

ASPEN-MCI

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1 Introduction

This handbook provides an overview of EMCI Functionalities and Services as well as the Data Governance Rules. This document is intended for architects or managers and developers who are considering to consume EMCI services.

1.1 EMCI Overview

A variety of systems scattered throughout State of NM contain information about the clients they serve. Each of these systems maintains its own copy of demographic data, which inevitably differs from system to system.

The Enterprise Master Client Index (EMCI) solution provides the function of uniquely identifying an individual and maintaining demographics of an individual in one location centrally for all the systems/agencies as opposed to each system/agency maintaining its own Master Client Index.

1.2 Benefits

- Delivers single view of clients and across different systems
- Improve information quality and decision making
- Improve systems integration capabilities
- Improved efficiency resulting from reduced data error

1.3 Assumptions

2 Technical Architecture

2.1 Enterprise MCI Architecture

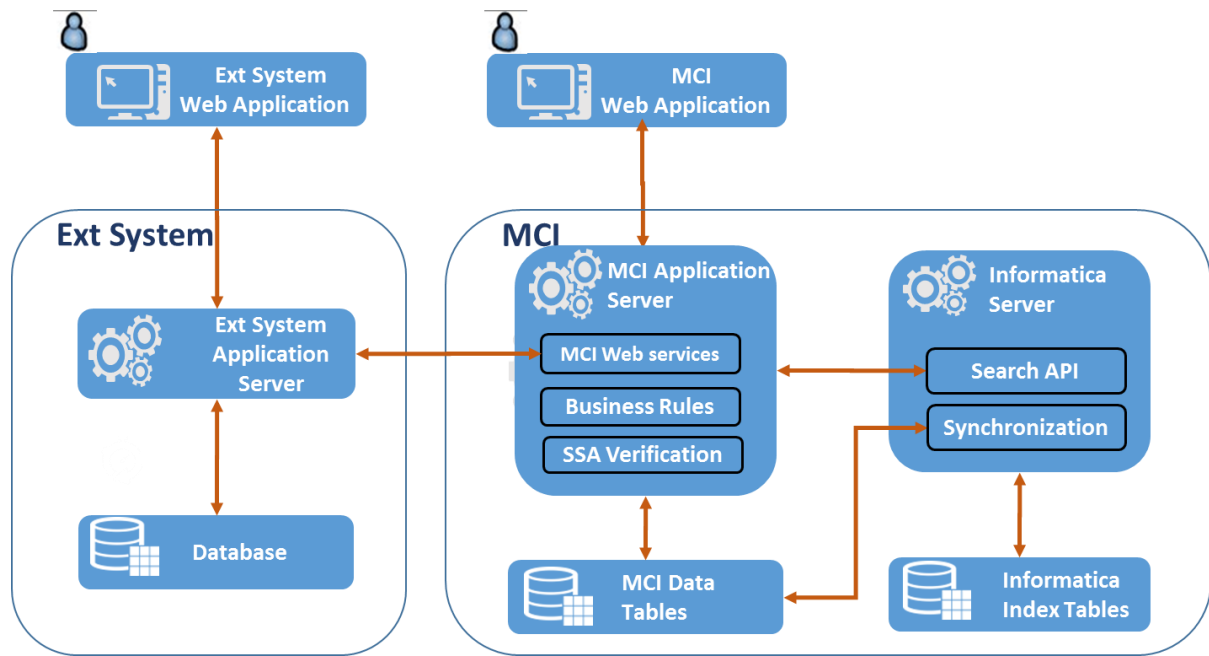


Figure 2: EMCI Architecture

2.1.1 Components

New EMCI system will have the following components

Application Server: Responsible for hosting the web services and online web application

MCI Database Tables: Stores the client's demographic and system participation data

Informatica Index Tables: Stores the client's demographic data for in index tables for soundex search

Informatica Server: Used for searching clients and create/updating data in Informatica index tables.

Web Application: Available for the users from participating systems to perform administrative activities and to resolve the data conflicts.

2.1.2 Data Storage

Client's demographic data is stored in the participating systems as well as the EMCI system. Data stored in EMCI system will be the master client data across all the agency systems.

Client's data is classified into two groups

- The key parameters of data: The attributes (Name, SSN, Date of Birth, and Gender) used in search criteria are treated as key parameters of client data. The values for these attributes should be same across all the participating systems. This data is also stored in IIR index tables for searching an individual.

