

# User Manual

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A step-by-step user guide to getting started on Zibian Labs Facial Comparison app.

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# 1. Introduction

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This user manual provides guidance on the use of **Zibian Labs Forensic Facial Comparison**, this tool is designed to support forensic facial comparison. The software was developed to assist forensic practitioners in the evaluation of facial images similarities and differences, this software is intended to support casework by offering specific tools and offers a structured and reproducible environment for accurate results.

**Below** the different tabs that compose the software are explained and in the following sections, in-depth information on the use of the software and step-by-step explanation on each of the sections and tools.

Home		Central dashboard of the application, providing users with quick access to evidence loading.
Video		The Video section allows users to manage video evidences and extract still frames
Compare		The Compare section enables users to evaluate two or more facial images (Questioned and Reference) and perform the morphological Analysis
Report		The report view summarizes the actions taken previously providing traceability and the ability to export an editable report
Settings		The settings view compiles information about the license, the system, language configuration, and establish a decision threshold for each image quality component

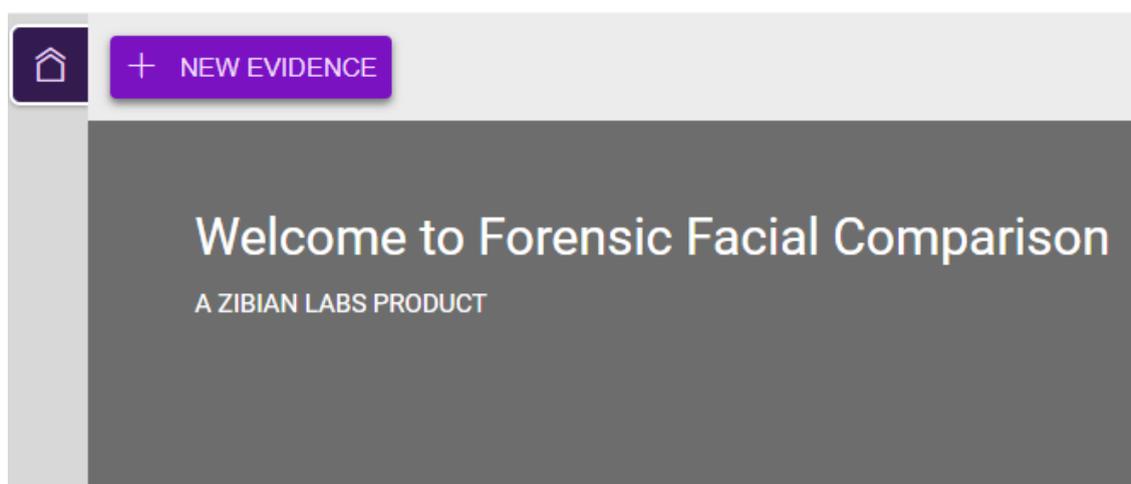
## 2. Upload Resources

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Uploading video evidence, or still images (Step 3) is the first step in starting a new forensic facial comparison case. This section explains how to add video material to the application.

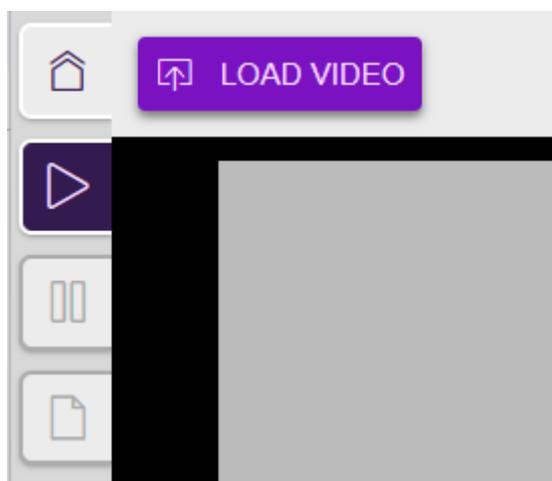
### Step 1: Add new evidence

Locate the **"NEW EVIDENCE"** button on the main dashboard and click on it to begin uploading a new file. This action will unlock the **video tab**.



