



NIEM 2011
National Training Event

MASTER AGENDA

August 23–25, 2011

AGENDA

NIEM 2011 NATIONAL TRAINING EVENT

AUGUST 23–25, 2011



Track 1 NIEM Adoption

Track 2 NIEM Adoption

Track 3 Tools, Tools, Tools

Track 4 NIEM in Action

Track 5 NIEM in Action

Get the NIEM overview and latest news. These business- and community-oriented sessions are geared to educate a broad audience.

Take a technical deep dive into a few of the tools and techniques available to developers. Come learn from the experts!

Are you a developer, implementer, enterprise architect, data management professional, or other techie? If so, this is a track for you! Ask the hard questions and learn from your peers' NIEM experiences.

YOUR REGISTRATION INCLUDES:

- Complimentary continental breakfast daily
- Keynote luncheon on Tuesday, August 23 and Wednesday, August 24

8:30 a.m.–8:40 a.m.

Opening Ceremonies

Master of Ceremonies

Donna Roy, *NIEM Executive Director*

Philadelphia Police Department Honor Guard and Pledge of Allegiance

8:40 a.m.–9:30 a.m.

Keynote

Ellen Levy, *Vice President Strategic Initiatives, LinkedIn Corporation*



Dr. Ellen Levy joined LinkedIn full-time in 2008, having been on the advisory board since the company was founded. She currently leads various strategic initiatives at LinkedIn. Throughout her career, Dr. Levy has served in myriad formal roles that bridged the worlds of innovation, entrepreneurship, and technology. Prior to joining LinkedIn, she held key positions at companies within the entrepreneurial ecosystem, including venture capital (Softbank; NeoCarta; Draper Fisher, Jurvetson), start-ups (WhoWhere; Softbook), technology think tanks (Interval Research), big companies (Apple Computer; PriceWaterhouse), foundations (Clinton Global Initiative), and universities (Harvard; Stanford).

She received her doctor of philosophy and master of arts degrees from Stanford University in cognitive psychology, specializing in information management, and holds a bachelor of arts degree from the University of Michigan.

9:30 a.m.–9:45 a.m.

Break

9:45 a.m.–10:55 a.m.

Track 1 NIEM Adoption

PRESENTATION TITLE

Business First Approach to Information Exchange

SUMMARY

This presentation will explore an information sharing project case study utilizing national models and standards under the leadership of the Indiana Department of Homeland Security. The initiative, called Indiana Data Exchange (IDEx), is a statewide, multijurisdictional initiative with the goal of securely integrating law enforcement, justice, emergency management, homeland security, intelligence/fusion, health, and social services information throughout Indiana utilizing national data sharing standards.

To facilitate the data sharing effort using a business-first approach, the state engaged Crowe Horwath LLP to guide the development of a statewide data sharing strategic plan, the design of a standards-based technical architecture including NIEM, and the deployment of a proof-of-concept technology solution to serve as the foundation for data sharing.

This presentation highlights the business-first approach methodology, including the collaborative tactics utilized to build consensus among the 21 participating organizations to develop a mission and vision statement; prioritize more than 350 identified data sharing gaps/needs; and define exchanges using the principles of the Justice Information Exchange Model.

FORMAT

Case study

PRESENTERS

Jason Hutchens
Director of Planning
 Indiana Department
 of Homeland Security

Bob Dobis
Partner
 Crowe Horwath

**Alicia Antonetti-
 Tricker**
Senior Manager
 Crowe Horwath

Caitlin McKenna
Branch Chief
 Indiana Department
 of Homeland Security

Track 2 NIEM Adoption

PRESENTATION TITLE

Breaking Down (Rocky) Mountains in Colorado

SUMMARY

In this session, we will present an overview of the State of Colorado’s Children Youth (CCYIS) Information Sharing Initiative’s work over a multiyear period to establish and maintain a collaborative with state and local agencies on at-risk youth and juvenile justice information exchanges. The overview will include both successes and challenges faced by the multiagency collaborative in the areas of leadership, transition, governance structure, collaboration, consent /privacy and technology. Discussions will also include how this effort is leveraging the expertise of the Office of Juvenile Justice and Delinquency Prevention (OJJDP) to successfully build a youth and juvenile information sharing initiative; how the CCYIS is incorporating NIEM to design and implement cross-agency IEPDs; and how this effort has assisted in creating the Children, Youth, and Family Services (CYFS) domain through its juvenile justice data model and tools developed through the National Juvenile Information Sharing Initiative (NJISI) with OJJDP.

FORMAT

Case study

PRESENTERS

Stephanie Rondenell
Executive Director
 Center for Network Development

Tom Carlson
Consultant
 Tom Carlson Consulting

9:45 a.m.–10:55 a.m.

Track 3 Tools, Tools, Tools

PRESENTATION TITLE

Now Introducing: Key Insights Into the New NIEM Specifications

SUMMARY

Members of the NIEM Technical Architecture Committee will introduce key concepts and requirements outlined in new NIEM specifications, including the Model Description Package (MPD) Specification, the Domain Update (DU) Specification, and the UML Profile for NIEM.

MPD and DU Specification topics will cover changes to the catalog, metadata, master documentation, and change log. The presentation will also review the MPD version scheme, URI scheme, MPD lineage, formal lexicon, organization and packaging, and related business processes.

The UML Profile for NIEM will cover the various UML stereotypes for NIEM domain model management, tool interpretation requirements, and how to represent NIEM concepts.

FORMAT

Speakers

PRESENTERS

Boris Shur

*NIEM Technical Architecture
Committee (NTAC)
Federal Cochair
U.S. Department of Justice*

Mike Hulme

*Architecture Director
Unisys Corporation*

Srinivas Chennamaraja

*Consultant, U.S. Customs and
Border Protection (CBP)
Presidio Networked Solutions*

Mark Kindl, Ph.D.

*Principal Research Scientist, Information
and Communications Laboratory
Georgia Tech Research Institute (GTRI)*

9:45 a.m.–10:55 a.m.

Track 4 NIEM in Action

PRESENTATION TITLE

Realizing IEPD Benefits Through Visual Demo (Pilot)

SUMMARY

Stakeholders in the IEPD process often have different backgrounds, roles, and business objectives. Visualization of an IEPD, based on use-case form, can help stakeholders focus on the context within applications, rather than becoming distracted by data modeling details. This session guides the user community in how to apply this methodology in practice, including discussion of pilot efforts within the U.S. Department of Homeland Security and the National Protection and Programs Directorate.

