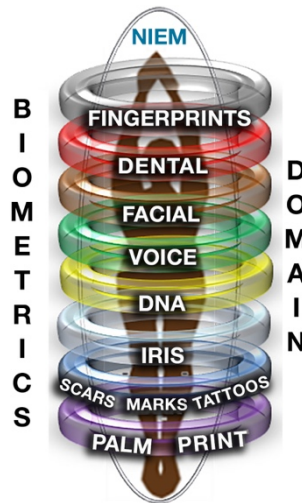


Editor's Note

Welcome to your National Information Exchange Model (NIEM) Biometrics Domain newsletter. This publication provides Domain members with situational awareness of the latest features and related news of the Biometrics Domain, and enhances the exchange of intelligence and information across the Domains. Domain members represent the full range of operations dealing with the gathering, analysis, fusion, and dissemination of biometrics intelligence. Our readers represent a broad audience of decision makers, stakeholders, and practitioners of the NIEM Biometrics Domain. This newsletter presents notable changes and current work in the Biometrics Domain. This specific issue covers topics such as maturing the NIEM Biometrics Voice data model, NIEM 5.0 updates, DOJ FBI EBTS updates, information on building NIEM exchanges using the SSGT tool, NIEM 5.1 release updates and planning, NBD DNA update on peak height format, NIEM 15 year anniversary, and ANSI/NIST-ITL guidance for contactless biometrics.



About the NIEM Biometrics Domain

The NIEM Biometrics Domain (NBD) is a data model of agreed upon terms, definitions, and formats. It supports information sharing and promotes interoperability between mission-based organizations engaged in activities such as homeland security, national defense, border management, immigration benefits, and global law enforcement through the joint development and alignment of Extensible Markup Language (XML) Biometric Standards. The NBD was launched in July 2012 and functions under the stewardship of the Office of Biometric Identity Management (OBIM) within the Department of Homeland Security (DHS). OBIM transitioned to the DHS Management Directorate after passage of the Cybersecurity and Infrastructure Security

Visit the NIEM Biometrics Domain
Community Online [here!](#)



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The NIEM Biometrics Domain Executive
Committee (NBDEC) includes:

Chair: John Boyd (OBIM)

Co-Chair: Jennifer Stathakis (DOJ/FBI)

Co-Chair: William Graves (DoD)

Ombudsman: Diane Stephens (NIST)

NIEM 5.0 Release

The NIEM 5.0 major release is available at: <https://release.niem.gov/niem/5.0/niem-5.0.rel.zip>. The contents of NIEM 5.0 can be searched using [Movement](#) which provides a user friendly way to build JavaScript Object Notation (JSON) Schemas in support of exchanges. NIEM 5.0 and the schema subsets can be reviewed with the NIEM [Schema Subset Generation Tool](#) (SSGT) to build IEPDs. As a major release, changes may include any namespaces, including Core, as well as changes to the NIEM architecture reflected in the structure and layout of the schemas. It also conforms to the ReferenceSchemaDocument (REF) target of the NIEM Naming and Design Rules (NDR) Specification, version 5.0. Attached for additional information along with the newsletter is the feature story that the NIEM Management Office (NMO) prepared regarding the NIEM 5.0 major release.

Maturing Voice Data Model for NIEM Biometrics at OBIM

The NIEM Biometrics Domain Working Group (NBDWG) lead at OBIM, Ms. Tara Etemadi, is holding bi-weekly biometrics standards meetings to mature the Human Language Technology (HLT) / Voice data model for the NIEM Biometrics domain. These discussions will include representatives from DHS, DoD, DOJ, NIST, the Project Team, and HLT Subject Matter Experts (SMEs).

The first meeting to advance voice standards conformant to NIEM and to support the development of elements and services in Identity Exchange Messaging (IXM) for the OBIM HLT prototype occurred Wednesday, February 17th.

The team is always on the lookout for HLT / Voice SMEs to join the standards discussions. If anyone knows of any SMEs who have implemented or are implementing HLT / Voice as a biometric modality, please let the NBD team know so they can invite these SMEs to participate in this collaboration effort.

The goal for OBIM's customer, the United States Citizenship and Immigration Services (USCIS), is to use voice as a biometric modality to improve speaker verification of those contacting USCIS prior to releasing any case information.

We welcome participation, as NIEM's success relies on an active community.

NIEM Release 5.1

NIEM publishes annual releases on a three-year cycle. A major release year will be followed by 2 minor release years. The NIEM 5.1 release is under development. Major domain content submissions are due now and Alpha 1 is planned for March 2021. The development of the 5.1 minor release will occur during 2021 and is expected to be published in fall 2021. The NBAC is going to initiate the NIEM Harmonization Working Group meetings by the end of January to address issues preparing for the NIEM 5.1 minor release. Previous releases and the status of the draft release, instructions, and links are at: <https://niem.github.io/niem-releases>.