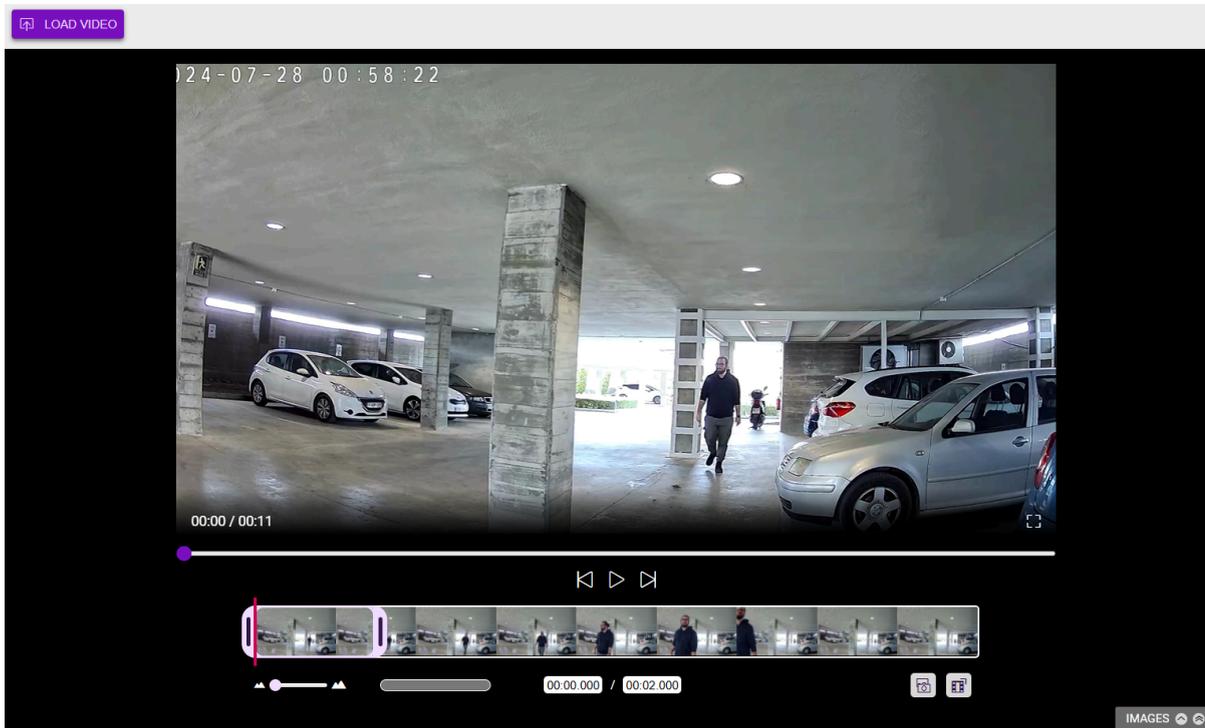
### Step 2: Load the video file

In the video tab, click on the **"LOAD VIDEO"** button. A system window will open where it's possible to browse the computer's directories. There, the user can navigate to the folder containing the video and select the file. **Note that the supported formats include .MP4, .avi.**



### Step 3: Upload video file

Now the video is available for analysis.



Once a video file is uploaded, the application provides a set of tools to interact with and prepare the footage.

- The video includes common **playback controls** for viewing and navigating the content frame-by-frame.



- Additionally, a **video timeline** offers different tools that allow users to extract relevant information, adjust frame properties, and isolate images for analysis.



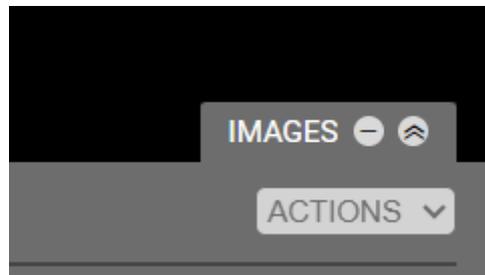
Screenshot Tool*		Allows the user to capture a still frame from any point in the video.
Frame Extraction Tool*	 	This feature enables batch extraction of all the frames across a portion of the video defined by the region brackets.
Frame size		Adapt the video timeline size. Higher values will show a larger timeline with more thumbnails.
Timestamps		bracketsFields that can be edited and define the start and end point brackets.
Add reference image		Uploads a facial photo used as a reference image.

*\* Note: The tools ensure video quality degradation is prevented, especially for still frames, which retain their clarity.*

### Step 4: Upload images

To upload images, click on the **"ADD"** button and browse for the reference image on the computer. The file should be **.jpg or .png**

All of the images and frames are accessible through this section.