- Additional System specific data: The additional attributes of client data are the attributes not used in search criteria. Ex: Race, Ethnicity, Address, etc. The values for these attributes can be different in participating systems. MCI will store the system specific data.

3 Functional Capabilities/Services

3.1 Individual Inquiry (Name is Optional)

Individual Inquiry is used to Search Individuals in EMCI using the individual's demographics or the Individual Id. A search is made on the MCI and the list of results will be sent back to the requesting system. Individual Id, SSN or Name are mandatory parameters for this Individual Inquiry.

This web service uses fuzzy logic searching. An example could be in the name elements. They can have partial content such as "Ja" in the firstName parameter and "Doe" in the lastName parameter and the response will send back matches close to what was supplied in the request.

3.1.1 Request Soap Example [Individual Inquiry]

```
<SOAP-ENV:Envelope
  xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <SOAP-ENV:Body>
  <getIndvSearchDetails>
  <prefix />
  <firstName>Jane</firstName>
  <middleName />
  <lastName>Doe</lastName >
  <suffix />
  <ssn />
  <indvId />
  <sscn />
  <dob />
  <county />
  <gender />
  <caseNum />
  <createSystem />
  </getIndvSearchDetails>
  </SOAP-ENV:Body>
```

3.1.2 Response Soap Example [Individual Inquiry]

```
<SOAP-ENV:Envelope
  xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <SOAP-ENV:Body>
  <p291:getIndvSearchDetailsResponse
  xmlns:p291="http://in.services.business.bridges.dhs.state.mi.us">
  <getIndvSearchDetailsReturn>
  <errorCode>0</errorCode>
  <errorMsg />
  <noOfMatches />
  <INWSCurIndvs>
  <INWSCurIndvs>
    <caseNum>1010186989<caseNum>
    <convertedToBridges>
    Conversion Complete
    </convertedToBridges>
    <createSystem>ASSIST<createSystem>
    <dob>01/01/1970<dob>
```

```

        <indvId>600671491</indvId>
        <firstName>Howard</firstName>
        <middleName>T</middleName>
        <lastName>Roark</lastName>
        <age>36</age>
        <ssn>571080339<ssn>
        <caseStatus />
        <aliasSW>N</aliasSW>
        <ssaValidationSW>N</ssaValidationSW>
        <ssnVrfCd>Client Statement</ssnVrfCd>
    </ INWSCurlIndvs>
</ INWSCurlIndvs>
    <caseNum>1010131888<caseNum>
    <convertedToBridges>
    Not Converted
    </convertedToBridges>
    <createSystem>ASSIST<createSystem>
    <dob>01/01/1970</dob>
    <indvId>600594166</indvId>
    <firstName>Howard</firstName>
    <middleName>T</middleName>
    <lastName>Roark</lastName>
    <age>36</age>
    <ssn>462705036<ssn>
    <caseStatus />
    <aliasSW>Y</aliasSW>
    <ssaValidationSW>N</ssaValidationSW>
    <ssnVrfCd>Client Statement</ssnVrfCd>
</ INWSCurlIndvs>
</INWSCurlIndvs>
</getIndvSearchDetailsReturn>
</p291:getIndvSearchDetailsResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

3.2 Individual File Clearance (Name is Mandatory)

File Clearance process is used when a new Individual is added to the participating system. Name is mandatory to file clear an Individual. This functionality is similar to the Individual Inquiry. EMCI performs a soundex query on database using the Name and returns the results back to participating system along with the % match.

The File Clearance web service performs sundex query on the MCI tables for clients. This service uses fuzzy logic to discover record(s) in the MCI tables. If data is found based on the supplied search criteria, the web service will return up to 100 individuals in descending ordered based on score. The score is a percentage indicator of how closely the individual matched the supplied search criteria.

The authorized user must first use this web service to confirm that an individual does not currently exist in EMCI before adding any additional individuals to EMCI. It is expected that the user of this web service will perform due diligence in discovering the proper individual they seek in order to prevent duplicate records.

3.2.1 Request Soap Example [File Clearance]

```

<SOAP-ENV:Envelope
  xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"

```

