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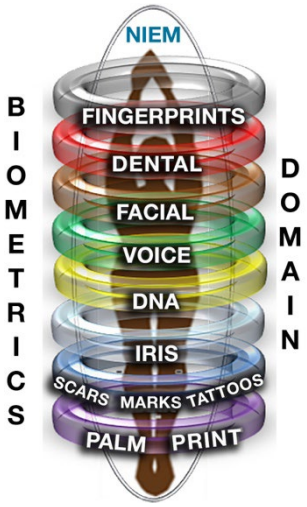
QUARTERLY NEWSLETTER FOR THE BIOMETERICS DOMAIN

NIEM

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 (NBD).

This newsletter presents NBD notable changes and current work. This issue covers topics such as information exchange in forensic processing, updates on ANSI/NIST-ITL and NIEM 5.2, the NBD Voice Data Model, INCITS M1 Vocabulary Experts Group, ISO DNA Interchange Format updates, BioCTS Background, and the adoption of the ISO/IEC Biometric Vocabulary standard.



About the NIEM Biometrics Domain

The NIEM Biometrics Domain 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: Ryan Triplett (DOD)
Ombudsman: Diane Stephens (NIST)

Information Exchange in Forensic Processing

OBIM is initiating discussions to identify expanded opportunities to improve information exchange in forensic processes. Currently, each agency has its own specification for their forensic data interchange needs, but there is not an all-encompassing forensic data interchange specification. The discussions have revolved around possible use cases or scenarios, to describe and justify the return on investment. OBIM desires to develop this specification in JSON, which would allow case files to be transmitted across various systems with common terminology, showing a traceable chain of custody.

If you are interested in contributing to these discussions, please email the NBD Team.

Maturing Voice Data Model for NIEM Biometrics at OBIM

The NIEM Biometrics Domain Working Group (NBDWG) lead at OBIM, Tara Etemadi, holds bi-weekly biometrics standards meetings to mature the Human Language Technology (HLT) / Voice Data Model. Participants from DHS, DOD, DOJ, NIST, the Project Team, and HLT Subject Matter Experts (SMEs) have been working on developing concept maps to define terminology involved in the voice model. Updates include:

- International Committee for Information Technology Standards (INCITS) M1 HLT Expert Group (EG) formed to prepare and develop U.S. recommended concept maps for M1 consideration to ISO/IEC WG 1. The EG provided an update to INCITS in June 2022.
- As a result of this effort, the INCITS M1 HLT EG identified 47 attributes related to the voice modality for harmonization. The EG also organized the concept maps into subject areas including: Speech, Voice, Audio, and Others. Terms matured under the Speech subject area includes Speak, Speaker, Speech, Speech Recognition, Speech Verification, Speech Analysis, and more. The effort uses the NBD GitHub site as a collaboration tool and we encourage HLT SMEs to join our NBDWG discussions: Email the NBD Team.

NIEM Release 5.2 – NBD Updates

NIEM publishes annual releases on a 3-year cycle with a major release year followed by 2 minor release years. NIEM 5.2 will be a minor release scheduled for Fall 2022. The release is currently under development in the alpha stage. Potential changes to the NIEM 5.2 data model include:

- Harmonization of deoxyribonucleic acid (DNA) related attributes in the Biometrics domain to reconcile differences between ISO 19794-14 DNA 2022 and NIEM 5.1 DNA.
- For the NIEM Cyber domain, NIEM is considering updating the definition of a platform attribute. For NIEM to play a role in the Cyber domain, NIEM is reviewing the OASIS Open Threat Actor Context Technical Committee (TC). It has normalized the Cyber Threat Intelligence TC's Structured Threat Information Expression taxonomy as a Resource Description Framework ontology and provides all the standard vocabulary required.
- Harmonization of "DriverLicense" and "CrashDriverLicense" attributes for Justice Domain.
- Harmonization of enumerations in screening domain for "ChargeCategoryCode."

To submit a new issue or to include any content into the 5.2 version, email feedback to niem-comments@lists.gatech.edu.

M1 Human Language Technology Vocabulary Expert Group

On June 16, 2022, INCITS M1 HLT EG members approved the progress report for submission to INCITS by Ryan Triplett, DOD NBD Co-Chair. As a next step, the working group members intend to submit a status update and potentially a contribution to INCITS M1 at the next meeting.

Anyone interested in contributing in the HLT EG, please Email the NBD Team.

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ANSI/NIST-ITL Workshop

Diane Stephens, Biometrics Standards Editor at NIST, indicated the American National Standards Institute (ANSI) and National Institute of Standards and Technology (NIST) is considering hosting another Information Technology Lab (ITL) Workshop in 2023 after other planned conferences end in 2022, e.g., Face Biometrics Working Group in November.

