

USING PYTHON TO MANAGE ENTERPRISE GEODATABASE VIEWS

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GOALS

- Define enterprise geodatabase views
- Describe creation and use of enterprise geodatabase views
- Describe use of Python for enterprise geodatabase view management

DATABASE VIEW - DEFINED

From Microsoft SQL Server 2008 R2 Help:

“Views are generally used to **focus, simplify**, and customize the **perception** each user has of the database. Views can be used as **security** mechanisms by letting users access data through the view, without granting the users permissions to directly access the underlying base tables of the view. Views can be used to provide a backward compatible interface to emulate a table that used to exist but whose schema has changed. Views can also be used when you copy data to and from Microsoft SQL Server to improve performance and to partition data.”

STRUCTURED QUERY LANGUAGE (SQL)

American National Standards Institute (ANSI)

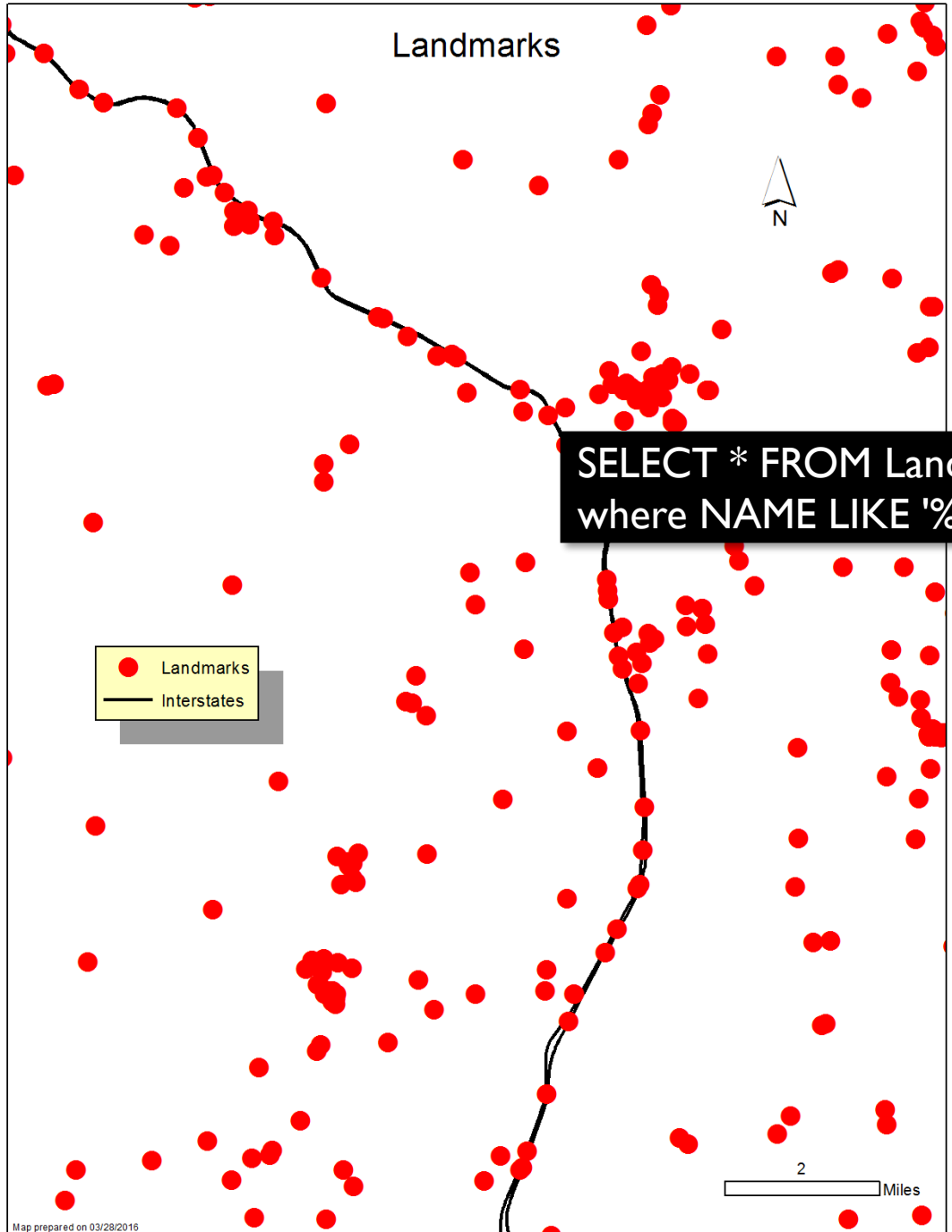
```
SELECT * FROM Customers  
where ZIP_CODE = '90210'
```

```
SELECT * FROM OurEGDB.ZoneAdmin.Zoning  
where CLASS NOT IN ( 'A2', 'A3', 'OI', 'R' )
```

```
SELECT * FROM ROADS  
where SPEEDLMT BETWEEN 35 AND 54
```

```
SELECT * FROM COUNTIES  
where UPPER(NAME) = 'WASHINGTON'
```

