



**Homeland
Security**



NIEM Biometrics Domain Management Plan

February 2021

Approval

The NIEM Biometrics Domain: Management Plan was signed by the NIEM Biometrics Domain Executive Committee in February 2021.

A copy of this approved document is on file with DHS Office of Biometric Identity Management (OBIM).

Record of Changes

No.	Date	Reference: Page, Table, Figure, Paragraph	A = Add. M = Mod. D = Del.	Change Description
1	7-12-2018	All	A	Initial version approval
2	08-02-2020	All	M	Updated PMO to NMO, NIEM Tools, NIEM Release details.

Table of Contents

1	Introduction.....	1
1.1	Overview.....	1
1.2	Scope.....	1
1.3	Audience	1
2	Management and Operations of the Domain.....	2
2.1	Operational Support.....	2
2.2	Data Dictionary	3
2.3	Component Mapping Template.....	3
2.4	NIEM Harmonization and Reconciliation	4
2.5	Tier Two/Tier Three Technical Support and NIEM Technical Reporting	6
3	References.....	6
Appendix A	Glossary of Abbreviations, Acronyms, and Initialisms.....	6

List of Figures

Figure 1: Model Harmonization	5
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1 Introduction

1.1 Overview

The Office of Biometric Identity Management (OBIM) serves as the lead entity for biometric identity management services within the U.S. Department of Homeland Security (DHS). OBIM provides enterprise-level biometric identity information to DHS and its mission partners. It operates and maintains the Automated Biometric Identification System (IDENT), and provides identity services expertise as a service provider for customers across the Department, at other Federal agencies, in state and local law enforcement, and overseas. OBIM is also focused on improving biometric sharing in support of national security and public safety. By matching, storing, sharing, and analyzing biometric data, OBIM provides partners on the front lines of homeland security with rapid, accurate, and secure identification.

The National Information Exchange Model (NIEM) Biometrics Domain is a partnership of the U.S. Department of Justice (DOJ), Department of Defense (DoD), and DHS. It is designed to develop, disseminate, and support enterprise-wide information sharing standards and processes, providing a framework enabling communities of interest throughout the nation to collaborate and share critical information effectively. NIEM enables information sharing across all levels of government, including Federal, state, local, and tribal governments. OBIM, as the NIEM Biometrics Domain (NBD) steward, is responsible for the domain's model content, governance, and maintenance.

1.2 Scope

OBIM, in the stewardship role, is responsible for establishing a Biometrics Domain Management Plan for managing a common vocabulary of reusable and repeatable data terms, definitions, and processes to facilitate information exchanges between communities of interest (COI).

The Biometrics Domain Management Plan describes the domain management activities. These include the creation and maintenance of a common data dictionary and component mapping templates (CMT) for the Biometrics Domain, participation in all NIEM harmonization and reconciliation activities, recommendations for external data standardization initiatives, identification of external data requirements, and technical support for domain-specific issues.

Domains work collaboratively to identify areas of overlapping interest, known as the harmonization process. As domain stakeholders develop and implement NIEM-based exchanges, they provide new or updated information exchange requirements to the domain steward, who takes the new contents and incorporates them into the NIEM domain. Content updates can happen at any time, and they are incorporated into the next NIEM release as they are received for reconciliation and official publication.

1.3 Audience

This document's intended audience comprises the NIEM Biometrics community, which includes Federal, state, local, tribal, and private organizations and the NIEM Business Architecture Committee (NBAC).

2 Management and Operations of the Domain

A *domain* refers to a business enterprise that broadly reflects the agencies, units of government, operational functions, services, and information systems which are organized or affiliated to meet common objectives. NIEM domains are organized to facilitate governance, and each has some measure of persistency. Each traditionally includes a cohesive group of data stewards who are SMEs, have some level of authority within the domains they represent, and participate in the processes related to harmonizing conflicts and resolving data component ambiguities.