### Step 5: Image Quality Assessment

Once a reference image or extracted frame is uploaded, the software automatically evaluates its suitability for facial comparison. To do so, it is necessary to:

- **Select an image** from the image library.
- The system will automatically run the **Image Quality Assessment (IQA)** algorithm.
- Each component shows a score associated with a qualitative result that determines whether **the evidence is suitable, limited or not suitable**. This criterion can be customized in the settings [tab](#). The score is shown in a range **from 0 to 100**, however the head size is shown in px taking the measurement from facial landmarks, in this case is left to right *zygion* in frontal view and *zygion* to *nasion* in lateral view.
- The **result** will be displayed as either:
  - **VALID** – The image meets the minimum quality standards for analysis.
  - **INVALID** – The image contains deficiencies that may affect comparison results.
- The tool provides a suggestion based on an automatic assessment, leaving the final decision to the user, that has the ability to modify these results

ANALYSIS SHEET		
Resolution	79 sc	Suitable ▾
Compression / Noise	100 sc	Suitable ▾
Sharpness	84 sc	Suitable ▾
Illumination	61 sc	Suitable ▾
Underexposure	100 sc	Suitable ▾
Overexposure	100 sc	Suitable ▾
Dynamic range	75 sc	Suitable ▾
Head pose	100 sc	Suitable ▾
Head size	320 px	Suitable ▾
Visibility of facial features	94 sc	Suitable ▾
RESULT		VALID ▾

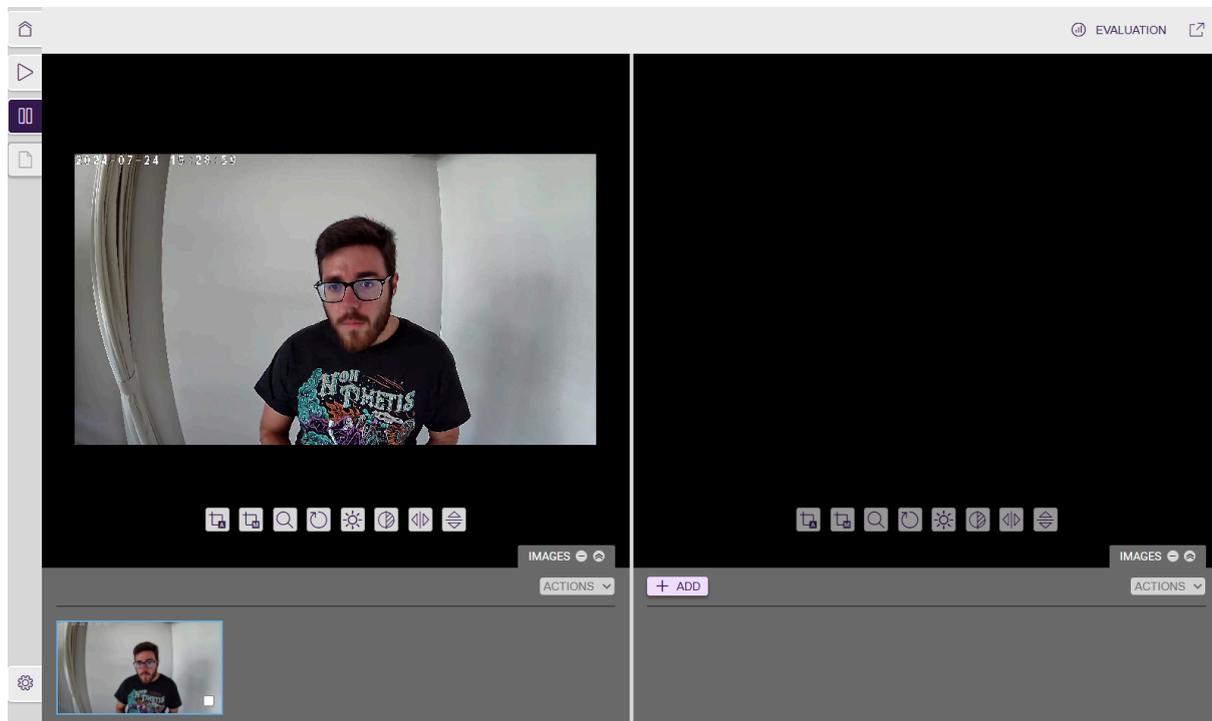
### 3. Image Comparison

#### Step 6: Start the Comparison

After selecting a valid frame from the video, the **Comparison Tab** becomes available.

To upload a reference image, first click on the Comparison tab and select the **" +ADD "** button. Browse the reference images from the computer and add it.