NIST held the last workshop in October 2014 to discuss changes and/or corrections for the updated 2015 standard. The major changes in the ANSI/NIST-ITL 2015 Update include the addition of record types 11 (Voice), 12 (Dental), and 22 (Non-Photographic Imagery).

One workshop topic would be DNA, to which OBIM has proposed a list of changes to NIST Type 18 – DNA Record to meet stakeholder needs.

The items categorized below identify the recommended changes to the ANSI/NIST-ITL Type 18 – DNA Record to meet the needs of the DNA Store Match Share (SMS) implementation.

- DNA Record Structure (Field 18.001)
- DNA Match
- Pedigree (Field 18.009)
- DNA Metadata (DNA laboratory setting / DNA laboratory setting (DLS) Field 18.003)
- DNA Metadata (Number of analyses Field 18.005)
- DNA Profile Data (Field 18.015)

NBAC Monthly Meeting

August 25, 2022, 1:00pm – 2:00pm

September 29, 2022, 1:00pm – 2:00pm

ISO DNA Data Interchange Format

OBIM provided INCITS M1 with a list of 11 technical differences between the International Organization for Standardization (ISO) official 19794-14 Final Draft International Standard (FDIS) published on June 6, 2022, and the one from the Chief Editor, Olaf Henniger. INCITS M1 approved the comments for the ISO/International Electrotechnical Commission (IEC) Joint Technical Committee (JTC) 1/SC 37/WG 3 (Biometric Data Interchange Formats) at the ISO meeting on July 5, 2022. The ISO ballot for 19794-14 FDIS closed on August 3, 2022. The IEC/ISO JTC 1/SC 37/WG 3 will schedule an ISO 19794-14 pre-publication meeting to discuss the comments by September 2022.

ISO/IEC 19794-14:2013 specifies a data interchange format for the exchange of DNA data for person identification or verification technologies. The standard intends to cover current forensic DNA profiling or typing techniques that are based on short tandem repeats (STRs), including STRs on the Y chromosome, as well as mitochondrial DNA. The standard enables data in a single record to present multiple DNA techniques for a given subject. The data format was prepared considering the ongoing efforts to reduce human involvement in the DNA process of enrollment and comparison.

Biometrics Conformance Test Software Background

The earliest Biometrics Conformance Test Software (BioCTS) software focused on ISO/IEC JTC 1/SC 37/ WG 3 biometric data interchange records to simplify development. As such, the developers designed many baseline code libraries to handle the basic functions necessary for conformance test suites (CTS). They also tested to ensure the software operated as intended. The libraries consisted of interfaces and parent classes, safe binary parsers, conversion classes, and standardized tests for the most common testing types found (i.e., equals, lesser, greater, member of, within range). Over the years of development, the developers added and refined the libraries; eventually, they made developing CTS a simple endeavor.

The BioCTS software design was robust and capable of handling every test requirement specified in the data formats. Once several CTSs were successful, the NIST team worked on a conformance test tool for the ANSI/NIST-ITL 1 biometric data format. The team developed a new parser that could handle the traditional encoding and refined over many iterations to ensure that it could handle all the variations of the traditionally encoded field data. The NIST team expanded existing library tests methods to accommodate any changes that ANSI/NIST-ITL 1 needed. The team developed a separate graphical user interface for the traditional encoding to help visualize and edit the transactions in a safe manner. Eventually, the team released BioCTS for ANSI/NIST-ITL 1-2011.

Over the years, the NIST team updates the BioCTS software, fixing reported defects and adding new features and tests. BioCTS for ANSI/NIST-ITL 1 added support for NIEM encoded XML transactions, as well as support for the ANSI/NIST-ITL 1 machine readable tables.

Recently, there has been a desire to have a CTS for the XML ISO/IEC 19794-14 DNA format to support vendors. Development of this new CTS is currently underway.

OBIM Adopts Biometric Vocabulary Standard ISO/IEC 2382-37

OBIM is adopting Biometric Vocabulary Standard ISO/IEC 2382-37 for defining terms in the data dictionaries associated with the office's biometric systems.

ISO/IEC 2382-37:2022 establishes a systematic description of biometrics concepts pertaining to the recognition of human beings and reconciles variant terms in use in pre-existing biometric standards against the preferred terms, thereby clarifying the use of terms in this field.

The standard will simplify communication among the OBIM stakeholders, compare biometric capabilities across major stakeholder groups, enable collection of shared data to improve biometric accuracy, and give better visibility of biometric system functions.

Best of NIEM 2022 - Now Accepting Nominations

The NIEM Management Office has announced that the Best of NIEM 2022 Award nomination period is now open. The Best of NIEM Award recognizes NIEM implementation projects demonstrating noteworthy contributions to the use, growth, and adoption of NIEM.

The Best of NIEM 2022 Award nomination form is available for download and nominations will be accepted through **Wednesday, August 31**. NIEM's Executive Steering Committee meeting will recognize Award winners in October.