



# Missouri State Highway Patrol

## Final Report

## OCN Query Application

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Missouri State Highway Patrol, 1510 East Elm Street, Jefferson City, MO 65102



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## Table of Contents

1. Document Description .....	4
1.1 Intent.....	4
1.2 Executive Summary.....	4
1.3 Grant Project Overview.....	4
1.4 OCN Query Application Overview .....	5
1.5 Project Scope/Vision .....	6
1.5.1 Vision.....	6
1.5.2 Scope.....	6
1.6 Functional Areas .....	7
1.6.1 Web Browser Interface .....	7
1.6.2 System to System Interface .....	7
1.6.3 Reporting.....	7
2. Hardware/Software Environment .....	7
2.1 Hardware .....	7
2.1.1 Server .....	7
2.2 Software.....	7
2.2.1 Server .....	7
2.2.2 Workstation .....	8
2.3 Software Development Tools.....	8
3. Application Architecture .....	8
3.1 User Profile.....	9
3.2 Application Framework.....	9
3.3 Database Schema.....	11
3.4 Security .....	13
3.4.1 Application Security .....	13
3.4.2 Infrastructure Security .....	13
4. Business Component (Process) Design .....	13
4.1 OCN Query Data Component.....	13
4.2 OCN Query Business Object Component .....	14

4.2.1	Component Workflow.....	15
4.2.2	Source Code Matrix.....	15
5.	External Data Exchange Specification .....	16
6.	Audit and Logging Design.....	16
7.	User Interface Design.....	16
7.1	OCN Search .....	16
7.2	Full Response .....	17
7.3	Demographic Search Screen .....	19
7.4	Library Response .....	20
8.	Reports Design .....	21
8.1	OCN Query Summary Report .....	21
9.	Expected Benefits .....	22
9.1	Prosecutor Benefits.....	22
9.2	Court Benefits .....	23
9.3	State and National Benefits.....	23
10.	Lessons Learned .....	24
11.	Conclusion.....	25

# 1. Document Description

## 1.1 Intent

This document serves as the Final Report for the Missouri Offense Cycle Number (OCN) Query Application. The document is intended to facilitate common understanding of the application functionality among stakeholders, as well as provide an overview of lessons learned for agencies pursuing similar projects in the future.

## 1.2 Executive Summary

To provide Prosecutors using Case Management Systems the ability to query the files of the Missouri Computerized Criminal History (CCH) System to retrieve and import arrest information.

This service provides business value to all criminal justice agencies by expanding the sharing of criminal history information and ensuring that OCN's are captured and shared correctly. In particular this service provides business value to Prosecutors by ensuring that they have access to the necessary arrest information to file charges in a timely manner.

## 1.3 Grant Project Overview

In May of 2011, the Missouri State Highway Patrol, the Missouri Office of the State Court Administrator, and the National Center for State Courts entered into a grant agreement to improve the Missouri warrants and disposition management workflow. At this time there was both grant funding and technical assistance hours available to improve warrants/disposition reporting. A kick-off meeting was held with various Missouri stakeholders on June 1, 2011. At this meeting several items were discussed to include:

- The Missouri Electronic Warrant pilot program
- The lack of legislation mandating the entry of misdemeanor/ordinance warrants
- The state of the Missouri Criminal History program
- The breakdown in the use and transfer of OCN's between arrest, prosecutor, and court.
- The use of various system codes by all stakeholders that were inconsistent with codes utilized by Federal Systems.
- Charge codes are updated numerous times a year, however, some RMS systems are not updated to accommodate the change in charge codes.

Soon after the kick-off meeting, the scope of the grant agreement was modified to address the following areas:

- Document business process issues related to the OCN to allow for better disposition matching.
- Provide technical training to develop the skills that would allow staff and vendors to expand the interface between the Karpel Prosecutor Case Management System and the OSCA Justice Information System to allow for 2-way data sharing and sharing of data changes.

- Research and draft legislation establishing MULES (Missouri Uniform Law Enforcement System) as the state warrant repository.
- Address a backlog of court error logs related to unmatched OCN's.

The first training to cover Global Reference Architecture (GRA) and National Information Exchange Model (NIEM) concepts as they relate to the sharing of data between the Karpel and JIS systems occurred in April 2013. During this training it was determined that the development of an OCN Query system to allow prosecutors and courts to query and import OCN data would be more beneficial to Criminal History reporting. Due to this, the scope of the project was changed to replace the Karpel/JIS interface with the OCN Query System.

A subsequent training was held in August 2013 which further detailed the requirements for writing a service specification document for an interface between the Karpel Case Management System and the OCN Query System. The bulk of the service specification document was completed at this time. In addition, it was determined that there was some concern over whether the Karpel Case Management System could handle a NIEM interface. Due to this development, the MSHP decided to build the OCN System to allow manual queries through a secure website, in addition to the option to query through a NIEM interface.

In late 2013/early 2014 the Missouri State Highway Patrol Information and Communications Technology Division decided to use the .NET Framework for all future development efforts related to Criminal History and the Missouri Uniform Law-Enforcement System (MULES). The MSHP requested and was approved funding through this grant to hire a consultant to provide further guidance/instruction on development using .NET best practices and NIEM principles. After the state bid, the Information Resource Group (IRG), in conjunction with Analysts International Corporation (AIC), was selected to provide this training. From August 2014 through December 2014, AIC worked with MSHP IT staff to ensure that the OCN Query System was developed using .NET and NIEM best practices. The OCN Query Web Application was completed in December 2014, with further work on the Interface Service Specification document being done in January/February 2014.