FORMAT

Speakers

PRESENTERS

Kamran Atri

Chief Technology Officer
 Paragon Technology Group, Inc.

David Epperson

Chief Information Officer (CIO)
 National Protection and Programs Directorate
 U.S. Department of Homeland Security

Chase Garwood

Chief Technology Officer
 United States Visitor and
 Immigrant Status Indicator
 Technology (US-VISIT) Program

Track 5 NIEM in Action

PRESENTATION TITLE

Implementing NIEM as a Canonical Model for Information Sharing at DHS USCIS

SUMMARY

This presentation describes the technical implementation of two NIEM-based Enterprise Services within the U.S. Department of Homeland Security (DHS) U.S. Citizenship and Immigration Services (USCIS) Service-Oriented Architecture. These services use a NIEM-based domain model as the canonical view of data for the service. The first is the Person Centric Query (PCQ) Service, which enables an automated approach for submitting a single query to get an immigrant's transactions across a number of DHS and U.S. Department of State (DOS) systems. The second is the Lockbox Intake Service (LIS), which serves as the single point of connection for the Lockbox Service Provider (JP Morgan Chase) to submit received electronic benefit applications to the USCIS.

FORMAT

Single speaker

PRESENTER

Hector Alicea

President and Owner
 HLA & Associates, LLC

10:55 a.m.–11:10 a.m.

Break

11:10 a.m.–12:40 p.m.

Keynote Luncheon

Douglas Fridsma, M.D., Ph.D., Director, Office of Standards & Interoperability, Office of the National Coordinator for Health IT, U.S. Department of Health and Human Services

12:40 p.m.–12:50 p.m.

Break

12:50 p.m.–2:00 p.m.

Track 1 NIEM Adoption

PRESENTATION TITLE

The Newest Reusable Data Exchange for the Human Services Domain

SUMMARY

While the Administration for Children and Families (ACF) is the domain steward for the Human Services domain, this new domain is envisioned and being implemented with responsibility for direction and governance placed in the hands of human service providers in states and localities.

ACF is seeking this conference opportunity to showcase the work of the domain and to have an interactive discussion and gain input from conference participants about the domain, with discussion centering on the creation of the domain's first data exchange. Workshop participants will have the opportunity to lay the groundwork for the new domain's first reusable data exchange. ACF expects to be in a position to tell participants about which IEPD has been chosen, discuss the process for selection of that IEPD—particularly involvement by the communities of interest—give an update on the timeline for the IEPD's release to the public, and receive feedback about the exchange and its reusability.

The intended audience for this presentation consists of individuals and organizations with knowledge about human services and interest in the Human Services domain. The presentation will be particularly helpful for those working in the human services field with interest in replicating the presented data exchange.

FORMAT

Workshop

PRESENTER

David Jenkins

Director, CISO

U.S. Department of Health and Human Services
Administration for Children and Families

Track 2 NIEM Adoption

PRESENTATION TITLE

Biggest, Baddest NIEM Implementation on the Planet

SUMMARY

This presentation provides an update on the maturation of the N-DEx system and its implementation progress, including lessons learned and tools. We will discuss the N-DEx IEPD ability to enable the sharing of law enforcement, facility corrections, and community corrections data. We will also discuss the future of N-DEx-enabled data sharing. Attendees will realize the status of N-DEx system implementation and be provided with insight into the direction of the program. They will also be exposed to the new offerings of the N-DEx IEPD and gain familiarity with N-DEx lessons learned and resultant tools.

FORMAT

Speakers

PRESENTERS

Richard Brown

Data Coordinator

N-DEx Project Management Unit

Jason A. Henry

Deputy Director

Law Enforcement Information Sharing
Initiative (LEISI)
U.S. Department of Homeland Security

12:50 p.m.–2:00 p.m.

Track 3 Tools, Tools, Tools

PRESENTATION TITLE

Lightning-Fast IEPD Development Techniques

SUMMARY

Effective NIEM IEPD development requires a complete process understanding and partnership between program management and application implementers. This session provides a road map for executives and developers alike, based on the actual development experience of federal and state IEPDs and processes. For executives, the session covers the latest techniques for leveraging domain dictionary assets and modeling tools to enable enterprisewide coordination. For developers, the session illustrates lightning-fast IEPD development techniques and live prototyping using the latest version of the open source CAM toolkit for IEPD development.

Attendees will gain an understanding of how to maximize existing enterprise assets and processes to optimize the IEPD development process to ensure involvement and participation for all stakeholders, with successful outcomes as the goal.

FORMAT

Single speaker

PRESENTER**David Webber***Information Architect*
Oracle Corporation

12:50 p.m.–2:00 p.m.

Track 4 NIEM in Action

PRESENTATION TITLE

New 2011 ANSI/NIST Biometric XML Standard

SUMMARY

The XML Biometrics standard that will be used by the Federal Bureau of Investigation (NGI), the U.S. Department of Homeland Security (US VISIT), and the U.S. Department of Defense (ABIS) is based on the American National Standard for Information Systems (ANSI/NIST) Data Format for the Interchange of Fingerprint, Facial & Other Biometric Information. The standard was first published in 1986 and has been updated several times. The 2011 workshop dedicated a group to evaluating the feasibility of integrating NIEM domain model management processes and tools to support the standard. This panel will introduce and discuss the use of the standard.

FORMAT

TBD

PRESENTERS

Gerry Coleman
Consultant
 Trusted Federal
 Systems, Inc.

Sudhi Umarji
Consultant
 Trusted Federal
 Systems, Inc.

Priscilla Walmsley
Associate Consultant,
 Trusted Federal Systems, Inc.
Managing Consultant,
 Datypic

Track 5 NIEM in Action

PRESENTATION TITLE

Building Web Service Exchanges With NIEM, LEXS, and GRA

SUMMARY

Currently, the U.S. Department of Justice and the U.S. Department of Homeland Security enterprise architectures both include the use of NIEM, Logical Entity eXchange Specification (LEXS), and Global Reference Architecture (GRA) to implement information exchanges. This presentation describes how these technologies can work together as well as the tools available for Web services development, including both Java and .NET.

FORMAT

Speakers

PRESENTERS

Jack C. Wallace
Senior Research Scientist,
Information Exchange and
Architecture Division (IEAD)
 Georgia Tech Research Institute (GTRI)

Benjamin Shrom
Research Scientist,
Information Exchange and
Architecture Division (IEAD)
 Georgia Tech Research Institute (GTRI)

2:00 p.m.–2:15 p.m.

