

SDSFIE/FMSFIE Data Creator

Overview

The SDSFIE/FMSFIE Data Creator is a stand-alone application designed to facilitate the entry/modification of data into a SDSFIE/FMSFIE compliant Microsoft Access© Database. It is intended to perform optimally on database constructed using the SDSFIE/FMSFIE Access Builder or the SDSFIE/FMSFIE Geomedia Builder. It does not require a connection to a SDSFIE/FMSFIE Library, but rather directly reads the structure of the database.

The Data Creator is structured to define and populate the tables and attributes in Access, but additionally uses the List Domains and displays the Relationships associated with the selected table. All of the functionality required for the Data Creator is based on the contents of the SDSFIE/FMSFIE compliant database itself.

The Data Creator performs best when the SDSFIE/FMSFIE Special Access Properties are properly configured. See Access Specification for information on these properties.

Operation of the Data Creator is intended to be as user friendly as possible. There is only a single menu for the Data Creator (See [Menu Operations](#)) and [Screen Layout](#) on the appearance of the screen.

NOTE: This application is in the early stages of Beta development. New features and capabilities will continue to be added as requirements arise. Please be patient with its progress. Its distribution at this point is a result of a desire to provide minimal capability at the earliest opportunity.

Getting Started

Step 1 – Open an Access Database

Menu Item Database → Open

Select the mdb Access Database you wish to manipulate. It is important that the database contains the special Microsoft Access Properties provided by the SDSFIE/FMSFIE Access Builder.

Step 2 – Select a database Table

Automatically on Open (or Menu Item Table → Select)

Select a database table for data entry/modification. Either double click on the table or select the table with a single click and click [Ok]. See [Selecting Database Tables](#)

Step 3 – Select a Field for Entry/Modification (if the table has records)

Click on the desired Attribute Name. This will configure the Data Section and commence data modification.

OR

Step 3 – Create a New Data Record

Menu Item Record → New

Enter the required Primary Key and hit [Enter/Return]. Select additional fields as required for entry/modification.

Step 4 – Save Records

[Save] Button at the bottom of the Attribute Section

Once data has been modified, the “Save” Button will automatically become visible. Clicking Save will save the record and permit additional actions.

NOTE: Successfully saving records requires that all conditions of the database be met. This would include a unique value in the Primary Key and any other conditions which exist in the table definition inside of Access.

Special Functions

One of the special functions currently incorporated into the Data Creator is the ability to globally set an attribute values. This function will continue to be expanded to provide additional flexibility. The present capability included:

For an Attribute:

Right click on the Attribute Name -

The value assigned in the data entry box for that attribute will be placed in every record in the table. Thus, if MYNAME is in a record attribute and that value is to be placed in every record, simply right click on the Attribute Name. A small dialog will confirm the desire to place MYNAME in every record.

Data Creator Screen Layout

The main screen of the Data Creator is divided vertically into three areas.

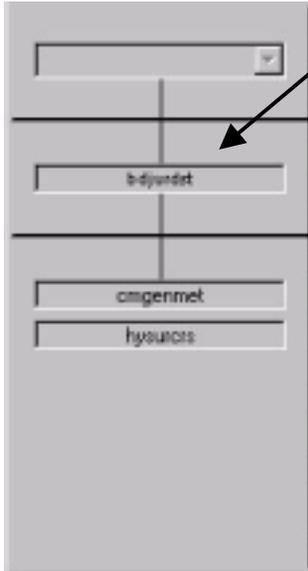
Tables/Relationships Section - The left third (approximately) of the screen displays information on the selected table, its parent tables, and related child tables.

Attributes Section - The center third of the screen displays information on the fields (attributes) included in the table. It contains both the field/attribute names and a small data box where data can be viewed and entered.

Data Section - The right third of the screen displays a variety of boxes, lists, and data entry elements based on the data type of the attribute.

All areas of the screen can be "scaled" by changing the overall size of the Master Screen. The size of the Master Screen impacts the number of related tables which will be displayed and the number of attributes/fields which will be shown.