```

xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
<SOAP-ENV:Body>
  <ssaFileClearance>
    <firstName>Jane</firstName>
    <middleName></middleName>
    <lastName>Doe</lastName >
    <ssn />
    <dob>04/13/1962</dob>
    <gender>F</gender >
  </ssaFileClearance>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

3.2.2 Response Soap Example [File Clearance]

```

<SOAP-ENV:Envelope
  xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <SOAP-ENV:Body>
    <p291:ssaFileClearanceResponse
      xmlns:p291="http://in.services.business.bridges.dhs.state.mi.us">
      <ssaFileClearanceReturn>
        <errorCode>0</errorCode>
        <errorMsg />
        <noOfMatches>2</noOfMatches>
      <INWSIndvMatches>
        <convertedToBRIDGES>N</convertedToBRIDGES>
        <dob>04/13/1962</dob>
        <existsIn>N</existsIn>
        <gender>Female</gender>
        <indvId>1029384756</indvId>
        <firstName>Janet</firstName>
        <middleName>D</middleName>
        <lastName>Doe</lastName>
        <age>44</age>
        <score>89</score>
        <ssn>283746525</ssn>
        <aliasSW>N</aliasSW>
        <ssaValidationSW>N</ssaValidationSW>
        <ssnVrfCd></ssnVrfCd>
      </INWSIndvMatches>
      <INWSIndvMatches>
        <convertedToBRIDGES>N</convertedToBRIDGES>
        <dob>01/11/1973</dob>
        <existsIn>N</existsIn>
        <gender>Male</gender>
        <indvId>1029384756</indvId>
        <firstName>Jannetti</firstName>
        <middleName>A</middleName>
        <lastName>Doe</lastName>
        <age>33</age>
        <score>59</score>
        <ssn>123456789</ssn>
        <aliasSW>Y</aliasSW>
        <ssaValidationSW>Y</ssaValidationSW>
      </INWSIndvMatches>
    </p291:ssaFileClearanceResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```



```

        <ssnVrfCd>Client Statement</ssnVrfCd>
    </ INWSIndvMatches>
</ INWSIndvMatches>
</ssaFileClearanceReturn>
</p291:ssaFileClearanceResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

3.3 Add Individual

When a new individual is added to the subscribing system, the individual should be added in EMCI. Add Individual web service will allow an authorized system to create a new individual in the Enterprise Master Client Index (EMCI). MCI Id will be supplied in the response of this web service

3.3.1 Request Soap Example [Add Individual]

```

<SOAP-ENV:Envelope
  xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <SOAP-ENV:Body>
    <addMCI>
      <iNWSIndvClrRequest>
        <INWSDcAlias>
          <aliasSuffixName></aliasSuffixName>
          <aliasFirstName>Jane</aliasFirstName>
          <aliasIndvId></aliasIndvId>
          <aliasLastName>Doe</aliasLastName>
          <aliasMiddleName></aliasMiddleName>
          <aliasPrefixName /></aliasPrefixName>
        </INWSDcAlias>
      </iNWSIndvClrRequest>
      <INWSDcIndv>
        <chipSeqNum></chipSeqNum>
        <claimedSSN></claimedSSN>
        <deathDt></deathDt>
        <deceasedDtVRFCd></deceasedDtVRFCd>
        <dob>10/05/2000</dob>
        <dobVRFCd></dobVRFCd>
        <ethnicityCd></ethnicityCd>
        <fedRgdIndianTribeSW></fedRgdIndianTribeSW>
        <firstName>Chat</firstName>
        <gender>F</gender>
        <indianTribeCd></indianTribeCd>
        <indvId></indvId>
        <lastName>MA</lastName>
        <mergSepInd></mergSepInd>
        <mhmrCaseNum></mhmrCaseNum>
        <middleName></middleName>
        <prefixName><prefixName>
        <race></race>
        <refugeeMinorSW></refugeeMinorSW>
        <ssn>347020036</ssn>
        <ssnVrfCd></ssnVrfCd>
        <suffixName></suffixName>
      </INWSDcIndv>
    </addMCI>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

