SDSFIE & A/E/C CAD

Bentley Map Schema Creation/Integration Tool

User Guide

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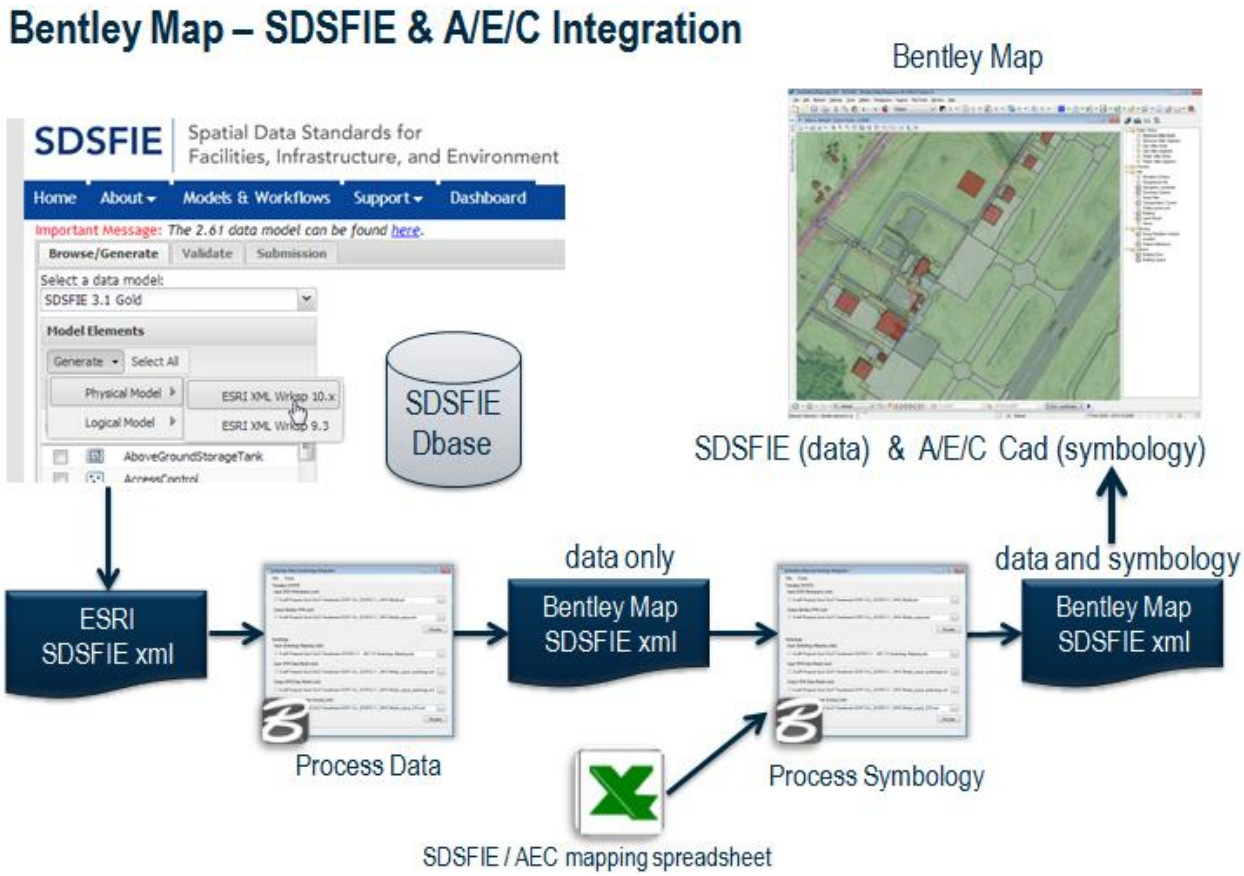
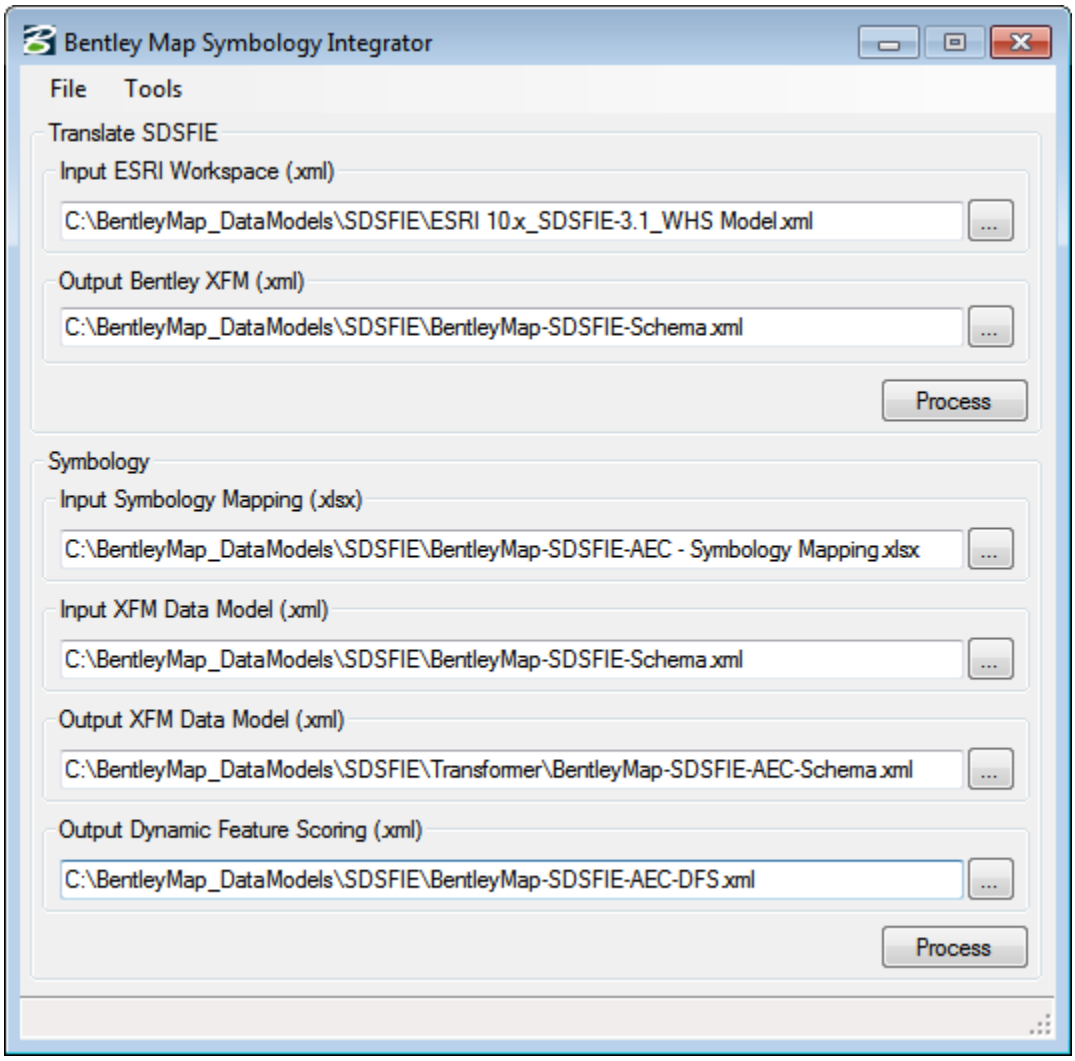
Overview