Tables/Relationships Section



The Tables/Relationships Section of the screen appears as shown:

This section of the screen displays the currently selected table (middle) and all related tables (parent and child) at the bottom and top of the screen respectively. Clicking on any table will automatically select that table for viewing and editing.

If the database has been properly configured with the special Access properties (See [Access Specification](#)), holding the cursor over a table name will display the SDSFIE/FMSFIE Common Name as a tip.

The number of related tables displayed will be a function of the size of the Master Screen.

Attribute Section

The Attributes Section of the screen appears as shown:

This section of the Master Screen displays the names of the Attributes within the selected table and, if a record has been selected, a portion of the data within that record. If the list of attributes is longer than can be shown in the Master Screen, a scroll bar will be displayed to permit scrolling through the list of attributes.

If the database has been properly configured with the special Access properties (See [Access Specification](#)), holding the cursor over the name of the attribute will display the SDSFIE/FMSFIE Common Name as a tip.

Selecting an attribute is accomplished either by clicking on the Attribute Name or by clicking in the data box to the right of the name. If no data box is displayed, there are no records in the table.

At the top of the Attribute Section is a display box which shows the record number of the currently selected record as well as a count of the total records in the table.

Record 1 of 38	
mmlink	100260
<i>distct_id</i>	100260
mapid	100116
meta_id	100013
media_id	
coord_id	
dis_typ_d	LEVEE
dist_name	
dist_num	
dist_desc	
populate	17
num_voters	
census_cod	
area_size	

At the bottom of the Attribute Section, two navigation buttons are displayed which permit navigation through the records. If any data within the record has been changed, these are replaced with a single "Save" Button.

Data Section

The Data Section of the Master Screen displays a mechanism to enter/alter data in the selected field. The exact appearance of the Data Section is a function of the data type and the function of the attribute. The specific data type/function categories include:

[Primary Key](#) – the display includes a list of those primary keys that have already been used in the selected table.

[Foreign Key](#) – the display includes a list of the primary keys in the related table that may be selected

[General Text](#) – the display includes a data entry box for the text. The length of the field is indicated toward the bottom of the display and the number of characters which may be entered into the field is limited

[General Number](#) – the display includes a data entry box for the number. The length and precision of the number is displayed below the box

[Pick List \(Domain\)](#) – the display includes a list of the permissible values for entry

[Date](#) – the display includes a calendar which can be used to enter the date simply by clicking on the calendar. Dates are formatted to the SDSFIE/FMSFIE Date Format (YYYYMMDD)

[Time](#) – the display includes a clock and boxes for Hours, Minutes, and Seconds. Times are formatted to the SDSFIE/FMSFIE Time Format (HHMMSS)

At the bottom of all displays is a box that contains the definition of the attribute from the SDSFIE/FMSFIE provided that property has been populated in the Access Database. This definition is visible inside of Access in the Table Design dialog.

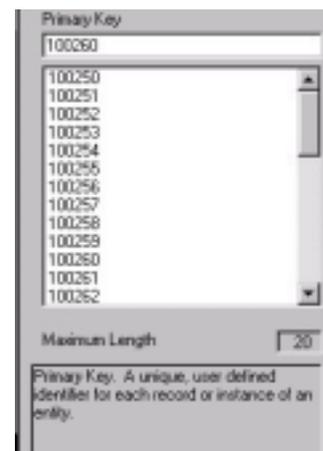
Primary Keys

The Primary Key display has a data entry box at the top and a list box which contains all of the keys which have already been used in the table. Since Primary Keys must be unique, this list is included as **those keys which are not permissible**.

The maximum permissible length of the key is displayed as in the definition of the attribute from the SDSFIE/FMSFIE.

When a key has been entered, hitting <Enter/Return> will test the key.

NOTE: If a Primary Key is defined for a table, a value must be



Primary Key

100260

100250
100251
100252
100253
100254
100255
100256
100257
100258
100259
100260
100261
100262

Maximum Length 20

Primary Key: A unique, user defined identifier for each record or instance of an entity.

included in this attribute in order for the record to be saved. Therefore, when creating a new record, this attribute is the first to be activated.