```

    <INWSDcIndvSSCN>
      <SSCN>347020036A</SSCN>
      <typeCd>SS</typeCd>
    </INWSDcIndvSSCN>
  </iNWSIndvClrRequest>
</addMCI>
</SOAP-ENV:Body>

```

3.3.2 Response Soap Example [Add Individual]

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <SOAP-ENV:Body>
    <p291:addMCIResponse
      xmlns:p291="http://in.services.business.bridges.dhs.state.mi.us">
      <addMCIReturn>
        <errorCode>0</errorCode>
        <errorMsg></errorMsg>
        <indvId>1027376669</indvId>
      </addMCIReturn>
    </p291:addMCIResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

3.4 Update Individual

The Update MCI Individual service is a function that gives authorized systems the ability to change data about an individual from subscribing system, to the Enterprise Master Client Index (EMCI). Once the individual data is updated in EMCI, update notification is sent to all the other systems using that individual.

3.4.1 Request Soap Example [Update Individual]

```

<SOAP-ENV:Envelope
  xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <SOAP-ENV:Body>
    <updateMCI>
      <iNWSIndvClrRequest>
        <INWSDcAlias>
          <aliasSuffixName></aliasSuffixName>
          <aliasFirstName>Jane</aliasFirstName>
          <aliasIndvId></aliasIndvId>
          <aliasLastName>Doe</aliasLastName>
          <aliasMiddleName></aliasMiddleName>
          <aliasPrefixName /></aliasPrefixName>
        </INWSDcAlias>
      </iNWSIndvClrRequest>
    </updateMCI>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

```

        <fedRgdIndianTribeSW></fedRgdIndianTribeSW>
        <firstName>Chat</firstName>
        <gender>F</gender>
    </indianTribeCd></indianTribeCd>
        <indvId></indvId>
        <lastName>MA</lastName>
        <mergeSepInd></mergeSepInd>
        <mhmrCaseNum></mhmrCaseNum>
        <middleName></middleName>
        <prefixName><prefixName>
        <race></race>
        <refugeeMinorSW></refugeeMinorSW>
        <ssn>347020036</ssn>
        <ssnVrfCd></ssnVrfCd>
        <suffixName></suffixName>
        <zeroTolerancedSW></zeroTolerancedSW>
    </INWSDcIndv>
    <INWSDcIndvSSCN>
        <SSCN>347020036A</SSCN>
        <typeCd>SS</typeCd>
    </INWSDcIndvSSCN>
</iNWSIndvClrRequest>
<INWSMergeSeperate>
    <legacyId></legacyId>
</mergeSepDt></mergeSepDt>
    <oldIndvId></oldIndvId>
    <primaryIndvSw></primaryIndvSw>
    <typeCd></typeCd>
</INWSMergeSeperate>
</updateMCI>
</SOAP-ENV:Body>

```

3.4.2 Response Soap Example [Update Individual]

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
    xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <SOAP-ENV:Body>
    <p291:updateMCIResponse
        xmlns:p291="http://in.services.business.bridges.dhs.state.mi.us" >
    <updateMCIReturn>
        <errorCode>0</errorCode>
        <errorMsg></errorMsg>
        <indvId></indvId>
    </updateMCIReturn>
    </p291:updateMCIResponse>
    </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

3.5 Merge/Unmerge

If there are duplicate individuals records created in the system for the same client, user performs the merge operation to merge these two records to one. The process takes two individual ids as input, primary individual id and secondary individual id and inactivates the secondary individual id. Similarly, the unmerge process is used to activate the secondary individual if these two records are found to be two different individuals after merging them.

Merge/Unmerge activity is not exposed as a web service. This has to be performed in Web Application by an authorized user. Notifications are sent to all systems using the individuals.

4 Data Governance

Data governance is a set of quality control disciplines for managing, using, maintaining, and protecting data across the enterprise. Data Governance defines the rules to ensure that the actual data is captured and updated correctly and efficiently.

In order to maintain Data Integrity, The following assumptions are made.

