CAM v2.0 for NIEM Exchange Development

**Background**

The National Information Exchange Model (NIEM) is getting increased attention within the public sector IT community as a standard framework for data exchange between government agencies. The scope and breadth of NIEM today provides its own unique challenges for solution implementers looking to leverage NIEM to rapidly develop optimized exchange patterns within their business applications. The current NIEM v2.1 includes twelve domain areas and associated dictionaries with more being anticipated as additional government agencies evaluate and adopt the approach.

Determining what existing NIEM components match the context of a particular information exchange is increasingly challenging along with contributing quality new components as NIEM use expands.

**Open Source Initiative**

The latest Content Assembly Mechanism (CAM) v2.0 toolkit provides new and innovative capabilities that underpin complete life cycle support for NIEM exchange development. The CAM toolkit empowers the NIEM community to deliver solutions in record time with improved quality, consistency and reliability. Oracle is supporting the development of CAM as an open source resource in support of the NIEM community.

**Functional Capabilities**

Domain dictionaries of information exchange components are at the heart of NIEM and the new CAM v2.0 toolkit. The CAM editor provides simple visual drag and drop from configurable dictionary component collections into any new or existing NIEM information exchange structure. This transforms the process from complex, time-intensive schema editing by specialized XML developers into something that can be done by business application knowledge workers.
Involving business stakeholders and information architects in the modeling process during the design phase of the NIEM approach is crucial to the design of successful implementations. The new CAM toolkit provides visual modeling interfaces so that developers can share information exchange structures with knowledge workers as modeling diagrams. Model generation supports both UML modeling tools via XMI file export and mind mapping tools such as the open source Freemind tool via XML export.

Enterprise Dictionaries

Enterprise dictionary generation is a new capability introduced into the NIEM approach in 2011 but for which previously there has been only proprietary solution support. The CAM v2.0 editor can produce dictionary components by harvesting a variety of existing enterprise assets and schemas. The resulting dictionaries are in standard XML layouts that combine use of OASIS and UN/CEFACT standard dictionary definition technical specifications. These new dictionaries can be easily plugged into the drag and drop visual editor included in CAM v2.0.

Underlying these new capabilities is the existing robust CAM functionality developed for NIEM over the past two years with DHS assistance. This includes evaluation of structures against the NIEM naming and design rules to flag common errors, spellchecking and interoperability blockers; generation of new XSD schema sets, example XML instance generation, business rule documentation, a testing and validation engine; spreadsheet cross reference generation and NIEM reuse statistics analysis.

End to end NIEM lifecycle development support

The new CAM v2.0 puts together a complete set of tools designed to make the NIEM approach simpler, quicker, more consistent and predictable for implementers. In addition, the standards based open source resources and code base empower the NIEM community to extend and expand the toolset in creative ways in the future.

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