Foreign Keys

The Foreign Key display has a data entry box at the top and a list box which contains all of the primary keys which have already been defined in the table to which the Foreign Key joins. If referential integrity has been enforced, the attribute may only contain a valid Primary Key from the related table. Therefore, simply select a value from the List Box as **the only permissible values**.

When a key has been entered, hitting <Enter/Return> will test the key.

The definition is displayed at the bottom of the section, normally indicating the nature of the relationship for the Foreign Key.

NOTE: If no Keys are listed in the List Box, no Foreign Key should be entered. In this case, the record in the related table should be constructed and saved first and this field populated, with the value showing in the list box.



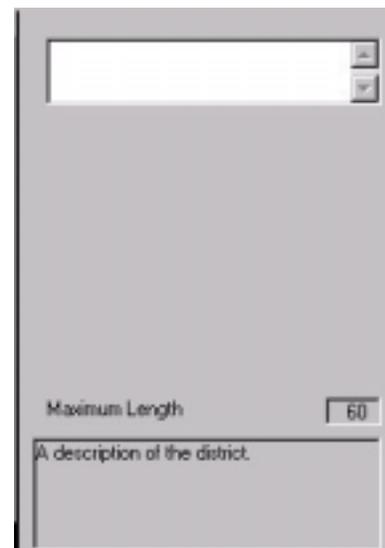
General Text

The General Text Display contains a single data entry box which is sized to contain the number of characters which may be stored in the attribute. Simply type the desired text into the data entry box. The length of the entry will be limited to the number of characters which may be stored, which is also displayed near the bottom of the section.

The definition of the attribute is displayed at the bottom of the section.

Fields defined as Access Memo Fields may also be entered using this display. In this case, the Maximum Length will be shown as "Unlim". There is then no practical limit on the number of characters which may be entered into the data entry box.

In addition to data entry, this display will show the contents of any displayed attribute. A default scroll bar is present on the data entry box to ensure that all portion of the data may be viewed.



General Number

The General Number Display contains a single data entry box to enter the number. Simply type the desired number into the box. The contents of the box will be tested with every keystroke to ensure that the entry is numeric. If the contents of the box are not numeric or exceed the capabilities of the stored field, a small dialog will alert the user of the problem.

The definition is displayed at the bottom of the section.

Pick List (Domain)

The Pick List (Domain) Display shows a data entry box and a list box which contains all of the

values in the SDSFIE/FMSFIE domain, provided it has been included using the Access Builder.

Entries may be made in the data entry box either by typing a value in the box or clicking on the value from the list. While the entry in the data entry box **should match** one of the values in the list, this is not specifically prohibited, providing some additional flexibility in the data entry.

Again, the definition is displayed at the bottom of the section.

NOTE: The content of the list box is derived from the contents of the domain specified in the Access Database. These “tables” are stored as hidden, system objects and may be viewed using the Options menu in Microsoft Access.

If the contents of the domain table in the Access database is modified, the contents of the list box will be similarly modified.

Date

The Date Display shows a calendar which can be used to select a date. The calendar contains a year and a month selection box to permit nearly unlimited date entry. Once selected, the date will be formatted into the SDSFIE/FMSFIE format (YYYYMMDD).

In addition, the date may be directly entered into the data entry box at the top of the section.

If a date has already been entered for the attribute and it is a



Sun	Mon	Tue	Wed	Thu	Fri	Sat
24	25	26	27	28	29	30
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4

valid SDSFIE/FMSFIE date, the calendar will actually display the year, the month, and the date in the calendar and the formatted date will appear in the data entry box.

The definition will be displayed at the bottom of the section.

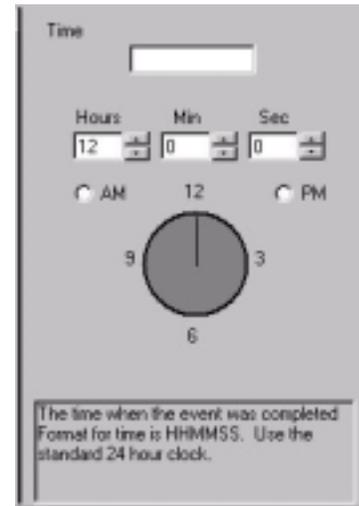
NOTE: If no date has been entered for an attribute, when the calendar is displayed, it will default to the current date; e.g. today.