- 1) Single version (record) of data is stored for an individual in MCI eventhough the individual is known to multiple systems.
- 2) Two individuals can not be created in EMCI with same SSN.
- 3) EMCI stores the system details that the individual is known to along with the client Individual Id in the participating systems.
- 4) Data Ownership: The highest ranked system using the individual is considered as the data owners of that Individual.
- 5) Data Governance team consisting of the users from each participating systems meet often to discuss and review the data conflicts.
- 6) If SSN is verified by SSA, EMCI will not allow systems to update the core demographic data from source systems. This update can only be made from EMCI Web Application.
- 7) A data reconciliation file is generated daily with all the modified individual details to identify the missed updates or out of sync data. Both the Source Systems and the EMCI will generate a file for reconciliation.
- 8) Below Options are available for handling the updates made on individuals known to multiple systems.
 - i) Allow all systems to update an individual and send the online/batch notifications to other systems using that individual.
 - ii) Define a hierarchy for all the systems participating systems in MCI. Allow only higher ranked system to update an individual. If a lower ranked system is updating the individual, create a task for MCI Web App user to take necessary action.
 - iii) Do not allow any system to update an individual. These Individuals should only be updated from MCI Web App and the update notifications will be sent to all the systems using that individual when update is made in the Web application.

In Option ii, a Task is created in EMCI application and assigned to the higher ranked system using that Individual. Any user from that system can either accept the chage or reject the modification.

If the modification is accepted, the change will be applied to the Individual data in EMCI.

If the modification is rejected, the change will not be applied to the individual data in EMCI and a rejection notification will be sent to the system requesting the update.

5 Data Conversion

The EMCI services should be consumed by any application that plans to retrieve data from EMCI; clear an individual; and add, or update individuals' demographic information.

All the client data in participating systems needs to be migrated to EMCI before the system joins the EMCI. To improve data quality in EMCI, Data reconciliation activity is performed on source system's client data and then it will be loaded to EMCI. ASPEN MCI data will be considered as master data and copied to EMCI. Other systems data is loaded/ merged with ASPEN data based on the rules after the data reconciliation activity.

5.1 Data Reconciliation

Data reconciliation is necessary to reconcile the client information of the subscribing system with the client information in MCI. As part of the data reconciliation, a data inconsistency check must be performed. The check is made for the following data inconsistencies:

- Clients with invalid races
- Clients with invalid ethnicity
- Clients with invalid citizenship
- Out of range SSN numbers
- Clients missing the mandatory demographic information (Last Name, First Name, Date of Birth, Race, Gender)
- Clients with duplicate SSN (and not merged)

5.2 Data Conversion Rules

The client data of the source system is compared with the data in EMCI.

Rule 1: Records with SSN in Source System,

For the records where SSN matches with a record in EMCI, compare Date of Birth and Last Name:

- If Date of Birth does not match, do not load these records to EMCI. Create a validation failure and report to the source system
- If Date of Birth matches and Last Name does not match, create a validation failure and report to source system.
- If Date of Birth and Last Name matches, create a new system participation record in EMCI for that individual and update the MCI Id of that Individual in source system.

For the records where SSN does not match with any record in EMCI, create a new Individual record in EMCI and update the MCI Id in Source System.

Rule 2: Records with out SSN in Source System,

For the records where Last Name and DOB match with an existing record in EMCI, create a validation failure and report to source system along with MCI Individual data. Source system will let EMCI know whether to use existing EMCI individual or create a new individual.

If no match found based on Last Name and DOB, create a new individual record in EMCI and update the MCI Id in Source system.

6 Subscribing to EMCI

6.1 Design Understanding

Any new system subscribing to EMCI should adhere with the EMCI system design. The Client Demographics and the unique identification of these clients is defined and governed by EMCI. The participating systems should also adhere the Client creation, update and merge/unmerge process flows.

6.2 WSDL Understanding

The subscribing systems should follow the web services defined by the EMCI design document. Any modifications to the WSDL design will be governed by EMCI and all the participating systems will be informed on the modifications to web services

6.3 Understanding of Governance Rules

Data governance rules to manage data in EMCI system are defined as per the EMCI design document. The participating systems are ranked based on the trustworthiness of the data in the participating system. The Update process flow uses these system precedence to determine if the update can be accepted to EMCI system or to create a task. The participating systems should nominate data stewards to support the task management and meet often to resolve the data conflicts.

6.4 Changes Required on Subscribing Systems

The EMCI services should be consumed by any application that plans to integrate with EMCI. Data conversion process loads the data from subscribing system to EMCI.

The following web services should be consumed by the source system:

Individual File Clearance

Add Individual

Update Individual

Individual Inquiry

Update Notification web services should be produced by the source system for EMCI to consume. This notification will be sent to source system when an individual used by the system is updated by another system in the Hub.