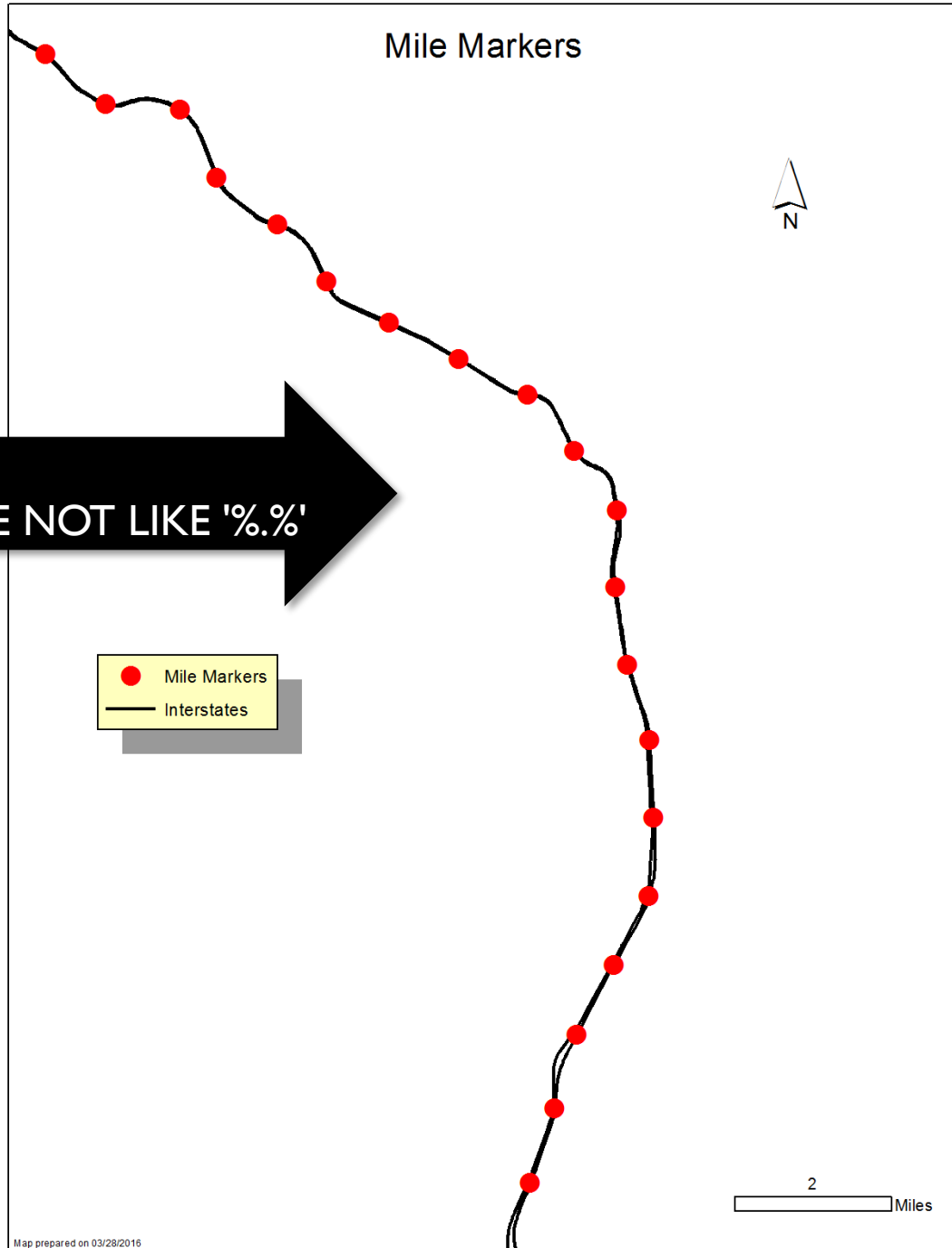
Landmarks



SQL

```
SELECT * FROM Landmarks  
where NAME LIKE '%MM %' AND NAME NOT LIKE '%.%'
```

