



NatioNal iNformation ExchaNgE mOdEl (NIEM)

A Framework for Nationwide Information Exchange

Frequently Asked Questions

What is NIEM?

The National Information Exchange Model (NIEM) is a local, state, tribal, and federal interagency initiative providing a foundation for seamless information exchange. NIEM is a framework to:

- Bring stakeholders and communities of interest (COIs) together to identify information sharing requirements in day-to-day operational and emergency situations.
- Develop standards, a common lexicon, and an online repository of information exchange package documents to support information sharing.
- Provide technical tools to support development, discovery, dissemination, and reuse of exchange documents.
- Provide training, technical assistance, and implementation support services for enterprise-wide information exchange.

Executive Summary

About Global

The U.S. Department of Justice Global Justice Information Sharing Initiative (Global) provides guidance for technology funding, training, and technical assistance to justice and law enforcement agencies nationwide to ensure consistency among systems and initiatives. NIEM helps to further the Global mission by standardizing information exchanges among diverse agencies and organizations. Learn more about the Global Initiative at <http://it.ojp.gov>.

for morE iNformation, Visit www.NiEm.gov.

What is the background on NIEM?

The National Information Exchange Model (NIEM) Initiative was launched on February 28, 2005, through a partnership agreement between the U.S. Department of Justice (DOJ) and the U.S. Department of Homeland Security (DHS) and signed by the respective chief information officers to address the Homeland Security Presidential Directive HSPD-5 on information sharing.

What other standards does it leverage?

It leverages the data exchange standards efforts successfully implemented by the Global Justice Information Sharing Initiative (Global) and extends the Global Justice XML Data Model (GJXDM) to facilitate timely and secure information sharing across the whole of the justice, public safety, emergency and disaster management, intelligence, and homeland security domains.

What is the NIEM vision?

The NIEM vision is to be the standard, by choice, for intergovernmental information exchange. Practitioners at all levels of government and industry will share accurate, complete, timely, and appropriately secured information to enable informed decision making to ensure homeland security and public safety. NIEM will provide a common vocabulary to ensure consistency and understanding among domains that may not have been collaborating traditionally to simplify the process of information sharing between them.

Who is currently participating in NIEM?

Broad-based participation is critical to provide needed vision and effective decision-making direction for NIEM. Representatives from all relevant COIs, spanning all levels of government, can participate in NIEM. The current domains in NIEM include justice, intelligence, immigration, emergency management, international trade, and infrastructure protection and information assurance.

NIEM's operations are dependent upon its stakeholders. Other stakeholders include executives, practitioners, program managers, subject-matter experts, technologists, product developers, academia, standards bodies, sponsors, media, and private industry, each of whom brings unique perspectives and contributes important content to the NIEM development efforts. These stakeholders compose the COIs responsible for developing, harmonizing, and managing the data components found in NIEM.

What problem does NIEM seek to solve?

The National Information Exchange Model (NIEM) seeks to create an effective information exchange standard to share critical data across domains in support of day-to-day operations and emergency situations.

NIEM 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 to support the day-to-day operations of agencies throughout

the nation. Information exchange, when performed between two partners, is often bound by technology to that specific scenario. NIEM will provide a framework to ensure that information exchanges are easily reused, adapted, and made available to allow additional partners to engage with minimal redundancy.

How is NIEM managed/governed?

NIEM is a multiagency information sharing program. Intergovernmental groups representing key stakeholders play an important role in creating and sustaining partnerships. Partners can share knowledge and resources across the government and ensure that NIEM provides true value to citizens. Because of the inherent complexity of issues and jurisdictional control, an organizational structure is a necessary first step to ensure that the stakeholders are intimately involved in the project.

These NIEM governance bodies include the Executive Steering Committee (ESC), policy advisory panel, NIEM Program Management Office (PMO), and stakeholder committee. The NIEM Executive Steering Committee represents key public decision makers from local, state, tribal, and federal agencies with a significant vested interest in NIEM objectives. The ESC provides strategic direction to the Program Management Office, whose responsibilities are to oversee the implementation and development of NIEM.

For more information on how NIEM operates, see the Concept of Operations document located on the NIEM Web site, <http://www.niem.gov>.

What is meant by universal and common NIEM components?

Data components within an information exchange that are commonly shared and understood among all NIEM domains are identified as universal components (e.g., person, address, and organization), while components used in exchanges between multiple domains, but not universally shared, are identified as common components. Components understood and managed by a specific COI are considered domain-specific.

