changing between keyboard and mouse buttons constantly. As a result, most of the buttons of the editor have default shortcuts. These shortcuts are configurable and can be changed by the user if desired. A full list of the default shortcut buttons of the editor is presented as an annex at the end of this document. The default shortcuts are also shown when hovering over the buttons in the Web SL Editor. Also a button is designed to reset all the user-configured buttons back to default ones. **WARNING: Some shortcuts are not advisable (for example the ones that are used for editing the segment text and some 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 6: SL settings

The last step after finishing edition is verification and for that we use the preview modes and a number of actions. The general actions on the SL file are explained in Table 7.

SL actions

Save	This button saves the work.
Auto save	Saves the contents automatically when activated.
Check TCs	By pressing this icon the timings are checked. As mentioned in table 6, if the minimal criteria set in the settings is not met in some segments, an error will appear for those segments. If everything is OK the icon turns green (Ctrl + Q). Hovering over the segment with the error will show the description and possible solution. A table containing the possible errors is presented as an annex at the end of this document.
Forced preview	This mode is used for verification. This verification mode makes it easier for the sign interpreter as the video will change angle when needed during the playback of the video. Segments and angles are bound with the video. You cannot freely change FoV at your wish, as the video itself takes you to the "Speaker's Location". When this mode is being on, the user cannot do editing any more and needs to turn it off (F11). **Note**: when clicking this button, "CHECK TC" (see previous row) is run first and if there is any error the preview is not run until the errors are fixed.
Free preview	This mode is used for verification. This verification mode is more real for the producer as if playing back the video using HMD (Head Mounted Display). Segments are bound to the video time code, but angles are not. It means that you can move the FoV during the playback of the video. When this mode is being on, the user cannot do editing any more and needs to turn it off (F12). **Note**: when clicking this button, "CHECK TC" (see the row before the previous one) is run first and if there is any error the preview is not run until the errors are fixed.
TC shift	This shifts the time codes of a group of segments.

SL actions	
Find	This helps the user find specific words in the subtitle list.
Hide/show recording camera	As the name suggests, this option turns on/off the recording camera in the videos preview section.

Also at the upper area you have informative sections (Illustration 7):

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

- On your right, the segment texts with their number and time-codes.

- Yellow dot, current "Speaker's Location" belonging to segment.

- Alongside the two videos (main video, SL video), segment text is visible according to the settings configured by the user. Normally deaf or hard of hearing interpreters would like to have the texts visible during work.
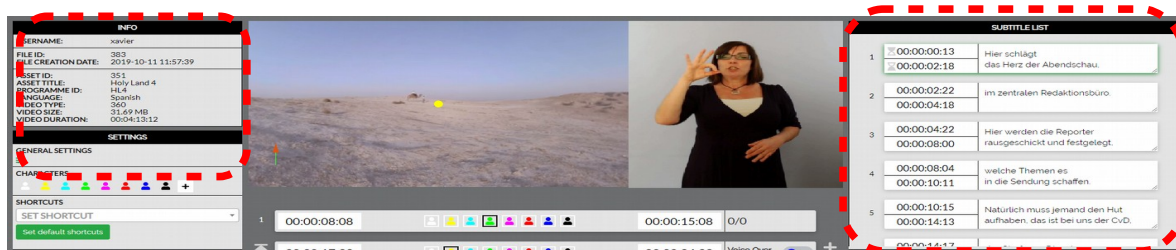
Illustration 7: Informative sections

7. WEB SL EDITOR COMPACT LAYOUT

As some users of the editor prefer a simpler UI for this editor, Web SL Editor can be switched to the compact layout as shown table 8.

It is noteworthy to mention that the methodology of this view is same as before but the subtitles and some settings are hidden which can be viewed using corresponding buttons (table 8).