Mile Markers



● Landmarks
— Interstates

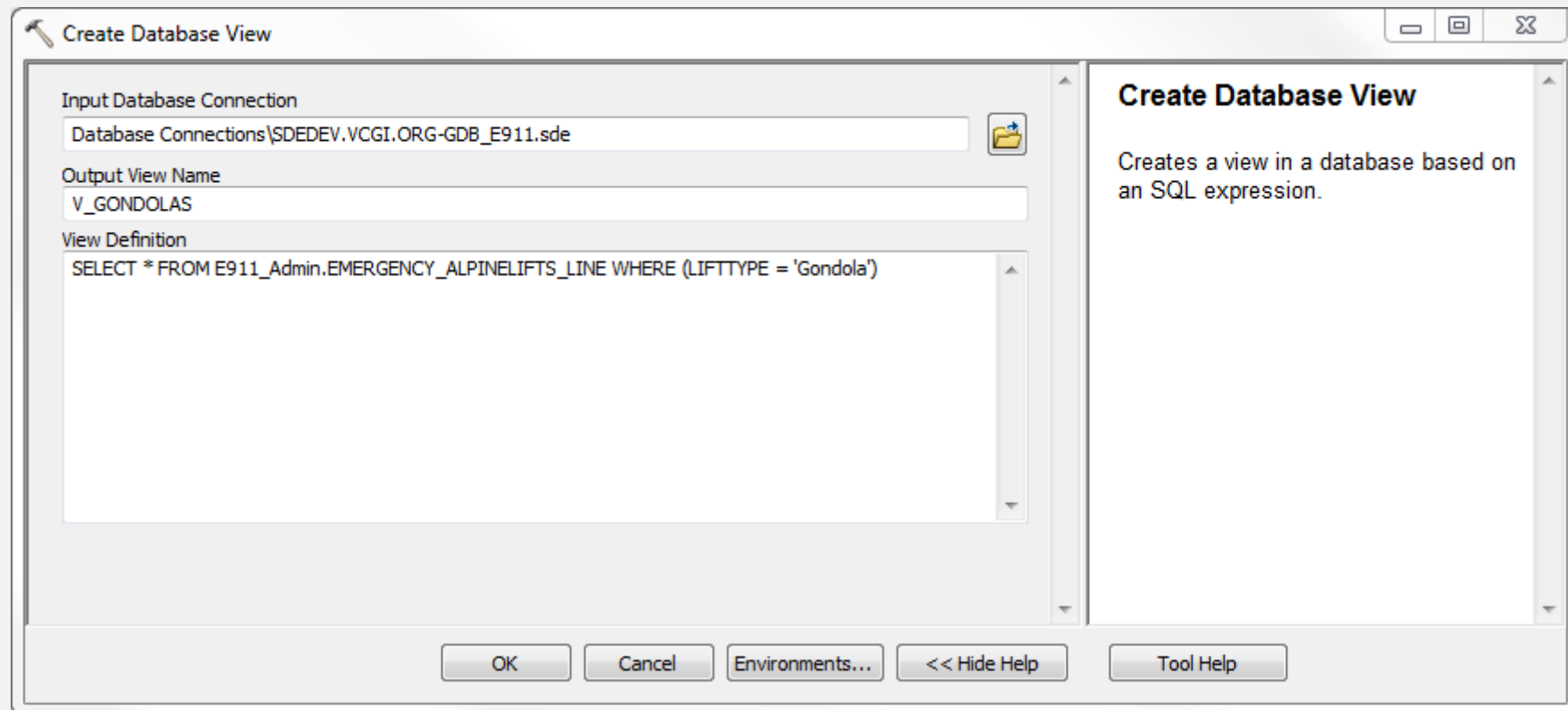
● Mile Markers
— Interstates

SQL

```
SELECT      ESITE.OBJECTID, ESITE.SEGMENTID, ESITE.ESITEID,
            ESITE.PSITEID, ESITE.SITEADDRESSID,
            ESITE.GEONAMEID, ESITE.GEONAMEIDx, ESITE.PD,
            ESITE.PT, ESITE.SN, ESITE.ST,
            ESITE.SD, ESITE.PRIMARYNAME, ESITE.ALINAME,
            ESITE.ALIAS1, ESITE.ALIAS2, ESITE.ALIAS3,
            ESITE.ALIAS4, ESITE.ALIAS5, ESITE.HOUSENUMBER,
            ESITE.CALCADDRESS, ESITE.GFADDRESS,
            ESITE.PRIMARYADDRESS, ESITE.ALIADDRESS,
            ESITE.SITETYPE, ESITE.COMMENTS, ESITE.LR,
            ESITE.ADDRLOCATION, ESITE.TOWNNAME, ESITE.MCODE,
            ESITE.ESN, ESITE.ZIP, ESITE.ZIPPLUS4,
            ESITE.RESTRICTTYPE, ESITE.MEASURE,
            ESITE.PARCELNUM, ESITE.C1_EXCEPTION, ESITE.GPSFLG,
            ESITE.GPSUPDT, ESITE.GPSX, ESITE.GPSY,
            ESITE.MAPYEAR, ESITE.UPDATESOURCE,
            ESITE.UPDATEDATE, ESITE.PICTUREID, ESITE.STATE,
            ESITE.FIPS8, ESITE.SPAN, ESITE.SUBTYPE,
            ESITE.GlobalID, ESITE.GlobalID_1, ESITE.UNITCOUNT,
            ESITE.PRIMARYADD1, ESITE.PRIMARYADD2,
            ESITE.SITETYPE_MULTI1, ESITE.SITETYPE_MULTI2,