Download: http://communities.bentley.com/administrators/solutions/government/w/government_community_wiki/7110.aspx

The Bentley Symbology Integrator is designed to load the SDSFIE ESRI Geodatabase XML downloaded from http://www.sdsfieonline.org/ and create a Bentley Map XML Schema file. The tool will also take the Bentley Map schema file and apply a mapping spreadsheet with A/E/C CAD Symbology to the Bentley Map Schema (see included sample: BentleyMap-SDSFIE-AEC - Symbology Mapping.xlsx). This results in a fully complaint SDSFIE (data) and A/E/C Cad (symbology) Bentley Map environment which allows the user to work in either an engineering or geospatial environment and optimize the data sharing process between civil/engineering design and the owner/operator community.



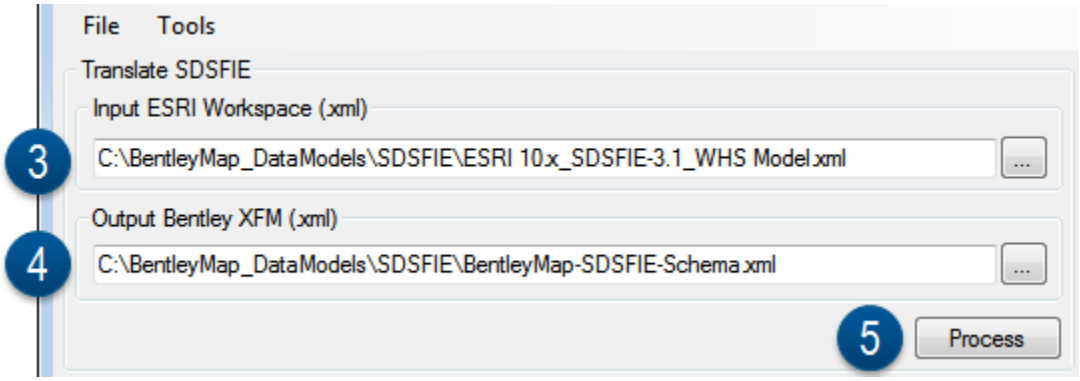
User Interface



User Workflow

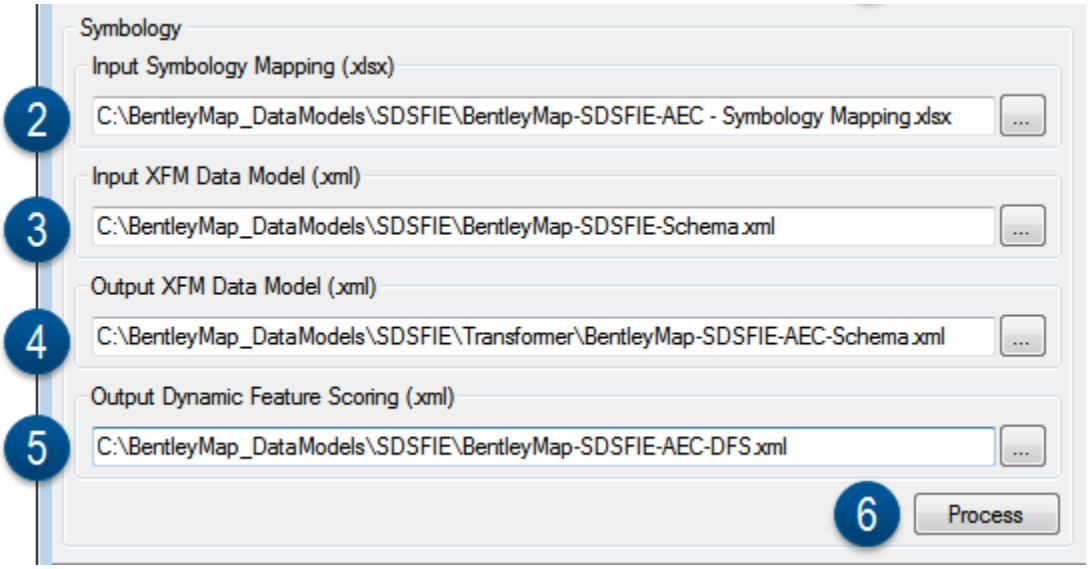
Create Bentley Map XML from ESRI Geodatabase XML 10.x or 9.3