Break

2:15 p.m.–3:25 p.m.

Track 1 NIEM Adoption

PRESENTATION TITLE

Family Services Grows Into Children, Youth, and Family Services

SUMMARY

Stakeholders in the Children, Youth, and Family Services (CYFS) domain include federal, state, and local practitioners in child welfare, child support enforcement, juvenile justice and delinquency prevention, family and juvenile courts, and industry partners. A panel of representatives from the domain governance team will present the new CYFS 2.1.1, with a particular focus on the domain's new content, techniques for harmonizing NIEM with other data models (such as the Juvenile Justice XML model, the Office of Child Support Enforcement's Data Standards Registry, HL7, and the future Human Services domain), and our experience with the domain-independent release process and tools. The panel will also strive to engage attendees in discussions about domain governance, interagency and interstate information sharing, and the NIEM community's highest priorities for CYFS's next release.

FORMAT

Moderated panel

PRESENTERS

Gary Waint

Deputy State Courts Administrator and Director of the Divisions of Court Programs, Research and Education and Court Services
 Missouri Office of State Courts Administrator

Gwendolyn J. Dilworth

Juvenile Justice Program Specialist
 Office of Juvenile Justice and Delinquency Prevention (OJJDP)

Di Graski

Court Technology Associate
 National Center for State Courts (NCSC)

Track 2 NIEM Adoption

PRESENTATION TITLE

NIEM Connects Open Government: FOIA.gov to IT Dashboard

SUMMARY

FOIA.gov, recovery.gov, ITDashboard.gov—what do all three have in common? You guessed it—NIEM! This panel will offer key insights on how NIEM is empowering the Transparency and Open Government Initiative. From federal agency submissions to the Federal IT Dashboard to the sharing of Freedom of Information Act information to state recipient reporting of American Recovery and Reinvestment Act funds, NIEM is being used to support greater cross-boundary information exchange throughout all levels of government.

This panel is being moderated by Fiona Barshow on behalf of the American Council for Technology (ACT)—Industry Advisory Council (IAC) Information Sharing Committee on behalf of the Collaboration and Transformation Special Interest Group (SIG). ACT-IAC is a nonprofit, public-private partnership dedicated to improving government through the application of information technology. ACT and IAC offer programs and services designed to facilitate communication, collaboration, and education.

FORMAT

Moderated panel

PRESENTERS:

Fiona Barshow (Moderator)
Vice President, Business Development Justice and Law Enforcement Programs
 Citizant

Eric Jakstadt
Enterprise Architect
 Trusted Federal Systems, Inc.

John J. Sullivan
Acting Director, Information Architecture and Technology Strategy Division
 Office of Governmentwide Policy
 U.S. General Services Administration

James Eric Jones
Chief Program Officer
 Recovery Accountability and Transparency Board

2:15 p.m.–3:25 p.m.

Track 3 Tools, Tools, Tools

PRESENTATION TITLE

Enforcing the Complex Business Rules of NIEM Exchanges

SUMMARY

The XML Schemas used in NIEM IEPDs are useful for defining the general structure of NIEM documents. However, additional constraints often need to be imposed on the data being exchanged, e.g., specifying that an activity start date always precede an activity end date, or that a person not have a death date if his or her "living indicator" is set to "true." These constraints are sometimes referred to as "business rules."

This presentation explores techniques for defining, documenting, and validating business rules as part of a NIEM IEPD. It will address how these rules should be documented, whether these constraints should be formally expressed at all and, if they are, how strictly they should be enforced. It provides an overview of approaches to defining, documenting, and enforcing rules, including W3C XML Schema constraint schemas, Schematron rules, and application code.

The overview will be followed by an interactive deep dive into the open-source Schematron XML validation technology, a system-independent method for complex business rule definition and validation. Examples of common scenarios encountered by NIEM developers will be provided.

FORMAT

Speakers

PRESENTERS

Priscilla Walmsley

Associate Consultant

Trusted Federal Systems, Inc.

Managing Consultant

Datypic

Joel Byford

Manager

Soos Creek Consulting, LLC

2:15 p.m.–3:25 p.m.

Track 4 NIEM in Action

PRESENTATION TITLE

Agile, Rapid, Open Source Development Using NIEM

SUMMARY

Business requirements change rapidly, and software development techniques must evolve to keep pace while still maintaining rigor with regard to standards and interoperability of solutions. This session describes procedures to reduce time to deploy while improving quality, and focuses on a case study centered on a project designed to combat gang violence nationwide through development of a national gang information sharing architecture and reference IEPD.

FORMAT

Case study

PRESENTERS

Cindy Wengert

Solution Director

Trusted Federal Systems, Inc.

David Carver

Project Manager, Turmeric

Intalio, Inc.

Track 5 NIEM in Action

PRESENTATION TITLE

Implementing NIEM Information Exchanges Using Secure Web Services

SUMMARY

This session presents a case study of the implementation of a number of NIEM-conformant exchanges using secure Web services in a heterogeneous information exchange environment. Session participants will learn proven techniques for implementing NIEM exchanges using secure Web services with a variety of architectures and the realities of a heterogeneous information exchange environment.

FORMAT

Case study

PRESENTER

Mike Hulme

Architecture Director

Unisys Corporation

Mike Milton

Consultant

Unisys Corporation

3:25 p.m.–3:40 p.m.

Break

3:40 p.m.–4:50 p.m.

Track 1 NIEM Adoption

PRESENTATION TITLE

NIEM Maritime: Interagency Information Sharing in the Global Maritime Domain

SUMMARY

In 2008, the NIEM Program Management Office and the U.S. Department of Defense (DoD) Executive Agent (DoD EA) for Maritime Domain Awareness (MDA) entered into a strategic partnership to develop a maritime domain for NIEM that promotes interagency information sharing standards within the MDA community of interest. MDA is the effective understanding of anything associated with the global maritime domain that could impact the United States' security, safety, economy, or environment. This is realized through effective, timely, secure information sharing across multiple agencies and organizations. Because of the widespread adoption of NIEM throughout federal, state, and local governments, the inclusion of maritime information exchange data components in NIEM offers the potential for well-defined information sharing at lower costs.