            ESITE.SITETYPE_MULTI3, ESITE.SITETYPE_MULTI4,
            ESITE.SITETYPE_MULTI5, ESITE.COUNTY,
            ESITE.COUNTRY, ESITE.SOURCEOFDATA,
            ESITE.DRIVEWAYID, ESITE.ESZ, ESITE.HOUSE_NUMBER,
            ESITE.HOUSE_NUMBERSUFFIX, ESITE.HOUSE_NUMBERPREFIX,
            ESITE.Shape,
            BUILDING_TYPES.TYPEDESC
FROM        ESITE INNER JOIN
            BUILDING_TYPES ON ESITE.SITETYPE = BUILDING_TYPES.TYPEDESC
```

CREATING AN ENTERPRISE GEODATABASE VIEW

Create Database View (Data Management)

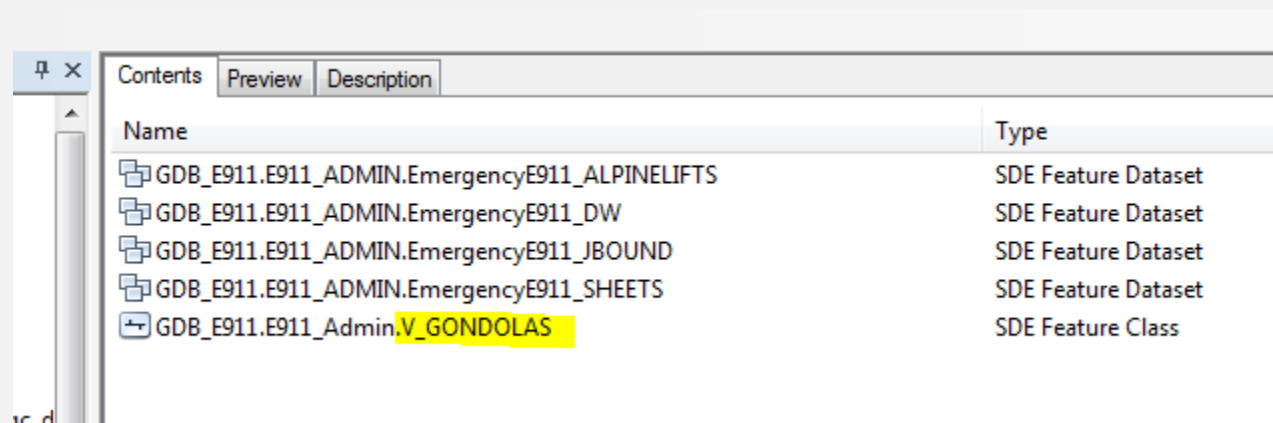


INCLUDE THE OBJECTID AND SHAPE COLUMNS IN THE VIEW. ArcMap WILL REQUEST POINTER TO A UNIQUE IDENTIFIER FIELD WHEN ADDING THE VIEW. THE SHAPE FIELD GIVES THE VIEW GEOMETRY.

CREATING AN ENTERPRISE GEODATABASE VIEW

```
arcpy.CreateDatabaseView_management( )
```


ENTERPRISE GEODATABASE VIEW



The screenshot shows a software interface window titled "Contents" with sub-tabs for "Preview" and "Description". The main area displays a table with two columns: "Name" and "Type". The table lists five items, with the last one, "GDB_E911.E911_Admin.V_GONDOLAS", highlighted in yellow. The first four items are "SDE Feature Dataset" types, and the last is an "SDE Feature Class".