Domains are expected to:

- Provide content to NIEM
- Provide domain subject matter expertise to support content development
- Have existing COIs or the ability to enroll or create representative and authoritative COIs
- Possess the ability to perform outreach to relevant COIs
- Support their own governance
- Participate in NIEM governance as appropriate
- Maintain strategic alignment within the scope of NIEM
- Agree to the principles and practices of NIEM (including conformance to NIEM Naming and Design Rules (NDR))
- Maintain alignment with the NIEM taxonomy
- Authoritatively support internal and external harmonization objectives

2.1 Operational Support

Domain stewardship includes providing day to day oversight of the Biometrics Domain. This includes all aspects of NIEM operational support and any software/hardware modifications for the Biometrics Domain in NIEM.Gov, including all planned and unplanned releases and upgrades.

The Biometrics Domain provides NIEM support required to facilitate successful development, maintenance and testing as related to IDENT Exchange Messaging (IXM) and the IXM schema, ensuring that OBIM systems and applications are prepared to respond to data messaging or data interoperability standards developed for the domain. This includes NIEM conformance support for IXM and recommendations for changes to IXM services and data structures to support OBIM interoperability and data sharing with national and international partners.

OBIM, through the Biometrics Domain stewardship, directly supported National Institute of Standards and Technology (NIST) in the 2013 and 2015 American National Standards Institute (ANSI)/NIST-Information Technology Laboratory (ITL) Standard updates. The ANSI/NIST-ITL XML Working Group, led by the DOJ, provided the basis for the NIEM 4.0.1 release to the NIEM Biometrics Domain and to Georgia Tech Research Institute (GTRI), the lead developer supporting the NMO who conducts required pre-release validation. At present, the NBD has one standing working group for these efforts, the NIEM Biometrics Domain Working Group (NBDWG).

The Biometrics Domain utilizes the Schema Subset Generation Tool (SSGT) for operational analysis and development support. This is the preferred tool to generate schema subsets from the NIEM data model without editing the model schema itself. All dependencies are automatically added to ensure that the resulting schema subset is valid. This tool is used to support the Information Exchange Package Documentation (IEPD) life cycle.

Additional operational support activities include:

- Participating in all required NIEM activities, including the monthly NBAC meeting, NIEM Face2Face, and tiger teams
- Ongoing outreach via the NIEM Biometrics Facilitator regarding NIEM releases and events
- Facilitating NBAC Annual Report working sessions upon request
- Developing the Biometrics Domain COI communications related to the release of NIEM Biometrics Domain incremental schemas, and highlighting the collaborative nature of National Institute of Standards and Technology (NIST), the NBD, and OBIM
- Supporting the NIEM Management Office (NMO) and NBAC's domain requests as the Biometrics Domain Steward
- Monitoring of the NIEM Biometrics Facilitator account

2.2 Data Dictionary

The NIEM Data Dictionary is a repository of agreed-upon terms, definitions, relationships, and formats of core and domain concepts represented independent of how information is stored in individual systems. It is used to search and identify specific terminology for constructing schemas for IEPDs, and during the data harmonization process when the NBAC and NTAC are reviewing COI proposal packages for integration of data components into NIEM. The NIEM Biometrics Domain Data Dictionary is updated with each NIEM Biometrics Domain release, and is most often used in the Map and Model phase of the IEPD life cycle. It provides:

- Unambiguous identification of classes and properties, and their relations
- Commonly accepted terminology and definitions based on accepted sources; i.e., ITL/ANSI standards
- Hierarchies of concepts enabling users to characterize their data appropriately
- Relevant conditions and constraints on possible values of characteristics
- Technical representations of concepts, units and data types, and their identification
- Standard definitions of data elements, their meanings, and allowable values
- Details about each attribute of a business concept

As part of the domain management support, periodic updates will be made to data dictionaries, including the NBD Data Dictionary and the IXM Data Dictionary. Some of the activities that would likely require modifications to the data dictionaries are:

- NIEM incremental releases put forth by the NBDWG
- New biometric modality type inclusions adhering to the ITL standard
- Resolution of schema alignment issues related to updated code lists
- IXM review and NIEM alignment
- Review of IXM schema and identification of elements for possible inclusion in NIEM
- Review of the IXM Technical Specification Update to ensure the service catalog, capability, schema, technical specification, and NIEM IEPDs are updated when additions or revisions are made to the IXM schema

2.3 Component Mapping Template

The Component Mapping Template (CMT) is a workbook COIs use to facilitate and document the mapping of their data component requirements for a particular business exchange or family

of exchanges to data components currently resident in NIEM. It identifies and characterizes similarities and differences between NIEM and the COIs' data component requirements, and facilitates conformity to the NIEM NDR. The data component mapping is one artifact required for an IEPD, and used in the Map and Model phase of the IEPD life cycle. The CMT may be used as templates or structures for defining the biometric-related specific data collections for various system components such as catalogues, databases, and master data repositories. Such consistent data collections are indispensable for data integrity and efficient management of domain data, including data sharing.