The DoD EA for MDA has championed an effort to develop IEPDs for sharing maritime information within five focus areas—Indicators and Notifications (I&N); Notices of Arrival (NOA); posits and tracks; Maritime Operational Threat Response (MOTR) reporting; and biometrics. This presentation highlights the progress of the first DOD-sponsored NIEM domain, shares lessons learned, and discusses future plans and partnering opportunities.

FORMAT

Moderated panel

PRESENTERS

Dan Green

Executive Director,
Data Engineering
Services Center
SPAWAR 5.0 Office
of the Technical
Director Engineer

Olithia Strom

Director,
Data Engineering
Services Center
SPAWAR Systems
Center, Pacific

Brian Freeman

Chief Engineer,
Data Engineering
Services Center
MITRE Corporation

Jeremy Witmer

Lead Developer,
Data Engineering
Services Center
MITRE Corporation

Track 2 NIEM Adoption

PRESENTATION TITLE

NBAC Presents: Everything You Need to Know About the BIEC

SUMMARY

As an organization develops IEPDs, the organization may realize that many of its IEPDs have similar business content. This presents an opportunity for reuse that can increase consistency to improve interoperability and reduce development efforts for future IEPDs. A collection of closely related business data can be organized at an object level and defined as extension data components, referred to as Business Information Exchange Components (BIECs).

In this session, learn all about BIECs, their value, and a practical example of how BIECs have been implemented, including lessons learned.

FORMAT

Speakers

PRESENTERS

Mike Hulme

Architecture Director
Unisys Corporation

William Wright, Ph.D.

Chief Consultant
ArchSmart, LLC

3:40 p.m.–4:50 p.m.

Track 3 Tools, Tools, Tools

PRESENTATION TITLE

Inside the NIEM NDR: Making the Rules Work for You

SUMMARY

The NIEM Naming and Design Rules (NDR) is the foundational specification for NIEM schemas. It provides rules and guidelines for creating XML Schema documents for use with NIEM. Schemas are easy to read and understand; are well-supported by many XML Schema tools; do standard things in standard ways; and have features beyond what XML Schema specifies. NIEM techniques include XML Schema strategies as well as hooks for tools other than XML Schema.

This presentation covers advanced NIEM strategies and how to use NIEM techniques with XSLT, XPath, and Schematron to effectively manage data definitions, convey meaning in messages and message definitions, and ensure that data is correct. We will discuss navigating NIEM data using information in the schemas to process and present data more effectively, how users can support layered schema definitions and schema reuse, and how types and properties can lead to better understanding of exchanged data.

FORMAT

Single speaker

PRESENTER

Webb Roberts

Lead NIEM Engineer

Georgia Tech Research Institute

3:40 p.m.–4:50 p.m.

Track 4 NIEM in Action

PRESENTATION TITLE

Automating Test and Validation Services for NIEM Exchanges

SUMMARY

A key need in working with NIEM IEPDs, is developing examples and matching templates including rules, context, and roles for correctly managing information exchange content between partners. The W3C Schema by themselves are not sufficient. Learn how to use open source tooling, XPath rules, and the OASIS CAM templates standard to create automated testing tools. The automated validation engine can also be used in production environments to manage live information exchanges. Attendees will receive a CD-R with the latest validation engine tools and examples for use in the workshop.

FORMAT

Workshop

PRESENTERS

David Webber Information Architect Oracle Corporation	Patrick Fendt Principal Technologist Oracle Corporation
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Track 5 NIEM in Action

PRESENTATION TITLE

Oklahoma AOC Information Exchange: A Use Case for NIEM Enterprise Implementation

SUMMARY

In January 2011, Oklahoma’s Administrative Office of the Courts (AOC) embarked on a mission to develop an integrated case management system. More than 100 exchange use cases were identified to be implemented to exchange information between the courts, law enforcement, prosecution, etc. To meet this goal, the AOC and its partner vendors utilized an IEPD analysis and design repository that leverages an XML registry of business-defined objects for the purpose of capturing the requirements for all enterprise exchanges and payloads.

FORMAT

Case study

PRESENTERS

Winfield Wagner Senior Information Sharing Architect Patriot Data Solutions Group	Cheryl Walters Integrated Justice Program Manager Administrative Office of the Courts, Oklahoma Supreme Court	Iveta Topalova Architect Microsoft	Tom Kooy Vice President of Product Development Patriot Data Solutions Group
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4:50 p.m.–5:00 p.m.

Break

5:00 p.m.–5:35 p.m.

NIEM Lightning Rounds

Led by **Karen Lopez** (you might know her as @datachick)

The NIEM Lightning Rounds

3 SIMPLE RULES:

- ⚡ Each speaker gets **five minutes**.
- ⚡ You can have a **max of 15 slides**, and they must be set to automatically advance.
- ⚡ The NIEM PMO will provide the PowerPoint template.

YOUR CHALLENGE?

Being witty and on time are required—we're also throwing in innovative, unique, engaging, and inspiring!



8:30 a.m.–9:00 a.m.

“Future of NIEM”

Donna Roy, *NIEM Executive Director*

9:00 a.m.–9:15 a.m.

Break

9:15 a.m.–10:25 a.m.

Track 1 NIEM Adoption

PRESENTATION TITLE

National Information Exchange Federation (NIEF)/Global Federated Identity and Privilege Management (GFIPM) Overview

SUMMARY

GFIPM is set of technical, governance, and metadata standards that define how to establish a trusted and interoperable law enforcement and public safety information sharing federation that leverages existing identity management infrastructure. GFIPM specifies a common data model to describe federated users, allowing for automated authorization decisions and user provisioning. The National Information Exchange Federation (NIEF) is an operational implementation of the GFIPM technical standards and governance processes. This panel session will feature participating agency representatives and will examine the benefits that GFIPM and NIEF are able to provide to those agencies.

FORMAT

Moderated panel

PRESENTERS

John Wandelt
GFIPM/NIEF Project Director, Principal Research Scientist Georgia Tech Research Institute

Eugene Yu
Deputy Director of Identity, Credential and Access Management (ICAM) Program Management Office Office of the Chief Information Officer U.S. Department of Homeland Security

Lawrence Maloney
Manager, Projects Support Group Regional Information Sharing Systems® (RISS) Office of Information Technology

John Ruegg
Director of Information Systems Advisory Body (ISAB) Countywide Criminal Justice Coordinating Committee (CCJCC), Los Angeles County

Kevin Heald

Architect Office of the Program Manager, Information Sharing Environment

Track 2 NIEM Adoption

PRESENTATION TITLE

Tips and Tricks: Implementing Information Exchange Across Agencies

SUMMARY

The Terrorist Screening Center (TSC) performs a critical role in sharing watchlisting information with multiple agencies of the U.S. government and foreign partners. The NIEM Terrorist Watchlist Person Data Exchange Standard (TWPDES) helps accomplish this task. This standard, available on the NIEM Web site, has played a pivotal role in efforts to share information with screening agencies and the intelligence community. The presentation reviews how this standard was employed and shares tips on how to utilize its full capabilities with information sharing partners.