## 1.4 OCN Query Application Overview

Missouri Prosecutors report that on average Missouri law-enforcement agencies only submit OCNs on 50% of their referrals for prosecution. When this OCN is not shared with the prosecutor in an accurate/timely manner, then the criminal history available within the repository remains incomplete. Through internal meetings and National Center for State Courts/SEARCH training sessions, an OCN Query approach has been identified. Since the repository receives 88% of arrest information electronically via live scan device, the vast majority of OCN's that are not in the Prosecutors' system exist in CCH when the prosecutor receives the referral.

Using this Web-Service OCN Query, if a Prosecutor was not provided an OCN – by law enforcement, the Prosecutor can query the Missouri Uniform Law Enforcement System (MULES)/CCH for OCN/arrest data thus ensuring record completeness. An added benefit of this query is that

Prosecutors can import the OCN and other pertinent arrest data directly into their Case Management system thus automating a data entry process. In addition, a web portal is also available for those prosecutors that do not have a standardized interface to this system but would still like the ability to query and receive this information from a secure website. The option to download an arrest file in either CSV or NIEM compliant XML is also available via the Web Portal.

This service provides the most benefit to Prosecutors when the arrest information reported by law-enforcement is submitted electronically to the state repository via live scan device. Arrests not reported by live scan device are still accessible, however, there is a delay between the arrest and its receipt and entry into repository files.

## 1.5 Project Scope/Vision

### 1.5.1 Vision

The OCN Query project is part of the Missouri State Highway Patrol's strategic plan to increase the information sharing of OCN information to increase criminal history completeness. At a high-level, the roadmap called for the implementation of a user interface to support the following goals:

- Increase the number of prosecutor and/or court dispositions reported to the repository that can be linked by OCN to a criminal arrest.
- Give users the ability to import arrest information into their Case Management System via National Information Exchange Model (NIEM) or Comma Separated Values (CSV) file thereby greatly reducing the amount of time required to enter a case.
- Provide two avenues for users to retrieve OCN information: 1) via user interface; and 2) via system to system interface.

### 1.5.2 Scope

The initial scope of this project was limited to an interface that would allow Prosecutors to query arrest information from the Computerized Criminal History System. This query would not return any other sort of criminal history information. In addition, the initial scope of this project was primarily for a Prosecutor Query; however, once completed, the Office of State Court Administrator immediately asked for additional access for Court personnel.

This query capability includes a user interface to query and view OCN information via a secure web-site and a system-to-system interface that can be queried programmatically from the prosecutor's case management system that is compatible with system-to-system interface developed in this project.

## 1.6 Functional Areas

### 1.6.1 Web Browser Interface

The user interface for the OCN Query is via web browser. This interface provides the mechanism for users to search, view, and export query results.

### 1.6.2 System to System Interface

Prosecutor personnel had previously indicated that a direct system to system interface between user case management systems and the Missouri CCH would be beneficial for the retrieval and import of OCN and arrest data. As part of this project, the OCN Query provides a NIEM conformant interface for user case management systems to connect to, authenticate, query, and retrieve OCN data in a manner compliant with CJIS Security Requirements.

### 1.6.3 Reporting

As part of the OCN Query project a number of pre-defined reports have been created to support the system, to include information on users/queries. These reports are accessible by authorized personnel using the Missouri State Highway Patrol report application that is separate from the OCN Query System described in this document.

## 2. Hardware/Software Environment

The OCN QUERY application uses the following minimum hardware and software configurations. Performance of the OCN QUERY application is dependent on multiple factors, including hardware, network, software, and installation choices that may be beyond the Missouri State Highway Patrol's control.

### 2.1 Hardware

#### 2.1.1 Server

Server	Minimum Requirements
Application Server	<b>Operating System:</b> Windows Server
Database Server	<b>Operating System:</b> Microsoft SQL Server

### 2.2 Software

#### 2.2.1 Server

Server	Minimum Requirements
OCN Query Database Server (Development, Test, Production)	SQL Server 2013
OCN Query Application Server (Development, Test, Production)	.NET Framework 4.5

### 2.2.2 Workstation

Workstation	Minimum Requirements
OCN Query User	Compatible Browser (IE 10 or above)

Although the OCN Query application is substantially available using other web browsers, full compatibility with other browsers or versions is not guaranteed.

## 2.3 Software Development Tools

OCN QUERY application development utilized the following tools and technologies:

- Visual Studio 2013
- Team Foundation Server 2013

## 3. Application Architecture

The OCN Query solution architecture consists of the following high-level software components:

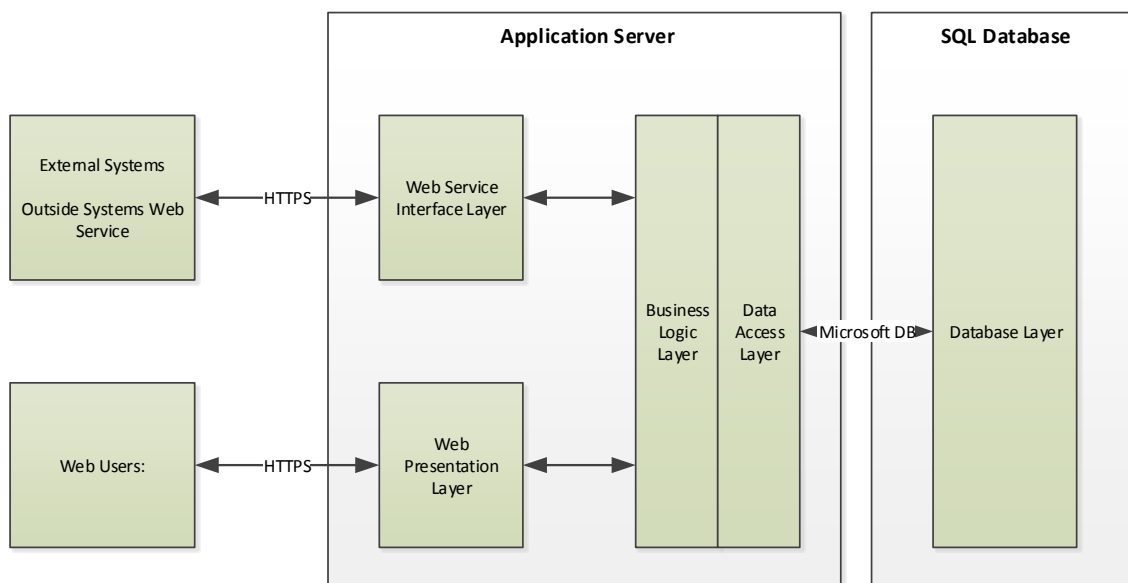
- Web Presentation Layer
- Web Service Interface Layer
- Business Logic Layer
- Data Access layer
- Database layer

