

State of Kansas

Kansas Bureau of Investigation

Kansas Department of Transportation

**Integration of Kansas DUI Tracking System Report and Police Impaired Drivers (RAPID)**

<Contract Number 10713, Group 8>

Electronic Court Disposition/Filing Information Exchange Package Description Document

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1/24/2015

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# Table of Contents

[Table of Contents 2](#_Toc368435780)

[Introduction 1](#_Toc368435781)

[Methodology 2](#_Toc368435782)

[Development Process Description 2](#_Toc368435783)

[Exchange Model 3](#_Toc368435784)

[Mapping to NIEM 2.1 3](#_Toc368435785)

[Information Exchange Package Documentation 3](#_Toc368435786)

[Deliverables 3](#_Toc368435787)

[Data Exchange Model 4](#_Toc368435788)

[Physical Data Model 4](#_Toc368435789)

[NIEM 2.1 Schema Set 4](#_Toc368435790)

[Data Exchange Model 5](#_Toc368435791)

## List of Figures

[Figure 1: IEPD Development Lifecycle 2](#_Toc368436015)

[Figure 2: Disposition Report Filing Object Model 6](#_Toc368436016)

# Introduction

This document provides context to describe the Kansas Bureau of Investigation (KBI) Electronic Disposition/Filing Information Exchange Package Document (IEPD) materials. It is designed to assist implementation personnel in understanding the environment, parties, key assumptions, and methodologies employed in the creation of the IEPD artifacts. The KBI Electronic Disposition/Filing IEPD is designed to support the effective sharing of disposition filing information in the state of Kansas.

This Interface Implementation Description Document describes the interface between individual court systems and the Filings and Dispositions Web Service.

# Methodology

## Development Process Description

A standard NIEM Exchange Model, Mapping and IEPD was developed.

A robust, yet flexible methodology exists for creating and refining IEPDs; graphically illustrated in Figure 3.4. This process is not unlike most system development life-cycles where requirements are defined, analysis and design performed, and development and testing executed. The biggest difference with an IEPD development process is the end result is a series of artifacts that can be used in the ultimate system interface development by subsequent implementers. It is about building a standard which enables standardized communication and general reuse.

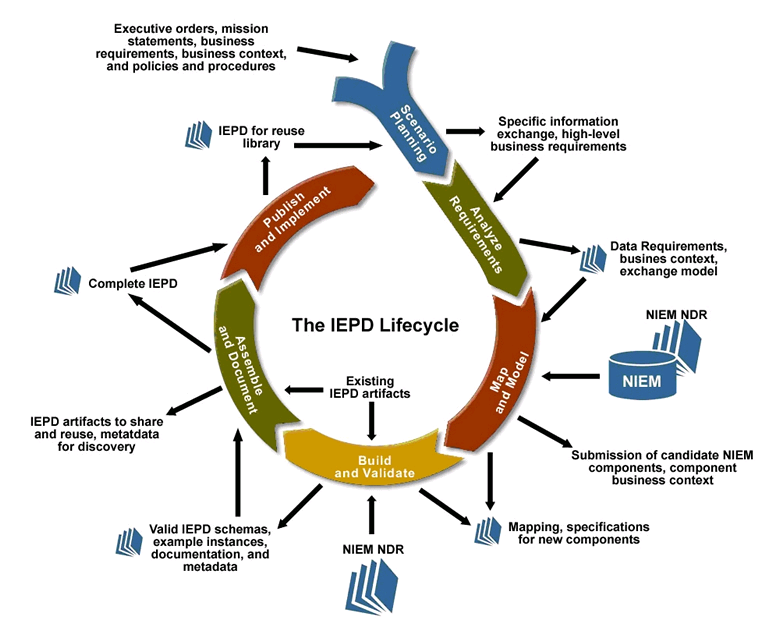


Figure : IEPD Development Lifecycle

## Exchange Model

The exchange modeling activities developed the desired exchange document information content. The model was populated in a manner that was cognizant of existing NIEM structures so as to facilitate subsequent steps in building NIEM-conformant schemas.

UML Class (Static Structure) Diagrams were created in ArgoUML[1] and used to reflect desired exchange content. In addition to showing object classes and properties, this technique permitted display of “is-a” specialization relationships and “has-a” associations.

The Model has one diagram for Disposition Report Filing.

## Mapping to NIEM 2.1

The team used the want list feature of the NIEM Schema Subset Generation Tool to map components of the Exchange Model to NIEM types and elements. The mapping worksheets provided a comprehensive enumeration of all Exchange Model properties and identified the corresponding NIEM 2.1 path. They also recorded the context in the Exchange Model where each property occurred.

A mapping spreadsheet was also created based on the Disposition Report Filing Exchange Models.

## Information Exchange Package Documentation

The team then created a set of NIEM-conformant XML schemas that implemented the document structure identified in the Mapping for the Disposition Report Filing exchange.

These schema set for each type are comprised of:

* A **subset schema**, extracting from the full NIEM namespaces just those types and elements needed for the Disposition Report Filing IEPs;
* An **extension schema**, defining an IEPD-specific namespace to hold types and elements needed for the Disposition Report Filing IEPs that are not currently defined in NIEM;

A set of schema-valid sample XML instances to illustrate the schema’s use for each exchange was also created for the Disposition Report Filing exchange. These samples were utilized for the following additional purposes:

* A mechanism to help ensure the integrity of the schema set;
* Development documentation specifying precisely what an instance should contain;
* Inputs to XML-object binding tools for generating instance manipulation source code;
* A source of the message structures for Web Services definitions.

The set also included the subset schema package produced by the Office of Justice Programs Schema Subset Generation Tool.

# Deliverables

Below are the items that were created to support the Disposition Report Filing exchange.