Presenters will provide tips for using this NIEM-compliant data exchange standard. Insights include the evolution of TWPDES for improved data exchange capabilities; examples of batch and transactional data exchanges; ICDs and schemas; and the use of message extensions to indicate changes contained in the data package.

FORMAT

Speakers

PRESENTERS Margaret M. Lonergan

Federal Bureau of Investigation (FBI) Unit Chief for Information Technology Terrorist Screening Center

George A. Flanigan

Program Advisor Terrorist Screening Center

C. J. Lee

Process Manager Terrorist Screening Center

Christopher A. Holmes

Chief Software Architect Terrorist Screening Center

9:15 a.m.–10:25 a.m.

Track 3 Tools, Tools, Tools

PRESENTATION TITLE

Got Automatic Generation of NIEM Artifacts? We Do.

SUMMARY

IEPD development is a significant undertaking. In addition to XML schemas, numerous other artifacts are required. The process of keeping these internally consistent and integrated during the development and ensuring maintenance processes places heavy time demands on IEPD developers. To meet this challenge, the IEPD Factory software toolset was developed by the U.S. Department of Homeland Security for creating visual models of NIEM domains and IEPDs, and for automatically generating the NIEM artifacts from the visual models. IEPD Factory is designed to reduce the time, effort, and NIEM technical knowledge required to produce the various IEPD artifacts and sustain them over time. The IEPD Factory is composed of a set of components from third parties (commercial, government, and open source), combined and integrated with new components designed to meet the needs of IEPD and domain developers. This session will provide an overview introduction to the software toolset, demonstrating live with the software.

FORMAT

Single speaker

PRESENTER

William Wright, Ph.D.

Chief Consultant
ArchSmart, LLC

9:15 a.m.–10:25 a.m.

Track 4 NIEM in Action

PRESENTATION TITLE

NIEM and Mobile Convergence

SUMMARY

Mobile devices are becoming more pervasive across the public and private sectors. In 2011, the projected growth of the mobile environment is expected to be 36 percent. Given the ubiquity and flexibility of a mobile device, the future of information sharing is going to be mobile.

NIEM is designed as a framework to develop, disseminate, and support information exchange standards and processes that enable organizations to share information. With the dramatic increase in mobile adoption, we are now at the cusp of a new opportunity—with new information sharing possibilities, an altered technical landscape, a different approach to security, and the increased need for real-time data on the go. NIEM can stay ahead of this inevitable tipping point by providing technical capabilities and operational processes to meet this demand. Mobile usage has already started to enter NIEM domain mission spaces, including Justice, Immigration, Emergency Management, and Youth and Family Services.

In addition to discussing the convergence of NIEM and mobile, this session will demonstrate a NIEM-based Incident Management iPhone application called MIRA, which will illustrate how NIEM can serve as the information sharing standard for cross-boundary exchanges on a mobile device.

FORMAT

Panel

PRESENTERS

Kristen Fitzgerald
Consultant
Deloitte Consulting

Suzanne Jenkins
Consultant
Deloitte Consulting

Thomas Beyer
Principal
Deloitte Consulting

Track 5 NIEM in Action

PRESENTATION TITLE

Interoperable Solutions: NIEM IEPDs and Global Reference Architecture (GRA) Service Specifications

SUMMARY

This session presents an overview of the Global Reference Architecture (GRA) with an in-depth discussion on guidelines for Service Specifications development. In preparation for the upcoming release of the GRA Service Specification Package (GRA-SSP) and the GRA Service Specification Guideline (GRA-SSG), this session concentrates on the role of service specifications in creating interoperable information sharing solutions. It covers the artifacts included in a service specification and presents a practical approach to creating those artifacts and the specification itself.

FORMAT

Moderated panel

PRESENTERS

Iveta Topalova
Architect
Microsoft

Jim Douglas
Justice Information Systems Specialist
SEARCH, The National Consortium for
Justice Information and Statistics

10:25 a.m.–10:40 a.m.

Break

10:40 a.m.–11:50 a.m.

Track 1 NIEM Adoption

PRESENTATION TITLE

Using NIEM to Advance Health Information Exchange and Improve Health Care Access

SUMMARY

Advances in health information technology and standards have enabled superior models of data exchange. The Office of the National Coordinator (ONC) intends to use NIEM in support of broadening requirements of Health IT Meaningful Use planned for 2012–2015. The initial use of NIEM will be focused on the Nationwide Health Information Network (NHIN), to expedite the adoption and standardization of information exchange among NHIN participants by providing a set of standardized information exchange packages that can be used by NHIN participants.

This presentation will share the results of focus groups exploring how NIEM can be used to connect communities across the health space. We will explore the following areas:

- Connecting communities for improved clinical decision support and quality health care, in addition to supporting decision making in other mission areas where health information is essential.
- Case studies and analysis on accomplishing accurate and timely delivery of health care information.
- A practical road map to build a “Connected Community Grid” with interoperable systems.
- How ONC plans to focus on both customizing NIEM to work in health care and outlining how a conceptual information model is needed to support health information exchange.

FORMAT

Moderated panel

PRESENTERS

Erik Pupo
Health Principal
Vangent/ONC

Nidish Mada
Senior Manager
Deloitte Consulting

Joanna Avery
Manager
Deloitte Consulting

Track 2 NIEM Adoption

PRESENTATION TITLE

Application of NIEM Standards to Pennsylvania Criminal Justice System

SUMMARY

The DQ2 project includes 33 Pennsylvania counties and their records/case management systems for jail, adult probation, and district attorney offices. The pilot phase of the project adopted NIEM standards into a customized toolkit. The project team will share the DQ Toolkit, lessons learned, and best practices of applying the NIEM standard to individual county governments and their individual case management systems. This project team has learned to incorporate both technology and criminal justice professionals in the rollout of DQ and NIEM standards using on-site training, Web tools and training, and numerous other tools that will be shared by panelists.

