# 1. Biometric Interface Deployment

The diagram above shows the Biometric Interface Server and its supporting components. The server provides for a standard interface into the
AFIS, where fingerprint biometrics are processed and
into the facial portrait biometric processing unit where facial portrait images are processed and matched

The biometric interface server also implements a workflow component which is responsible to manage the workflow between the facial portrait and AFIS biometric units and also the external systems required to transact with the two biometric implementations.

The primary components that make up the Biometric Interface Server is described in more detail below.
 

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# 2. CCS Biometric Interface Services

ID: 56

The process flow diagram shown above, details the web services required to support biometric interfaces on the CCS. An overview of the services exposed by the interface and used by the CCS ins support of biometric functions,
CCS Biometric Identification
This service effectively combines the two web services used for fingerprint and face portrait 1:N searches into a single web service and returns a single CPR record if the identification process was successful.
CCS Fingerprint Identification
A set of fingerprint images are passed to the AFIS where a 1:N search is performed. A set of parameters determine the internal workflow of the AFIS in terms of only performing a search or a search with add.
CCS Facial Portrait Identification
A face portrait is passed to the Face Portrait matcher where a 1:N search is performed. A set of parameters determines the internal workflow of the Face Portrait matcher in terms of only performing a search or a search with add.
CCS Facial Portrait Verification
A set of fingerprint images are supplied together with a unique identifier. The AFIS uses the identifier to retrieve a specific fingerprint record and matches this against the presented set of fingerprint images.
CCS Fingerprint Verification
A face portrait is supplied together with a unique identifier. The identifier is used by the Face Portrait matcher to extract a specific record from the Face Portrait Database which is verified against the presented face portrait.
CCS Get Biometric Information
A unique identifier is supplied and used to retrieve a set of biometric information. The information returned is determined by a flag indicator used to indicate either fingerprint images or face portrait or both.
CCS Insert Fingerprints
New fingerprints are added to the ABIS, identification occurs first, if no fingerprints are identified, then the fingerprints are inserted.
CCS Delete Record
Existing customer fingerprints are deleted using the unique CPR.
DCS Generate Fingerprint Templates
A set of fingerprints (WSQ format) are used to generate a ISO standard fingerprint template. This ISO standard fingerprint templates are sent along with the Biometric Information to the DCS.






 
 
 

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  + A set of fingerprint images are passed to the AFIS where a 1:N search is performed. A set of parameters determine the internal workflow of the AFIS in terms of only performing a search or a search with add.
* CCS Facial Portrait Identification
  + A face portrait is passed to the Face Portrait matcher where a 1:N search is performed. A set of parameters determines the internal workflow of the Face Portrait matcher in terms of only performing a search or a search with add.
* CCS Facial Portrait Verification
  + A set of fingerprint images are supplied together with a unique identifier. The AFIS uses the identifier to retrieve a specific fingerprint record and matches this against the presented set of fingerprint images.
* CCS Fingerprint Verification
  + A face portrait is supplied together with a unique identifier. The identifier is used by the Face Portrait matcher to extract a specific record from the Face Portrait Database which is verified against the presented face portrait.
* CCS Get Biometric Information
  + A unique identifier is supplied and used to retrieve a set of biometric information. The information returned is determined by a flag indicator used to indicate either fingerprint images or face portrait or both.
* CCS Insert Fingerprints
  + New fingerprints are added to the ABIS, identification occurs first, if no fingerprints are identified, then the fingerprints are inserted.
* CCS Delete Record
  + Existing customer fingerprints are deleted using the unique CPR.
* DCS Generate Fingerprint Templates
  + A set of fingerprints (WSQ format) are used to generate a ISO standard fingerprint template. This ISO standard fingerprint templates are sent along with the Biometric Information to the DCS.

# 3. CCS Biometric Interfaces

The high-level data flow presented above shows the main services implemented on the CCS which is exposed to the DCS. The services on the CCS is explained in more detail below.
Fingerprint 1: N
The provided fingerprints are searched across the AFIS to find a matching set of fingerprints and the result is sent back to the DCS, this process is also known as fingerprint identification.
Fingerprint 1:1
A set of fingerprints are matched against each other and the result is sent back to the DCS, this process is also known as fingerprint verification.
Face 1:1
A face portrait is supplied together with a unique identifier. The identifier is used by the Face Portrait matcher to extract a specific record from the Face Portrait Database which is verified against the presented face portrait.
Face 1: N
A face portrait is supplied to the Face Portrait Matcher, where the facial portrait is used to retrieve the record of the matching face, the result is returned to the DCS.
Generate Fingerprint Templates
The webservice is used to generate ISO formatted fingerprint templates, a set of WSQ formatted fingerprints are used as input parameters.
Get Biometric Details
A unique identifier is supplied and used to retrieve a set of biometric information. The information returned is determined by a flag indicator used to indicate either fingerprint images or face portrait or both
 