## Data Exchange Model

The data exchange model is the set of UML class diagrams representing the relationships between all entities represented in an exchange.

### Object Model

The object model is made up of the set of UML diagrams identifying all major and minor components or complex type elements, and their associations and roles that can be used to represent any form of Disposition Report Filing.

### Object and Attribute Mapping

The mapping is an Excel workbook that provides the comprehensive enumeration of all Exchange Model properties and identified the corresponding NIEM 2.1 path. It also records the context in the Exchange Model where each property occurs and highlights those items requiring extension of the NIEM.

## NIEM 2.1 Schema Set

The following schema sets were established to support the request and request response exchanges specified during the engagement (and described in detail below). These schemas reflect the desired content of the exchange messages and are not intended to address any message transport requirements.

### Exchange Schema

Root level schema specifying the Disposition Report Filing exchange.

### Extension Schema

This schema describes the NIEM 2.1 extensions necessary to meet the requirements specified by the logical exchange model for the Disposition Report Filing exchange.

### NIEM Want list

The want list is a list NIEM 2.1 Types, Properties and Structures which was generated using the NIEM subset schema generation tool. Items were selected from the Logical to Physical object and attribute mapping deliverable.

### Subset Schema

The **Subset Schemas** represent the specific properties and types provided by NIEM 2.1 and used for the precursor exchange specification.

### Example XML Instances

Practical realizations of valid XML instances representing each type of major request and response involved in a precursor exchange.

## Data Exchange Model

The following represents the business model and process rules for exchanging information to execute a precursor Request and Response. These artifacts were guided with the information received during the exchange modeling engagement.

### High-Level Context Model

The diagram below provide a contextual model of the transactions and messages utilized for exchanging information to execute a Disposition Report Filing exchange. These artifacts were developed based on the information from the Filings & Disposition Design document.

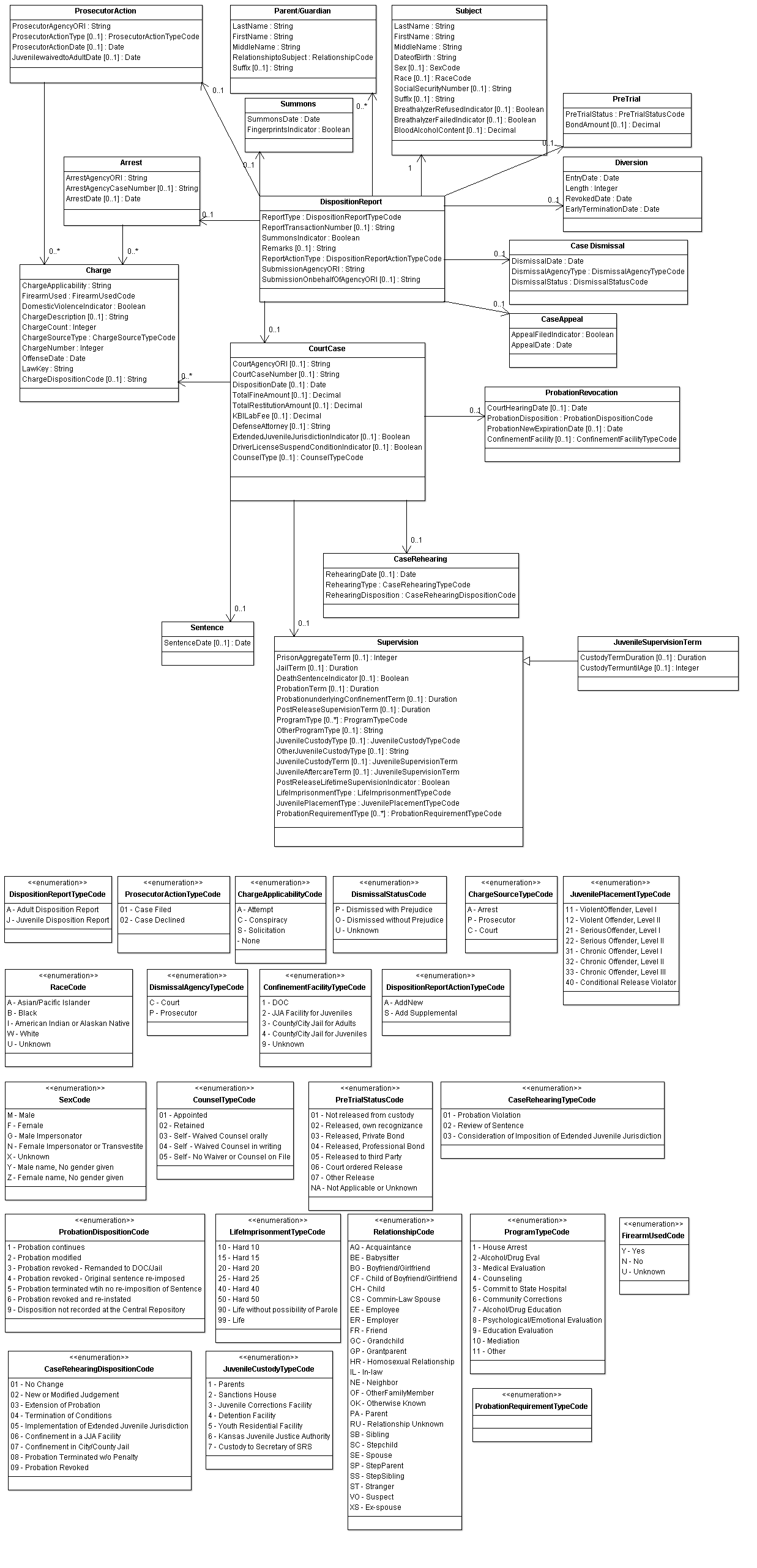


Figure : Disposition Report Filing Object Model