Name	Type
GDB_E911.E911_ADMIN.EmergencyE911_ALPINELIFTS	SDE Feature Dataset
GDB_E911.E911_ADMIN.EmergencyE911_DW	SDE Feature Dataset
GDB_E911.E911_ADMIN.EmergencyE911_JBOUND	SDE Feature Dataset
GDB_E911.E911_ADMIN.EmergencyE911_SHEETS	SDE Feature Dataset
GDB_E911.E911_Admin.V_GONDOLAS	SDE Feature Class

USING AN ENTERPRISE GEODATABASE VIEW

ArcMap | Add Data

New Query Layer

Unique Identifier Field(s):

Name	Type	Nullable
<input checked="" type="checkbox"/> OBJECTID	Long Integer	No
<input type="checkbox"/> LIFTTYPE	Text	Yes
<input type="checkbox"/> LIFTNAME	Text	Yes
<input type="checkbox"/> UPDATESOURCE	Text	Yes
<input type="checkbox"/> UPDATEDATE	Date	Yes
<input type="checkbox"/> GlobalID	Guid	No

Spatial Properties

Coordinates include M values. Used to store route data.

Coordinates include Z values. Used to store 3D data.

Geometry Type:

Spatial Reference:

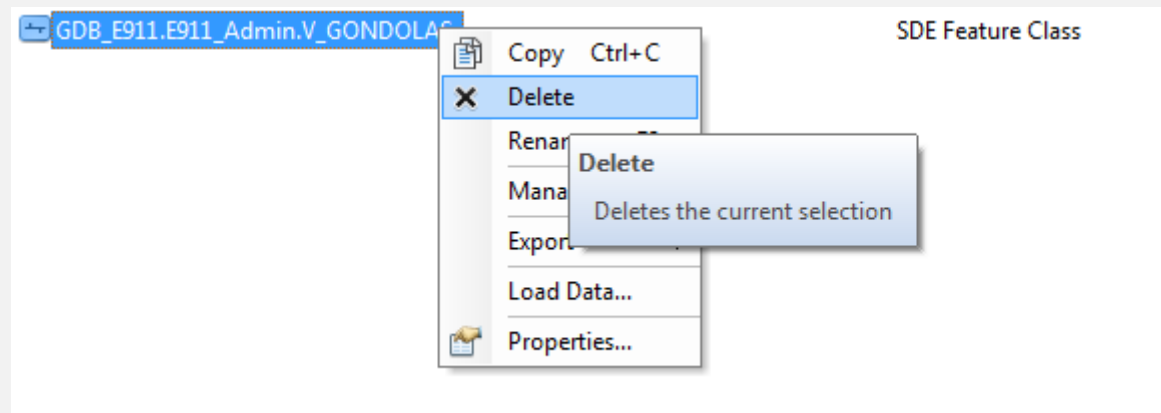
PROJCS
[
["NAD_1983_StatePlane_Vermont_FIPS_4400",GEOGC
S["GCS_North_American_1983",DATUM
["D_North_American_1983",SPHEROID
["GRS_1980",6378137.0,298.257222101]],PRIMEM
["Greenwich",0.0],UNIT
["Degree",0.0174532925199433]],PROJECTION

SRID:

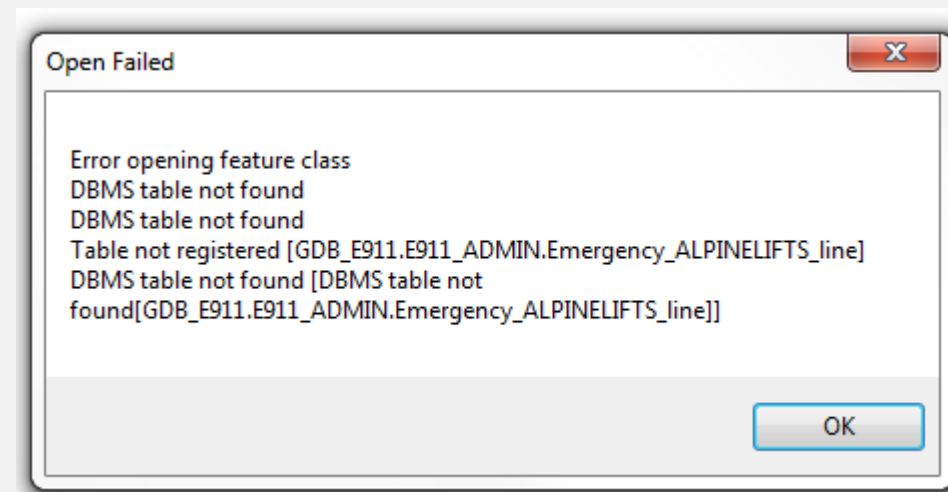
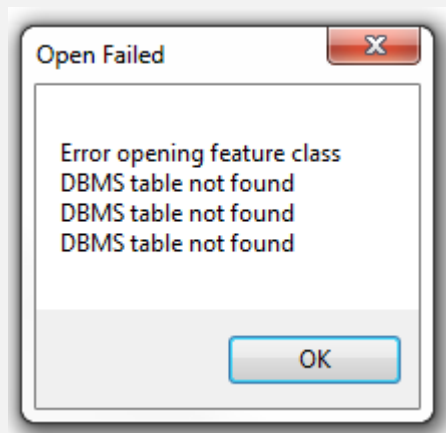
Finish Cancel



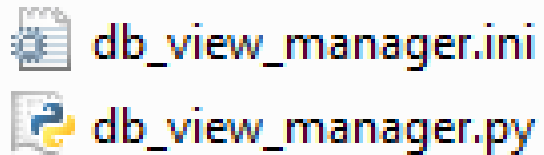
DELETING AN ENTERPRISE GEODATABASE VIEW



IMPACTS TO ENTERPRISE GEODATABASE VIEWS FROM SCHEMA CHANGES



PYTHON SCRIPT FOR ENTERPRISE GEODATABASE VIEW MANAGEMENT DB_VIEW_MANAGER.PY



```
db_view_manager.ini - Notepad
File Edit Format View Help
BEGIN
SDE_SERVER
GDB_BOUNDARIES
V_BURY
TOWNS WITH NAMES THAT INCLUDE "BURY"
SELECT JBOUNDID,TOWNNAME,SHAPE FROM GDB_BOUNDARIES.TOWNS WHERE TOWNNAME LIKE '%BURY%'
END

BEGIN
SDE_SERVER
GDB_DEMOGRAPHICS
V_WASHINGTON_CO_TOWNS
TOWNS IN WASHINGTON COUNTY
SELECT * FROM GDB_DEMOGRAPHICS$.TOWNS WHERE CNTY = 23
END
Ln 14, Col 31
```

```
Python 2.7.8: db_view_manager.py - H:\scripts\Python\stable\db_view_manager\db_view_manager.py
File Edit Format Run Options Windows Help
#PURPOSE
# A SCRIPT FOR MANAGING VIEWS IN ArcSDE GEODATABASES

#HISTORY
# DATE PROGRAMMER ORGANIZATION CHANGES MADE
# -----
# 12/29/2015 IVAN BROWN VCGI FIRST STABLE RELEASE, DEVELOPED
# W/ PYTHON 2.7.5 AND ArcGIS 10.2.2 .

#NOTES
#
# AN .ini FILE (db_view_manager.ini) ACCOMPANIES THIS SCRIPT IN THE SCRIPT'S FOLDER FOR
# STORING INFORMATION ON VIEWS THAT HAVE BEEN CREATED AND VIEWS THAT WILL BE CREATED. THIS
# .ini FILE IS YOUR ONE-STOP FOR OBTAINING INFORMATION ON ALL ArcSDE GEODATABASE VIEWS.
# THE db_view_manager.ini FILE REQUIRES THE FOLLOWING 7-LINE FORMAT FOR VIEWS THAT ALREADY
# EXIST IN THE ArcSDE GEODATABASES AND VIEWS THAT WILL BE CREATED BY THIS SCRIPT. THIS
# SCRIPT READS db_view_manager.ini AND PROMPTS THE USER FOR THE PARTICULAR VIEW TO BE
# CREATED (ONE VIEW IS CREATED AT A TIME).
#
# db_view_manager.ini 7-LINE FORMAT FOR EACH VIEW. THE INFORMATION MUST FOLLOW THIS
# SEQUENCE. EACH LINE MUST END WITH A HARD RETURN:
#
# BEGIN
# <INSTANCE NAME>
# <GEODATABASE NAME>
# <VIEW NAME (do not include schema prefix portion, such as GDB_VCGI.VCGI_ADMIN.)>
# <BRIEF DESCRIPTION>
# <SQL THAT DEFINES THE VIEW>
# END
#
# FOR EXAMPLE,
#
# BEGIN
# SDE.VCGI.ORG
# GDB_WEATHER
# V_ARCTIC
# WEATHER STATIONS REPORTING ZERO DEGREES F OR LESS
# SELECT * FROM STATIONS WHERE TEMP <= 0
# END
#
# BEGIN
# SDE.VCGI.ORG
# GDB_WEATHER
# V_TROPICAL
# WEATHER STATIONS REPORTING 75 DEGREES F OR WARMER
# SELECT * FROM STATIONS WHERE TEMP >= 75
# END
#
# BLANK LINES ARE NOT PERMITTED BETWEEN "BEGIN" AND "END" IN db_view_manager.ini.
Ln: 1 Col: 0
```