The web presentation layer was implemented using the MVC framework which allows for the rapid creation of a rich, secure web-based user interface with minimal custom development. This layer provides the web browser application that will be deployed to the application server and used to access the OCN Query application.

The business logic and data access layers perform processing of the data requests coming from the web presentation layer and web service interface layer (XML requests) against the Criminal History database as well as ensure uniform enforcement of business rules.



## OCN Query Processing System Overall Architecture



### 3.1 User Profile

The following user profiles have been set-up for the OCN Query application:

- **Authorized Users:** Query using exact match or demographic search via website
- **External Systems:** Query using exact match or demographic search via exposed web service layer

Refer to the security section of this document for a detailed listing of actions and permissions for each user profile.

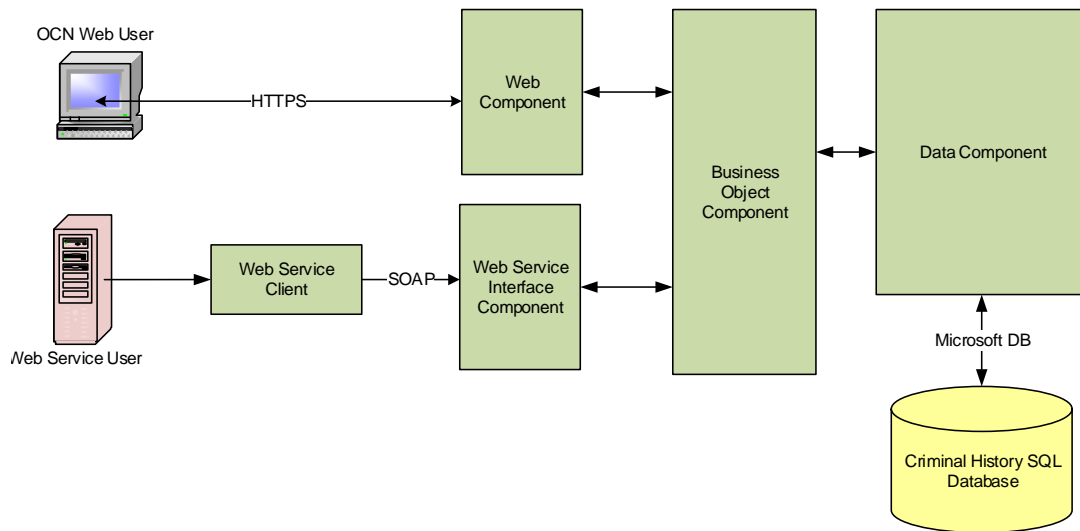
### 3.2 Application Framework

The OCN Query application includes the following high level components. Detailed descriptions of these components are included in Section 4.

- **Data Component**
- **Business Objects Component**
- **Web Service Component**
- **Web Component**

The following diagram depicts, at a high level, the OCN Query application and the aforementioned design components:

## OCN Query Processing System Component Architecture



### 3.3 Database Schema

Fields for Full Query Response	Table	Field Name
OCN - 8 Alpha/Num	Cycle Master	OCN
SID - 10 Num	Cycle Master	SID
FBI Number - 9 Alpha/Num	Ident	FBI
Date of Arrest - 8 Num	Cycle Master	DOA
Arrest ORI - 9 Alpha/Num	Cycle Master	ORI
OCA	Cycle Master	OCA
Arrest County - 3 Num	Cycle Master	ARREST_COUNTY
Photo on File Indicator - 1 Alpha	Cycle Master	MUG
Photo Location -	Cycle Master	MUG_LOCATION
Palm Print on File Indicator - 1 Alpha	Cycle Master	PLM
Date FP Taken - 8 Num	Cycle Master	DATE_FP_TAKEN
Date FP Received - 8 Num	Cycle Master	FPR
Local ID# - 9 Alpha/Num	Cycle Master	LOCAL_ID
Firearm Possession Indicator - 1 Alpha	Cycle Master	FIREARM_POS_IND
First Name - 10 Alpha	Cycle_Names (where OCN matches)	FNA
Last Name - 16 Alpha	Cycle_Names (where OCN matches)	LNA
Middle Name - 10 Alpha	Cycle_Names (where OCN matches)	MNA
Alias First Name - 10 Alpha	Ident_Names (where SID matches)	FNA
Alias Last Name - 16 Alpha	Ident_Names (where SID matches)	LNA
Alias Middle Name - 10 Alpha	Ident_Names (where SID matches)	MNA
DOB - 8 Num	Cycle_DOB (where OCN matches)	DOB
Alias DOB - 8 Num	Ident_DOB (where SID matches)	DOB
SSN - 8 Num	Cycle_SOC (where SID matches)	SOC
Alias SSN - 8 Num	Ident_SOC (where OCN matches)	SOC
MNU - 14 Alpha/Num/Special	Cycle_MNU (where OCN matches)	CATEGORY & NUMBER
SMT's - 10 Alpha/Num/Special	Cycle_SMT (where OCN matches)	SMT
Sex - 1 Alpha	Cycle_Master	SEX
Race - 1 Alpha	Cycle_Master	RAC
Height - 3 Num	Cycle_Master	HGT
Weight - 3 Num	Cycle_Master	WGT
Eye Color - 3 Alpha	Cycle_Master	EYE
Hair Color - 3 Alpha	Cycle_Master	HAI
Skin Tone - 3 Alpha	Cycle_Master	SKN
Residence Street - 25 Alpha/Num/Special	Cycle_Address (where OCN matches)	ADR_ST1
Residence City - 17 Alpha/Num/Special	Cycle_Address (where OCN matches)	CIT
Residence State - 2 Alpha	Cycle_Address (where OCN matches)	STA
Residence Zip - 9 Num	Cycle_Address (where OCN matches)	ZIP_CODE
Employer/School Name - 21 Alpha/Num/Special	Cycle_OCC (where OCN matches)	EMP_NAME
Employer/School Address - 17 Alpha/Num/Special	Cycle_OCC (where OCN matches)	ADR_ST1
Employer/School City - 15 Alpha/Special	Cycle_OCC (where OCN matches)	CIT
Employer/School State - 15 Alpha/Special	Cycle_OCC (where OCN matches)	STA