SL Editor compact layout
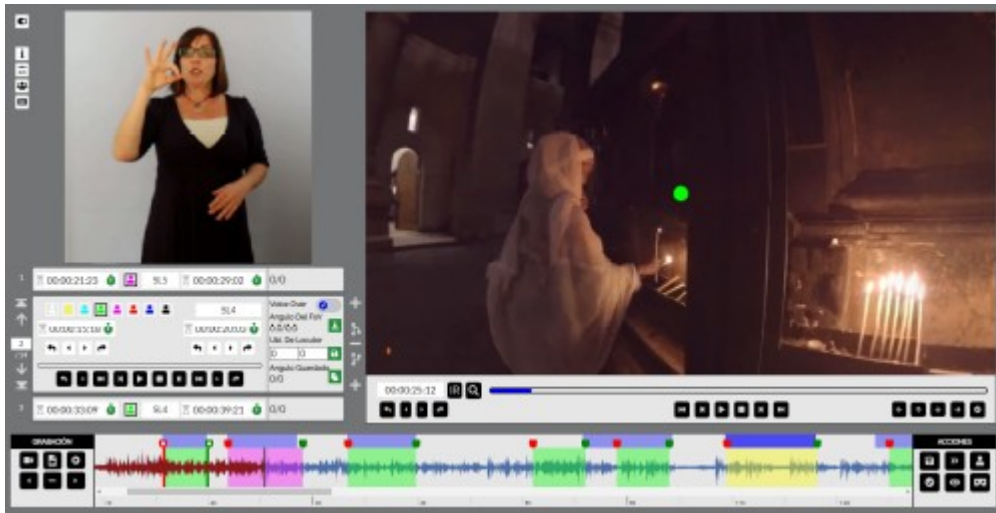
	◐	Switch to classic layout
	i	View general information of the task
	⇄	Edit general settings
	👥	Set character properties
	⌨	Edit shortcut buttons
	💾	Save work
	»	Shift TC
	👤	Switch between user camera and the recordings
	✅	Check TC (when everything is c, it turns green)
	👁	Toggle Forced preview
	🥽	Toggle Free preview

Table 8: SL Editor compact layout

ANNEX I: TERMINOLOGY

Term	Definition
Main video	The video on which the user needs to work on in order to make it accessible.
SL video	SL video is a video file directly recorded or imported as a file from PC by the user. The maximum duration of this file can be as long as the main video. This video can be individual or multiple in time.
SL segment	The term refers to a segment produced by the user that contains information about subtitle text, time cueing (TCin and TCout) and character. SL segments are a specific number of segments which are delivered as an SL file by the user as a final result.

ANNEX II: ERRORS

Error message	Cause
Segment overlapping	This error appears when two segments are overlapped. Either the TCs overlap (TCin current < TCout previous) or the videos overlap (TCin current < TCin previous + sign language). **Solution:** Re-ordering TCs properly.
Segments unordened	This error appears if for example the first segment is located after second segment in the sense of time-codes.

Annex III: Default shortcuts

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 segment	Alt + F
Previous segment	Page up
Next segment	Page down
First segment	Alt + Page up
Last segment	Alt + Page down
Find segment 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
Voice Over on/off	Alt + O
Set the FoV angle to "Speaker's Location" of the segment	Alt + Enter
Copy "Speaker's Location" of the segment to "Saved angle"	Alt + C
Paste "Saved angle" to "Speaker's Location" of the segment	Alt + V
Record video	Ctrl + alt + r
Import video	Ctrl + Alt + i
Preview selected recorded video	Ctrl + Alt + F2
Move selected recorded video left	Ctrl + Alt + Left
Move selected recorded video right	Ctrl + Alt + Right
Delete selected recorded video	Ctrl + Shift + F2
Split segment from cursor position	Ctrl + Insert
Join segment with next	Ctrl + Delete
Delete segment	Ctrl + D
Insert segment before	Ctrl + U
Insert segment after	Ctrl + Shift + U
Check TCs	Ctrl + Q
Forced preview	F11
Free preview	F12

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