1. Download either the ESRI XML 10.x or ESRI XML Wrksp 9.3 from http://www.sdsfieonline.org/
2. Run the program: Symbology Integrator.exe
3. In the first dialog box enter the location / name of the ESRI XML file that was downloaded from the SDSFIE website
4. In the second dialog box enter the location / of the desired Bentley Map XML output file
5. Click Process



Apply A/E/C Cad Symbology to the Bentley Map Schema

1. Ensure the program is running: Symbology Integrator.exe
2. In the third dialog box enter the location / name of the symbology mapping spreadsheet
3. In the forth dialog box enter the location / name of the output file created in the above process
4. In the fifth dialog box enter the location / name of the desired Bentley Map XML output file
5. In the sixth dialog box enter the location / name of the desired Bentley Map Dynamic Feature Scoring File (DFS)
6. Click Process



Working with the Geospatial Administrator

1. Open the Geospatial Administrator
    a. From the Start Menu → Bentley → Bentley Map → Bentley Geospatial Administrator
2. Open the final Bentley Map XML Schema file created during the process above
3. From the left menu – root node: Geospatial Project:
    a. Select your workspace root directory & SDSFIE Geospatial Project files
    (The root of where you want to keep your Bentley Map XML Schema Files)
    Note: The geospatial project concept does not relate the MicroStation concept of a project configuration | instead it specifies where the "All Users" files are to be written.
4. From the left menu – All Users → Categories, add logical working categories you would like to sub-divide your features into
    a. Real Property | Utilities | Civil Works | etc
5. From the left menu - All Users → Features : Place the features into the proper category
6. From the All Users → User Interface → Right Click on "Command Manager"
    a. Select "Add Command Manager List"
    Note: Do not check "Include Method Name in Labels"
    b. It is best practice to afterwards manually update your categories, placing "all" Promote functions into one "Promote" category. This will simplify the user interface
7. From the left menu: User Workspaces → Workspace (User)
    a. Update the path to where your Geospatial User files will be stored:
        i. (Utilize the root path's established in step 3 above)
        (This establishes the base folder for: borders, dgnlibs, linestyles, symbols)
    Note: to utilize an existing A/E/C Cad environment, in the Macro Section under User Workspaces → Workspace (User) add the proper configuration variables that point to the location of your cell / dgnlib / and linestyle files or point to existing *.cfg files
    b. Point to the Dynamic Feature Scoring (DFS) File (which is used to allow Bentley Map to auto-recognize AEC Cad objects on certain levels as Map Features
        i. User Workspaces → Workspace (User) → Macros
        ii. Add the following:
            1. Name: MS_GEOXFM_DYNAMICFEATURESCORING_FILES
            2. Operator: >
            3. Value: FILEPATH
                a. Example: C:\BentleyMap_DataModels\ SDSFIE-AEC-DFS.xml
            4. Comment: SDSFIE AEC Mapping file
    Note: For more information on DFS Files search the Geospatial Administrator Help
8. Save your Geospatial Project
9. Click the large Export Button
10. Close the Geospatial Administrator
11. If you are not utilizing an existing A/E/C Cad Environment, please visit the USACE CAD / BIM Center (https://cadbim.usace.army.mil/) and download the latest tri-services cell libraries, dgnlib's, etc

a. Move the A/E/C Cad support files into the corresponding location within the newly created folders:

    border [create a new border folder]
    dgnlibs [dgnlib]
    linestyles [symb]
    symbols [cell]

12. Ensure Bentley Map can find the User file that was created during the Export Process (*.ucf)
13. Open Bentley Map and point to the SDSFIE User file
14. Open a DGN file and begin working

Mapping Spreadsheet Fields

Symbology mapping is defined in a mapping Excel worksheet. The worksheet name defaults to '*Mapping'* but can be configured to another valid name in the application settings. Header rows 1 and 2 can be modified, and additional rows inserted freely. The only header requirements are that *'Feature Name'* (configurable) appears in the first column of the field header row, and field names follow the naming conventions outlined.