Library Query Response	Table	Field Name
OCN - 8 Alpha/Num	Cycle Master	OCN
Date of Arrest - 8 Num	Cycle Master	DOA
Arrest ORI - 9 Alpha/Num	Cycle Master	ORI
Arrest County - 3 Num	Cycle Master	ARREST_COUNTY
Subject First Name - 10 Alpha	Cycle_Names (where OCN matches)	FNA
Subject Last Name - 16 Alpha	Cycle_Names (where OCN matches)	LNA
Subject Middle Name - 10 Alpha	Cycle_Names (where OCN matches)	MNA
Subject DOB - 8 Num	Cycle_DOB (where OCN matches)	DOB
Subject SSN - 9 Num	Cycle_SOC (where SID matches)	SOC
Subject Sex - 1 Alpha	Cycle_Master	SEX
Subject Race - 1 Alpha	Cycle_Master	RAC
Subject OCA -	Cycle Master	OCA
Subject Local ID - 8 Alpha/Num	Cycle Master	OCA
Subject Local ID - 8 Alpha/Num	Arrest_Charges (where OCN matches)	WARRANT_NUM

Input Data	Table	Field
OCN - 8 Alpha/Num	Cycle_Master	OCN
Subject's First Name - 10 Alpha	Ident_Names	LNA (LSX Soundex)
Subject's Last Name - 16 Alpha (required)	Ident_Names	FNA (FSX Soundex)
Soundex Indicator - 1 Alpha		
Subject's Date of Birth - 8 Num	Ident_DOB	DOB
DOB Plus or Minus One Year Indicator - 1 Alpha		
Subject's SSN - 9 Num	Ident_SOC	SOC
Subject's Arrest County - 3 Num	Cycle_Master	Arrest_County
Subject's Date of Arrest - 8 Num	Cycle_Master	DOA
Subject's Date of Arrest (high date) - 8 Num		
Subject's Date of Offense - 8 Num	Arrest_Charges	DOO
Subject's Date of Offense (high date) - 8 Num		
Subject's OCA -	Cycle_Master	OCA
Subject's Local ID Number - 8 Alpha/Num	Cycle_Master	Local_ID
Subject's Warrant Number - 15 Alpha/Num	Arrest_Charges	Warrant_Num

## 3.4 Security

### 3.4.1 Application Security

The OCN Query web application utilizes the ADFS Security framework for authorization and authentication. This framework allows for security roles and permissions to be easily configured with minimal custom coding.

Access to the web-based user interface requires all authorized users to be registered in the ADFS claims table. Each user must be assigned a unique username, password, and role. This information is maintained by authorized system administrators.

The OCN Query login form requires users to enter their username and password to obtain access to the application. User authorization requires a web user to be assigned one of the following roles:

- Authorized OCN Query Users

### 3.4.2 Infrastructure Security

#### ➤ Database Security

SQL Authentication is used and the database is not exposed to internet clients.

#### ➤ Network Security

Network Security is handled by MSHP Network Staff.

## 4. Business Component (Process) Design

### 4.1 OCN Query Data Component

The OCN Query Data Component contains a set of classes to represent persistent data maintained within the OCN Query application database. The component includes a class for each entity (table) used by the application. These classes, in turn, include methods to get and set each field (column) of the underlying table, as well as other methods useful for navigating relationships within the data model. Instances of these classes represent individual rows within the database.

The primary responsibilities of the Data Component are as follows:

- Abstract interaction with the database
- Provide containers for moving persistent data through the application

It is important to note that the OCN Query Application has a read-only relationship with the database. No information in the database is modified or deleted by the OCN Query Application. In this regard the associated View accepts the query and passes the parameter to the corresponding Controller. The Controller interfaces with the underlying persistence provider to query the database and then pass the retrieved data to the view according to the associated Model.

As an example, suppose the application wishes to perform an OCN query against the database. This would be accomplished as follows:

- The application passes the OCN to be searched as a parameter to the FullResponse() method located in the Home Controller.