For example, person was chosen for classification as a universal component for purposes of NIEM. A data component that describes the characteristics of a person will look very similar from agency to agency. The component may include such attributes as the person's name, date of birth, gender, race, ethnicity, height, weight, eye color, hair color, body type, etc. The person component is used in nearly all of the relevant agency or domain information systems that are affiliated with NIEM.

What is the scope of the NIEM Initiative?

Rather than nationwide integration of all local, state, tribal, and federal databases, NIEM focuses on cross-domain information exchanges between communities of interest (COIs), across all levels of government. NIEM will provide the data standards to ensure a semantically consistent information exchange package, but other exchange layers will be left to the individual implementer to ensure that NIEM is compatible with any platform or software.

What is the current status of NIEM?

NIEM development is an iterative process. The processes, standards, documentation, tools, etc., that are part of NIEM will continue to be reviewed and updated as NIEM grows in scope and scale. Moving forward, NIEM efforts will concentrate on:

- **Core Capability Development and Maintenance:** This effort focuses on delivering NIEM 1.0 and subsequent releases; fully implementing NIEM governance; representing the critical mass of justice, homeland security, and intelligence information exchanges in their associated domains; developing a tools roadmap based on user requirements and delivering the tools into operation; and launching outreach activities (including the Web site), conference presentations, and training.
- **Information Exchange Standard Development:** This effort focuses on developing families of Information Exchange Package Documentation (IEPD), representing core, priority business areas at the national level. The initial focus areas will include incident reporting, people screening, suspicious activities, cargo screening, emergency and disaster management, and case management. Policies and processes will be developed to support creating, modifying, and implementing these standards. Nothing in this statement precludes COIs from championing and developing information exchange standards within their domains or for multiple COIs to do so cooperatively, with direct sponsorship from the NIEM PMO. They will follow the NIEM IEPD development process.
- **Outreach and Implementation:** This effort focuses on identifying additional pilots at the local, state, and tribal levels, targeting the emerging information exchange standards mentioned above, and implementing the infrastructure needed for training and technical assistance, including a help desk.

What is an IEPD and how do I use one?

Information Exchange Package Documentation (IEPD) is a set of data artifacts used to support the sharing of data for a particular business purpose. It is a set of documentation that accurately and completely defines the contents of a specific information exchange.

For additional information on what makes up an IEPD and how to use one in an information exchange, please refer to the NIEM Concept of Operations.

How do I use NIEM to build information exchanges?

The NIEM IEPD life cycle has six steps:

1. **Conduct Business Analysis and Requirements Review:** This step defines the business requirements associated with an information exchange for which NIEM is used. It incorporates scenario-based planning, which is the recommended methodology for elaborating the business context of events, incidents, or circumstances in which information exchange takes place.
2. **Complete Information Exchange Mapping and Data Modeling:** This uses established methodologies to map

and model operational information exchanges. Moreover, it describes the process a COI follows to map its data sources to NIEM and identify IEPDs available for reuse and/or gaps between its data source and NIEM. COIs can use the NIEM repository to search and discover existing data components to decrease the time needed to construct IEPDs.

3. **Build and Validate IEPDs:** This step addresses the importance of using common documentation standards, such as IEPDs, to ensure that there is consistency in the way information is captured, stored, and exchanged and that uniform methodologies exist to support the generation of the IEPDs. Once the COI validates its IEPD, it may submit the IEPD to its domain-specific area (proceed to Step 5) or nominate data components for inclusion into universal or common (proceed to Step 4).
4. **Data Harmonization and Promotion:** The appropriate NIEM governance stakeholders form a team to review an IEPD submission and determine whether any of the data components should be included in universal or common. The team evaluates the submission and makes a recommendation regarding which, why, how, and when to integrate the proposed changes into NIEM.
5. **Publish and Implement IEPDs:** Once an IEPD is approved, it is stored in the NIEM repository. Other stakeholders or COIs can then search and discover published IEPDs for reuse or extend for a specific instance of the information exchange.
6. **Garner Feedback and Enhance and Expand IEPDs:** This step describes how the COIs work with the NIEM Program Management Office (PMO) to ensure existing IEPDs remain up to date and compliant with NIEM.

My agency or organization is interested in participating in NIEM. Whom should we contact?

For contact information, please see the Contact Us link at the bottom of the NIEM.gov Web site. There you will be directed to the appropriate point of contact for your inquiry.

Will NIEM replace my existing databases or software?