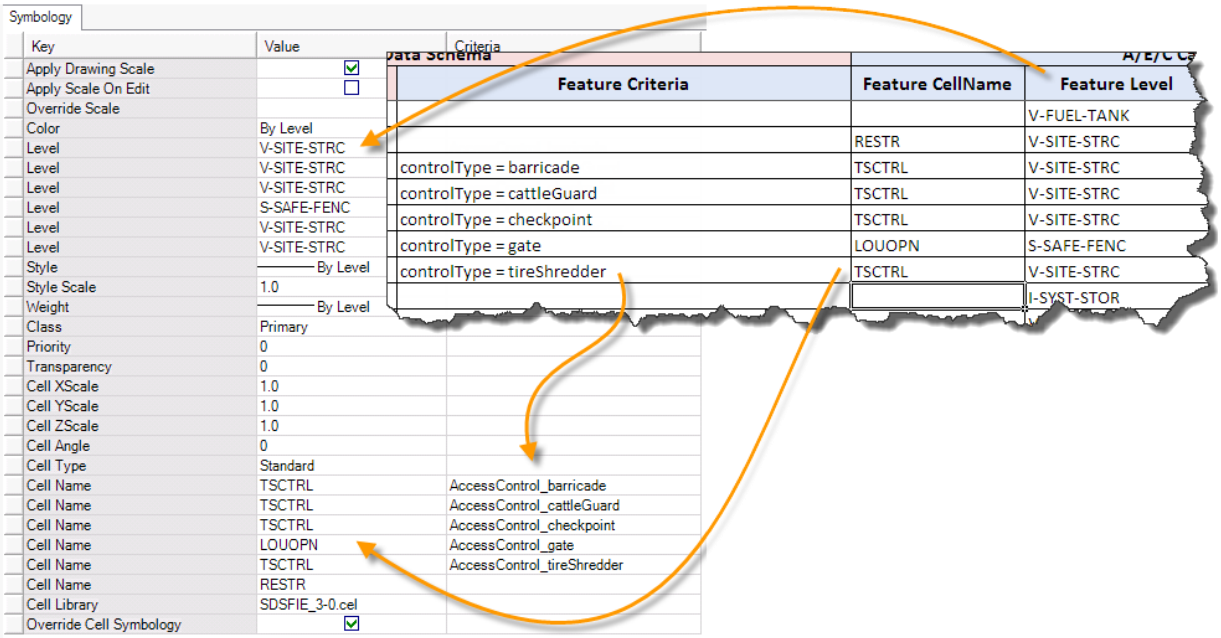
Below are the required fields for a typical SDSFIE implementation. Note that main feature and text sub-feature fields are in the format:

Feature {feature property name} Text {feature property name}

Field	Description
Feature Name	Name of the XFM feature for the current mapping row.
Feature Type	Type of the XFM feature for the current mapping row. Accepted values are: linestring/curve point-cell polygon
Feature Criteria	Feature property, value pairs that will use the symbology on the current mapping row.
Feature CellName	Cell name to use for the current criteria.
Feature Level	Level name to use for the current criteria.
Text PBA	Feature property that the text sub-feature value will map to. This value uses the following format: [featurepropertyname]
Text Level	Level name to use for the current criteria's text sub-feature.

Additional feature symbology values can also be mapped by adding one or more of fields following the field naming conventions. Below are some examples.