- The FullResponse() method creates an object according to the CycleModel and interfaces with the persistence provider to locate any records within the database that match the OCN that was passed in as a parameter.
- Once a record and all necessary fields are retrieved from the database according to the Data Model (CycleModel), the information is passed back to the client using the "FullResponse" View which in turn displays all corresponding fields according to the Data Model.

## 4.2 OCN Query Business Object Component

The OCN Query Business Object Component contains a set of classes which encapsulate the business rules and processing logic implemented within the OCN Query application. The classes included in this component loosely map to data entities managed by the application while the methods of the classes map to business workflows.

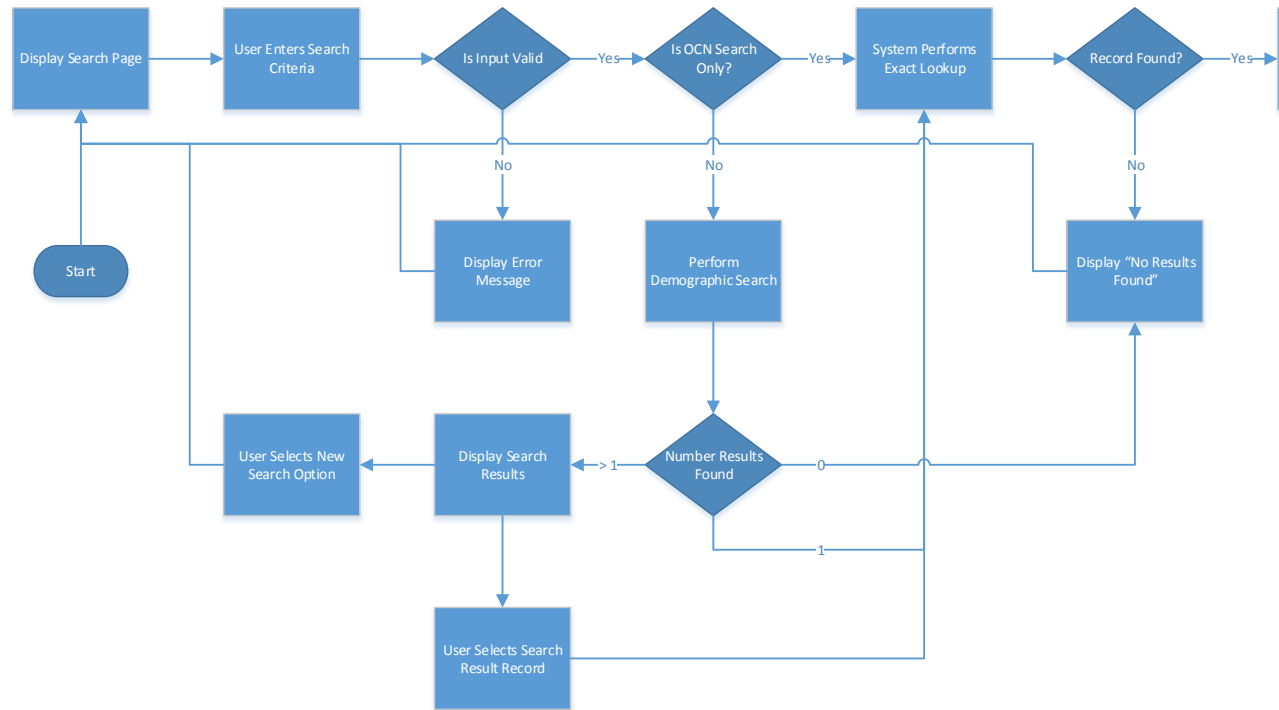
The primary responsibilities of the Business Object Component are as follows:

- Provide a uniform interface to OCN Query business logic
- Broker interaction between client components and the data component
- Enforce business rules
- Implement workflows

Following the example from the previous section, suppose a client component (i.e. Web Service Interface or Web Component) wishes to query an OCN currently stored in the database. This would be accomplished as follows:

- The client component calls the FullResponse() Action Result of the Home Controller, supplying the OCN of the record to be searched as a parameter.
- The OCN parameter is validated against the Data Model to ensure that the field is not null and that it passes other validation criteria (field length, type, valid characters, etc.)
- If validation errors occur, the Data Model notifies the Controller/View and the client component provides an appropriate error message. In this case, the search is not performed against the database.
- If the search passes validation then the HomeController uses the data component to search for the desired arrest and returns an OCN Object according to the Data Model (CycleModel). The fields of this instance are populated with the values from the database.
- The HomeController then passes the matching OCN Object back to the View which in turn displays the object according to the Data Model.

### 4.2.1 Component Workflow



### 4.2.2 Source Code Matrix

Class Name	Purpose
CycleModel Class	<ul style="list-style-type: none"> <li>The root of the business objects class hierarchy – all business objects inherit (either directly or indirectly) from this class.</li> <li>Contains the properties of an OCN object, to include all validation rules.</li> </ul>
HomeController Class	<ul style="list-style-type: none"> <li>Contains the logic for interacting with the database persistence layer for searches based on OCN only.</li> <li>Directs the client to display all corresponding views associated with an OCN only search.</li> </ul>
DemoController Class	<ul style="list-style-type: none"> <li>Contains the logic for interacting with the database persistence layer for searches based on Demographics (non-OCN Search).</li> <li>Directs the client to display all corresponding views associated with a search by demographics.</li> </ul>

## 5. External Data Exchange Specification

Interaction between OCN Query and external systems utilizes a standard XML message format. The following table lists the exchange format for each external data exchange handled by the OCN Query application:

GetResultsByOCN - User sends in OCN and respond with Full Response

GetResultsByDemo - User sends in Demographic Information then responds with a library response.