PYTHON SCRIPT FOR ENTERPRISE GEODATABASE VIEW MANAGEMENT

- db_view_manager.ini
 - Views that have been created
 - Views that will be created
 - 7-line format
 - Script reads .ini and prompts user for view to be created

```
BEGIN
<INSTANCE NAME>
<GEODATABASE NAME>
<VIEW NAME (do not include schema prefix portion, such as GDB_VCGI.VCGI_ADMIN.)>
<BRIEF DESCRIPTION>
<SQL THAT DEFINES THE VIEW>
END

FOR EXAMPLE,

BEGIN
SDE.VCGI.ORG
GDB_WEATHER
V_ARCTIC
WEATHER STATIONS REPORTING ZERO DEGREES F OR LESS
SELECT * FROM STATIONS WHERE TEMP <= 0
END
```

PYTHON SCRIPT FOR ENTERPRISE GEODATABASE VIEW MANAGEMENT

```
BEGIN
SDEDEV.VCGI.ORG
GDB_E911
V_GONDOLAS
TEST
SELECT * FROM E911_Admin.EMERGENCY_ALPINELIFTS_LINE WHERE (LIFTTYPE = 'Gondola')
END

BEGIN
SDEDEV.VCGI.ORG
GDB_VCGI
V_BURY
TOWNS WITH NAMES THAT INCLUDE "BURY"
SELECT * FROM GDB_VCGI.VCGI_Admin.Boundary_BNDHASH_region_towns WHERE TOWNNAME LIKE '%BURY%'
END
|
```

Python 2.7.8 Shell

File Edit Shell Debug Options Windows Help

Python 2.7.8 (default, Jun 30 2014, 16:08:48) [MSC v.1500 64 bit (AMD64)] on win32

Type "copyright", "credits" or "license()" for more information.

>>> ===== RESTART =====

>>>

SETTING MAJOR VARIABLES...

IMPORTING MODULES...

VERIFYING VALIDITY OF GIVEN .sde FILE...

VERIFYING EXISTENCE OF db_view_manager.ini IN SCRIPT'S FOLDER...

READING db_view_manager.ini ...

YOU ARE USING THE FOLLOWING ArcSDE GEODATABASE CONNECTION:

Database Connections\SDEDEV.VCGI.ORG-GDB_VCGI.sde

FIND THE VIEW TO BE CREATED IN THE FOLLOWING LIST. IDENTIFY

ITS GIVEN VIEW ID # AND ENTER THAT VIEW ID #.

VIEW ID # 0

INSTANCE: SDEDEV.VCGI.ORG

GEODATABASE: GDB_E911

VIEW NAME: V_GONDOLAS

DESCRIPTION: TEST

DEFINITION: SELECT * FROM E911_Admin.EMERGENCY_ALPINELIFTS_LINE WHERE (LIFTTYPE = 'Gondola')

VIEW ID # 1

INSTANCE: SDEDEV.VCGI.ORG

GEODATABASE: GDB_VCGI

VIEW NAME: V_BURY

DESCRIPTION: TOWNS WITH NAMES THAT INCLUDE "BURY"


DEFINITION: SELECT * FROM GDB_VCGI.VCGI_Admin.Boundary_BNDHASH_region_towns WHERE TOWNNAME LIKE '%BURY%'