- Feature Weight
- Feature Transparency
- Text Weight
- Text Color



Symbology

Key	Value	Criteria
Apply Drawing Scale	☑	
Apply Scale On Edit	☐	
Override Scale		
Color	By Level	
Level	V-SITE-STRC	
Level	V-SITE-STRC	
Level	V-SITE-STRC	
Level	S-SAFE-FENC	
Level	V-SITE-STRC	
Level	V-SITE-STRC	
Style	By Level	
Style Scale	1.0	
Weight	By Level	
Class	Primary	
Priority	0	
Transparency	0	
Cell XScale	1.0	
Cell YScale	1.0	
Cell ZScale	1.0	
Cell Angle	0	
Cell Type	Standard	
Cell Name	TSCTRL	AccessControl_barricade
Cell Name	TSCTRL	AccessControl_cattleGuard
Cell Name	TSCTRL	AccessControl_checkpoint
Cell Name	LOUOPN	AccessControl_gate
Cell Name	TSCTRL	AccessControl_tireShredder
Cell Name	RESTR	
Cell Library	SDSFIE_3-0.cel	
Override Cell Symbology	☑	

Feature Criteria	Feature CellName	Feature Level
		V-FUEL-TANK
	RESTR	V-SITE-STRC
controlType = barricade	TSCTRL	V-SITE-STRC
controlType = cattleGuard	TSCTRL	V-SITE-STRC
controlType = checkpoint	TSCTRL	V-SITE-STRC
controlType = gate	LOUOPN	S-SAFE-FENC
controlType = tireShredder	TSCTRL	V-SITE-STRC
		I-SYST-STOR

Application & Mapping Configuration Settings

Application and mapping settings are stored in *Settings.xml* in the application directory. Settings can be modified either directly in this file or through the settings dialog within the application from Tools->Settings… on the main menu. If the settings file is inadvertently deleted the application will replace it with a default copy on startup.

Below is a brief description of each of the settings within the XML file.

Element	Description
<LastImportFile>	Last ESRI Workspace file loaded. This is set each time the application is run.
<LastExportFile>	Last output Bentley file loaded. This is set each time the application is run.
<LastMappingFile>	Last Excel mapping file loaded. This is set each time the application is run.
<LastInputXfmFile>	Last Input XFM file loaded. This is set each time the application is run.
<LastOutputXfmFile>	Last Output XFM file created. This is set each time the application is run.
<LastDynamicFeatureScoringFile>	Last Dynamic feature scoring file created. This is set each time the application is run.
<ConfirmExit>	Ask user to confirm exit. Valid values: true | false
<WorksheetName>	Excel mapping file worksheet name
<BaseField>	Content of first header cell in the row above mapping rows. Must be in column 'A'
<RequiredFields>	Contains a list of required fields (column headers) in the mapping worksheet. List of <Field> elements
<Field>	Required field entry. Child element of <RequiredFields>
<FeatureSymbologyPrefix>	Prefix used for feature symbology key column headers in the Excel mapping file. Using the default value of "Feature " the header for key "Level" becomes "Feature Level"
<TextSymbologyPrefix>	Prefix used for text symbology key column headers in the Excel mapping file. Using the default value of "Text " the header for key "Level" becomes "Text Level"
<UseDefaultSymbology>	Allows unmapped symbology values to be overridden. If set to true, symbology values defined in <DefaultCellSymbology> are applied to unmapped symbology keys; otherwise the existing XFM symbology values are used.
<DefaultCellSymbology>	Contains a list of default cell feature symbology values. List of <Field> elements <Symbology key , value/> elements
<DefaultLinestringSymbology>	Contains a list of default linestring feature symbology values. List of <Field> elements <Symbology key , value/> elements
<DefaultPolygonSymbology>	Contains a list of default polygon feature symbology values. List of <Field> elements <Symbology key , value/> elements
<DefaultTextSymbology>	Contains a list of default text feature symbology values. List of <Field> elements <Symbology key , value/> elements
<Symbology key , value/>	Symbology entry. The key attribute contain a symbology key, and the value attribute contains the corresponding symbology value. Child element of <DefaultCellSymbology>, <DefaultLinestringSymbology>, <DefaultPolygonSymbology>,<DefaultTextSymbology>