Time

The Time Display shows a clock and several toggle entry boxes for Hours, Minutes, and Seconds. Since the default clock for the SDSFIE/FMSFIE is the 24 Hour clock, these toggle to 24, 60, and 60 respectively. Once the time has been entered, the clock will display the applicable time.

The definition is displayed at the bottom of the section.

NOTE: If no time has been specified for an attribute, when the clock is displayed, it will default to noon. 12:00



Master Menu

The Data Creator contains only a single menu. Various portions of the menu will change depending on whether or not a table has been selected and whether or not that table has records in it. The Menu Structure is:

Database

- **Open ---** This menu item displays a routine Windows File Open dialog which can be used to select the path and file name of the desired Microsoft Access Database (mdb). This menu item is always active.
- **Close ---** This menu item closes the current active Microsoft Access Database. This menu item is only active if a database is currently open.
- **Exit ---** This menu item terminates the Data Creator. This menu item is always active.

Table

- **Select ---** This menu item displays the table selection dialog. It is another technique to change the currently active table. This menu item is only active if a database is currently open. See [Selecting Database Tables](#).

Record

- **Find** --- This menu item displays a list of Primary Keys for the currently selected table, from which a specific record may be selected. This menu item is only active when a database is open, a table is selected, and that table has records.

- **New** --- This menu item creates an empty record, clears all data entry boxes, and displays the Primary Key Section. The empty record is not automatically saved, but must be saved using the “Save” button. This menu item is only active when a database is open and a table is selected.

- **First** --- This menu item jumps to the first record in the table based on the sequence of the Primary Key. This menu item is only active when a database is open, a table is selected, and that table has records.

- **Next** --- This menu item jumps to the next record in the table based on the sequence of the Primary Key. This menu item is only active when a database is open, a table is selected, and that table has records. The menu item is active at the last record, although its selection has no effect.

- **Previous** --- This menu item jumps to the previous record in the table based on the sequence of the Primary Key. This menu item is only active when a database is open, a table is selected, and that table has records. The menu item is active at the first record, although its selection has no effect.

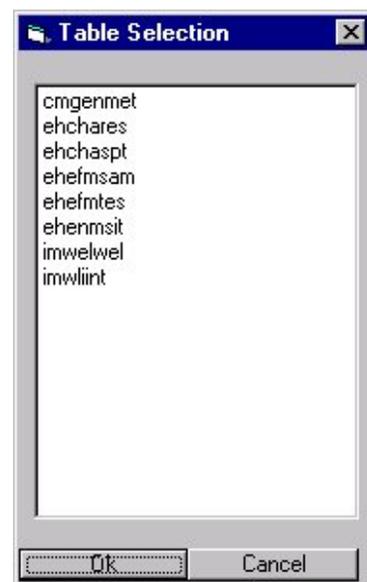
- **Last** --- This menu item jumps to the last record in the table based on the sequence of the Primary Key. This menu item is only active when a database is open, a table is selected, and that table has records.

- **Delete** --- This menu item deletes the currently selected record from the table. A small dialog will require confirmation of the record deletion. Care should be taken in deleting records. Only active when a database is open, a table is selected, and that table has records.

Selecting a Database Table

Once a database has been opened, the user will be prompted to select a database table. This process can be done from the Tables/Relationships Section or by selecting menu item Table → Select. A dialog will be presented with a list of the tables included in the database. Either double click on a table or single click (select) and then click the [Ok] Button. If the [Cancel] Button is clicked, the previously selected table will remain. In the case of a newly opened database, clicking [Cancel] will close the database and terminate the Data Creator.

NOTE: No domain tables will be included in the list, even though they exist within the database. There is no provision in the current Data Creator to modify the contents of the List Domain (d_) tables.