A responsibility of domain management is to develop and update the CMT for the Biometrics Domain, which conforms to the NIEM NDR maintained by the NMO and available through www.NIEM.gov.

2.4 NIEM Harmonization and Reconciliation

NIEM Data Harmonization is a process for modeling, adding, and integrating new data components in ways that minimize differences, remove duplication, resolve conflicts, reduce the degree of variation, and achieve consistency across all existing components. Harmonization seeks to bring new content into NIEM, while reestablishing or maintaining standardization and uniformity across all parts of the data model under the NDR.

Harmonization ensures that changes to NIEM preserve or improve the model's internal consistency and integrity in that:

- NIEM represents each business concept in one and only one place in the model
- Each component represents a single concept with a clear, unambiguous definition
- The use of associations, specializations, roles, and augmentations is applied consistently and uniformly across components
- It is an iterative process with constant improvement in the model's integrity, improving the model's usability for IEPD designers by reducing ambiguity, imprecision, and duplication, while allowing NIEM to scale upwards by providing an orderly and disciplined process for incorporating new content

As shown in **Figure 1: Model Harmonization**, harmonization within the data model maturity process requires collaborative governance between NIEM COIs and the NBAC. The NBAC and NIEM COIs work together to determine the most suitable option when semantic conflict or ambiguity occurs around a data component.

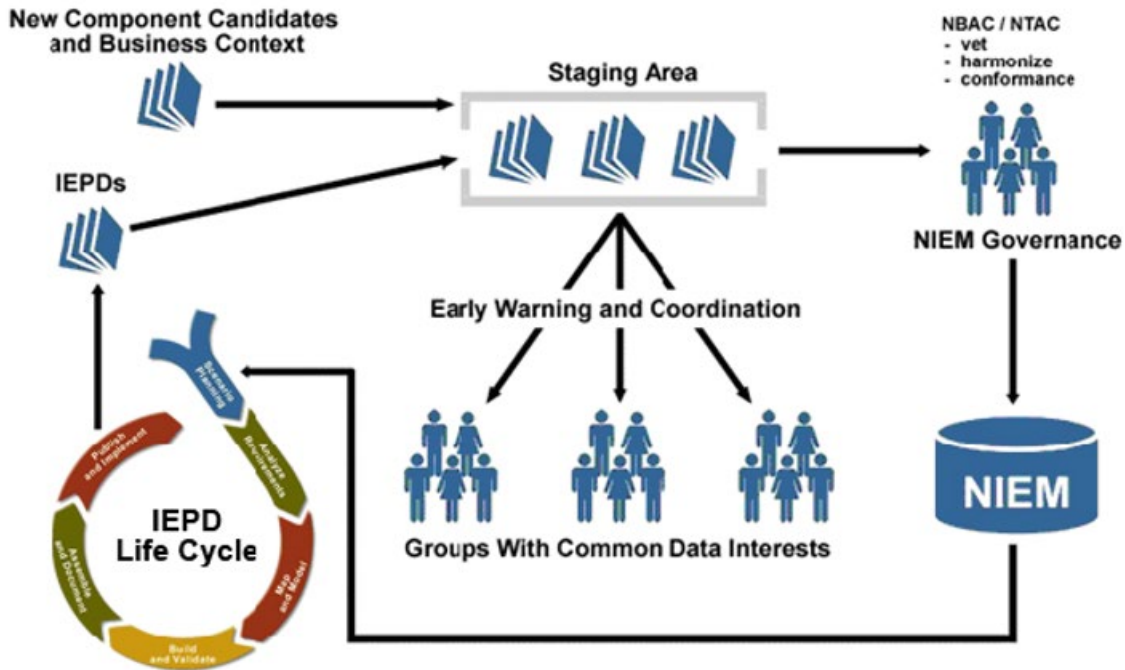


Figure 1: Model Harmonization

The NIEM Biometrics Domain Executive Committee (NBDEC) comprising of the Domain Chair, two Co-Chairs, and the Ombudsman participates in the NBAC meetings and supports domain reconciliation and cross-domain harmonization, resulting in future NIEM releases (both major and minor) as needed.