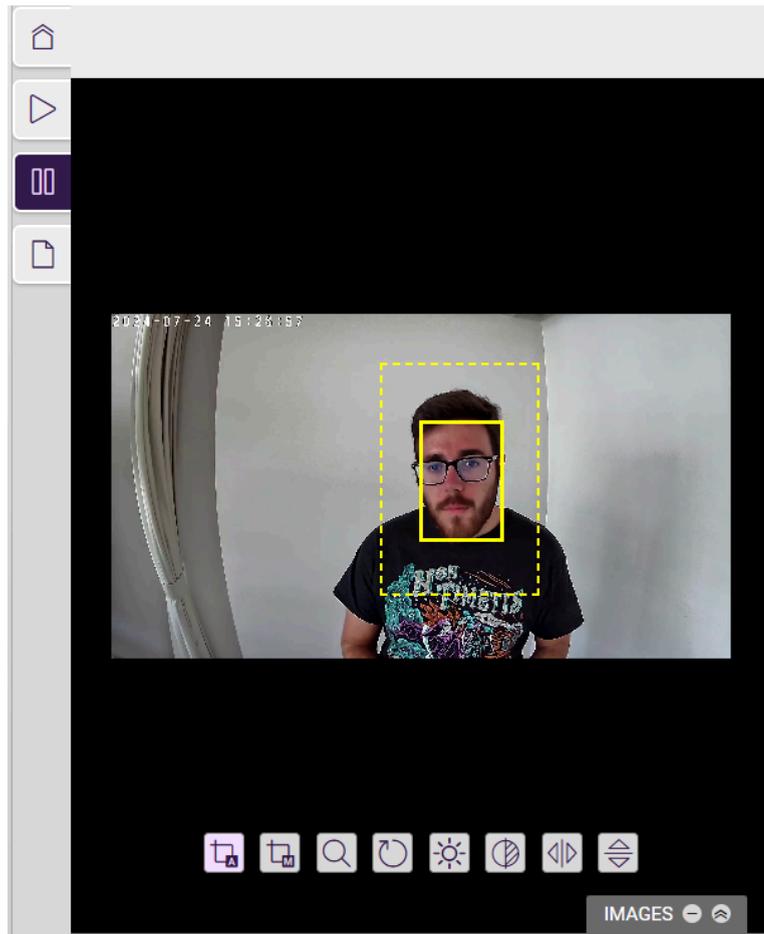
The reference images will then appear alongside the selected frame, allowing the user to begin preparing the photo-composition and morphological analysis.