SearchError - User sends in incorrect information, replies with search error.

Transaction Type	Connection Method	Message Format
OCN Query Web Service Transactions		
Submit Query	Web Service	XML
Exact Match Response	Web Service	XML
Demographic Response	Web Service	XML

## 6. Audit and Logging Design

OCN Query logging ties in directly with an existing logging database the MSHP utilizes for logging. All inquiries and responses are logged.

## 7. User Interface Design


### 7.1 OCN Search

The OCN search screen allows users to conduct a search against the criminal history database by OCN. The form consists of only one field: OCN. This field allows a maximum of 8 characters.


After entering the OCN information, the user clicks the “Search” button at the bottom of the form to initiate the search.

The following diagram provides an example of the OCN Search screen:





Missouri State  
Highway Patrol



OCN Query Application

Query By: OCN Demographics Portal Home Log-Out

Authorized Personnel may use this application to query arrest data within the Missouri Computerized Criminal History System.  
This application is governed by CJIS Security Policy and should be used for criminal justice purposes only.

OCN Query

Enter an OCN below to query the Missouri Computerized Criminal History System for arrest data.

OCN:

Results of Search will Display Below:

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## 7.2 Full Response

Once the user clicks Submit the OCN is passed to the Home Controller which interfaces with the Data Model and database persistence layer to retrieve the matching OCN. The Full Response of the Search is then displayed, along with options to export the result in CSV and NIEM formats.

The following diagram provides an example of the Full Response:



Missouri State

# Highway Patrol



## OCN Query Application

Query By: OCN Demographics

Portal Home Log-Out

Authorized Personnel may use this application to query arrest data within the Missouri Computerized Criminal History System.  
This application is governed by CJIS Security Policy and should be used for criminal justice purposes only.

### OCN Query

Enter an OCN below to query the Missouri Computerized Criminal History System for arrest data.

OCN: B1111111

Search Reset

Results of Search will Display Below:

### Identification Data

OCN:	B1111111	SID:	MO12345678	FBI Number:	123UF198	Date of Birth:	1975-01-01
First Name:	Arrested	Last Name:	Man	Middle Name:	I	Miscellaneous Number:	123456
Social Security Number:	123456789	Sex:	M	Race:	W	Eye Color:	BR
Scar, Mark, or Tattoo:	TAT_L_ARM	Height:	510	Weight:	180		
Hair Color:	BR	Skin Tone:	LT				

### Residence and Employer Data

Residence Street Address:	123 Main Street	Residence City:	Jefferson City	Residence State:	MO	Residence Zip Code:	65109
Employer Name:	MSHP	Employer Street Address:	1510 East Elm Street	Employer City:	Jefferson City	Employer State:	MO

### Arrest Data

Date of Arrest:	2014-01-01	ORI:	MO0260000	Arrest County:	026	OCA:	123
Local ID:	456	Photo on File:	Y	Photo Location:	CJIS	Palm Print Available:	Y
Date Fingerprinted:	01/01/2014	Firearm Indicator:	Y				

### Charge Data

Date of Offense	Charge Code	Literal Description	Type	Class	Warrant Number
1/1/2014 12:00:00 AM	47420040	DWI	F	C	987654
1/1/2014 12:00:00 AM	47420040	DWI	F	C	987654
1/1/2014 12:00:00 AM	10001990	MURDER	F	A	1234567

### Supplemental Data

First Name	Last Name	Middle Name	Date of Birth	Social Security Number	Miscellaneous Number	Scars, Marks, Tatoos
Arrested	Alias	A	1/1/1976 12:00:00 AM	987654321	45366	78733
aliasname	aliasname					

Export to CSV

Export to NIEM

## 7.3 Demographic Search Screen

The Demographic search screen allows users to conduct a search against the criminal history database by an individual's demographic identifiers. The form consists of 14 fields with field lengths as follows:

- Subject's First Name - 10 Alpha (required)
- Subject's Last Name - 16 Alpha (required)
- Soundex Indicator - 1 Alpha
- Subject's Date of Birth - 8 Num
- DOB Plus or Minus One Year Indicator - 1 Alpha (conditional)
- Subject's SSN - 9 Num (conditional)
- Subject's Arrest County - 3 Num
- Subject's Date of Arrest - 8 Num (this would also serve as the low date if searching by arrest date range)
- Subject's Date of Arrest (high date) - 8 Num
- Subject's Date of Offense - 8 Num (this would also serve as the low date if searching by offense date range)
- Subject's Date of Offense (high date) - 8 Num
- Subject's OCA - 20 Alpha/Num
- Subject's Local ID Number - 8 Alpha/Num
- Subject's Warrant Number - 15 Alpha/Num

Please Note that First Name and Last Name are required fields. Meanwhile Date of Birth and SSN are conditional in that one or the other must be present for a search to be conducted. After entering the required information, the user clicks the “Search” button at the bottom of the form to initiate the search.

The following diagram provides an example of the Demographic Search screen:



Missouri State  
Highway Patrol



## OCN Query Application

Query By: OCN Demographics
Portal Home Log-Out

Authorized Personnel may use this application to query arrest data within the Missouri Computerized Criminal History System.  
This application is governed by CJIS Security Policy and should be used for criminal justice purposes only.

### Demographic Query

Enter Demographic information below to query the Missouri Computerized Criminal History System for arrest data.