There will be a minimal need to retrofit existing systems and databases. The primary benefit of utilizing Extensible Markup Language (XML)—on which NIEM is built—as a means of data exchange is that it is platform independent. By formatting data in a commonly understood format before sending it as a message, there is a global understanding of the meaning of that data, even to jurisdictions outside the relevant community of interest. Systems must simply incorporate a translation mechanism between their data sources and the messaging infrastructure in order to map incoming and outgoing messages to their own data, which need not be altered. This implementation model is flexible because it does not require agencies to alter their legacy systems and databases or the way they currently do business, yet it opens up the possibilities for data exchange among other agencies with very little effort.

I currently use the Global Justice XML Data Model for information exchange. Will NIEM make my exchanges obsolete?

No—GJXDM has no plan to abandon its current releases, and existing implementations will continue to function. The relationship between GJXDM and NIEM will be a loose coupling, whereby GJXDM will utilize the commonly understood components of NIEM, while specializing the justice and public safety-oriented parts. Future releases of the GJXDM may provide the appropriate linkages for users to take advantage of NIEM automatically, but until those linkages are created, users are encouraged to make their own decisions as to the best way to implement exchanges.

Can you give a real-life example of how NIEM will help ease the dissemination of information?

An example of an emergency scenario demonstrates the breadth and scope of information sharing requirements in operational settings:

The 911 Emergency Operations Center (EOC) of a mid-sized urban jurisdiction begins receiving telephone calls from residents regarding what is variously described as a fire, an explosion, and a partial building collapse of a 25-story building in the city center. The calls quickly escalate in number and urgency and are received from residents of the affected office building, local residents of other nearby buildings, and cellular telephone calls from pedestrians and passing motorists.

The EOC dispatches police, fire units, and emergency medical personnel. The cause of the damage and the fire, as well as the extent of the damage and scope of the emergency, takes time to establish. First responders arriving on scene begin reporting back to the EOC on the nature and scope of the damage, which is extensive and may well result in a catastrophic collapse of the entire building and potentially extensive damage to surrounding buildings. Initial on-scene units find the aftermath of a significant explosion with several ongoing fires and many “walking wounded” wandering throughout the incident scene.

Establishing lines of communication and sharing information with relevant local, state, and federal agencies are crucial. First responders must coordinate their actions to secure the scene and ensure the safety of residents and responding units to rescue, treat, and transport victims for medical treatment; extinguish fires and stabilize the site; share information with local government and state and federal officials; marshal resources; share relevant data with local hospitals, civil defense, environmental authorities, the media, and federal agencies; recover bodies and evidence; and begin investigations to apprehend and detain suspects (if necessary).

Hospital officials may discover that the wounded are experiencing chemical burns or delayed reactions to biological agents. This is life-threatening information to Emergency Medical Services (EMS), if left unreported. Currently, there is no standard way to communicate this information to emergency response officials. NIEM provides the hospital a quick and efficient way to disseminate critical information to emergency responders, establishing a way for all parties involved to

rapidly share information without boundaries and coordinate response efforts.

What added value does NIEM provide?

Operational stakeholders and practitioners from all levels and branches of government have the potential to be directly involved in NIEM, as are private sector solution providers, in designing these enterprise-wide information sharing capabilities.

NIEM's primary value propositions include:

1. Improving public safety and homeland security by enabling real-time and precise information exchange between COIs at all levels of government.
2. Enhancing the quality of justice and decision making by providing accurate, timely, complete, and relevant information to decision makers across the broad spectrum of NIEM COIs.
3. Achieving greater efficiency, effectiveness, and Return on Investment (ROI) in operations and decision making by providing users with a set of reusable data components, as well as the tools needed for discovering and developing common and universal data components for effective information exchange.
4. Reducing the design and development time needed to build and implement robust, agile information sharing capabilities using NIEM's common standards, vocabulary, reusable data components, and tools. Additionally, NIEM will supply a data repository to host IEPDs and ensure interoperability between systems.
5. Facilitating business transformation by identifying and documenting information exchange requirements among diverse COIs, building information sharing standards, and enabling reengineering of key operations, where effective.

A comprehensive Performance Management Plan will include the requirements and processes for regularly documenting and measuring the core business value of NIEM in building information sharing capabilities in each of the dimensions noted above. It will include specific, objective, quantifiable metrics associated with the NIEM value propositions. Reports will be used to document the outcomes (actual results) of these measures by the appropriate governance bodies that oversee program resources to ensure they provide value.

Which agencies are currently testing NIEM Pilots?

DHS Immigration and Customs Enforcement
DHS Customs and Border Protection
DHS Infrastructure Protection
DHS Team 5 Data Focus Group
Emergency Data Exchange Language (EDXL)
DHS Geospatial Management Office (GMO)
Intelligence Community (IC)
National Capital Region (NCR)