Specific harmonization activities may include:

- Participating as a canvasee in the ANSI/NIST-ITL revision process to assist with the adaptation of major stakeholder requirements to a NIEM based representation
- Providing technical assistance relating to requests by the DHS Information Sharing and Services Office (IS2O)
- Updating the DoD EBTS Code List changes if they impact the NBD schema relative to planned updates for ITL code list revision alignment and supporting the DoD EBTS Development Team in general with ongoing NIEM alignment analysis
- Conducting final review on the NBD schema package for submission to the Georgia Tech Research Institute (GTRI) who supports the NMO for required pre-release validation
- Updating the GTRI with new issues for code list resolution prior to submission of new schema packages
- Participating in Architecture Review Board (ARB) collaboration meetings to facilitate integration of NIEM support functions into current and future architectures
- Performing schema package validation utilizing the Conformance Testing Assistant (ConTesA)
- Engaging with OBIM to review ongoing alignment exercises in the context of coordinated IXM releases of the NBD schema

2.5 Tier Two/Tier Three Technical Support and NIEM Technical Reporting

The Biometrics Domain provides technical support to assist implementers and developers for domain-specific issues related to NIEM and IEPD development. Prior to October 2018 when the NIEM community switched to GitHub for the NIEM 4.1 release, they reported on NIEM technical issues using the Issues Tracking Tool, the NIEM Configuration Control Tool (NCCT) (<https://tools.niem.gov/ncct/>) provided by the NMO, and the NIEM helpdesk (<https://www.niem.gov/contact-us>). NCCT was the primary tool used for inserting and tracking technical and business issues with the NIEM data model, and helped the NMO in prioritizing input from the stakeholder community. Currently, GitHub is serving that purpose.

The Biometrics Domain submits all formal comments regarding technical or policy issues with its domain through GitHub for resolution tracking and auditing. Use of GitHub provides clear traceability and accountability for change management of NIEM data components and associated releases through the governance processes.

3 References

- Establishing Domain Governance: <https://www.niem.gov/communities/domain-governance> NIEM High Level Version Architecture (HLVA), Version 3.0. Available at: <https://reference.niem.gov/niem/specification/high-level-version-architecture/3.0/>
- NIEM Conformance, Version 3.0. Available at: <https://reference.niem.gov/niem/specification/conformance/3.0/>
- NIEM Concept of Operations available at: <https://reference.niem.gov/niem/guidance/concept-of-operations/0.5/>
- NIEM User Guide available at: <https://reference.niem.gov/niem/guidance/user-guide/vol1/>

Appendix A Glossary of Abbreviations, Acronyms, and Initialisms

ANSI	American National Standards Institute
CMT	Component Mapping Templates
COI	Community of Interest
ConTesA	Conformance Testing Assistant
DHS	Department of Homeland Security
DoD	Department of Defense
DOJ	Department of Justice
ESC	Executive Steering Committee
GTRI	Georgia Tech Research Institute
HLVA	High Level Version Architecture
IDENT	Automated Biometric Identification System

IEPD	Information Exchange Package Documentation
IS2O	Information Sharing and Services Office
ITL	Information Technology Laboratory
IXM	IDENT Exchange Messaging
NBAC	NIEM Business Architecture Committee
NBD	NIEM Biometrics Domain
NBDEC	NIEM Biometrics Domain Executive Committee
NBDWG	NIEM Biometrics Domain Working Group
NCCT	NIEM Configuration Control Tool
NDR	Naming and Design Rules
NIEM	National Information Exchange Model
NIST	National Institute of Standards and Technology
NMO	NIEM Management Office
NTAC	NIEM Technical Architecture Committee
OBIM	Office of Biometric Identity Management
SSGT	Schema Subset Generation Tool
W3C	World Wide Web Consortium
XML	Extensible Markup Language
XSD	XML Schema Definition