FORMAT

Case study

PRESENTERS

W. Conway Bushey
Executive Director
County Chief Adult
Probation and Parole
Officers' Association of
Pennsylvania

Robert Merwine
Director of the Office of
Criminal Justice System
Improvements
Pennsylvania
Commission on Crime
and Delinquency (PCCD)

Mark Proper
Technical Project Specialist
County Commissioners
Association of
Pennsylvania (CCAP)

Amy Rehmeier
Data Quality Project
Manager
County Commissioners
Association of
Pennsylvania (CCAP)

Rita Reynolds
Director of Technology
Services
County Commissioners
Association of
Pennsylvania (CCAP)

Andrea K. Warner
Consultant
Data Quality Project
County Commissioners
Association of
Pennsylvania (CCAP)

10:40 a.m.–11:50 a.m.

Track 3 Tools, Tools, Tools

PRESENTATION TITLE

Open Source Tools: Need We Say More?

SUMMARY

This session explores the options for leveraging the open source movement for NIEM and demonstrates advantages of a particular data harmonization open source tool platform. Open source encourages innovation and agile responses to the needs of NIEM practitioners by involving a large community of experts and stakeholders. We will explore the development of a NIEM open source community. We will also show how the Open Information Integration (OpenII) platform and tool suite invites developers from the NIEM community to grow and automatically integrate capability sets using this open source platform.

FORMAT

Speakers

PRESENTERS

Catherine Macheret

Information Engineer
MITRE Corporation

Cory Casanave

President and Founder
Data Access
Technologies/
ModelDriven Solutions

Dr. David A. Bray

Executive for Innovation, Integration, and
Interoperability
Office of the Program Manager,
Information Sharing Environment

10:40 a.m.–11:50 a.m.

Track 4 NIEM in Action

PRESENTATION TITLE

Leveraging NIEM to Enable EDXL-DE Message Routing

SUMMARY

There is direct usability of code lists found in NIEM to populate the role and keyword metadata used in OASIS EDXL-DE messages, particularly when the content is a NIEM IEP. The presentation demonstrates how to do this using the IPAWS-OPEN 2.0 EDXL-DE message exchange interfaces. It also shows how the code lists have been made queryable within IPAWS-OPEN. We will show examples in raw XML, so this presentation is geared specifically to XML-literate attendees.

FORMAT

Speakers

PRESENTERS

Gary Ham

System Architect

Federal Emergency Management Agency (FEMA) Integrated Public Alert and Warning System (IPAWS) Program

Mark Lucero

Engineering Chief

Federal Emergency Management Agency (FEMA) Integrated Public Alert and Warning System (IPAWS) Program

Track 5 NIEM in Action

PRESENTATION TITLE

NIEM Implementation Through DHS ICE System Lifecycle Management

SUMMARY

The U.S. Department of Homeland Security's (DHS) Immigrations and Customs Enforcement (ICE) System Lifecycle Management (SLM) documents ICE's systems development methodology and its application throughout the ICE enterprise. It is designed to ensure that appropriate activities are planned and implemented in each stage of the SLM lifecycle to increase the success of each program and its projects. Recently, ICE incorporated its enterprise-wide data management and information sharing strategies in the ICE SLM. This was accomplished by integrating the NIEM information exchange package documentation (IEPD) lifecycle closely with the stages of the ICE SLM to ensure that the information sharing capabilities are effectively and efficiently delivered and implemented throughout the enterprise.

FORMAT

Case study

PRESENTERS

Philip Letowt

*Director, Systems Development Division
Office of the Chief Information Officer
U.S. Immigration and Customs Enforcement*

Mini Kanwal

*ICE OCIO Data Architecture Manager
U.S. Department of Homeland Security*

11:50 a.m.–12:05 p.m.

Break

12:05 p.m.–1:20 p.m.

Keynote Luncheon—Best of NIEM 2011 Award Ceremony

For more information and Best of NIEM criteria, please visit <http://www.iir.com/registration/niemtraining/best.aspx>

1:20 pm–1:35 pm

Break

1:35 p.m.–2:45 p.m.

Track 1 NIEM Adoption

PRESENTATION TITLE

A Model-Driven Architecture Approach to Generating Health Information Exchange Implementations: Leveraging the Federal Health Information Model (FHIM) and the NIEM Framework

SUMMARY

The goal of the FHIM information modeling project is to produce a logical health information model that supports semantic interoperability and that is built by harmonizing information from the individual federal partners and standards organizations. The FHIM modeling project balances the conflicting requirements of maintaining relevant business perspectives and unique business needs, while providing the common basis necessary to promote semantic interoperability among federal partners and with external trading partners. The health information model is being developed using the Universal Modeling Language (UML) notation. The model will be freely available and easy to access. The FHIM project is actively pursuing the integration of its models with the NIEM Core, structure, and governance methodology. It is envisioned that FHIM will integrate closely with NIEM.

The presentation will introduce the audience to the underpinnings and challenges of health information technology semantic interoperability, standards development organizations, information exchanges, and current modeling activities. We will present the findings of our efforts, integration issues, and design decisions that were made related to integrating the FHIM with NIEM Core.

FORMAT

Single speaker

PRESENTER

Steve Wagner

Standards Program Manager

Contractor to the Federal Health Architecture Program
U.S. Department of Health and Human Services

Track 2 NIEM Adoption

PRESENTATION TITLE

Automated Policy Compliance of NIEM-Based Information Exchange

SUMMARY

This session shows an architectural approach to policy enforcement, including fine-grained access control and an implementation solution to show how this approach would work in your system. NIEM-based information exchange involves establishing reusable transactions that allow data to be transferred and understood by the parties. Significant work is being done to define an architecture, including information about users, data, and other factors that can be used to implement the policy. One of the problems is the lack of metadata in legacy data sets. Implementing the policy at the IEP level allows us to implement policy in a reusable fashion for recurrent transactions. The goal is to establish vetted policies at the highest level, which can be augmented by organizational policy and business processes.

The first step is translating the policy into semantically consistent policy elements that can be understood by the architecture. The second step is establishing a capability for the systems to efficiently enforce the rules. The challenge is to render policy elements into rules that can be enforced at run time and reused across services, but that do not obfuscate critical policy directives. An architecture composed of Policy Enforcement Points (PEPs), Policy Decision Points (PDPs), Security Token Services (STS), and integration with legacy information sources can offer this capability.

