# CalSAWS

California Statewide Automated Welfare System

**Design Document**

CA-226843: DDID 2701,2706 | Voice
Authentication Additional Languages

| CalSAWS | DOCUMENT APPROVAL HISTORY | |
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| DATE | DOCUMENT VERSION | REVISION DESCRIPTION | AUTHOR |
|---|---|---|---|
| 04/06/2020 | 0.1 | Initial Draft | |
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# 1   OVERVIEW

Voice Biometrics is an authentication process utilizing natural voice patterns. This form of authentication eliminates the need for PINs and passwords, thereby improving the rate of calls being pre-authenticated in the Integrated Voice Response (IVR) before being serviced by Case Workers or the Self Service IVR. Through the IVR flow, the customer may choose to record their voices for future authentication.

## 1.1   Current Design

The existing C-IV functionality migrated to CalSAWS in SCR CA-220977 uses Voice Biometrics as one of the methods of authentication using the customer's voice print. This technology is supported by Nuance Security Suite for Voice Authentication.  This enables the customer to authenticate when they are prompted to say a predetermined phrase like "My voice is my password, please verify me".  The current CalSAWS implementation of Voice Authentication supports the following:

- Enrollment: A User is fully authenticated in Contact Flow by using a combination of case number and IVR PIN or an SSN and Date of Birth. An IVR authentication will return a BVP indicator attribute ("Y" or "N"). This indicator determines whether or not the user has enrolled in Voice Biometrics. If BVP = N, then we offer the path to enroll and the customer enters the enrollment contact flow. Through a series of iterations, we attempt to collect three successful audio inputs. Three good voice inputs are sufficient for creating a voice print in Nuance.

- Verification: The caller's phone number, SSN or Case Number is collected in IVR. One of these credentials is used to query for the User's BVP Indicator. If BVP = Y, then we offer the path to verify and the user enters the verification contact flow. We collect the user's audio input which is compared to the existing voice print stored on the Nuance server. If there is a match, then the user is authenticated.

## 1.2   Requests

The current IVR platform will be enhanced to allow customers to save their voice print passwords in multiple languages.

## 1.3   Overview of Recommendations

1. Enable Voice Authentication to support the following languages:
   a. Farsi
   b. Vietnamese
   c. Mandarin
   d. Tagalog
   e. Russian
   f. Korean
   g. Cambodian

h. Hmong
i. Arabic
j. Lao
k. Cantonese l
l. Armenian
m. Portuguese

## 1.4   Assumptions

1. Counties are responsible for providing voice recordings (125 male voice recordings and 125 female voice recordings) for each language passphrase.
2. Voice Biometrics vendor (Nuance) will support all of the listed languages.
3. The predefined passphrase that the Counties will use for the voice authentication functionality is "my voice is my password, please verify me."

# 2   RECOMMENDATIONS

This section outlines recommendations to update to meet the requirements:

## 2.1   Multi-language enrollment and authentication

### 2.1.1   Overview

The current IVR platform will be enhanced to allow customers to save their voice print passwords in multiple languages.

### 2.1.2   Description of Changes

1. The existing voice biometric solution will be configured to accommodate new counties and multiple language support.
2. Set up background model for each language.
   a. Vendor requires us to collect samples of voice recordings from a variety of speakers. Doing this provides a good representation of the environment and speakers.
   b. All the collected voice samples are calibrated to create respective language background model (BGM).
3. Enrollment and Verification will be based on the language selected by the caller at the beginning of the IVR flow (language menu).
4. The predefined passphrase for the voice authentication functionality is "my voice is my password, please verify me."
5. Customers that call the County's IVR System will be prompted with an option to provide voice input by saying the predefined passphrase.
   a. If the customer selects to continue with enrollment, the system will process the customer's statement of that passphrase.

b. Once the system has processed the customer's passphrase, the customer will be prompted to authenticate by stating that same predefined passphrase each subsequent time that customer calls the IVR.

## 2.2 Reporting

We will provide counties with standard email reports monthly. Counties will provide the email address to which the reports will be sent. The standard email reports include:

1. The number of customers that have opted into the voice authentication functionality in the past month.
2. The number of attempts to authenticate via the voice authentication functionality and, of those attempts, the number of successful authentications in the past month.
3. Total number of Rejected Attempts in the past month.
4. Failed Verification attempts due to audio issues in the past month.
5. Failed Verification attempts due to wrong passphrase in the past month.
6. Failed Enrollment attempts due to wrong passphrase in the past month.

# 3 REQUIREMENTS

## 3.1 Project Requirements

| REQ # | REQUIREMENT TEXT | Contractor Assumptions | How Requirement Met |
|---|---|---|---|
| DDID 2701 | The CONTRACTOR shall configure the CalSAWS Inbound IVR to allow a customer to enroll and capture their voice print for voice authentication. | | Section 2.1 |
| DDID 2706 | The CONTRACTOR shall configure the CalSAWS Inbound IVR to allow the customer to authenticate themselves in the IVR using one of the following options:<br>- Social Security Number and date of birth | | Partially met in section 2.1. Remainder of requirement related to social security number/date of birth and Case number/PIN authentication methods will be met in subsequent SCR. |

| | - case number and PIN<br>- voice print authentication | | |
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