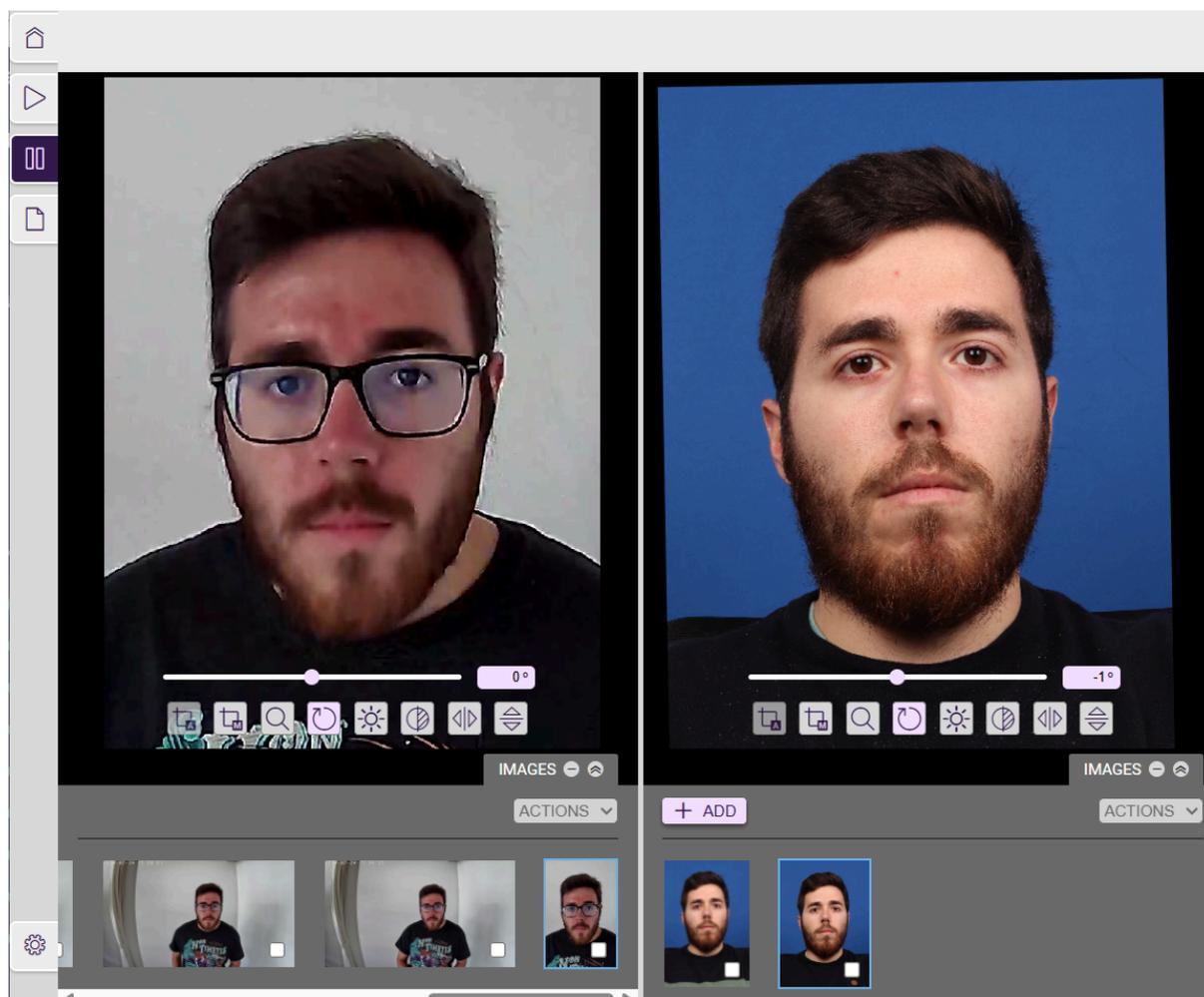
#### Step 7: Photo composition

After selecting both the **reference** and the **questioned images**, the software allows for image comparison. Before starting the evaluation, some tasks can be performed for enhancing and adjusting both images. The panel integrates the following tools:

	<p><b>Automatic and Manual Crop</b> for centering the facial region</p>	<p>Both tools highlight the face region detected automatically (yellow line) and a suggestion of the area to be cropped (yellow dash line)</p>
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	<b>Zoom</b>	Allows to upscale the image using a nearest neighbour interpolator to avoid distorting or inventing pixel information
	<b>Zoom Rotation</b>	To orient the image
	<b>Adjust brightness and contrast</b>	To improve visibility without distorting the evidence.
	<b>Flip the image horizontally or vertically</b>	If necessary, for side-by-side consistency.

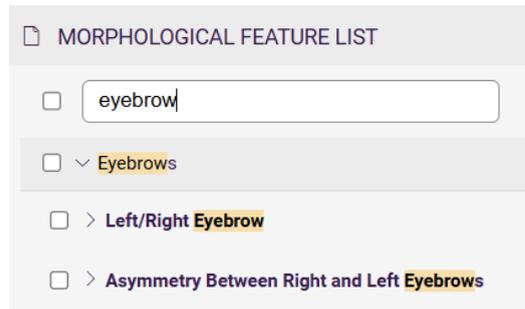


Once the photo-composition is already prepared for a pair of images, the evaluation list is enabled and can be opened and closed with the **"EVALUATION"** button at the top right corner of the screen.

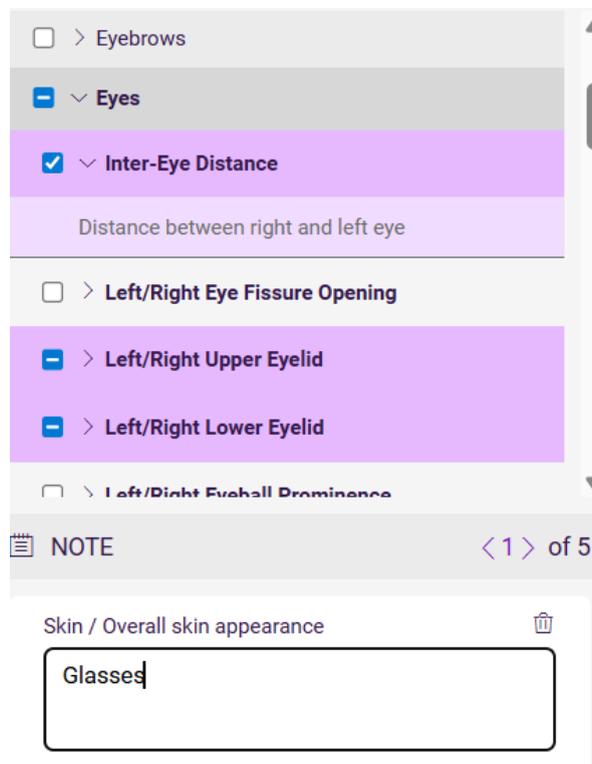
## Step 8: Evaluating Morphological Features

The application provides a list of morphological features based on the official standard recommended by [FISWG \(Facial Identification Scientific Working Group\)](#). To analyze each of the morphological characteristics:

- Use the **search bar** to locate specific criteria.