FORMAT

Speakers

PRESENTERS

K. Scott Morrison

Chief Technology Officer and Chief Architect
Layer 7 Technologies

Patricia Hammar

Founder
PKH Enterprises

1:35 p.m.–2:45 p.m.

Track 3 Tools, Tools, Tools

PRESENTATION TITLE

From UML to IEPDs: A Look at the New JIEM Tool

SUMMARY

This presentation introduces new features and functionality of the latest version of the Justice Information Exchange Modeling (JIEM) Tool, JIEM 5.0. The new JIEM tool is developed on the Eclipse platform and leverages open plug-ins such as UML2Tools. This presentation shows how JIEM supports the NIEM Information Exchange Package Documentation (IEPD) Lifecycle and will specifically demonstrate how to use JIEM to create a NIEM-conformant IEPD and a Global Reference Architecture (GRA) Service Specification Package (SSP). The presentation will summarize the concept of a GRA SSP and will include a live demonstration of how a GRA SSP created in JIEM can support the exchange of information using open source tools such as Apache CXF, Apache ServiceMix, and Apache Camel.

FORMAT

Moderated panel

PRESENTERS**Andrew Owen**

Justice Information Systems Specialist
SEARCH, The National Consortium for
Justice Information and Statistics

Jim Douglas

Justice Information Systems Specialist
SEARCH, The National Consortium for
Justice Information and Statistics

Vijay Mehra

Standards Portfolio Lead
Office of the Program Manager,
Information Sharing Environment

1:35 p.m.–2:45 p.m.

Track 4 NIEM in Action

PRESENTATION TITLE

Best of NIEM 2009 Award Winner: New York City HHS-Connect

SUMMARY

The New York City (NYC) Health and Human Services (HHS)-Connect Enterprise Architect will provide an overview of the program and how NIEM is leveraged, as well as the strategy and approach NYC HHS has taken to create NIEM extensions. The presentation provides an overview of tools used by HHS-C and modifications made to NIEM-provided tools, and highlights tools in the HHS-C road map. If time permits, there will also be a brief discussion of NIEM and data security.

FORMAT

Case study

PRESENTERS

Louis Sell

Enterprise Architect
New York City HHS-Connect

Zhen Zhu

Information Architect
New York City HHS-Connect

Track 5 NIEM in Action

PRESENTATION TITLE

N-Dex in Action: Tips, Tools, and State and Local Success

SUMMARY

This presentation will help the audience learn how to use N-Dex in different capacities, including using open source Java tools and the JAXB and Apache CXF Web services framework. The presentation will also cover how to submit the N-Dex IEPD to the Federal Bureau of Investigation using the lightweight open source integration framework, Apache Camel. Case studies will be featured from state and local government, including Dallas and its Dallas County Data Exchange (DC-Dex).

FORMAT

Case study

PRESENTERS

Yogesh Chawla

Information Sharing Architecture
Specialist
SEARCH, The National Consortium
for Justice Information and Statistics

Rehan Chawdry

Integrated Justice Practice Leader
Sypherlink

2:45 p.m.–3:00 p.m.

Break

3:00 p.m.–4:10 p.m.

Track 1 NIEM Adoption

PRESENTATION TITLE

Model Human Services Data Exchange

SUMMARY

The Administration for Children and Families (ACF) formally began its domain stewardship of the Human Services domain in the spring of 2011. New York City has blazed the trail nationally in interoperability of health and human services and, by relying on the NIEM standard, has added considerable momentum to the development of the NIEM Human Services domain.

During this workshop, ACF and New York City's HHS-Connect will join together to present the new NIEM Human Services domain's flagship reusable data exchange. While final selection of this IEPD is yet to be determined, it will most likely be: (1) Food Stamp application and renewal; (2) Medicaid renewal; or (3) monitoring contract service provision.

The intended audience for this presentation consists of individuals and organizations with knowledge about human services and interest in the Human Services domain. This presentation will be of particular interest to those working in the human services field with interest in replicating the presented data exchange.

FORMAT

Workshop

PRESENTERS

David Jenkins

Director, CISO

Administration for Children and Families
U.S. Department of Health and Human
Services (HHS)

Louis Sell

Project Director

New York City HHS-Connect

Track 2 NIEM Adoption

PRESENTATION TITLE

Human Services Collaborations—Information Exchange Across the Digital Divide

SUMMARY

Criminal justice agencies have been sharing information effectively for a number of years, thus providing better information to decision-makers, expediting service provision, notifying parties of events, reducing erroneous or redundant data entry, and providing performance measurements. However, when it comes to sharing information between courts and human services and among human service agencies, a digital and cultural divide exists. Privacy and confidentiality concerns are often raised, not to mention that the acronyms, terminology and breadth of services within human services can be overwhelming to the uninitiated. Through an interactive discussion with experts, participants will consider the various benefits of data sharing, and will hear from communities that have successfully extended beyond criminal justice into brave new territory. Participants will have some opportunity to work through privacy frameworks (HIPAA, 42 CFR Part 2, and state laws) and explore policies and best practices that can be replicated. Members of the Privacy Panel will also demonstrate an on-line software tool in early stages of development that will help the community ensure their privacy policy statements are aligned with privacy recommendations from the Global Technical Privacy Task Team while remaining compatible with privacy enforcement technologies such as eXtensible Access Control Markup Language (XACML).

FORMAT

Case study

PRESENTERS

Tara Kunkel

Principal Court

Management

Consultant

National Center for
State Courts

Alicia Davis

Principal Court

Management

Consultant

National Center for
State Courts

Nick Macchione

Director

County of San

Diego Health and

Human Services
Agency

Aaron Gorrell

President and CEO

Waterhole

Software

3:00 p.m.–4:10 p.m.

Track 3 Tools, Tools, Tools

PRESENTATION TITLE

Taming the Beast: NIEM Tools for Normal People

SUMMARY

NIEM is huge and continually growing. Getting a mental handle on it is difficult for even the smartest folks. This session introduces and demonstrates a variety of tools funded by the Bureau of Justice Assistance (BJA) and the Office of Justice Programs Office of Juvenile Justice and Delinquency Prevention (OJJDP), and developed to help people understand and use NIEM.

