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**Veri-Life**  
*Proof of Life*

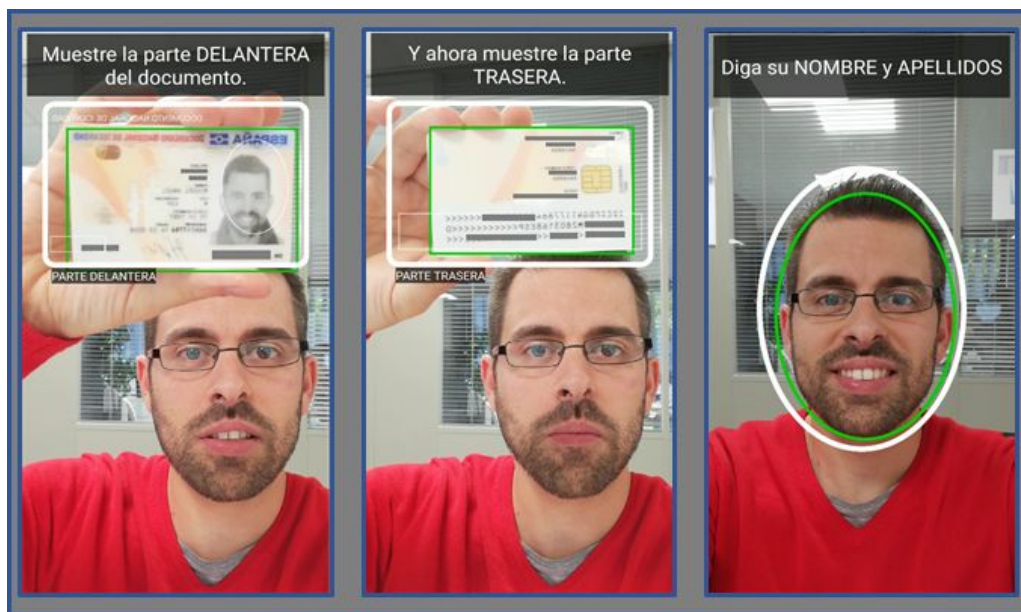
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## 1. Veri-Life

The comparison between the selfie photo and the document photo is not enough to ensure that the person doing the onboarding process is real and alive.

To check that the person is real and alive a live test is performed. Veridas offers its own API to carry out the live test. This API is denominated Veri-Life.

Veri-Life service has been developed to offer the capability of liveness detection in video streams.






A live face is detected if the recording satisfies all of the following conditions:

- Video stream contains image data.
- Image data contains one (predominant) face.
- Video stream contains audio data.
- Audio data corresponds to human voice.
- Sufficient lips movements are detected.
- The image data is sufficiently sharp
- The detected faces do not suffer from perspective changes (pitch and/or yaw)
- The detected face are fully contained within video frames

Finally, Veri-Life microservice returns a confirmation score if all the checks are successfully passed, otherwise a corresponding error is raised.

Validación de persona/ Person validation

Biometría facial/ Face Biometry

Selfie vs Foto ID/ Selfie vs ID photo	Selfie vs Vídeo/ Selfie vs video	Prueba de Vida/ Proof of life
		

## Annex 1: API Operation

### 1.1. API Endpoints

This microservice exposes an API with the following features:

- **Live face detection:** The microservice receives a POST request with a binary video and returns a confidence value.

POST /video\_proof\_of\_life  
Content-Type: multipart/form-data

input:  
files={"video\_data" : BINARY\_VIDEO, "xml\_video\_data": XML\_FILE}

output: (json) status 200  
{ "confidenceNumber": CONFIDENCE\_NUMBER }

output: (json) status 200  
{ 'status': 'error', 'exception': string, 'code': string or int, 'message': string }

error: (json) status 400 and status 500  
{ 'status': 'error', 'exception': string, 'code': string or int, 'message': string }

XML\_FILE currently is an empty XML document:

```
<xml>
</xml>
```

In the future, this parameter will contain information related with the video.

- **Is alive:** The microservice receives a GET request with no params, and returns a 200 status code indicating that the server is up.

GET /alive

## 1.2. API Errors

The API defines the following error messages:

```
{'status': 'error', 'exception': 'Incorrect parameters', 'code': None, 'message': ''}
```

```
{'status': 'error', 'exception': 'Face not found', 'code': None, 'message': ''}
```

Caused by:

- No face detected in video stream.

```
{'status': 'error', 'exception': 'More than one face', 'code': None, 'message': ''}
```

Caused by:

- Multiple equally relevant faces detected in video stream.

```
{'status': 'error', 'exception': 'Unable to align image', 'code': None, 'message': ''}
```

Caused by:

- Heavily distorted face detected that cannot be aligned.

```
{'status': 'error', 'exception': 'ZeroLengthVideoError', 'code': None, 'message': ''}
```

Caused by:

- Video stream does not contain any image data.

```
{'status': 'error', 'exception': 'FaceNotSharpError', 'code': None, 'message': ''}
```

Caused by:

- Spatial blur due to small spatial resolution or high video compression.
- Motion blur due to long exposure times required by lighting conditions.
- Insufficient contrast.
- Spoofing attempts.

```
{'status': 'error', 'exception': 'PerspectiveChangeError', 'code': None, 'message': ''}
```

Caused by:

- Perspective distortion due to extreme camera/subject movement.
- Spoofing attempts.

```
{'status': 'error', 'exception': 'MouthEyesAlignmentError', 'code': None, 'message': ''}
```

Caused by:

- Unreliable landmark estimation leading to location errors.
- Spoofing attempts.

```
{'status': 'error', 'exception': 'NotEnoughUsefulVideoData', 'code': None, 'message': ''}
```

Caused by:

- Face partially located outside video frame.
- Face detection and/or landmarks estimation errors.
- Spoofing attempts.

```
{'status': 'error', 'exception': 'VoiceNotDetectedError', 'code': None, 'message': ''}
```

- Video stream does not contain audio track.
- Video does not contain human voice or it is heavily masked by acoustic noise.