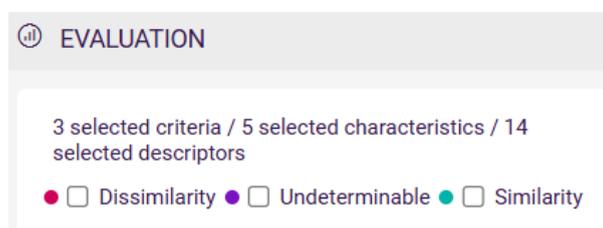


- It is possible to select multiple features at once, and write relevant notes in the blank space.



Each feature should be evaluated using one of the following judgments:

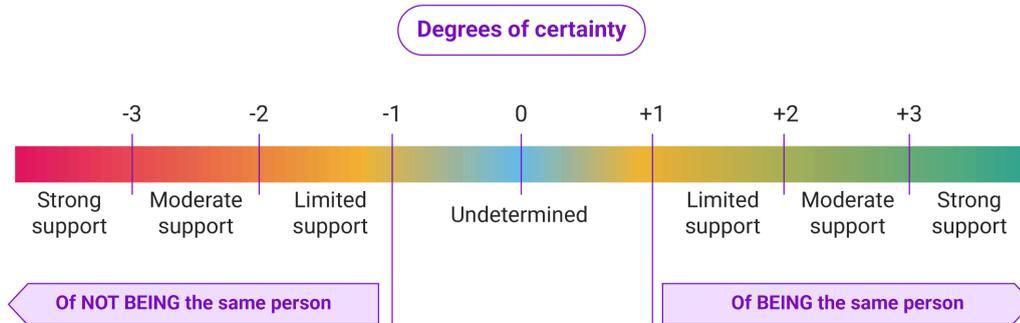
- **Similarity**
- **Undeterminable**
- **Dissimilarity**



## Final Decision on Identity

Once the feature evaluation is complete, the examiner may issue a decision on the possible identity match.

The decision is expressed using a confidence scale:



## Step 9: Generating a Report

Once the comparison is completed and a decision regarding the identity of the individual has been made, the final step is to **generate a report**. To do so, start by filling in the required case information (report name, expert name, case code, etc). It is possible to review previous steps and have access to the list of morphological features evaluated and the notes added to that process, and also details of image adjustments (cropping, contrast, etc)

Once completed, the user can **export the report** as a **Word document (.docx)** using the provided template.

This window consists on **three panels**:

- The **top-left panel** allows input relevant information about the report, the expert analyst and the case, with a free-form panel to complement the observations of the analysis.

Report name

Confidence Level -3 -2 -1 0 1 2 3

Expert name  Case code

A facial comparison was conducted between the questioned image and the reference image using the morphological comparison methodology. The assessment focused on the qualitative evaluation of visible facial features, considering their shape, proportion, and relative position. Similarities and differences were examined, and the evaluation was based solely on the visual study of the available photographs.

- The **bottom-left panel** provides an overview of the morphological characteristics selected during the analysis. It allows the user to have a quick glance at the features selected and detect any potential inconsistencies.

MORPHOLOGICAL CHARACTERISTICS EVALUATED		
CHARACTERISTIC	NOTE	EVALUATION
<b>Skin</b>		
Overall skin appearance		2 ●
<i>Overall texture</i>		● <i>Dissimilarity</i>
<i>Overall tone</i>		● <i>Dissimilarity</i>
<b>Face/Head Outline</b>		
Shape of cranial vault		2 ●
<i>Portrait contour</i>		● <i>Similarity</i>
<i>Profile contour</i>		● <i>Similarity</i>
Overall shape of face		2 ●
<i>Portrait contour</i>		● <i>Similarity</i>
<i>Profile contour</i>		● <i>Similarity</i>
<b>Hair</b>		
Forehead Hairline		1 ●
<i>Detailed Shape</i>		● <i>Similarity</i>
Hairline Right Side		1 ●
<i>Detailed Shape</i>		● <i>Similarity</i>
Hairline Left Side		1 ●
<i>Detailed Shape</i>		● <i>Similarity</i>
Cranial Baldness Pattern		1 ●
<i>Detailed Shape and distribution</i>		● <i>Similarity</i>
<b>Eyes</b>		
Inter-Eye Distance	glasses	1 ●
<i>Distance between right and left eye</i>		● <i>Undeterminable</i>
Left/Right Eye Fissure Opening		2 ●
<i>Shape</i>		● <i>Undeterminable</i>

