AFIS Committee

National Information Exchange Model

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BACKGROUND

- A complete XML representation of the 1-2000 specification
- Conform to ISO-11179 element naming convention
- Use where possible, GJXDM objects
- Define a NIST namespace
- Recommend extensions to GJXDM
NIST/ITL XML Workgroup Recommendations

1. Adopt this XML proposal as a “PART 2” alternate version of ANSI-NIST/ITL 1-2000

2. Recommend extension of this XML version to include all features adopted for version 1-2006

3. Endorse the development and publication of recommended extensions to GJXDM
What Is NIEM?

“NIEM, the National Information Exchange Model, is a partnership of the U.S. Department of Justice and the Department of Homeland Security. It is designed to develop, disseminate and support enterprise-wide information exchange standards and processes that can enable jurisdictions to effectively share critical information in emergency situations, as well as support day-to-day operations of agencies throughout the nation”
GJXDM Migration To NIEM

- The Global Justice XML Data Model has converged to the National Information Exchange Model
- Future updates and additional features to GJXDM will be done in NIEM
- GJXDM will be the Justice domain of NIEM
- NIEM was designed by re-factoring the GJXDM into a structure that better supports cross-domain information sharing
NIEM Domain Layout

Homeland Security
- Emergency Management, Transportation Security, etc.

Law Enforcement
- Courts, Probation, Parole, Corrections, etc.

Other Entities
- Immigration, Public Health, etc.
- Juvenile Justice, Education, etc.

Universal Core

Common Core

Common Core
Participants

- Gerry Coleman – XML Workgroup Chair
- Patrice Yuh - FBI
- Tom Hopper – FBI
- Scott Swann - FBI
- Mike Garris – NIST
- Mike McCabe – NIST
- Elaine Newton – NIST
- Ross Micheals - NIST
NIST/ITL XML NIEM

Objectives

• Common agreement on steps for the harmonization of ANSI NIST/ITL and NIEM
• Work closely with NIEM Business Architecture Committee to absorb ANSI NIST/ITL XML
• Making ANSI NIST/ITL XML standard XML a successful standard
• Present the proposed specification to a larger audience
NIST/ITL XML NIEM Migration

- Creation of various NIST code types to capture the various enumerations or tables values associated with NIST/ITL
- Creation of a record type representing data pertaining to a record being transmitted
- Creation of a NIST Image type that describes a representation of a NIST Image
- Extension of NIST Image type to represent Fingerprint Image, Palmprint Image, Face Image, Signature Image, Iris Image, CBEFF Image
- Creation of a Minutia Detail type that contains information about one finger or palmprint minutia object
### ITLFingerprintImageRecord Types 03, 04, 05, 06

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Image</td>
<td>FingerprintImage</td>
</tr>
<tr>
<td>LogicalRecordLength</td>
<td>ImageSizeValue</td>
</tr>
<tr>
<td>ImageDesignationCharacter</td>
<td>ImageReferenceID</td>
</tr>
<tr>
<td>ImageObject.Base64</td>
<td>ImageObject.Base64</td>
</tr>
<tr>
<td>ImageCompressionAlgorithmCode</td>
<td>ImageCompressionAlgorithmText</td>
</tr>
<tr>
<td>ImageHorizontalLineLength</td>
<td>ImageHorizontalLineLengthPixelQuantity</td>
</tr>
<tr>
<td>ImageVerticalLineLength</td>
<td>ImageVerticalLineLengthPixelQuantity</td>
</tr>
<tr>
<td>FingerImpressionTypeCode</td>
<td>ImageImpressionCaptureTypeCode</td>
</tr>
<tr>
<td>ImageScanningResolutionCode</td>
<td>ImageCaptureDetail</td>
</tr>
<tr>
<td>FingerPosition</td>
<td>CaptureResolutionCode</td>
</tr>
<tr>
<td>FingerPositionCode</td>
<td>FingerPositionCode</td>
</tr>
</tbody>
</table>

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Sample NIST ITL XML

- ASCII characters are represented in UTF-8 ASCII format
- Binary images are represented using Base 64 Encoding

```xml
<?xml version="1.0" encoding="UTF-8"?>
<nist:InformationExchangePackage>
  <nist-f:PersonFingerprint>
    <nist-f:FingerImpressionTypeCode nist:fieldMnemonic="IMP">3</nist-f:FingerImpressionTypeCode>
    <nist-f:FingerPosition nist:fieldMnemonic="FGP">
    </nist-f:FingerPosition>
  </nist-f:PersonFingerprint>
  <Image>
    <nist-f:CompressionAlgorithmIntegerCode nist:fieldMnemonic="GCA">2</nist-f:CompressionAlgorithmIntegerCode>
    <ImageObject.Base64>mrHbPdrko3u1s7ahtgPBjtmO1s85tfG2U7bpoY94Czu2SbY7d7wF9fQ7ZptgGrtkO2a2dsJ7wZbePepOH+/h</ImageObject.Base64>
  </Image>
</nist:InformationExchangePackage>
```
Sample NIEM XML

- ASCII characters are represented in UTF-8 ASCII format
- Binary images are represented using Base 64 Encoding

```xml
<?xml version="1.0" encoding="UTF-8"?>
<niem:InformationExchangePackage>
  <c:PersonDigitalImage>
    <u:FingerprintImage>
      <u:BinaryObject.Base64>rHbPdrko3u1s7ahtgPBjtmO1s85tfG2U7bpoY94Czu2SbY7d7wF9fQ7ZptgGrtkO2a2dsJ7wZbePepOH/=+h</u:BinaryObject.Base64>
    </u:FingerprintImage>
  </c:PersonDigitalImage>
  <c:PersonFingerprintSet>
    <c:Fingerprint>
      <c:FingerprintFinger>1</c:FingerprintFinger>
      <c:FingerprintClassification>TT</c:FingerprintClassification>
      <c:FingerPattern>AU</c:FingerPattern>
    </c:Fingerprint>
    <c:Fingerprint>
      <c:FingerprintFinger>2</c:FingerprintFinger>
      <c:FingerprintClassification>AA</c:FingerprintClassification>
      <c:FingerPattern>AU</c:FingerPattern>
    </c:Fingerprint>
  </c:PersonFingerprintSet>
</niem:InformationExchangePackage>
```
NIST/ITL XML NIEM Status

- Re-factor elements to conform to NIEM NDR
- Compile components to submit to NIEM for adoption according to components submission requirements
- Recommend extensions to NIEM
- Produce documentation artifacts recommended by NIEM
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