NIEM 5.1 Release – NBD Updates

The NBDEC collaborated with SMEs from the biometrics community and OBIM's DNA Store Match Share (SMS) project team during the NBDWG meetings that ended in December 2020. The purpose was to mature the NIEM DNA Data Model, which is being implemented by the SMS project. The team identified approximately 60 new DNA attributes and agreed on modifications to existing DNA attributes currently available in the NBD model. The NBDEC will work with the NIEM Harmonization Working Group when it begins the NIEM 5.1 Alpha Harmonization meetings around the beginning of March 2021. The goal is to reflect NIEM Biometrics DNA changes in the NBD data model as a part of the NIEM 5.1 minor release. OBIM has begun the process of maturing HLT-related voice attributes available in NIEM. Consensus achieved between the SMEs, NBDWG, and the HLT project team on any new or updated attributes may be reflected in the

NIEM 5.1 Release Planning

The updated NIEM 5.1 release schedule:

Major Inputs Due:

- Alpha 1: Mar 2021
- Beta 1: June 2021
- Release Candidate 1: Aug 2021
- Release: Fall 2021

DOJ FBI NGI Update

The Department of Justice (DOJ) Federal Bureau of Investigation (FBI) division that manages the national database of fingerprints recently implemented the Next Generation Identification (NGI) Iris Service. The new service went live on September 29, 2020. It gives the FBI and partner agencies the ability to capture, catalog, and make rapid comparisons of iris images with a high rate of accuracy.

The new service can capture a subject's irises in seconds using a near-infrared camera. The FBI hopes law enforcement agencies will adopt the technology and incorporate it into their existing biometric processes, such as police department booking stations or jail intakes and releases. The Bureau's NGI fingerprint database contains more than 70 million prints of criminal subjects and more than 30 million civil fingerprints from background checks.

The Iris Service is the latest addition to the Bureau's NGI System, which is the world's largest and most efficient electronic repository of biometric and criminal information. In addition to repositories for irises and fingerprints, NGI includes 30 million criminal mugshots that law enforcement partners can search against. As of today, the iris image repository contains 1.38 million enrollments submitted from Federal, State, and local databases after they were collected during legal proceedings.

NBAC Monthly Teleconference:

- Feb 25, 2021, 1:00pm – 2:00pm
- Mar 25, 2021, 1:00pm – 2:00pm

Participate in the NBD!

For more information or to join our working groups, contact us at:

OBIMFuturesIdentityNIEM@obim.dhs.gov

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NIEM SSGT

The SSGT enables exchange schema developers to search and explore the content of the NIEM model. Additionally, users have the option of building XML schema subsets of a NIEM release for use in NIEM XML exchanges. Based on the list of components selected by the user for the subset, the tool will calculate dependencies and generate a valid set of schemas that are a subset of a release for download as a zip file.

Features of SSGT include the ability to do the following:

- Search and explore the content of NIEM
- Build XML schema subsets of a release
- Automate management of component dependencies
- Customize cardinality and nillable values
- Multirelease support
- Use an API for selecting NIEM subset components (wantlist)

A NIEM subset will contain only the user-selected elements and types from a release, and it also includes any of the required dependencies. The subset will likely be much smaller than the corresponding full NIEM release.

Click [here](#) to access SSGT online to extract the NIEM elements necessary to build exchanges to support your interoperability needs.



NIEM is celebrating its fifteenth-year anniversary with the release of NIEM 5.0. This major release underscores NIEM's value and relevance as a force multiplier in enabling secure, scalable, enterprise-level data interoperability across diverse, complex systems and organizations. The 5.0 release establishes the framework for the NIEM metamodel currently in development.

Katherine Escobar, Managing Director of the NIEM Management Office stated, "NIEM 5.0 represents three years of extensive NIEM user-community input, development, and harmonization efforts to deliver information exchange solutions addressing our users' needs. With NIEM's community-powered, open-source approach, users directly contribute both content and technical expertise, propelling NIEM's growth forward with timely solutions to challenging interoperability problems." Learn more [here](#).

NBD DNA Update: Peak Height

ISO and NIEM use .fsa file format to exchange DNA raw data and peak heights from the DNA fragment analysis are in 16-bit integers with a maximum value of 32,767. Peak height values from Rapid DNA instruments can be larger than 32,767 so they are "capped" at 32,767 in a .fsa file, causing loss of data.

The NBDEC will work with DNA SMEs through an open-source biometrics community project to replace the 16-bit integer field with a 32-bit integer field in a new .fsax file format leading to the maximum of a 32-bit integer which is more than 2.14 billion. This would allow large peak heights but would end up with an increase to the exchange file size and require the biometrics community to adopt a new file format while also leading to enhancement of existing systems. The NBD welcomes community feedback and participation in this effort.

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ANSI/NIST-ITL Update for Contactless Biometrics

NIST released its Best Practices Recommendation (BPR) for Contactless Biometrics as a follow-up to the greater investigative effort undertaken and to introduce a pathway for the integration of images captured by the contactless devices into existing systems. Furthermore, this informative BPR was developed with the intention of eventual amendment to the ANSI/NIST standard to formalize it as a normative guidance once the community of interest (COI) determines the technology (including the back-end components) has matured. The BPR does not directly specify the capabilities or performance of the local or central database or repository. Those requirements are driven by the particular problem being solved.

The BPR allows for the integration of these contactless devices into existing systems, while at the same time addressing the need to keep images from these new contactless images separated from legacy contact-collected images through elements defined in the biometric transaction. This BPR aims to achieve this by revising and extending the ANSI/NIST standard. The changes presented in the BPR preserve backward compatibility of other records in the biometric data exchange. This guidance provided in the BPR includes provisions for keeping the original capture sensor data, in addition to contact-compatible contactless images. While this BPR provides guidance for contactless fingerprint image inclusion into existing systems, a certification process for the forensic quality and usability of these contactless images is not yet in place.

A draft of this BPR was distributed to stakeholders in January 2021 for review and comment. To be included in the distribution of the draft and/or provide comments, please send an email request to fastcap@nist.gov.