You must enter all fields in \*RED You must enter at least one field in \*\*BLUE

*Last Name	<input type="text"/>	*First Name	<input type="text"/>	Soundex	<input type="text"/>	**Date of Birth	<input type="text"/>	DOB Exact?	<input type="text"/>
**Social Security Number	<input type="text"/>	Arrest County	<input type="text"/>	Date of Arrest	<input type="text"/>	Date of Arrest Range (High)	<input type="text"/>		
Date of Offense	<input type="text"/>	Date of Offense Range (High)	<input type="text"/>	OCA	<input type="text"/>	Local ID Number	<input type="text"/>	Warrant Number	<input type="text"/>
<input type="button" value="Search"/>									

Results of Search will Display Below:

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## 7.4 Library Response

Once the user clicks Submit the Demographic Data is passed to the Demo Controller which interfaces with the Data Model and database persistence layer to retrieve the matching OCN's. If only one OCN is returned then a Full Response (see 7.2) is returned. If more than one OCN is returned then a Library Response is displayed, along with options to view the Full Response for each result returned.

The following diagram provides an example of the Library Response:

Missouri State  
Highway Patrol

## OCN Query Application

Query By: OCN Demographics
Portal Home   Log-Out

Authorized Personnel may use this application to query arrest data within the Missouri Computerized Criminal History System.  
This application is governed by CJIS Security Policy and should be used for criminal justice purposes only.

### Demographic Query

Enter Demographic information below to query the Missouri Computerized Criminal History System for arrest data.

You must enter all fields in \*RED. You must enter at least one field in \*\*BLUE.

<b>*Last Name</b>	<input type="text"/>	<b>*First Name</b>	<input type="text"/>	<b>Soundex</b>	<input type="text"/>	<b>**Date of Birth</b>	<input type="text"/>	<b>DOB Exact?</b>	<input type="text"/>
<b>** Social Security Number</b>	<input type="text"/>	<b>Arrest County</b>	<input type="text"/>	<b>Date of Arrest</b>	<input type="text"/>	<b>Date of Arrest Range (High)</b>	<input type="text"/>		
<b>Date of Offense</b>	<input type="text"/>	<b>Date of Offense Range (High)</b>	<input type="text"/>	<b>OCA</b>	<input type="text"/>	<b>Local ID Number</b>	<input type="text"/>	<b>Warrant Number</b>	<input type="text"/>

Results of Search will Display Below:

#### Potential Match OCN: B1111111

<b>OCN:</b> B1111111 <b>First Name:</b> Arrested <b>Social Security Number:</b> 123456789 <b>Local ID:</b> 456	<b>Date of Arrest:</b> 2014-01-01 <b>Last Name:</b> Man <b>Sex:</b> M <b>Warrant Number:</b> 987654	<b>Arrest ORI:</b> MO0260000 <b>Middle Name:</b> I <b>Race:</b> W	<b>Arrest County:</b> 026 <b>Date of Birth:</b> 1975-01-01 <b>OCA:</b> 123
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#### Potential Match OCN: B2222222

<b>OCN:</b> B2222222 <b>First Name:</b> Arrested <b>Social Security Number:</b> 123456789 <b>Local ID:</b> 222	<b>Date of Arrest:</b> 2010-01-01 <b>Last Name:</b> Man <b>Sex:</b> M <b>Warrant Number:</b> 987654	<b>Arrest ORI:</b> MO0260100 <b>Middle Name:</b> I <b>Race:</b> W	<b>Arrest County:</b> 026 <b>Date of Birth:</b> 1975-01-01 <b>OCA:</b> 111
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## 8. Reports Design

### 8.1 OCN Query Summary Report

The OCN Query Summary report is used by CJIS Personnel to monitor the use of the OCN Query application for a given date range. To create the report, users must first enter a date range. Once the user clicks View Report a report is generated that lists the ORI's and User-ID's as well as a summary of the queries and responses spawned from the application during the reporting period selected. Fields included in the report include:

- User ORI
- Federation ID
- Queries Submitted
- Library Responses Received
- Full Responses Received
- CSV File Downloads
- NIEM Downloads

The following diagram provides an example of the OCN Query Summary Report:

Missouri State Highway Patrol OCN Query Statistics						
Report Period 9/1/2014 to 9/6/2014						
ORI	User ID	Queries Submitted	Library Responses	Full Responses	CSV Downloads	NIEM Downloads
MO026100A	DOEJ	28	18	10	6	8
MO039100A	SMITHK	12	8	4	4	0

## 9. Expected Benefits

### 9.1 Prosecutor Benefits

On average, 50% of all arrests referred to County Prosecutor's do not have an OCN included. Without an OCN, the Prosecutor cannot report the disposition of the charge filing/non-filing to the Missouri Computerized Criminal History System. How the Prosecutor handles situations such as these is largely county specific. Some counties are too busy to try to manually find an OCN. Instead, if a filing is being made, they refer the case on to the court anyway in the hopes that the Judge will issue an Order for the Defendant to be re-fingerprinted. Meanwhile, if the Prosecutor is declining to file charges, then the decline is never submitted to the Repository.

The availability of the OCN Query will allow Prosecutor's the option of either manually or programmatically searching for an OCN prior to referring to the Court or issuing the decline. As envisioned, Prosecutor's using the Karpel Case Management System will have the option of interfacing their systems with the OCN Query in an effort to automate the research of missing OCN's. Meanwhile, Prosecutors that do not utilize the Karpel Case Management System and do not have the funding to interface directly, will still have the ability to log-in via the web-portal to research missing OCN information.

It is important to consider the two benefits to using this system:

- The obvious benefit is the accurate and timely reporting of criminal history information to State and Federal criminal history systems.

- The secondary benefit, and perhaps largest benefit from the over-worked prosecutor perspective, is the ability to import arrest data directly into the Case Management system thus saving countless data entry man-hours.