SDSFIE/FMSFIE Access Specification

Since a variety of desktop GIS applications (and some more robust GIS applications) use Microsoft Access™, an Access Specification has been written for the implementation of the SDSFIE/FMSFIE. In addition to providing fundamental Access capability, this specification defines suggested ways to configure Microsoft Access (Version 97 and above) to:

- 1: Fully implement the capabilities of the SDSFIE/FMSFIE within Access for a variety of GIS.
- 2: Integrate Access into current and future tools for the SDSFIE/FMSFIE Tool Box.
- 3: Provide greater capability for users to interface with the SDSFIE/FMSFIE within the normal Access environment, including expanded Data Dictionary capability.

For Generic Access Functionality, the implementation specification is:

For Feature Data Table Objects *TABLEDEF*

Property	SDSFIE/FMSFIE Element	Description
<i>NAME</i>	TABLE-TABLE NAME	This is the normal configuration, where the Access Table Name directly corresponds to the SDSFIE/FMSFIE Table Name.
<i>SDSNAME</i>	TABLE-TABLE NAME	The normal SDSFIE/FMSFIE Table Name applied for consistency. It is the existence of this property that defines the database as being SDSFIE/FMSFIE Generated/Capable. It is always included during any of the SDSFIE/FMSFIE generations since various GIS applications require a separate and/or different name for the actual Table Name. This property is not normally visible in Access, but can be viewed/printed using the "Database Documenter".
<i>DESCRIPTION</i>	TABLE-COMMON NAME	The normal SDSFIE/FMSFIE Table Common Name used to provide additional expanded information regarding the data table in the Database. This property is visible in Access by selecting the Table and viewing "Properties".
<i>RELEASE</i>	VERSION-RELEASE	Indicates the SDSFIE/FMSFIE Release Number the last time the structure of the table was verified/validated against the

SDSFIE/FMSFIE Standard or the Release. This property is easily read to determine the extent of compliance with a particular version of the SDSFIE/FMSFIE. This property is not normally visible in Access, but can be viewed/printed using the "Database Documenter."

ITALICS indicates a standard Microsoft Access Property for TABLEDEFs.

For Domain Table Objects *TABLEDEF*

Property	SDSFIE/FMSFIE Element	Description
<i>NAME</i>	DOMAIN - TABLE NAME	Corresponds to the SDSFIE/FMSFIE Domain Table Name (begins with "d_")
<i>RELEASE</i>	VERSION-RELEASE	Indicates the SDSFIE/FMSFIE Release Number the last time the contents of the table was verified/validated against the SDSFIE/FMSFIE Standard or the Release. This property is easily read to determine the extent of compliance with a particular version of the SDSFIE/FMSFIE. This property is not normally visible in Access, but can be viewed/printed using the "Database Documenter".

For Feature Attribute Objects *FIELD*

Property	SDSFIE/FMSFIE Element	Description
<i>NAME</i>	ATTRIBUTE - ATTRIBUTE NAME	Corresponds to the normal or "short" name of the SDSFIE/FMSFIE attribute.
<i>LONGNAME</i>	ATTRIBUTE - COMMON NAME	The long or common SDSFIE/FMSFIE Attribute Name applied for additional information. It is included or not included based on the configuration options in the Add Candidates to Geomedia specification. This property is not normally visible in Access, but can

be viewed/printed using the "Database Documenter".

DESCRIPTION	ATTRIBUTE - DEFINITION	The normal SDSFIE/FMSFIE Attribute Definition. Within Geomedia, this definition may be included both in the field properties as well as within the Geomedia metadata table for ATTRIBUTEPROPERTIES. This property is visible in Access by selecting the Table and viewing "Design".
INTTYPE	ATTRIBUTE - CHAR LENGTH	Indicates the SDSFIE/FMSFIE Integer Type for the Attribute or Field. Since the SDSFIE/FMSFIE uses integers for not only integer fields but for Dates and Times as well, this field indicates whether the field is for a date (Inttype = "Date"), a time (IntType = "Time"), or a nonspecific integer (IntType = ""). This property is not normally visible in Access, but can be viewed/printed using the "Database Documenter".
DOMAIN	ATTRIBUTE - DOMAIN TABLE	Indicates the SDSFIE/FMSFIE Domain Table Name for the Attribute or Field, if one is specified in the SDSFIE/FMSFIE. This equates to the Name Property for Domain Tables. This property is not normally visible in Access, but can be viewed/printed using the "Database Documenter"

