

## NIEM v2.1 Dictionary Pack for CAM editor v2.0

### Introduction

The collection of CAM-generated canonical component dictionaries provided in this download pack is built from the NIEM domain subset schemas obtained from the NIEM SSGT options page (<http://niem.gtri.gatech.edu/niemtools/ssgt/SSGT-Options.iepd>) and using each of the “Add” domain links. Each of these domain subsets is controlled by its wantlist.xml configuration file which in turn determines which components appear in the corresponding dictionary<sup>1</sup>.

In addition, both the Justice and NIEM Core schema have been manually edited to remove recursive object references to provide atomic canonical structure artifacts in the dictionary. Automatic recursion detection also has truncated any locally recursive items to just the element node, without any subsequent children. The components in these dictionaries therefore may differ from the exact components viewed in the original NIEM schema in their level of depth details.

The aim is to provide a collection of components that can be rapidly leveraged with the CAM Toolkit to create basic NIEM-based information exchanges with typical data use patterns. These basic components can then be augmented with custom domain dictionary components harvested using CAM tools from other existing local schema definitions or by importing further tailored subset schema built manually via the online NIEM SSGT tool.

Dictionaries are provided in generic XML format, in Microsoft Excel™ spreadsheet format and in compiled format. The Excel format permits manual review and discovery of dictionary components, while the compiled XML format is for use with the visual editor tool.

### Using Dictionaries with Editor Visual Structure Designer Tool

The canonical XML dictionary format works in either the regular spreadsheet XML or compiled format with the CAM visual designer and drag and drop tools. The drag and drop tool allows selection of a complete structure, or pieces of a structure component. This behavior is set via the configuration settings control in the dictionary panel. These controls also permit collection sharing and refresh from common copies on a shared accessible resource location. This facilitates rapid visual generation of exchange schema CAM templates. Once an exchange template is created by the visual designer then it should be reviewed for accuracy and completeness in the CAM Toolkit. Further changes can then be made manually in the editor to add rules, additional elements and attributes, or to exclude parts (sub-trees or individual nodes) of the structure.

Notice that multiple dictionaries may be used together as a collection within the dictionary tool to combine components into a resulting exchange structure from more than one domain.

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<sup>1</sup> Using the Add domain makes a subset that when downloaded via “Generate Documents” link includes the documentation as well.

Once the template is complete, the exchange XSD schema can be generated using the “Export Templates as an XSD Schema” function with the mode selection set to “NIEM 2.1”. Next we discuss details of configuring the dictionary collection process.

## Example Collection Control File

The use of dictionaries collection example:

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- CAM dictionary extension (version 1.00) -->
<camed:collection name="NIEM Dictionaries Collection">
  <as:Namespaces>
    <as:namespace prefix="cbrn">http://niem.gov/niem/domains/cbrn/2.1</as:namespace>
    <as:namespace prefix="census">http://niem.gov/niem/census/1.0</as:namespace>
    <as:namespace
prefix="em">http://niem.gov/niem/domains/emergencyManagement/2.1</as:namespace>
    <as:namespace prefix="fbi">http://niem.gov/niem/fbi/2.0</as:namespace>
    <as:namespace
prefix="fs">http://niem.gov/niem/domains/familyServices/2.1</as:namespace>
    <as:namespace prefix="geo">http://niem.gov/niem/geospatial/2.1</as:namespace>
    <as:namespace
prefix="im">http://niem.gov/niem/domains/immigration/2.1</as:namespace>
    <as:namespace
prefix="intel">http://niem.gov/niem/domains/intelligence/2.1</as:namespace>
    <as:namespace
prefix="ip">http://niem.gov/niem/domains/infrastructureProtection/2.1</as:namespace
>
    <as:namespace
prefix="it">http://niem.gov/niem/domains/internationalTrade/2.1</as:namespace>
    <as:namespace prefix="j">http://niem.gov/niem/domains/jxdm/4.1</as:namespace>
    <as:namespace prefix="m">http://niem.gov/niem/domains/maritime/2.1</as:namespace>
    <as:namespace prefix="nc">http://niem.gov/niem/niem-core/2.0</as:namespace>
    <as:namespace prefix="s">http://niem.gov/niem/structures/2.0</as:namespace>
    <as:namespace
prefix="scr">http://niem.gov/niem/domains/screening/2.1</as:namespace>
  </as:Namespaces>
  <camed:dictionary name="CBRN v2.0 components" shortname="NIEM-cbrn-v1"
location="CBRN-dictionary-compiled.xml" namespaces="cbrn" stripCardinality="true"
sort="true">
    <camed:annotation item="//camed:dictionary[@shortname='NIEM-cbrn-v1']">
      <camed:documentation type="Description">NIEM v2.1 set of common domain
components for CBRN.</camed:documentation>
    </camed:annotation>
  </camed:dictionary>
  <camed:dictionary name="Emergency v2.0 components" shortname="NIEM-em-v1"
location="Emergency-dictionary-compiled.xml" namespaces="em" sort="true">
    <camed:annotation item="//camed:dictionary[@shortname='NIEM-em-v1']">
      <camed:documentation type="Description">NIEM v2.1 set of common domain
components for Emergency Management.</camed:documentation>
    </camed:annotation>
  </camed:dictionary>
  <camed:dictionary name="Family Services" shortname="NIEM-fs-v1"
location="Family-dictionary-compiled.xml" namespaces="fs" sort="true">
    <camed:annotation item="//camed:dictionary[@shortname='NIEM-fs-v1']">
      <camed:documentation type="Description">NIEM v2.1 set of common domain
components for Family Services.</camed:documentation>
    </camed:annotation>
  </camed:dictionary>
</camed:collection>
```

The use of a specific collection control file is then configured via the Preferences menu option, then under CAMeditor and Dictionaries selections.

The next section relates to the older Expander tools that pre-dated the new drag and drop visual designer. They are still available for those desiring to use batch preparation of structures via blueprints.

## Using Dictionaries with Expander

The canonical XML dictionary format works with the CAM template blueprint and expander tools to allow automated generation of exchange schema CAM templates. The expander matches structure node elements found in the blueprint to the same element in the dictionary and then expands the node's children identified in the dictionary. Matching and referencing is namespace prefix driven.

Notice that multiple dictionaries may be used together with the expander tool to combine components into a resulting exchange structure from more than one domain. Once an exchange template is created by the expander then it should be reviewed for accuracy and completeness in the CAM Toolkit. Further changes can then be made manually in the editor to add rules, additional elements and attributes, or to exclude parts (sub-trees or individual nodes) of the structure. After marking structure items as excluded, use the CAM "Export Compressed Template" function to produce the final exchange template with those items removed. Once the template is complete, the exchange XSD schema can be generated using the "Export Templates as an XSD Schema" function with the mode selection set to "NIEM 2.1". Next we discuss details of configuring the dictionary expander process.

## Running a Sample Blueprint

From the CAM editor File menu select Open Template and select a blueprint from the samples folder; then from the Tools menu select Expand Template. On that dialogue use the Control File entry Browse button to view the adjacent NIEM-dictionaries folder and pick the matching dictionary control file for the example blueprint type. Run the expand process and the results will display. Use the Open Template file dialogue again to load the expanded template into the CAM editor and review the details.

A quick overview of the blueprint process is provided in the presentation available here: [www.oasis-open.org/committees/document.php?document\\_id=36146](http://www.oasis-open.org/committees/document.php?document_id=36146)

## Example Expander Control File

The use of dictionaries by the expander tool is directed via a XML control file that associates namespace prefix details with a physical XML dictionary file. Shown here is an example of a XML control file referencing two dictionary files. Control files should be manually edited in a XML editor tool to make configuration changes as needed (e.g. green bold text areas).

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- CAM dictionary extension (version 1.00) -->
<as:Extension xmlns:as="http://www.oasis-open.org/committees/cam"
  xmlns:camed="http://jcam.org.uk/editor"
  name="uk.org.jcam.camed.extensions.dictionaryRepository">
  <camed:dictionary shortname="NIEM-j-v2.1"
```

```
location="NIEM-justice-dictionary.xml"
namespaces="j,im,nc">
<camed:annotation item="//camed:dictionary[@shortname='EDXL-v1']">
  <camed:documentation type="Description">
    NIEM Justice v2.1 set of common components.
  </camed:documentation></camed:annotation>
</camed:dictionary>
<camed:dictionary shortname="EDXL-v1"
location="EDXL-hospital-template-dictionary.xml"
namespaces="gml,xpil, ">
<camed:annotation item="//camed:dictionary[@shortname='EDXL-v1']">
  <camed:documentation type="Description">
    OASIS EDXL v1.0 set of common components.
  </camed:documentation></camed:annotation>
</camed:dictionary>
</as:Extension>
```

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