- **NIEM SAW:** A stand-alone version of Wayfarer. It is cross-platform, meaning it runs under Windows, OS X, and even Linux. It also includes a number of user interface improvements.
- **iWayfarer:** A stand-alone Web application optimized for iPhones. It gives fast and mobile access to the details of NIEM and, once installed, does not require a data connection.
- **Visual NIEM:** An innovative graphical display of NIEM elements. It packs a tremendous amount of information into an easy-to-understand graphic, dubbed the “Wheel-O-NIEM.” Visual NIEM is usable as a separate tool but can also be accessed via standard online NIEM Wayfarer (and vice versa).
- **Extension Wizard:** An online tool for creating exchange and extension schemas. It leads users through a set of directed questions to help them build NIEM-conformant components and exchanges, making it easier to deal with XML Schema.

FORMAT

Single speaker

PRESENTER

Tom Carlson

Consultant

Tom Carlson Consulting

3:00 p.m.–4:10 p.m.

Track 4 NIEM in Action

PRESENTATION TITLE

Statewide Integration of Public and Private Jail Inmate Tracking Systems Using a NIEM-Based Interface

SUMMARY

The New Jersey Administrative Office of the Courts (AOC) developed a county jail inmate tracking system called County Correction Information System (CCIS) in the 1980s. Inmate data is entered and maintained by the county jails, with the data utilized by the jails, courts, law enforcement, and the Department of Corrections. Though the system has been substantially enhanced through the years, it does not offer many jail management features (e.g., inmate accounting, medical, commissary, wristband scanning) that are now offered by private vendor jail management systems (JMSs). Many county jails have bought private vendor jail management systems to better manage their jails, but they must also maintain the state CCIS database.

To eliminate the duplicate data entry taking place, and to leverage the advantage of the private vendor JMS's functionality with the state's CCIS historical database (over 1 million inmates) and connectivity to the New Jersey criminal justice community, we have proposed a generic interface between any private JMS and CCIS using WebServices and NIEM standards. When it is completed, a county jail will be able to enter its inmate data into its own private JMS, and have that data populate the state CCIS database in real time. The presentation will focus on the project of developing the New Jersey CCIS Generic Interface.

FORMAT

Case study

PRESENTERS

Jack McCarthy

Chief of Automated Trial Court Services
New Jersey Administrative Office of the Courts

Paul Dermody

Supervisor, Criminal Division Support Team,
Automated Trial Courts Systems Unit
New Jersey Administrative Office of the Courts

Track 5 NIEM in Action

PRESENTATION TITLE

Spotlight on OASIS: From Specification to Open Standard to Implementation

SUMMARY

This presentation explores the research regarding emergency data interoperability and seeks to connect those decision-makers, operators/responders, and additional stakeholders through the development and application of standardized messaging formats. This panel will discuss the process, advantages, and challenges of open standards development for NIEM. The variety of panelists will discuss OASIS use in NIEM implementations and specifications that would benefit from the ratification of open standards.

FORMAT

Moderated panel

PRESENTERS

James Cabral

Senior Manager
MTG Management
Consultants, LLC

Elysa Jones

Chair
OASIS Emergency
Management
Technical
Committee

Donald McGarry

Lead Systems
Engineer
MITRE
Corporation

Scott McGrath

Chief Operating
Officer
OASIS

4:10 p.m.–4:25 p.m.

Break

4:25 p.m.–5:25 p.m.

NASCIO State and Local Panel

Moderator: **Steven Fletcher**, Utah CIO. Panel members: **Alisha Griffin**, New Jersey State IV-D Director; **Wanda M. Gibson**, Fairfax County, Virginia Chief Technology Officer and Director, Department of Information Technology; **Daniel J. Paolini**, Deputy Chief Technology Officer, Data Management, Information Architecture and Administrative Services Affinity Group, New Jersey Office of Information Technology; **Maury Mitchell**, Director, Alabama Criminal Justice Information Center

AGENDA

08 THURSDAY NIEM 2011 NATIONAL TRAINING EVENT

AUGUST 23–25, 2011



8:30 a.m.–9:45 a.m.	Plenary Corrine Charette , <i>CIO, Government of Canada</i>
9:45 a.m.–10:15 a.m.	Break
10:15 a.m.–12:00 Noon	NIEM Town Hall—International Executive Panel: Implementing NIEM Across National Borders At North America Day in Mexico City (July 12–13), Canadian, Mexican, and American delegations agreed to formally launch trilateral pilot projects in the areas of public health and public safety, adopting NIEM as their information sharing foundation. Initial identification and planning responsibilities of the pilot programs are possible based on the newly signed trilateral Memorandum of Agreement signed at North America Day. Two work groups are being formed to design and develop prototype projects, which will demonstrate the implementation of critical information exchanges across national borders. Plans for the pilot programs are expected to be announced at the NIEM 2011 National Training Event. For more information please visit: http://www.ise.gov/blog/david-l-mcclure/us-mexico-and-canada-sign-memorandum-understanding-share-information Moderator: Steve Fletcher , <i>CIO, Utah</i> Panel: Richard A. Spires , <i>CIO, U.S. Department of Homeland Security</i> ; John Teeter , <i>Deputy CIO, U.S. Department of Health and Human Services</i> ; Corrine Charette , <i>CIO, Government of Canada</i> ; Carlos Viniegra Beltrán , <i>CIO, Government of Mexico</i> ; Michael Howell , <i>Deputy Program Manager, Office of the Program Manager, Information Sharing Environment</i>
12:00 Noon	Adjourn

08 MONDAY ADDITIONAL ACTIVITIES

3:00 p.m.–5:00 p.m.	PRESENTATION TITLE Domain Steward Workshop: Domain Update Tool
	SUMMARY Domain updates are a new mechanism by which domain stewards can release updated domain content outside the standard NIEM release cycle. This workshop is open to members of the NIEM Business Architecture Committee (NBAC), the NIEM Technical Assistance Committee (NTAC), and existing or potential domain stewards and their governance teams and is intended to be an informal and interactive session. The session will begin with a review of the domain update concept, and how it fits within the NIEM version architecture, and an overview of the process to create new domain updates. Next, attendees will walk through the domain update tool. The last part of the workshop is a chance for domain stewards to discuss lessons learned from building previous domain updates, review best practices going forward, and ask questions and request new tool features.
	FORMAT Workshop
	PRESENTERS Christina Medlin <i>Research Scientist II, Georgia Tech Research Institute</i>
	John Matthews <i>Research Scientist II, Georgia Tech Research Institute</i>