## 9.2 Court Benefits

If the prosecutor does not have an OCN, but elects to report the charges to the court anyway, then it becomes the court's responsibility to try to find an OCN. This is currently done using one of two methods:

- The Court attempts to research the OCN by contacting the arresting agency; or
- Much more likely, the court issues an Order for Fingerprinting request, thereby requiring the defendant to be fingerprinted by local law-enforcement. The court charge is then reported on the new OCN.

If the court neglects to research the OCN or issue an order for fingerprinting, then once the case is disposed of, it will appear on the Court's associated error log. The Court error log contains all criminal history cases that should be reported to the Missouri Criminal History system, but can't be reported, due to a missing OCN (ie. no fingerprint to link the case to). It is up to each Court to research the records within their associated error log. Up until now, the research on these error logs have been limited due to the inability for Courts to search for OCN's in the Criminal History database. Obviously the OCN Query application now removes this limitation, thereby giving Courts the opportunity to reduce their error logs and thus establish these records within the Missouri Criminal History Repository. At present there are 205,828 records on the statewide error log that have not been transmitted to the repository due to a missing OCN. Courts may now begin researching and completing these record transmissions using the new OCN Query system.

## 9.3 State and National Benefits

Obviously the largest benefit of the OCN Query project is the increased completeness and accuracy of Missouri Criminal History Records at the State and National levels. Each and every day countless queries are conducted against the Missouri Criminal History system for both Criminal Justice and Non-Criminal Justice purposes. The accuracy of this data is paramount to officer safety and the background screenings of individuals serving in positions of trust. A recent snapshot of records at the Federal Level found that states had large variances in completeness of criminal history records. This variance ranged from a particular state that had a 100% completeness percentage down to states that had as low as 6% completeness. Missouri was found to be slightly above average with a criminal history completeness of 67% at the Federal Level. Initiatives like the OCN Query System will go a long way to raising that completeness percentage and ensuring that these records are available for the various purposes that they serve.

## 10. Lessons Learned

In 2008 the Missouri State Highway Patrol initiated the Missouri Criminal Justice Modernization Project (MCJMP). As part of this project, the MSHP began the implementation of a new Message Switch System, Criminal History System, Sex Offender Registration System, Record Management System, Computer Aided Dispatch System, and Mobile system. All systems were bid out to vendors to complete and the majority of code and development was of a proprietary nature. The MSHP quickly found out that all enhancements, tweaks, and code changes to these vendor based systems would require change requests and associated costs built up very quickly.

In an effort to remove some of these costs, the decision was made to build applications like the OCN Query system in-house. In the case of the OCN Query Application, this was one of the first systems built using the .NET Framework. Due to this, instead of contracting with a vendor to build the system, the MSHP instead contracted a consultant to provide guidance on best practices using .NET and NIEM. In this way, the MSHP achieved two goals:

- It built the system in-house, so that all future code changes/enhancements are not tied to a specific vendor and thus associated costs are kept to a minimum; and
- Since the consultant was used to train on best practices, MSHP IT personnel gained experience and knowledge that would not otherwise have been gained if a contractor had been hired to build the entire system.

The knowledge gained from this project can thus be replicated within other similar projects and the long-term benefit is immeasurable.

A very important additional lesson learned was the importance of leveraging the National Information Exchange Model (NIEM) when designing system interfaces. This grant project provided NIEM training from both the National Center for State Courts and SEARCH as well as Information Resource Group (IRG) and Analysts International Corporation (AIC). While MSHP IT staff were familiar with the basics of NIEM, the training received as part of this grant has greatly increased their knowledge of the benefits to NIEM which include:

- Reducing the total cost of ownership of exchanging information amongst organizations.
- The many tools and methodologies that NIEM has available to implement information exchanges.
- The benefits of NIEM's common vocabulary, definitions, terms, and formats that are not dependent on an agency's particular system.

Lastly, and perhaps most important for the MSHP, was the lesson learned on the importance of system documentation to ensure that all stakeholders understand the requirements and design of the system. Prior to this project, the MSHP, admittedly, did a poor job of documenting each phase of a system. Due to this, past projects have seen missed requirements and design problems that could easily have been caught sooner had the proper documentation been compiled.

Furthermore, as staff turnover occurs, new employees have not had proper documentation to rely on to get up to speed. With the assistance of the National Center for State Courts, SEARCH, Information Resource Group, and Analysts International Corporation, the MSHP has now learned how to correctly document each phase of the project. With the OCN Query Project this documentation took on several forms to include:



- A assessment of MSHP IT staff to determine strengths and weaknesses in an effort to determine what part of the project each staff member should focus on in order to increase staff experience while at the same time raising efficiency;
- A detailed Requirements Document reviewed by both IT and Business personnel to ensure that all staff had a clear idea of the goals of the project;
- A complete Design Document to ensure that all parts of the system are being built with the proper requirements in mind;
- Information Exchange Package Documentation (IEPD) to detail how the NIEM interface will function;
- A Web Service Specification to provide to stakeholders that wish to interface with the OCN Query System.

The MSHP has now made it a policy to create the above documentation for all future IT projects to ensure both the efficiency of the work being done as well as the tracking of all system requirements.

## 11. Conclusion

The MSHP has been very happy with the outcome of the OCN Query Project. In particular, the MSHP would like to thank the Bureau of Justice Assistance and the National Center for State Courts for making this project possible. The benefits of this system implementation, as outlined in this report, are numerous and far reaching. The completeness of Criminal History Information affects everyone; from the police officer performing a traffic stop, to the background screening of a teacher assigned to a 1st grade classroom, the importance of accurate arrest, prosecutor, and court information is clear. This project will, without a doubt, be a main contributor to closing the gap in Missouri Criminal History Information contained at both the State and National levels.