The Spatial Data Standards for Facilities, Infrastructure, and Environment Online (SDSFIE Online) Web Site

http://www.sdsfieonline.org

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Agenda

• Overview of SDSFIE Online

• Models & Workflows
  – Browse/Generate
  – Data Dictionary
  – Model Builder
  – Validation Tool
  – Migration Tool

• SDSFIE-M Metadata Style for ArcGIS
  – Metadata round-tripping (SDSFIE Online Û ArcGIS)
Overview of SDSFIE Online

- SDSFIE is a family of standards that are managed by the Installation Geospatial Information & Services (IGI&S) Governance Group (IGG).

- SDSFIE Online provides implementation support to the SDSFIE user community.

- The SDSFIE Governance Plan states it this way:
  - SDSFIE Online is a web-centric interface that enables users to access documentation, participate in functionality and utilize tools that support the goals of the SDSFIE family of standards.
Overview of SDSFIE Online

- Home
  - About
  - Support
  - Models & Workflows
  - Dashboard
  - Service Pages
    - Browse/Generate
    - Data Dictionary
    - Model Builder
    - Validation Tool
    - Migration Tool
• Currently, all are oriented towards the SDSFIE-Vector standard

• Browse/Generate
  – Browse one approved or draft model at a time
  – Generate physical (Excel) and logical (XML Workspace) models

• Data Dictionary
  – Search for keywords across all approved SDSFIE-V Models

• Model Builder
  – Build a new model by adapting an existing approved model
  – Import a model defined as an adaptation using an Excel template
  – Create a model via import of an XML Workspace document

• Validation Tool (under construction)
  – Validate an XML Workspace document against an approved model

• Migration Tool (under construction)
  – Migrate a geodatabase from one version of SDSIFE-V to another
A Word On “Models”

- In SDSFIE-V, a “Model” is a logical model that consists of:
  - A set of Entities (Feature Classes and Object Tables)
  - with Attributes (Fields)
  - that may be constrained by Enumerations (Domains)
  - that have Enumerants (Domain Values)
  - and, potentially, participate in Associations (Relationships).

- In each Version of SDSFIE-V, there is a Gold version that is the root of all other versions.

- Each Component of the IGG develops their own Headquarters Adaptation of the Gold version.

- Components can allow lower echelons to develop their own adaptations.

- All adaptations must adhere to SDSFIE-V Implementation Guidance.
Browse/Generate Tool

- Provides capability to browse a single model
  - Approved or
  - Draft

- Generates a logical model representation in Microsoft Excel for selected Entities

- Generates a physical model representation in XML Workspace document for selected Entities
Browse/Generate Tool

**AccessControl**

A structure (manned or unmanned) intended to control access to an area.

- **Definition:**
- **Description:**
- **Note:**
- **Justification:**

**Model Elements**

- Generate
- Select All

**Attributes**

<table>
<thead>
<tr>
<th>Symbols</th>
<th>Model Name</th>
<th>Definition</th>
<th>Data Type</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>accessControlIDPK</td>
<td>Primary Key. A unique, user defined identifier for each record or instance of an entity.</td>
<td>String</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>controlType</td>
<td>The type of access control.</td>
<td>String</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>mediaIDFK</td>
<td>Used to link the record to associated multimedia records that reference data such as imagery, video, audio, scanned documents, drawings, and other digital media. See your service implementation guidance for details as to the target of this foreign key.</td>
<td>String</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>realPropertySiteUniqueID</td>
<td>The unique identifier (UID) used to permanently identify a Site. This UID will be a Real Property Site Unique Identifier (RPSUID). Source: RIPIM 4.0a, November 4, 2010.</td>
<td>Integer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>realPropertyUniqueIdentifier</td>
<td>The real property unique identifier (RPUID) is a non-intelligent code used to permanently and uniquely identify a real property asset. Source:</td>
<td>String</td>
<td>18</td>
</tr>
</tbody>
</table>
Data Dictionary

• Provides capability to search across all approved models

• Keyword search

• Filter By:
  – Type (Entity, Attribute, etc)
  – Property (Name, Definition, etc.)
  – Status
  – Component
  – Version
Data Dictionary

Welcome to the SDSFIE Data Dictionary

The SDSFIE Data Dictionary specifies an Installation and Environment Community-wide data element dictionary for geospatial data. This dictionary includes entity concepts, attribute concepts with their enumeration types, and accompanying metadata. SDSFIE Data Dictionary contains models of SDSFIE from all Components and versions since 2.61.