- The **right panel** displays the traceability information for the adjustment operations executed on the images along with the image quality assessment that will be recorded in the final report.

### QUESTIONED

ORIGINAL



CROP



Name: 2- ATM-cam\_11\_910-1140x204\_1...  
Size: 617 x942 px  
Camera:

ANALYSIS

- 🔍 Scale 125%
- 🔄 Rotate -
- ☀️ Brightness 105%
- 🎯 Contrast 97%

Resolution		
Compression / Noise	100 sc	Suitable
Sharpness	84 sc	Suitable
Illumination	61 sc	Suitable
Underexposure	100 sc	Suitable
Overexposure	100 sc	Suitable
Dynamic range	75 sc	Suitable
Head pose	100 sc	Suitable
Head size	320 px	Suitable
Visibility of facial features	94 sc	Suitable

RESULT ✔ VALID

### REFERENCE

ORIGINAL



CROP



Name: Advy\_001\_pod2primary-0x0\_3929...  
Size: 3929 x5617 px  
Camera:

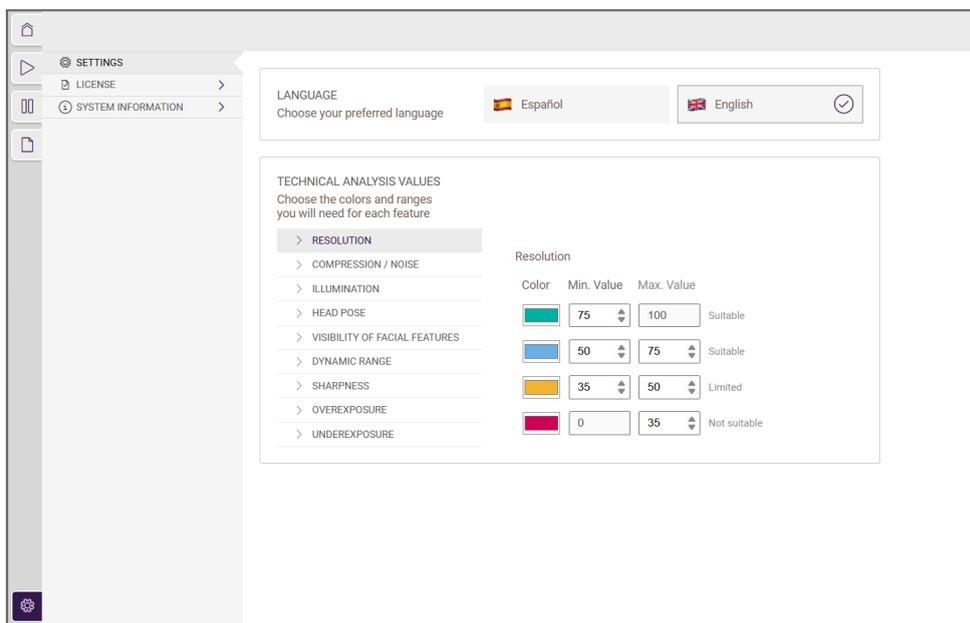
ANALYSIS

- 🔍 Scale 119%
- 🔄 Rotate -1°
- ☀️ Brightness 105%
- 🎯 Contrast 94%

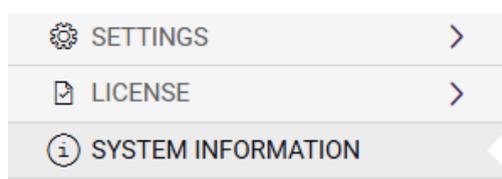
Resolution		
Compression / Noise	100 sc	Suitable
Sharpness	65 sc	Suitable
Illumination	89 sc	Suitable
Underexposure	100 sc	Suitable
Overexposure	100 sc	Suitable
Dynamic range	88 sc	Suitable
Head pose	100 sc	Suitable
Head size	2021 px	Suitable
Visibility of facial features	100 sc	Suitable

RESULT ✔ VALID

## 4. Settings



The **Settings Tab** consists of three subsections, they are explained in detail below.