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* Fingerprint 1: N
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* Fingerprint 1:1
  + A set of fingerprints are matched against each other and the result is sent back to the DCS, this process is also known as fingerprint verification.
* Face 1:1
  + A face portrait is supplied together with a unique identifier. The identifier is used by the Face Portrait matcher to extract a specific record from the Face Portrait Database which is verified against the presented face portrait.
* Face 1: N
  + A face portrait is supplied to the Face Portrait Matcher, where the facial portrait is used to retrieve the record of the matching face, the result is returned to the DCS.
* Generate Fingerprint Templates
  + The webservice is used to generate ISO formatted fingerprint templates, a set of WSQ formatted fingerprints are used as input parameters.
* Get Biometric Details
  + A unique identifier is supplied and used to retrieve a set of biometric information. The information returned is determined by a flag indicator used to indicate either fingerprint images or face portrait or both

# The biometric interface services exposes the following web services, namely: Fingerprint Identification (1:N) Face Identification (1:N) Biometric Identification (1:N) Fingerprint Verification (1:1) Face Verification (1:1) Get Biometric Details Generate Fingerprint Templates 4. Biometric Interface Services

The biometric interface services expose the following web services, namely:

* Fingerprint Identification (1:N)
* Face Identification (1:N)
* Biometric Identification (1:N)
* Fingerprint Verification (1:1)
* Face Verification (1:1)
* Get Biometric Details
* Generate Fingerprint Templates
* Face Identification Result

## 4.1. biometricIdentification

This service effectively combines the two web services used for fingerprint and face portrait 1:N searches together into one web service. The request parameters for this web service is as follows:

* biometricInfo

The response for this web service is the customer profile record (CPR) identifier.

## 4.2. biometricInfo

The class stores all the biometric information for a person.

## 4.3. ccsIdentificationResponse

The generic response that returns the customer profile record identifier for the request.

## 4.4. ccsVerificationResponse

The generic response, that returns a boolean value if the record was verified successfully.

## 4.5. faceIdentification

A face portrait is passed to the Face Portrait matcher where a 1:N search is performed. A set of parameters determines the internal workflow of the Face Portrait matcher in terms of only performing a search or a search with add.

The response for this web service is the customer profile record (CPR) identifier and a GUID, a unique transaction number for the transaction. The GUID is returned immediately, which can be used to call the faceIdentificationResult web service, that will return the identification result if there are any.

## 4.6. faceIdentificationResult

This web service is used to get the result of a particular face identification request, by passing the unique GUID that was generated as the input. If the identification yields a result, the CPR is returned along with a new GUID, if the identification is still in progress, then the same GUID is returned.

## 4.7. faceIdentificationResultRequest

The request to check if the face identification for a particular transaction is complete. The input parameter is the unique transaction guid, that was returned in the faceIdentification request.

## 4.8. facePortrait

The facial portrait class manages the data for a portrait image. The class provides for the original image captured during enrolment, the ICAO crop area and where applicable, the portrait template for portrait verification.

## 4.9. faceVerification

A face portrait is supplied together with a unique identifier. The identifier is used by the Face Portrait matcher to extract a specific record from the Face Portrait Database which is verified against the presented face portrait.

The response for this web service is a boolean, it will return a true if the verification was successful, else it will return a false if the verification was unsuccessful.

## 4.10. fingerprint

The fingerprint class represents the information for one finger.

## 4.11. fingerPrintIdentification

A set of fingerprint images are passed to the AFIS where a 1:N search is performed. A set of parameters determine the internal workflow of the AFIS in terms of only performing a search or a search with add

The response for this web service is the customer profile record (CPR) identifier.

## 4.12. fingerprints

A collection of fingerprints, subset of the class fingerprint.

## 4.13. fingerPrintVerification

A set of fingerprint images are supplied together with a unique identifier. The AFIS uses the identifier to retrieve a specific fingerprint record and matches this against the presented set of fingerprint images.

The response for this web service is a boolean, it will return a true if the verification was successful, else it will return a false if the verification was unsuccessful.

## 4.14. generateFingerprintTemplates

The generateFingerprintTemplates webservice is hosted on the CCS and is used to convert the WSQ formatted fingerprints into a standard ISO format fingerprints that are used in the DCS based fingerprint engine.

## 4.15. getBiometricDetails

A unique identifier is supplied and used to retrieve a set of biometric information. The information returned is determined by a flag indicator used to indicate either fingerprint images or face portrait or both

## 4.16. getBiometricDetailsRequest

The request that is used to get the biometric details of a customer, the input parameter is the customer profile record identifier.

## 4.17. ISOFingerprintTemplates

The converted ISO fingerprint templates that are returned to the DSC on a successful call.

## 4.18. verificationRequest

The customer verification request requires the customer identification information as well as associated biometric data. The Identification information is used to retrieve the profile record and if found, match the presented biometrics against the extracted biometrics from the DCS database.