This Data Dictionary provides the following services:
- Perform a New Search on entire list or subset of:
  - Entity Concepts (e.g., above ground storage tank, land parcel, structure, well)
  - Attribute Concepts (e.g., entity name, definition, operational status)
  - Enumerations [with Enumerants (Values)] (e.g., Operational Status Type Code [Abandoned, Closed, InService, NA, NotInService, Programmed, Proposed, Removed, TBD, Temporary, UnderConstruction, Unknown])
- Execute a Saved Search using criteria from a previous search session

New Search

Click the "New Search" button to define an SDSFIE Data Dictionary search.

Saved Search

Select the name of the saved search that you would like to execute and click the "Saved Search" button.

Please select a Saved Search

Saved Search
# Data Dictionary

## SDSFIE Data Dictionary Results Page

**Search Criteria**

<table>
<thead>
<tr>
<th>Search Term(s):</th>
<th>Item Type(s):</th>
<th>Item Property(ies):</th>
</tr>
</thead>
<tbody>
<tr>
<td>storage</td>
<td>ANY</td>
<td>ANY</td>
</tr>
<tr>
<td>Item Status:</td>
<td>ANY</td>
<td>ANY</td>
</tr>
<tr>
<td>Version(s):</td>
<td>ANY</td>
<td>ANY</td>
</tr>
<tr>
<td>As-of Date:</td>
<td>06/11/2015</td>
<td></td>
</tr>
<tr>
<td>Model(s):</td>
<td>ANY</td>
<td>ANY</td>
</tr>
</tbody>
</table>

**Entities (89)**

<table>
<thead>
<tr>
<th>Entity Name</th>
<th>Model Name</th>
<th>Alias Name</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AboveGroundStorageTank</td>
<td>aboveGroundStorageTankIDPK</td>
<td>aboveGroundStorageTankIDPK (SDSFIE 3.0 Gold)</td>
<td>Primary Key. The unique identifies data records and to link to other records.</td>
</tr>
<tr>
<td>AboveGroundStorageTank</td>
<td>aboveGroundStorageTankIDPK</td>
<td>aboveGroundStorageTankIDPK (GEOFidelis 3.0)</td>
<td>Primary Key. The unique identifies data records and to link to other records.</td>
</tr>
<tr>
<td>AboveGroundStorageTank</td>
<td>aboveGroundStorageTankIDPK</td>
<td>aboveGroundStorageTankIDPK (Air Force 3.0)</td>
<td>Primary Key. The unique identifies data records and to link to other records.</td>
</tr>
<tr>
<td>AboveGroundStorageTank</td>
<td>aboveGroundStorageTankIDPK</td>
<td>aboveGroundStorageTankIDPK (DISDI 3.0)</td>
<td>Primary Key. The unique identifies data records and to link to other records.</td>
</tr>
<tr>
<td>wstewan_pump_ejector_stn_point</td>
<td>alrmvlvey</td>
<td>alrmvlvey (SDSFIE 2.6 Gold)</td>
<td>The elevation in the wet well that</td>
</tr>
</tbody>
</table>

**Export Results**

- **Level of information:**
  - Simple
  - Full

- **What to do with profiled elements:**
  - Remove elements
  - Strikethrough elements
  - Display elements
Model Builder

• Provides capability to:
  – Build a new model by adapting an existing approved model
  – Import a model defined as an adaptation using an Excel template
  – Create a model via import of an XML Workspace document

• Edit most aspects of the model in an interactive interface
Model Builder

Welcome to the SDSFIE Model Builder

Name and Describe Your Model

Enter the name of your new Model:*
USACE 3.1 FUDS District

Enter the definition of your new Model:*
District adaptation for Formerly Used Defense Sites

Enter a version number for your new Model (optional):
4.0

Save Changes

Build from Existing Parent Model

Component: SDSFIE
Version: 3.1

Select Parent Model:
SDSFIE 3.1 Gold

Import Adapation from File

Import Excel File
Import Workspace File

Status Key:

D Draft (Editable)
A Approved (Editable)
S Submitted (Viewable)
R Rejected (Editable)
P Profilled (Viewable)