### 4.1. Licence

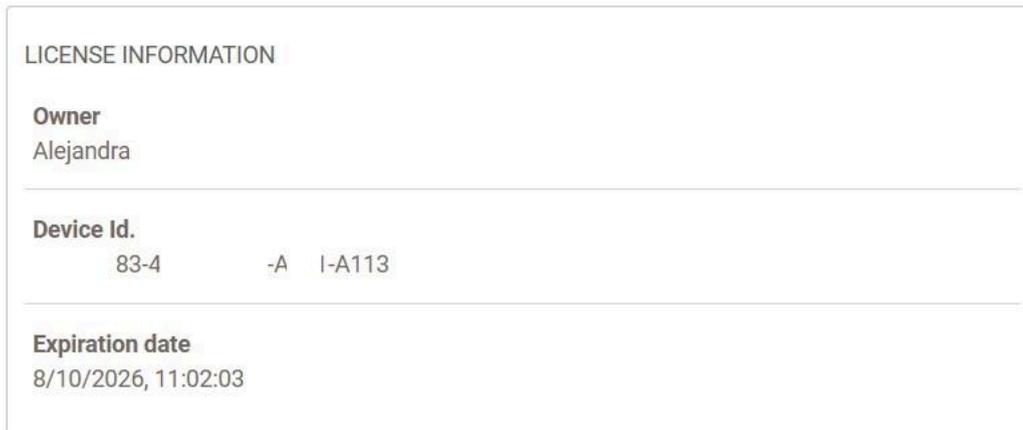
It is necessary to have a licence to use the Zibian Labs Forensic Facial Comparison app.

To request a licence, the **device ID** on which the app will be installed is needed. Find it on Windows following the route: **Settings > System > About > Device specifications**. Send this number to [support+ffc@panacea-coop.com](mailto:support+ffc@panacea-coop.com) and we will generate a licence.

To install said licence on the Zibian Labs FFC app, go to the Settings tab and click **+ADD LICENSE** button then browse the computer files for the .lic file and upload it. Once it is uploaded, the product activates and is ready to use.



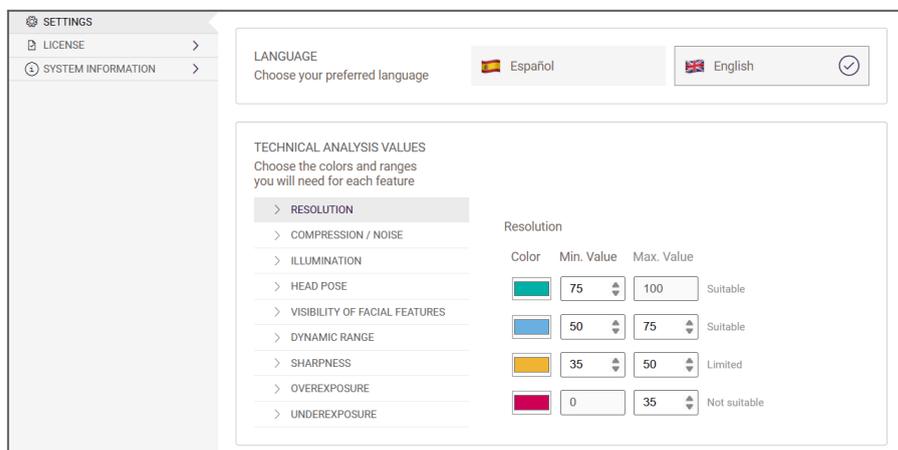
Through **Settings > Licence**, the licence information is displayed such as Owner, Device Id and Expiration date of said licence.



## 4.2. Settings

In the Settings subsection, **the expert user can customize how technical image quality assessments are interpreted.**

Such as the minimum and maximum threshold values used to classify an image as Suitable, Limited, or Not Suitable can be manually adjusted. These values directly affect how the Image Quality Assessment (IQA) scores are categorized. Note that colors associated with each classification level are assigned by default as a way to visualize in a more intuitive way each of the ranges.



### 4.3 System Information

Relevant information of the Zibian Labs software installed can be accessed through the **System Information** subsection. It gives details such as the version of the software as well as versions of other components such as the Image Quality Component or the Video component.

```
ABOUT
ZIBIAN LABS Forensic Facial Comparison: 1.18.20

OFIQ version: 1.0.2
OpenCV Version: 4.9.0
FFmpeg Version: 3688036
```