ENTER ID # OF VIEW TO BE CREATED: |

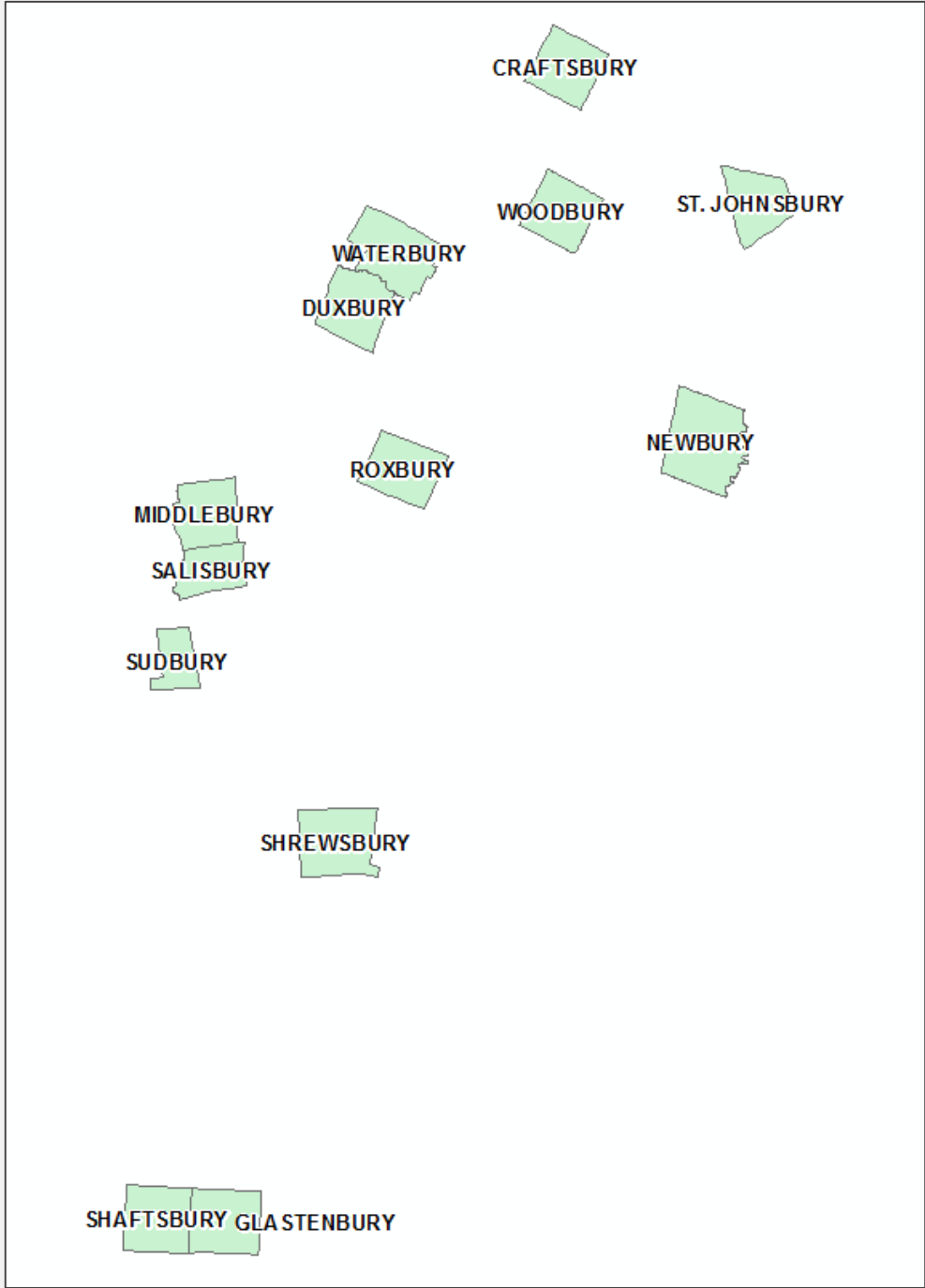
Ln: 5 Col: 0


```
ENTER ID # OF VIEW TO BE CREATED: 1
*****
PLEASE REVIEW THE REQUESTED OPERATION.
YOU ARE REQUESTING CREATION OF A VIEW NAMED V_BURY .
YOU ARE USING THE FOLLOWING ArcSDE GEODATABASE CONNECTION:
    Database Connections\SDEDEV.VCGI.ORG-GDB_VCGI.sde
THE VIEW'S SQL DEFINITION WILL BE:
    SELECT * FROM GDB_VCGI.VCGI_Admin.Boundary_BNDHASH_region_towns WHERE TOWNNAME LIKE '%BURY%'
DO YOU WANT TO PROCEED WITH CREATION OF THE VIEW? ENTER Y FOR YES OR N FOR NO:|
```

Ln: 38 Col: 79

 GDB_VCGI.VCGI_Admin.V_BURY

SDE Feature Class



QUESTIONS AND ANSWERS

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