Show Deleted Models

Restore Model Edit Existing Model
Model Builder

- Provides capability to:
  - Build a new model by adapting an existing approved model
  - Import a model defined as an adaptation using an Excel template
  - Create a model via import of an XML Workspace document
- Edit most aspects of the model in an interactive interface
• Provide capability to import a model adaptation expressed in Excel as:
  – Profiles – elements to remove
  – Changes – elements to modify
  – Extensions – elements to add

• Useful when model results are coming from an external modeling source
  – For example, USACE 3.1 Inland Electronic Navigation Chart adaptation was created as a transformation of multiple XML sources
XML Workspace Import

• Provide capability to import a model adaptation as XML Workspace document (Geodatabase XML)
• Useful when model (or partial model) exists as a geodatabase
• Coincides with Phase 1 of Migration (as we’ll see later)
• Deployed July, 2015
Validation Tool

- Will provide capability to validate an XML Workspace document against an approved model
- Useful for determining if a geodatabase complies with a version of SDSFIE-V and to what degree
- Output will be Excel format

- Will depict
  - Profiles – what elements are in the approved model but not in the geodatabase.
  - Extensions – what elements are in the geodatabase, but not in the approved model
  - Changes – what properties of matching elements have changed

- Will highlight problem areas
- Deployed in late summer
Goals of the Migration Workflow

- Enable the migration of data that is in an SDSFIE-compliant database to a database that complies with a new version of SDSFIE.

- Enable partially- or non-compliant data to be migrated.

- Ensure that the workflow enforces existing policies, where applicable.

- Ensure that the workflow does not specifically allow or encourage users to avoid or violate existing policies.

- The workflow must work without installing software on the users machine.

- The workflow should be platform independent without significantly reducing the functionality.
Assumptions

- At least partial non-compliance of databases is the norm, not the exception.

- Users want to migrate non-compliant data together with compliant data and do not want two separate databases in the end.

- For the initial version of the Migration Workflow:
  - The starting point is an ESRI geodatabase and users can export an XML Workspace document describing that geodatabase.
  - The end point is an ESRI geodatabase and users can import an XML Workspace document to be used in the creation of the target geodatabase.

- Component managers will want the end point database to conform to a fully-defined, fully-justified schema that is in turn compliant with an approved adaptation.
Migration Workflow

Phase 1 (Source Model)
- Export Source Schema
- Import XML Workspace
- Conflate Geometry
- Alternate Naming
- Gather Definitions

Phase 2 (Target Model)
- Generate Target Mapping
- Configure Mapping
- Gather Justifications
- Finalize Target Model
- Submit & Obtain Approval

Phase 3 (Migration)
- Export Migration Package
- Import Target Schema
- Prepare Source Data
- Extract Transform Load
- Validate Migration
- Generate Migration Report

Increasingly well defined...

Increasingly well justified...

- Part of SDSFIE Online Model Builder (deployed July 2015)
- Performance in the GIS/Database Environment
- Part of SDSFIE Online Migration Workflow (deployed by Dec 2015 pending funding)
- Performance outside of SDSFIE Online (for now)
Phase 3 Migration

- In SDSFIE Online:
  - Export Target Schema as XML Workspace
  - Import Data Reviewer output
  - Generate Migration Report

- In ArcCatalog:
  - Import Target Schema
  - Prepare Source Data
    - Perform pre-migration task, such as Stash OBJECTID and GlobalID retention mitigation, etc.
  - Extract Transform Load
    - Use Production Mapping XREF Tool
  - Validate Migration
    - Use Data Reviewer to check migration results against the target
SDSFIE-M Metadata Style for ArcGIS

- Provides the capability to edit SDSFIE-Metadata compliant metadata in ArcGIS
- Export to SMIS 1.0.2
- SDSFIE-M (SMIS) is a profile of:
  - ISO metadata
  - National System for Geospatial-Intelligence Metadata Foundation
- Supports Information Security Markup tagging for unclassified data
Metadata Round-Tripping

SDSFIE Online
Browse/Generate

XML Workspace Document with Extended ArcGIS Metadata

ArcCatalog/ArcMap
SDSFIE-M Metadata Style

SDSFIE Online
Model Builder

XML Workspace Document with Extended ArcGIS Metadata

July 20-24, 2015
Questions?
The SDSFIE Online Web Site is at:
http://www.sdsfieonline.org